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An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

The Future of Mobility

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INIT Innovations in Transportation, Inc.
424 Network Station
Chesapeake, Virginia 23320
Phone (757) 413-9100
Fax (757) 413-5019
http://www.initusa.com

rstaib@initusa.com
direct: (757) 615-8500

October 29, 2017

Attn. Ashley Bowman, Agency Agreements Analyst
Sound Transit Procurement and Contracts Division
401 S. Jackson Street
Seattle WA 98104-2826

RE: **RFP No. RTA/RP 0119-17**

Dear Ms. Bowman:

INIT is pleased to provide Sound Transit with our proposal to be the System Integrator for the next generation ORCA Program and to collaboratively develop, build, and test the best solution for the Region. We are excited about the prospect of working with the ORCA agencies to deliver your project on time and on budget. We are convinced that the agencies will be amazed at the functionality and flexibility of our best-in-class fare collection solutions and the capabilities of our company.

INIT was founded in 1983 with the goal of providing Intelligent Transportation Systems (ITS) to Public Transit Agencies. INIT Inc. (USA) was incorporated in the Commonwealth of Virginia in 1999 to serve the North American market. The INIT group of companies has never changed ownership. Many of our original employees are still working at INIT; giving us unmatched insight into the deployment of all types of transit oriented ITS projects.

INIT has deployed over 50 electronic fare collection systems to transit agencies around the world and every day millions of transit riders pay for their public transit rides using INIT supplied technology.

Lead by INIT's Pacific Northwest team, we recently delivered a state of the art, open payment, account based fare collection system to TriMet and its regional partners in Portland, Oregon. The regional HOP FastPass system was implemented on schedule and on budget and publically launched on July 17, 2017. Recently the HOP FastPass system recorded its one millionth smartcard tap. The system already supports open payments through smartphones and will be in the near future the first in the world to support virtual closed loop cards through Android [redacted]!

The system that INIT proposes to Sound Transit will accept agency issued smart cards as well as credit, debit and smartphone payments. All financial transactions will be processed – end to end - in less than ½ second. The technology is complex but to the end-user it will be simple and easy to use and appear to work like "magic".

> "Any sufficiently advanced technology is indistinguishable from magic." Noted Author and futurist Arthur C. Clarke

When fully delivered by 2021, this INIT integrated system will provide ORCA's customers with convenient, flexible, and secure fare payments and will allow for the introduction of new payment options as they become available. We will implement a service-proven, modular system, leveraging industry leading COTS applications. The design follows principles of open architecture which will permit the next generation ORCA system to evolve as technology changes. As an added bonus INIT included advanced value added features such as open payments and fare capping at no additional charge to Sound Transit.

INIT's system will be designed specifically to respond to the goals that were specified in your RFP. An experienced Project Team will deliver this most technically advanced and service proven AFC solution within the 36 month project timeline. INIT has assembled a team of employees with deep industry experience and thorough leadership expertise, as well as an ecosystem of subcontractors, all aligned with the organizational structure defined in your RFP. The key project management and technical staff will be located in INIT's Seattle office.

[redacted] INIT's Project Manager, is a PMI designated Project Management Professional (PMP) and Professional Engineer. He has worked on six AFC projects and project managed large-scale multi-agency, complex projects like a $70 million 26-agency mission-critical public safety communications system, as well as several other ITS systems.

[redacted] the Lead Engineer, has deep technical knowledge of AFC systems, and just successfully delivered the [redacted] AFC systems [redacted]. Assisting [redacted] will be [redacted]. [redacted].

These key project positions are augmented by highly talented and dedicated technical and project professionals, with extensive AFC experience, who have successfully implemented AFC systems worldwide. For more details and background on the team see Tab 4 "Knowledge and Experience of Key Individuals".

Our local Seattle office team [redacted] has an established presence in the area. This gives us a complete understanding of the regional transit system and the Pacific North West. Your single point of contact will be [redacted]

Our UBI number is 602-407-922 and Federal Tax ID Number is [redacted].

As a complete ITS solutions provider to Public Transit Agencies worldwide, INIT is uniquely qualified to provide Sound Transit and the ORCA member agencies with a comprehensive electronic fare collection system with unmatched flexibility, reliability, and speed.

The combined capabilities of INIT's technology and the strength, experience, and local support that our Seattle based Project Team will bring to the Puget Sound Region is truly unique and we look forward to demonstrating this to Sound Transit and the ORCA member agencies in the coming months .

Yours Sincerely

[redacted]

Roland Staib
President and CEO

Technical Proposal of INIT's Account Based Open Architecture System

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

The Future of Mobility

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1.8.4 Asset Incident Management (AIM) Application
1.8.4.1 Incident Management (JIRA)
1.8.4.2 Asset Management (Insight)
1.8.5 System Manager - Automatic System Monitoring
1.8.5.1 Dashboard
1.8.5.2 Automatic alerts
1.8.5.3 Components & Groups
1.8.5.4 Configuration
1.8.5.5 All Messages
1.8.5.6 IMS monitoring
1.8.5.7 MOBILEguard
1.8.6 Fare Media Management Application
1.8.7 Best Value Financial Management Application
1.8.7.1 Financial Modules / General Ledger
1.8.7.2 Accounts Receivable & Order Entry / Billing Module
1.8.7.3 Accounts Payable Module 167
1.8.7.4 Financial Reporting and Query Module - VASAweb System Reporting
1.8.8 Central Payment Application
1.8.8.1 Payment Gateway
1.8.9 Configuration & Change Management Application

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1 INIT's Open Architecture, Account-Based AFC System

INIT is pleased to submit this technical proposal to Sound Transit in order to demonstrate how INIT meets and exceeds the capabilities stated in the next generation ORCA (ngOrca) RFP Scope of Work (SoW). As required by the RFP (Section 1.10.B), our proposal is in the order specified in Section 1.11.E.

The following chart illustrates which Evaluation Criteria submittal requirements corresponds to which proposal section.

Evaluation Criteria 1 Submittal Requirement	INIT Proposal Section (Tab 1)
1. Complete and submit Tab 2 of Proposal Form No. 1, Capability Conformance Matrix.	Appendix
2. Include a detailed narrative description of how the system architecture capabilities in the Scope of Work will be fulfilled. This section should also include the approach for providing and validating an account-based and open architecture system that will enable ease of integration for new partners, equipment and meet the capabilities of the Scope of Work	1.2 An Innovative, Open Architecture, Service-proven Account-based System
3. Include a chart that identifies the subcontractor firms that will be responsible for providing the products or services required by the Scope of Work	1.3 INIT's Highly-Qualified Subcontractor Team
4. Provide a description of the proposed system architecture (Scope of Work, Section 3) with supporting diagrams that clearly identify the following: a. Relationships between applications and devices in the proposed System b. Systems integration and open architecture Application Programming Interfaces (APIs) that will be used to exchange data between the different applications within the System c. The interface points of each element and the physical and logical communication standards utilized between applications within the System	1.4 INIT's Open Architecture System
5. Include a detailed description of how the proposed System conforms to the service- proven and other capabilities in the Scope of Work Sections 3 through 7, and, if applicable, clearly indicate whether or not the solution requires new development (and the extent of development required) or commercial-off-the–shelf (COTS) applications. Describe how the firm proposes to satisfy the service-proven capabilities and still be the innovative solution described in Scope of Work Section 1. For each furnished device that has been used in service, list public agencies or private organizations for which device has been supplied. Include the following information for each: a. Agency or company name and contact person,	1.5 A Service-Proven and Innovative Solution

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Evaluation Criteria 1 Submittal Requirement	INIT Proposal Section (Tab 1)
b. Business address and phone number, c. Model number (and original equipment manufacturer, if applicable) of the module, d. Quantity of equipment provided, and e. Approximate number of years in revenue service	
6. Specifically, for Field Devices and Subsystems (Scope of Work Section 4): a. Provide a detailed description of each of the following proposed devices, software, and associated mounting systems i. Onboard Validator ii. Driver Display Unit iii. Wayside Validator iv. Vending Machine v. Customer Service Terminal b. For each device listed in 6.a. above: i. Provide drawings that show dimensions and materials used ii. Describe supported functionality as it relates to the capabilities in Scope of Work Section 4 iii. Describe the proposed customer interfaces for each device iv. Describe the communication interfaces provided v. Describe the interchangeability of modules and assemblies among devices and ease of maintaining the components of the system and the expected reliability of the equipment	1.6 INIT's High-Reliability Field Devices and Subsystems
7. Specifically for Website and Mobile Application (Scope of Work Section 5): a. Provide your proposed subcontractor's development methodology for the following items: i. Customer account website ii. Content management system iii. Customer mobile app iv. Agency mobile apps b. Provide previously designed website URLs and credentials to websites developed by the proposed provider. c. Describe how the proposed UI/UX solution provider will design a common user experience across multiple platforms. d. Provide a draft licensing agreement(s) for items in this section.	1.7 INIT's User Friendly and Intuitive Website and Mobile Applications
8. Specifically, for Back Office (Scope of Work Section 6): a. Describe in detail each component of the proposed back office including details such as: i. System hardware ii. Interfaces iii. Operating system iv. Databases	1.8 INIT's Back office: Open-Architecture and Interchangeable Modular Applications

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Evaluation Criteria 1 Submittal Requirement	INIT Proposal Section (Tab 1)
v. Applications software vi. Supported functionality b. Identify any proprietary hardware, interfaces or software utilized, indicate whether industry standard equivalents are available, and if so, describe the benefits justifying use of the proprietary product. c. Considering the information provided in Scope of Work Section 6.3, explain in detail the reasoning for choosing the proposed CRM solution including why other solutions were not proposed. For example, if you are proposing a CRM solution that does not leverage another agency's existing CRM application, explain why the agency's existing CRM software was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions. d. Considering the information provided in Scope of Work Section 6.7, explain in detail the reasoning for choosing the proposed financial management solution including why other solutions were not proposed. For example, if you are proposing a financial management solution that does not leverage another agency's existing financial management application, explain why the agency's existing financial management application was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions. e. Describe in detail the proposed systems for providing the full range of services including: i. Monitoring and management of field devices ii. Authorization of payments, debit and credit networks iii. Data collection from devices iv. Timely and accurate transaction processing v. Clearing and settlement between participants vi. Third-party billing and funds collection vii. Financial reconciliation viii. System management and monitoring ix. Indicate which applications and functions are already operational, and which have to be developed. Also, indicate which applications have been purchased from industry vendors and which have been or will be developed on a proprietary basis. f. Describe the proposed reporting system and the types of reports that will be provided to meet the system needs including KPIs, device health, and asset inventory reporting. g. Describe how the agencies will be able to generate custom reports using provided data and standard report generator tools	

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1.1 INIT's Capability Conformance Matrix – Tab 2

As indicated in INIT's Capability Conformance Matrix, INIT meets all the mandatory capabilities and key desired capabilities. While there are a few desired capabilities which INIT does not meet exactly as stated in the SoW, INIT does meet the required functionality in a different manner. INIT offers value-added capabilities beyond what is stated in the RFP; therefore, we believe we exceed the required capabilities for the next generation ORCA system.

1.2 An Innovative, Open Architecture, Service-Proven Account-Based System

Include a detailed narrative description of how the system architecture capabilities in the Scope of Work will be fulfilled. This section should also include the approach for providing and validating an account-based and open architecture system that will enable ease of integration for new partners, equipment and meet the capabilities of the Scope of Work.

INIT will fulfill and exceed the next generation ORCA requirements by aligning with the ORCA Agencies' strategy of utilizing:

- Service-proven Automated Fare Collection System (AFCS) system core modules and devices,
- Best-of-breed Commercial-off-the-Shelf (COTS) business applications,
- Industry leading firms with proven AFC track-record for externally sourced applications, and
- New development of selected existing modules for innovative enhancements.

INIT will implement an open architecture solution with a modular design and extensive use of Application Programming Interfaces (APIs), which has been INIT's consistent approach for ID-based ticketing systems. INIT's API's are well defined, documented and are woven throughout our solution providing fast and flexible integration possibilities for validation, inspection, retail sales, mobile ticketing, system monitoring, and websites.

This approach will enable the use of INIT's core AFC modules, including INIT's account-based Transaction Processor (ATP), to integrate with best of breed Commercial Off-the Shelf (COTS) sub-systems – such as, SalesForce Customer Relationship Management (CRM) and Sage Financial Management. INIT has selected industry leading firms (such as, Bytemark) for mobile apps, and Marathon Consulting for website development, which has a strong proven record for AFC website development. With our approach of service proven AFC modules, best of breed COTS sub-systems, industry leading firms for external apps, and innovative development, INIT will provide the best solution for ngORCA.

1.2.1 INIT Fulfills and Exceeds the System Architecture Capabilities

INIT meets all the key ngORCA system architecture capabilities, and exceed these requirements, with service proven solutions which include:

- Account-based automated fare collection
- Open architecture
- Modular design
- API driven
- Real-time transactions

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- Real-time fare calculation
- Secure payment transactions
- Fraud prevention
- Accurate multi-agency revenue apportionment
- Flexible and powerful tariff management
- Customer-friendly user interfaces and user experience
- User-friendly reporting
- Best of breed COTS support systems
- Retail network interfaces
- Ruggedized field devices
- Minimal transition-only software
- Maintainability and serviceability
- Scalability
- High-availability

In addition to the meeting all of the above functionality required for ngORCA, INIT is proposing to implement its service-proven open payments solution, which can significantly enhance customer experience, as a value-added option. INIT proposes implementing this option at the end of Phase 1, to ensure the required functionality is implemented first.

1.2.1.1 INIT's Modular Design System Architecture Leverages Open APIs

INIT's modular open architecture design enables the interchangeability of system blocks. In the event the ORCA agencies wish to utilize a different subsystem today or in the future, INIT's flexible architecture supports this interchangeability.

From its inception, INIT's Automated Fare Collection (AFC) system has supported an open architecture with extensive use of Application Programming Interfaces. INIT recognizes the need for the agencies to be able to efficiently upgrade their systems as transit customer expectations and operations evolve. INIT offers a complete open architecture approach. From the COTS based equipment solutions to the open architecture of the back office software, INIT offers an open solution which enables the ORCA agencies to control:

- System enhancements to add future capability
- Third party integration to add future capability

INIT's existing API's are currently in use by several transit agencies to grow their system capability cost-efficiently and with minimal delay. These existing APIs are documented with their own specifications including online help giving the ORCA agencies detailed information on how to enhance the system by implementing new functionality. In addition to the use of existing APIs, INIT will leverage its extensive experience in the development, implementation and use of APIs to develop new functionality to fulfill ngORCA's requirements and desired capabilities.

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1.2.1.2 Leveraging Best of Breed Commercial-Off-the-Shelf (COTS) Subsystems

INIT's open architecture, modular design enables the use of best-of-breed Commercial Off-the-Shelf (COTS) solutions for the AFC ancillary functions. The table below lists the COTS INIT solicited, considered, and selected. As indicated above, INIT's open architecture can accommodate interfaces with any third party; therefore, INIT is open to considering other COTS solutions if so preferred by the ORCA agencies and agree upon during design review. For some of the subsystems INIT has priced an additional option in case ORCA prefers INIT's second option.

ngORCA Subsystem	COTS Solutions Considered	Solution Proposed	Potential Alternative
Customer Relationship Management (CRM)			
Financial Management Application (FMA)			
Asset Incident & Management (AIM)			
Configuration & Change Management (CCM)			

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Fare Media Management (FMM)	[redacted]	[redacted]	[redacted]
Light Featured VM	[redacted]	[redacted]	[redacted]
Bank Card Payment Gateway	[redacted]	[redacted]	[redacted]

1.2.1.3 INIT Teams with Expert COTS Consultants/Integrators

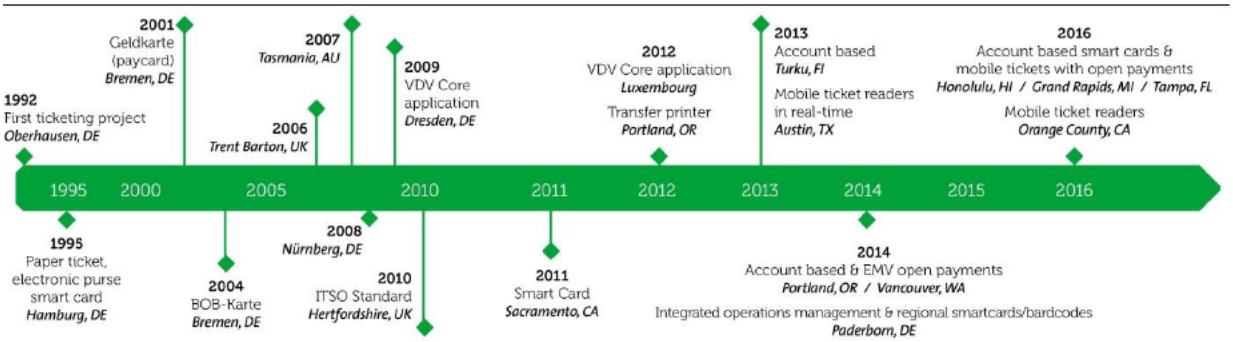
The selection of best-of-breed commercial-off-the-shelf software does not ensure successful integration and interoperability with the INIT system; therefore, INIT is leveraging relationships with COTS value-added resellers and experts. These companies will provide knowledge and expertise required to realize the full potential of interoperability between COTS products and INIT's API library. Please see Section 1.3 for a listing and information on the INIT subcontractor team.

INIT is uniquely suited to be the System Integrator (SI) for ngORCA because:

1. INIT has experience implementing multi-agency, account based, Automated Fare Collection System (Portland, Tampa, Honolulu)
2. INIT has experience transitioning an existing Vix Automated Fare Collection System to an INIT AFCS (Christchurch, New Zealand);
3. Approximately 80% (1700 out of approximately 2100) ngORCA vehicles are currently equipped with INIT onboard equipment resulting in reduced onboard integration risks.

1.2.1.4 INIT's Extensive Automated Fare Collection Experience

The figure below provides a timeline summary of INIT's 25 years of fare collection history showing key systems and reflecting INIT's innovation and ability to evolve with changing technology.



INIT's 25 Years of Fare Collection History – Innovations with Changing Technology

INIT has deployed two account-based systems that are currently in revenue service, one in Portland, Oregon and the other in Turku, Finland. Additionally, we are currently implementing account-based systems in Tampa, Florida and Grand Rapids, Michigan which are all about to enter the pilot phase of the project and will soon be starting the pilot phase in Honolulu, Hawaii.

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Each of these systems leverage open architecture and extensive use of APIs as similarly proposed for ngORCA. provides a more comprehensive list of our automated fare collection system experience including multi-agency systems similar to ngORCA.

City	Buses	LRV / Platform Validator	German Chip Card (Geld Karte)	Agency Smart Card	2D Barcode	Multi-Agency	Account Based	Open Payments (EMV)
Marburg, Germany	50			●				
Hamburg, Germany	1,200		●	●				
Hildesheim, Germany	80		●					
Neunkirchen, Germany	70		●					
Frankfurt, Germany	200		●					
Hamm, Germany	80		●					
Osnabrück, Germany	282		●					
Leverkusen, Germany	240		●					
Keil/Plön, Germany	96		●					
Bochum, Germany	340	90	●					
Mühlhausen, Germany	113		●					
Bonn/Troisdorf, Germany	250		●					
Südthüringen, Germany	85		●					
Solingen, Germany	100		●					
Heidelberg,	100		●					

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City	Buses	LRV / Platform Validator	German Chip Card (Geld Karte)	Agency Smart Card	2D Barcode	Multi-Agency	Account Based	Open Payments (EMV)
Germany								
Trier, Germany	120		●					
Mülheim a.d. Ruhr, Germany	65		●					
Oberhausen, Germany	150		●					
Bremen, Germany	265	128	●	●				
Bremerhaven, Germany	70		●	●				
Herne-Castrop-Rauxel, Germany	56		●					
Oldenburg, Germany	88		●	●				
Gotha, Germany	110		●					
Wesermarsch, Germany	38		●					
W.Giese, Germany	27		●					
Delmenhorst, Germany	12		●					
Fulda, Germany	40		●					
Lüdenscheid, Germany	335		●					
Dortmund, Germany	240		●					
Graftschaft Hoya, Germany	22		●					

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City	Buses	LRV / Platform Validator	German Chip Card (Geld Karte)	Agency Smart Card	2D Barcode	Multi-Agency	Account Based	Open Payments (EMV)
Trent Barton, Nottingham, UK	330			●				
Bavaria, Germany	3,100		●	●	●			
Tasmania, Australia	220			●				
Dresden, Germany	685		●	●	●	●		
Nuremberg, Germany	352	52		●	●			
Christchurch, NZ	305			●				
Sacramento, CA.	425			●	●	●		
Portland, OR	888	49		●	●	●	●	●
Turku, Finland	260			●	●		●	●
Birmingham, UK	1500						●	●
Orange County, CA	556						●	
Tampa, FL	600					●	●	●
Grand Rapids, MI	150	34					●	
Honolulu, HI	550	250				●	●	

1.2.1.4.1 INIT's Experience Transitioning a Vix System

INIT possesses experience transitioning agencies from legacy Vix system to INIT-offered systems. In an AFCS competitive procurement, Christchurch, New Zealand selected INIT over other competitors as well as the incumbent (Vix). Although the Christchurch project was not as large as ngORCA, INIT transitioned the system with Christchurch successfully addressing similar complex AFC system transition challenges, including:

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- Minimizing customer impact
- Preserving operating revenue
- Minimizing operational impacts to the agency
- Overcoming onboard equipment space constraints
- Minimizing transition-only software

In addition to the Christchurch, NZ solution, INIT also successfully transitioned a legacy card-based solution to an account-based solution in Turku, Finland. The Turku system was transitioned approximately 3 years ago and is one of INIT's key reference projects.

1.2.1.4.2 INIT's Existing Transit Technology Deployment with ORCA Agencies Reduces Integration and Implementation Risk

INIT currently provides the transit CAD/AVL systems for King County Metro (KCM) and Community Transit (CT), which involves over 50% of the ORCA agencies' vehicles. This will significantly simplify and mitigate the risk related to the onboard integration – as the INIT onboard validators will be communicating with the INIT Vehicle Logic Unit (VLU) COPILOTpc2s (CPC2s). This advantage is especially pronounced for the KCM vehicles which require the AFCS to communicate not only the INIT VLU service data, but also to share the single Driver Display Unit (DDU).

1.2.2 Enabling Ease of Integration for New Partners and Equipment

INIT's open architecture and modular design, leveraging our broad API library, enables ease of integration of new equipment or the addition of 3rd party hardware and software providers. Should the ORCA Agencies wish to add a new agency to ngORCA, INIT's MOBILEvario can easily do so. In the rare event the new agency utilizes business rules which do not exist, there may be additional scope involved. MOBILEvario is inherently architected to support multiple agencies and can easily add new agencies quickly and non-disruptively. Each agency's data is partitioned from one another to ensure data integrity and privacy. These controls prevent an agency from accessing another agency's data, user administration, etc. The system has the capability of providing separate, agency-oriented storage of data, presentation (GUIs), and configurations (customizations).

Each transit agency or subdivision is only able to see and change its own data. In MOBILEvario the agency is the top-level partition for access authority and represents a closed, technical and organizational, data unit within the system.

The system contains both global and agency specific data and parameters. Agency specific data and objects can be customized. Examples are additional tickets or different fare fees. Universal agency data and objects serve the general and agency-independent configuration of the system. Examples are customer data, card management and system parameters.

The additional API Management platform, hosted in [redacted], provides for simplified and controlled on-boarding of 3rd party API consumers. As the API gateway, the API management platform can ensure the identity, integrity and appropriate access and API call volume restrictions required to safely provision new partners and equipment.

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1.2.3 Meeting and Exceeding the Capabilities of the Scope of Work

In summary, INIT will meet and exceed the capabilities required for ngORCA by

- Using INIT's service-proven open architecture with an extensive use of open APIs
- Leveraging best-of-breed COTS subsystems
- Leveraging INIT's experience transitioning legacy systems, including Vix systems
- Utilizing best-of-breed expert consultants for the different COTS subsystems
- Utilizing API Management best practices
- Providing direct access to developers
- Exceeding requirements by providing service-proven open payments capability as part of Phase 1

1.3 INIT's Highly-Qualified Subcontractor Team

Include a chart that identifies the subcontractor firms that will be responsible for providing the products or services required by the Scope of Work.

The INIT team includes highly-qualified, industry leading subcontractor firms as indicated in

Subcontractor Firm	Qualifications	Scope
Marathon Consulting	Extensive experience with website development and CRM implementations – including both Salesforce and Microsoft Dynamics. Website developer for INIT's Portland, Grand Rapids, Tampa and Honolulu AFCSs.	Customer and Institutional Website design & development CRM (Salesforce) integration and implementation
Bytemark	Extensive mobile app development experience in the transit industry including work with INIT in Grand Rapids, Tampa, Austin and Sacramento.	Mobile websites design & development Mobile app (virtual card) development
BrainSell	Extensive experience in the integration and implementation of Sage financial management applications	Financial management application (Sage) integration and implementation
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

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Subcontractor Firm	Qualifications	Scope
ESP	Extensive vehicle installation experience and DBE.	Vehicle installations
WOWRACK Hosting	Enterprise Class data center with multi-datacenter locations in Seattle supporting large Seattle based organizations.	Datacenter hosting –Production System, Pre-Production System, Test System, Out-of-region Backup
Arctic Wolf	Security Operations Center –as a service provider with security engineering personnel and tools providing security monitoring and escalation.	Information Security, Compliance, Operations and Maintenance
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	Extensive experience with Fare Media Management in the transit industry	FMM provider

1.4 INIT's Open Architecture System

Provide a description of the proposed system architecture (Scope of Work, Section 3) with supporting diagrams that clearly identify the following:

a. Relationships between applications and devices in the proposed System

b. Systems integration and open architecture Application Programming Interfaces (APIs) that will be used to exchange data between the different applications within the System

c. The interface points of each element and the physical and logical communication standards utilized between applications within the System

This section is ordered according to the RFP Scope of Work Section 3, System Design & Architecture.

1.4.1 Common Design Capabilities

Following are design elements common throughout the System – including the overall system architecture that will support the System leading to a cohesive, reliable, and easy-to-use regional fare collection system.

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1.4.1.1 Service-Proven Design

INIT is proposing a modern System which is proven at the core. The software and hardware proposed will have a service life of at least 12 years from the commissioning date. INIT will enhance some elements to meet next generation ORCA's required capabilities, but the main back office and field components are currently in use in similar transit fare collection systems as indicated in the following table.

System	In-Service Date	ngORCA Proposed Back Office	ngORCA Proposed Wayside & Onboard Validators	ngORCA Proposed VMs	ngORCA Level Reliability, Accuracy, Availability
Portland, Oregon	Jun. 2017	●	●	Not in Scope	●
Turku, Finland	2016	●	●	Not in Scope	●
Sacramento, CA	Jul. 217	●		Not in Scope	●
Tampa, FL	Pilot Q2 2017	●	●	Not in Scope	●
Luxembourg		●		●	●
Bremen, Germany		●		●	●
Grand Rapids, MI	Pilot Q3 2017	●	●	Not in Scope	●
Honolulu, HI	Pilot Q1 2018	●	●	●	●
Orange County, CA	Pilot Q4 2017	●	●	Not in Scope	●

1.4.1.2 Nonproprietary Technology

INIT's proposed next generation ORCA system does not include any obsolete or discontinued components. The system is service proven and does not involve prototypes. The system is designed using open standards for software design, communication protocols, and fare media. INIT's proposed system leverages best of breed commercial-off-the-shelf (COTS) software where possible. The proposed fare media is available for competitive purchase from multiple U.S. sources.

The proposed System utilizes a modular design for all relevant field replaceable components, without the need to make adjustment for compatibility. INIT was the first AFC vendor to

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introduce intelligent wayside validator platforms which stored metadata in non-volatile memory to enable replacement without any configuration of the new validator.

1.4.1.3 Supply & Availability

INIT will make best efforts to supply devices, components, parts, modules assemblies and subassemblies, as well as software and other essential elements of the Systems, itself and from original equipment manufacturers (OEM) that have a service life of 12 years after Final System Acceptance. If any OEM component is discontinued or obsoleted by the SI or OEM, INIT will provide the Agencies six (6) months advance notice prior to the last available date of purchase or support. Additionally, INIT will work with the Agencies to provide suitable replacements which are like in functionality and compatibility as the original.

1.4.1.4 Materials & Workmanship

INIT will utilize new components which conform to the capabilities of the next generation ORCA SOW – however, as allowed for in the SOW, INIT may utilize new components which utilize recycled materials. In the event INIT wishes to change components, it will do so only with the ORCA Agencies' approval. INIT will utilize equipment which is free from safety hazards and complies with relevant Underwriter's Laboratory (UL) standards. All interior and exterior surfaces will be fee from sharp edges, protrusions, exposed wires, and other hazards. If it is found that approved sources do not furnish a uniform product, or if the product from such source proves unacceptable in meeting the requirements in the SOW, INIT will address and correct these issues.

1.4.1.5 Software Design Principles

INIT is determined to deliver quality implementations for all customers. Detailed below is INIT's CMMI based Design Principles. CMMI design principles along with JIRA, our Defect Tracking Tool, define the process for reporting, tracking, and resolving problems/issues during and after implementation.

Carnegie Mellon University's Capability Maturity Model Integration (CMMI) principals are designed to correct issues with software, firmware, hardware products, service, maintenance processes and more.

The CMMI is a world-class performance improvement framework for organizations that want to achieve high-performance operations. CMMI best practices address three areas of interest:

- CMMI for Development addresses product and service development processes
- CMMI for Acquisition addresses supply chain management, acquisition, and outsourcing processes
- CMMI for Services addresses guidance for delivering services within an organization and to external customers

To address user security, the security guides "Security Management" and "Security by Design" are part of the CMMI.

Principles embraced include:

- Built in diagnostics and reporting

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- Object-oriented software
- Easily configurable
- Portability
- Automated distribution of updates

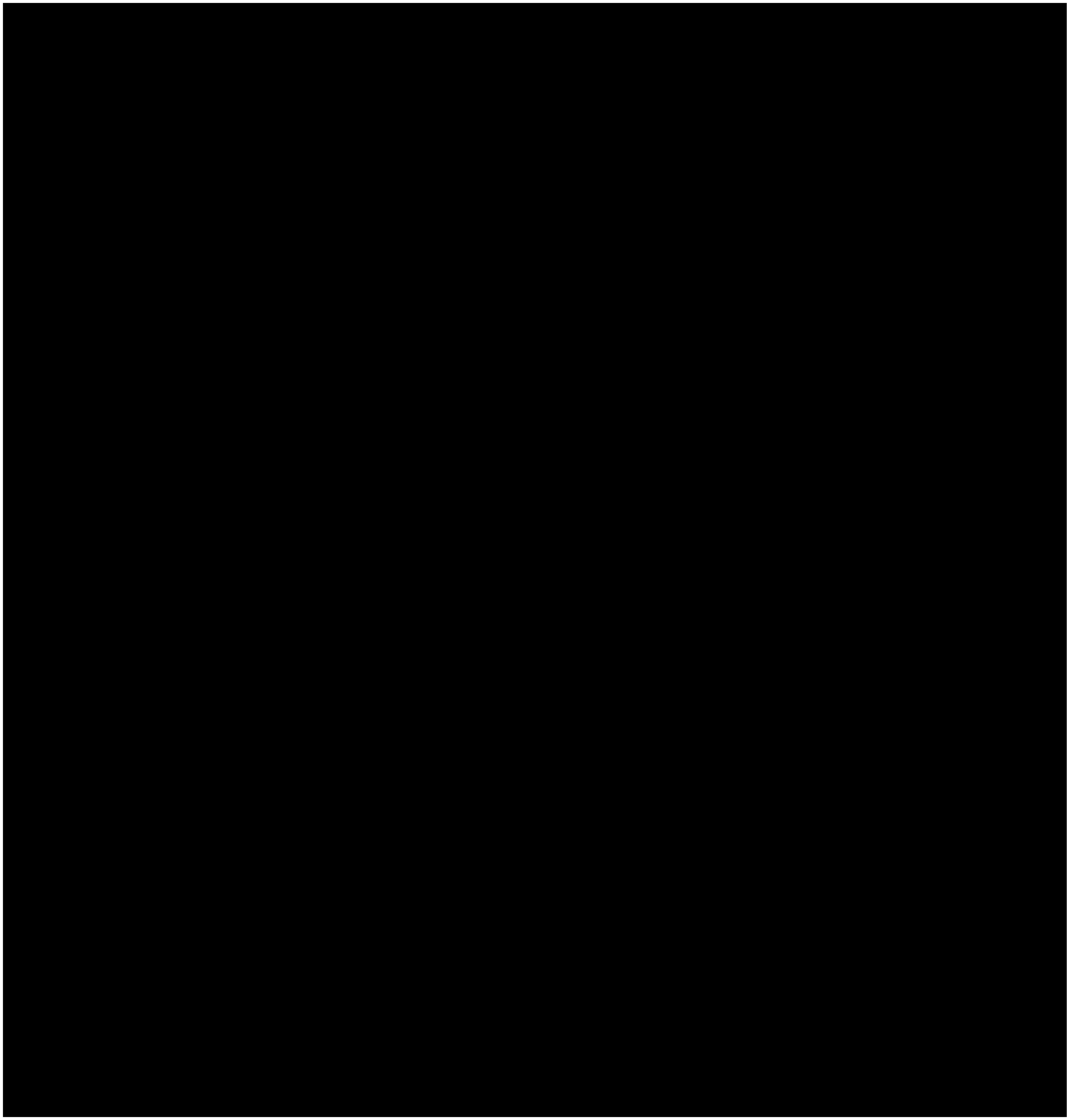
The ORCA agencies will benefit from this reliability and performance improvement system embraced by INIT that paves the way for reliable software, firmware, hardware, and dependable service.

INIT's COO Dave Dodson, who also leads INIT's ISO 9001:2008 efforts to ensure superior Quality Management across all business processes and functions, also processes Level 3 CMMI certification.

1.4.1.6 User [redacted]

[redacted]

[redacted]



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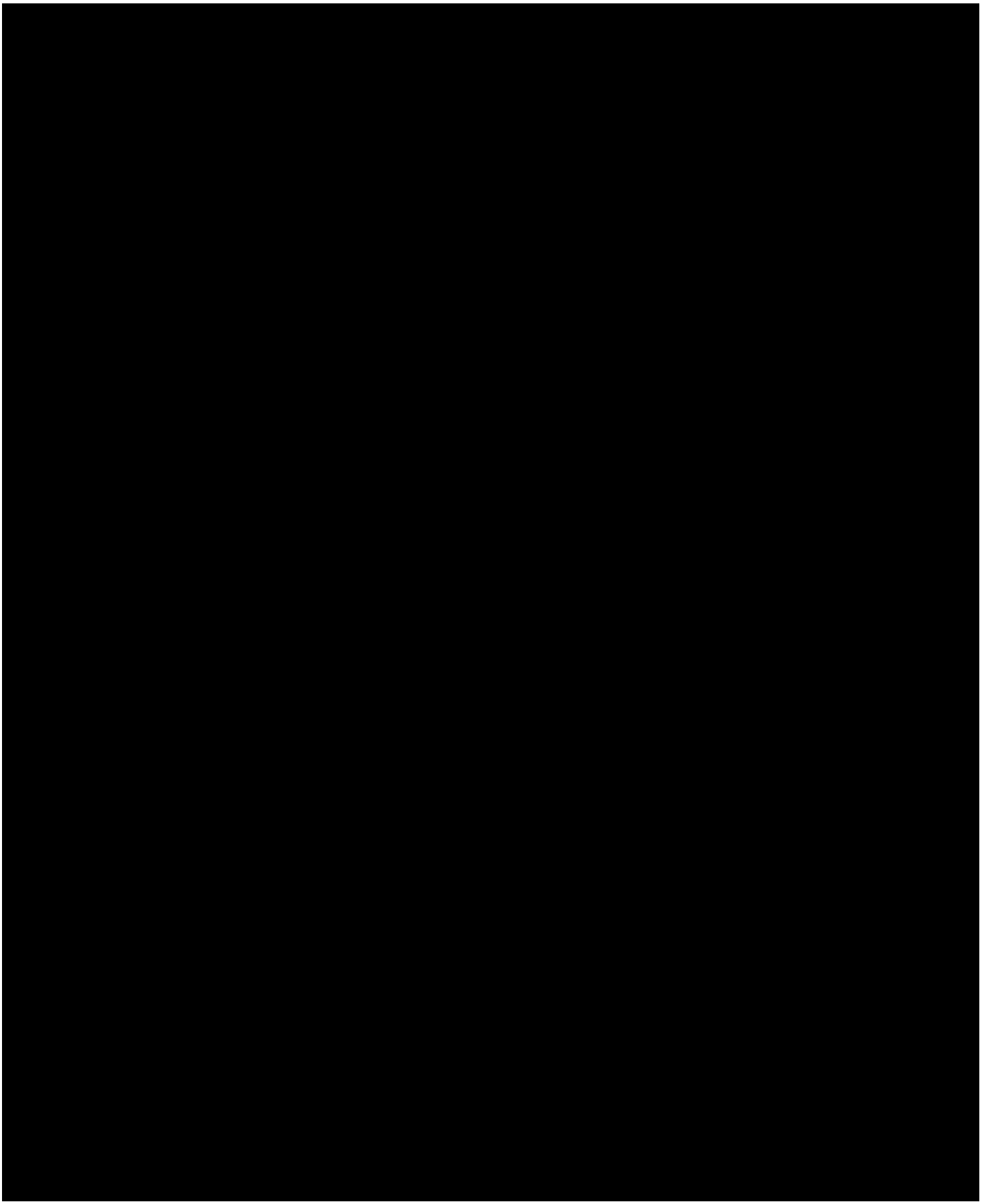

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1.4.1.7 Maintainability & Serviceability

Given INIT's extensive experience with transit CAD/AVL and AFC systems, INIT has ruggedized its field equipment to require minimal scheduled and unscheduled maintenance. System components include automatic diagnostic test routines to aid in troubleshooting down to the Lowest Level Replaceable Unit (LLRU). INIT's solution requires minimal preventative maintenance. INIT will provide O&M documentation that will provide comprehensive information relating to preventative maintenance management and onsite serviceability procedures.

INIT's field equipment has been designed and optimized taking maintenance considerations into account. The interior of housings and cabinets provides easy and safe access, and provides adequate space to work on the internal components. Corrective maintenance requires only one person. There are no components that weigh more than 20 pounds (with the exception of full cash containers). Field equipment utilize strain relief connectors that allow rapid remove and plug-in to prevent damage to cables and connectors. The System has a modular design that allows for quick replacement of field equipment without having to re-configure the interchanged equipment. The System also allows upgrades and configuration changes without requiring component replacements of redesign.

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1.4.1.8 System Sizing & Scalability

As part of the design process, INIT conducts usage and transaction analysis to model the peak usage of the System – including peak concurrent account-based transactions, peak website usage, etc. – and designs the system to accommodate at a minimum 200% of the current and anticipated ridership figures for the year 2040 and up to 400% of the anticipated peak processing load.

1.4.1.9 Operating Environment

As a transit CAD/AVL and AFC system provider, and currently having six systems operating in the environmental conditions of the Pacific Northwest, INIT's field equipment is environmentally service-proven.

1.4.1.9.1 Shock & Vibration

All system components comply with the required shock and vibration requirements, including those imposed by the local codes regarding stability of structures and content in earthquakes, high velocity wind (up to 60 mph), and other natural phenomena. INIT equipment is designed to withstand the stress and vibrations cause by the motion of transit vehicles, daily customer use, passing of train or other vehicles, and emergency breaking of fully-loaded trains.

All components will resist horizontal shocks of up to [redacted] in the vertical axis for a duration of up to [redacted]s without permanent deformation or failure. There will be no failure of mounts or decrease in operational performance of any system components under conditions simulated by a sinusoidal sweep vibration test at a sweep rate of [redacted], from [redacted] at a peak vibratory acceleration [redacted] If any assembly or component fails these criteria, measures will be taken to dampen the vibration effects. Resonant frequencies that may exist in the mounted structures will be critically dampened. All corrective measures will be approved by the Agencies.

Onboard equipment will pass the IEC 60068-2-27 and IEC 60068-2-64 shock and vibration tests. Rail equipment, including vending machines and wayside validators, will pass the shock and vibration tests specified in the ERTMS/ETCS Environmental Requirements (e.g., EEIG 97s0655).

1.4.1.9.2 Onboard Equipment

All onboard validators and driver display units are currently designed to prevent degradation in performance from exposure to harsh high shock and vibration, moisture or dust raised by inclement weather, or interior cleaning with no degradation in performance throughout the required useful life of the System.

1.4.1.9.3 Wayside Equipment

All wayside validators will be designed to be installed in an open-air station environment with environmental conditions described in the scope of work in mind.

The validator is IP54 classified, but the suitability for outdoor use has been proven in environments similar to Seattle, e.g. in Portland, OR.

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1.4.1.9.4 Office Equipment

The Customer Service Terminals (CSTs) will be designed to be installed in an office and mobile environment.

1.4.1.10 Electrical

INIT understands that all components in the proposed system will be equipped with the supply and conditioning necessary for adequate protection without adverse effects against power fluctuations, electromagnetic interference EMI / RFI and will conform to all codes NEC, UL, SAE and local for grounding and safety protection.

1.4.1.11 Licensing & Ownership

INIT grants to the ORCA agencies the right to internal use and distribute to third-parties all open architecture API's, libraries, documents and associated Intellectual Property (IP) including data exchange formats under a perpetual license at no additional cost.

1.4.1.12 Accessibility & ADA Compliance

The proposed System will be compliant with current accessibility standards, laws, and regulations and ensures that the system meets or exceeds the Americans with Disabilities Act (ADA) and accessibility requirements of federal, Washington State and Puget Sound regional governments. INIT is working with external ADA consultants to ensure ADA compliance.

1.4.1.13 Code & Regulation Compliance

INIT concurs with the requirement that the proposed system will be compliant with relevant standards, laws, and regulations to ensure that the System

- Presents no safety hazards for customers and agency employees
- Will withstand the rigors of the environments in which the equipment will be installed, and the public use to which it will be subjected
- Provides for the secure storage and transmittal of data
- Is designed using state-of-the-art methods to maximize quality
- Satisfies federal, state, and other requirements for ergonomics and usability

1.4.1.14 Information Security

Information security is a critical component of the next generation ORCA technology solution. Ensuring the confidentiality, integrity and availability of the system is critical to the customer experience and trust in the system. The people, processes and technology involved in system delivery will need to work collaboratively under common guidance to achieve system security. INIT will work with the agencies, subcontractors, vendors and service providers to ensure selected ISMS controls are implemented and followed.

An ISO27001:2013 driven ISMS has a broad amount of guidance and controls, therefore INIT recommends the selected ISMS controls to be right-sized and appropriate for the solution rather than attempted to be applied at a level requiring compliance with every potential control within the ISO framework. Not every ISO control is applicable or likely palatable to the agency, provider or subcontractors due to the costs and time to document and manage the vast amount of information associated with implementation, testing and tracking every control. While INIT

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understands the intention of the system to be operated within a selected set of ISMS controls, due to the potential number of controls and the different ways of interpreting ISO guidance it is impossible to produce a fixed cost budget for a currently undefined set of controls or for a project operating duration which is guaranteed to see new threats and new opportunities within the information security space.

1.4.1.14.1 Information Security Management System – Asset Management

As a control objective of an ISMS, asset management within the next generation ORCA information technology is concerned with the identification and management of the assets involved in service delivery. Inventory will be managed using a CMDB within the Asset Information Management (AIM) platform. Assets include hardware, software, licenses, and other equipment or systems associated with the delivery of the system. Each tracked asset will be assigned an asset owner, description, and location, criticality and classification. The CMDB will be the system of record to manage the assets and their associated information and life cycle. All hardware and software will be procured through primary sources rather than the secondary market to ensure integrity of firmware and legality of licenses. Ensuring license, support and access to primary sources supports ISO guidance regarding supplier relationships and the reduction of risk associated with supplier's assets. In the case of the proposed hosted environments, the hosting provider will ensure the maintenance and lifecycle of the assets.

1.4.1.14.2 Access Control

This chapter is focused on INIT's access control approach.

1.4.1.14.2.1 User Authentication

All users of the system are required to authenticate to a centralized directory within the back office. Windows Active Directory centrally manages user login identity, password policy, and roles for access to the INIT provided systems and applications. The role based access control available within the integrated Active Directory and INIT solution can provide individual or group access and ensure which level of access those users are granted. While Active Directory between the next generation ORCA system and the existing ORCA agencies could be federated and trusted, the large number of users combined with the internal and external applications will benefit from a universal directory. In alignment with ISO27001 guidance, INIT recommends deploying this optional strategy to create user authentication consistency in the distributed network environment required by the next generation ORCA system. A federated identity solution provider such as Okta can provide the recommended universal directory, SaaS application integration, multi-factor authentication and secure access.

1.4.1.14.2.2 Password Policy and Management

Password policy is set and enforced in the settings of the primary user directory. Accounts will be forced to create and rotate passwords depending on a mutually agreed policy definition. INIT recommends adopting the most recently updated NIST password guidelines which emphasize longer passwords with longer rotation schedules. This provides a higher level of security through increasing the amount of entropy within an individual password as well as decreasing user shortcuts that inevitably occur when forced to create complex passwords at a high frequency. With the addition of the optional Okta Universal Directory with Lifecycle Management

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and single sign-on, password policies and changes should be able to be enforced throughout the entire distributed application infrastructure adding additional security and easing the burden on end-users.

1.4.1.14.2.3 Privileged Remote Access [redacted]

[redacted]

1.4.1.14.2.4 Firewalls, Routers, Switches and Network Security

[redacted]

1.4.1.14.2.5 Physical, Environmental and Equipment Security

[redacted]

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[redacted]

1.4.1.14.3 Encryption

[redacted]

1.4.1.14.3.1 Database Encryption

[redacted]

[redacted]

1.4.1.14.3.2 Communication Security

[redacted]

1.4.1.14.3.2.1 API communication

INIT secures all API communication[redacted].

1.4.1.14.3.2.2 Field device communication

[redacted]t.

1.4.1.14.3.2.3 Institutional and Public Website

All publicly accessed web applications, including institutional websites are secured [redacted]

1.4.1.14.4 PCI & PII

In order to reach 100% PCI compliancy and most important a bullet proof secure payment system, [redacted]

For this project, INIT will also contract with a local PCI QSA who can make all local evaluations necessary.

Highlights of the INIT PCI solution

- [redacted]
- [redacted]
- [redacted]

In order to provide reliable, flexible and versatile and 100% PCI compliant payments, INIT is working with different gateway providers such as the CreditCall payment gateway.

The following diagram gives an overview how payments are processed in the system and which parts of the system are in the PCI scope.

[redacted]

On the lower left hand side is the card holder who can purchase services via different system services. The card can be presented to one of the validators (PROXmobil3) which generates an open payment credit card transaction and forwards in to the payment gateway. The transaction [redacted]

[redacted]

[redacted]

[redacted]

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1.4.2.1 Account-based system

INIT's proposed system is a service-proven account-based system. The back office Account-based Transaction Processor (ATP), performs the fare calculation and processes all transactions in real-time. It also acts as the system of record for fare calculations and enforcement. To keep it a true account based system, fare media such as smart cards and NFC enabled smartphones, will serve only as credential for accessing transit accounts. Limited amount of data will be written to the fare media to support risk mitigation strategies, mostly for fare inspection reasons.

The ATP includes a module to configure and maintain fare apportionment rules between agencies based on fare products purchased, products used, number and value of trips taken, and agency associations. The ATP apportionment module includes an intuitive, user friendly interface to allow the rules to be securely maintained and updated, including the ability to change current rules and add new rules based upon new fare products, trip types, or Agencies being added to the next generation ORCA program.

1.4.2.2 Real-time communications

Each fare validation and fare distribution device will perform real-time communications with the back office. If no wired connection can be established (e.g. on-board devices), the devices will communicate using cellular technology.

1.4.2.3 Offline provisions

[redacted]

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1.4.2.4 Application programming interfaces

A core aspect of INIT's account based system is the use of Application Programming Interfaces (APIs). These RESTFUL (Representational State Transfer) APIs provide an Open Architecture that supports vendor independence and streamlines integration with other payment channels. INIT will utilize the vast majority of its existing service proven APIs, modify some, and develop new ones to meet the next generation ORCA requirements. INIT will develop Interface Control Documents (ICDs) that specify the API calls, data formats, and communication and security protocols. INIT will implement strong security controls to prevent fraudulent use of APIs and authenticate all users in accordance with the ORCA Agencies Information Security Management System (ISMS).

INIT's existing APIs utilize REST and JSON formats. INIT is developing Hypertext Transfer Protocol Secure (HTTPS) based functional API as opposed to device- or system-specific APIs.

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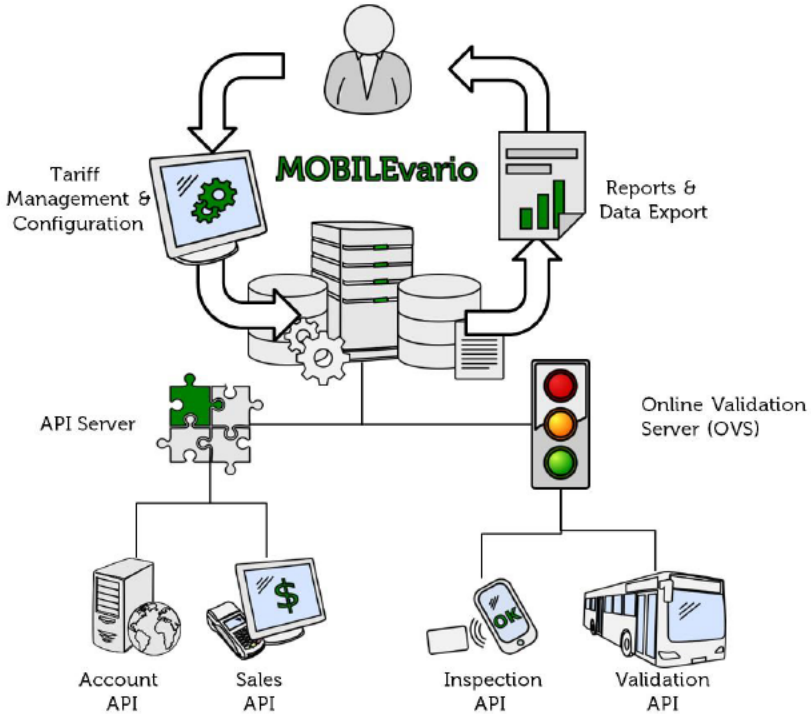
The figure below shows INIT's existing core APIs that provide functionality for any 3rd party devices and networks to sell and validate fares. All client devices and customer interfaces use INIT's APIs to sell and validate fares.



INIT's Core APIs to create an Open Architecture Platform

The account API provides services to access customer and transit account information in order to integrate mobile applications, web services and even 3rd party CRM tools. All sales transactions like product sales or value loads are generated via the sales API and the Online Validation Service (OVS) provides the validation API to recognize that revenue.

The test environment will allow the ORCA agencies or Third Party Vendors (TPVs) to design and test their solutions. This protects the agencies' valuable investment for many years to come as it allows the agencies to enhance the system autonomously.

The APIs provide a standard and easily understandable interface to the next generation ORCA System. These APIs demonstrate the open architecture of the system, and provide the agencies full flexibility to integrate 3rd party sales and fare validation solutions. The following table lists some of the main APIs of MOBILEvario.

Specification	Description
Product API	API is tasked with product related operations
Fare Distribution API	API for selling fare products and adding stored value on transit accounts.
Fare Payment API	API used by platform and vehicle validators for real-time fare validation and stored value usage.

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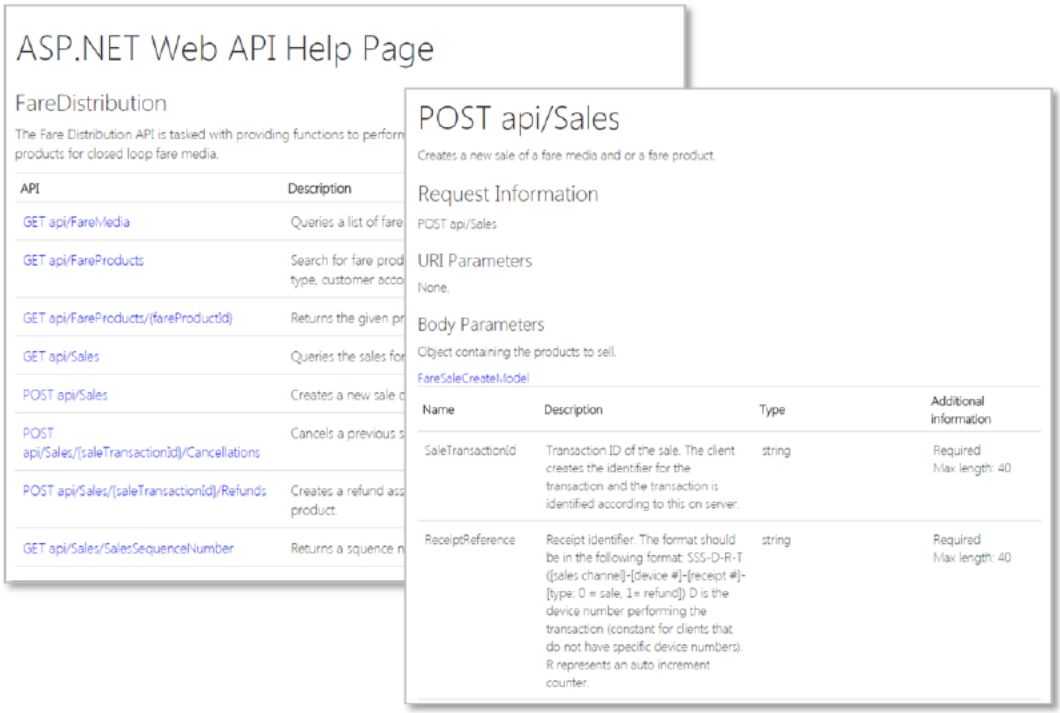
Specification	Description
Fare Inspection API	API used by fare inspection devices to check if a given fare media has a valid transit product.
Transit Account Management API	API used by POS devices, web portals and CRM system to list transactions do value adjustments etc.
Customer Account Management API	API used by web portals and CRM system to manage registered users (including institutional customers)
Cardholder API	API used to query and modify data maintained on cardholders
Device Management API	API for remotely managing and monitoring devices in the City system

In addition to the above existing main APIs, INIT utilizes additional APIs – such as, central payment processing API – which will be added to the list during the design phase. INIT will also add specific APIs required by the ORCA Agencies such as, the onboard integration API. In addition to the APIs, INIT will publish specifications, as requested in the SoW, for all transactions generated and used within the system but not already covered by the required API.

INIT provides an easy to understand help page for all API calls.



API Help Page

1.4.2.5 Network architecture

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1.4.2.5.1 Description

The proposed network architecture consists of enterprise class servers, storage and networking deployed in a multi-site, stretched virtual cluster leveraging geographic load balancing to create an active/active disaster resilient infrastructure. Production and pre-production virtual machines and applications live within the resources of the stretched cluster which is capable of making either proactive or lightly automated decisions to ensure system availability across sites. A separate test back office infrastructure replicates the characteristics of the production system and a third out-of-region data backup facility ensures data availability in the rare case of a catastrophic regional event. While a multi-site active/active datacenter architectures provides for the high availability and disaster avoidance infrastructure next generation ORCA requires, it does add a level of complexity within the operating environment that can work against availability goals.

[redacted], a [redacted], low-latency data center infrastructure with broad wide area networking capabilities ensures uninterrupted access to internet based resources and agency networks. Enterprise class data center software including Windows, VMWare, [redacted] provide commercial off-the-shelf software capabilities to create a managed, secure and resilient information technology infrastructure. Local, remote and data-center managed services provide 24/7/365 response capabilities to infrastructure events.

[redacted]

Datacenter overview

1.4.2.5.2 Onboard Infrastructure

INIT supplied on-board equipment such as fare validators will leverage the agency-provided mobile access router (MAR) providing the required cellular or wireless communications to the back office. INIT recommends leveraging VLAN capabilities of the MAR to segment fare-related network traffic from other onboard technology systems such as CAD/AVL. INIT will require specific ports and protocols to be able to be routed through the MAR for the purposes of basic communications, software updates, and device management. Typical network protocols such as DNS, NTP, SNMP, UDP, HTTP/S, SSH are requested and either standard or non-standard ports can be assigned during design review. INIT recommends this traffic be routed [redacted] a

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[redacted]. When connected to an agency-provided [redacted]i network, file transfer will occur to a garage data management server via the [redacted] protocol.

1.4.2.5.3 Wayside Infrastructure

INIT supplied wayside equipment such as pole validators or VM's will leverage agency-provided wired infrastructure for communications to the back office.

1.4.2.6 System hosting

INIT interviewed and analyzed several data center providers to provide the hardware, software and managed infrastructure as a service required to operate the next generation ORCA back office technology infrastructure. As expected, a large number of datacenter options available in the Seattle area were capable of fulfilling the technical requirements; however, several providers specifically met INIT's goals of having a strong, local Seattle-based presence, multiple local data centers, and a third, out-of-region on network datacenter. Superior availability, security, and deep technical engineering experience were also a key requirement used during our analysis.

INIT proposes [redacted] the IAAS provider. [redacted]

1.4.2.6.1 Customer References

[redacted]

1.4.2.6.2 Security

[redacted]

1.4.2.6.3 [redacted] Staffing and Resources

[redacted] uses a multilayered technical and engineering team approach to manage and maintain its cloud operations. The team comprises of engineers with different strength and expertise including program managers and project managers to manage and deliver projects to customers. The team comprise of the following layers:

- Tier1 Technical Customer Support Representatives
- Tier1 System Administration
- Tier1 Network Administration
- Tier2 System Administration
- Tier2 Network Administration
- Tier3 System Administration & Architect
- Tier3 Network Administration & Architect
- Facility Engineers
- Software developer and application developers
- Technical Project Managers
- Virtual Chief Technical Officer (CTO)

[redacted]

[redacted]

1.4.2.6.4 [redacted] Uptime History

Year	[redacted]	[redacted] Network	Comment	Corrective Action
2013	100%	99.999 %	Network storm caused by failed hardware on distribution layer causing packet loss/latencies issues	Completely replaced and re-engineered the distribution layer. Retired the failed switch
2013	100%	99.999 %	Network storm caused by failed hardware on distribution layer causing packet loss/latencies issues	Completely replaced and re-engineered the distribution layer. Retired the failed switch
2014	100%	99.99%	Network brownouts due to denial of service attacks – not volumetric.	Implemented Corero DDoS mitigation appliance in 2017 to eliminate the number of brown outs caused by DDoS attacks
2015	100%	99.999 %	Network brownouts due to denial of service attacks.	Implemented Corero DDoS mitigation appliance in 2017 to eliminate the number of brown outs caused by DDoS attacks
2016	100%	99.99%	Network brownouts due to denial of service attacks.	Implemented Corero DDoS mitigation appliance in 2017 to eliminate the number of brown outs caused by DDoS attacks

1.4.2.6.5 Wide Area Networking Capabilities

[redacted]

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[redacted]

1.4.2.6.6 Single Tenant Private Cloud

[redacted]

1.4.2.6.7 Multi-Site

[redacted] Multi-site solutions prioritize proactive and partially automated disaster avoidance over orchestrated failover oriented disaster recovery strategies. A third site will be leveraged for an out-of-region data archive location to ensure data availability in the unlikely event of a regional disaster that could impact both data centers.

1.4.2.6.8 Load Balanced / Parallel Transactions

The multi-site infrastructure allows for the hosting of web sites and API services at both data center locations simultaneously. A load balancing strategy providing global server load balancing DNS-based capabilities allows traffic to be routed into either data center. This allows the infrastructure to operate in an active/active mode, dynamically routing traffic between datacenters to avoid over capacity servers or failed services. Inbound traffic is processed in a primary site by highly available middleware applications and databases capable of being migrated or failed-over to the secondary site.

1.4.2.6.9 Hardware Redundancy

All deployed hardware is deployed using industry standard best practices in either active/active or active/passive configurations depending on the technology layer. Any networking devices such as switches, routers, firewalls, fiber switches, etc are deployed in high availability configurations with at least two devices in each datacenter location. This allows for multiple network and storage network paths between host servers, storage, and wide area networks.

All storage mediums regardless of location in servers or dedicated storage arrays are protected with RAID ensuring disk failures or disk performance issues can be isolated and protected from impacting the system as a whole.

Multiple host servers are deployed to create a larger, distributed resource pool the virtual machines and appliances can use to perform the compute operations necessary. For example, five host servers are clustered together into a virtual datacenter to create a pool of CPU and Memory resources. The deployed virtual machines can operate on any of the five hosts that has enough capacity to run the provisioned resource requirements. Hosts are configured with

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greater resource availability then the system requires to provide for availability, scalability and redundancy in the case of a host failure or intentional host maintenance.

1.4.2.6.10 Data Resiliency

Data is written into multiple databases in near-real time ensuring transactional integrity of the database. All databases, virtual machines and applications are stored on enterprise class storage devices leveraging redundant hard drives (RAID) to provide a resilient data infrastructure. Additionally, this data is replicated to secondary storage locations as well as archived to the off-site data storage location outside of the Seattle area.

1.4.2.6.11 Hardware Refresh

Over such a long period of performance, the back office system will necessarily undergo one or more hardware refresh cycles. Estimated to be at least every 5 years, the INIT and WOWRACK teams will ensure maximum availability through regular hardware maintenance and refresh.

1.4.2.7 Operational Security

Perhaps one of the broadest areas of ISO guidance is operational security. INIT's proposed back office system already addresses many of the primary sub-clauses critical to maintaining the availability of the environment.

1.4.2.8 Security Operations Center

To support the security, compliance and ISMS requirements of next generation ORCA, INIT intends to operate a security operations center to monitor, evaluate, and respond to security incidents, vulnerabilities, or unexpected changes to the environment. The security operations center is responsible for security incident event management (SIEM), log management, intrusion detection and regular vulnerability assessments. In addition to providing a mature set of security related tools, the security operations center will evaluate and escalate important incidents while minimizing the significant amount of noise and overhead associated with managing these tools and their outputs. The Security Operations Center provides security management for perimeter defenses, data protection, endpoint protection, and vulnerability protection.

INIT will leverage [redacted] a Security Operations Center service provider will provide the security operations center applications and staff to monitor, analyze and report on the next generation ORCA infrastructure. Artic[redacted]

[redacted]

[redacted]

1.4.2.8.1 Change Management

While the change management process and communication is handled by the Atlassian tools JIRA Service Desk and Insight, additional device and configuration change of IT devices are monitored and managed by [redacted] is a file integrity management platform that provides change auditing and security protection to servers, networks, databases. Deployed as an on premise, agent based system, [redacted]k provides change details to support the who, what, when question details of changes. In addition to supporting ISO guidance, a change management control system also supports related PCI-DSS requirements for file integrity monitoring and change detection. [redacted]k supports multiple change detection and response options including logging, recovering and prevention.

1.4.2.8.2 Web Server Change Tracking

[redacted] can be deployed to protect the configuration and content files behind public web servers. [redacted]

1.4.2.8.3 Network Device Change Tracking

[redacted]

1.4.2.8.4 Databases Configuration Change Tracking

[redacted]

1.4.2.8.5 Malware/Antivirus Protection

In addition to change management, anti-malware and anti-virus solutions align with controls recommended to protect the integrity of information systems. An effective anti-malware platform provides endpoint security to the servers and workstations deployed as part of next generation ORCA. [redacted]

1.4.2.8.6 Patch Management

Expected changes to the environment include those introduced by application and operating system patches. Following ISO guidance and general IT best practices, INIT will deploy a patch management platform to handle physical and virtual environments both internally and externally from the data centers. [redacted]

1.4.2.8.7 Capacity Management

Capacity management which monitors capacity and makes projections about future resource requirements is provided by an array of management and monitoring solutions. While the monitoring solutions are typically implemented as part of a larger Systems Management solution, the individual monitoring tools also provide the capacity management capabilities. [redacted]

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and storage provide tools for the system administrators to proactively predict and respond to potential resource constraints either through optimization or through the addition of resources.

1.4.2.8.7.1 [redacted]s Network Performance Manager

[redacted]

1.4.2.8.7.2 S[redacted]Server Application Manager

[redacted].

1.4.2.8.8 Environment Separation

ISO controls suggest the separation of development, testing and production environments and INIT's proposed back office infrastructure is deployed in support of that guidance. As demonstrated in the network architecture diagram, the production and pre-production back office systems are built within the same hosted, multi-site, distributed infrastructure and share the directory, monitoring, redundancy, load balancers and other administrative services deployed in support of the back office requirements. Leveraging these support functions for both production and pre-production help limit costs and complexity while providing segmentation and isolation for the pre-production environment. Virtual machines from the production environment can be replicated to the scaled down, separate test environment deployed on a separate infrastructure. While representing smaller scale and redundancy of the production environment, the test environment will mirror some of the load balancing and disaster avoidance strategies in order to be able to test these functions from the test facility. Development environments are deployed and maintained in virtualized development environments in INIT's on premise datacenters [redacted].

1.4.2.8.9 Backup

Backup is an integral component to system availability, business continuity and disaster recovery objectives. INIT will deploy a backup infrastructure to complement the multi-site disaster avoidance strategy as detailed in the Network Architecture section. INIT deploys backup solutions which are purpose built to leverage virtualization benefits allowing both full and incremental backups to be taken quickly and without production impact. Our backup controls are focused on backup verification and quick data recoverability. Integrations with VMWare, Windows, and Oracle provide granular backup and recovery options at either the virtual machine level or the file level. INIT proposes an out-of-region data backup facility to ensure

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resiliency from regional issues with the possibility of impacting both production datacenters in the greater Pacific North West region. Backups will occur locally within the production back office and be copied to an offsite, out of region storage location. This strategy provides for near-store backup data for the fastest RTO and RPO as well as for a remote-store backup for longer RTO/RPO but with protection against the rare, regional disaster that could affect the entire regional system and datacenters such as fire, flood, or earthquake. The scope of backups include applications, network devices and databases. Backup controls are additional to the disaster avoidance controls detailed in the Network Infrastructure and Business Continuity sections.

1.4.2.8.10 Network Segmentation

ISO27001 recommends introducing controls within larger network environments that segregate information domains to smaller, specific purpose enclaves. INIT's deployment strategies reflect this guidance using load balancers, firewalls, VLAN's, and DMZ's to segregate public facing services from internal servers including database servers. The creation of logical security perimeters creates the capability of further access control to higher-secured zones. A limitation of Internet access from some of the higher-security zone enclaves provides further protections but also creates complexity in operations. INIT leverages centralized patching, virus management and remote access proxies to extend the necessary management controls into the secure network segments.

1.4.2.8.11 Server Hardening

As recommended, INIT uses a standard server implementation template which has been hardened towards benchmarks from Center for Internet Security (CIS). INIT implements controls suggested by the CIS on a regular basis which improve the security of system without producing undue complexity or overhead. INIT prioritizes the selection of controls that are both simple and secure to ensure an environment simultaneously secure and manageable. Specifically, public facing servers such as web servers with Microsoft IIS receive additional configuration scrutiny and hardening to limit potential attack surfaces.

1.4.2.8.12 Security Incident and Log Management

A log management platform centrally records logs from disparate sources within the ngORCA back office. [redacted]

1.4.2.9 Business continuity & disaster recovery

A load-balanced, multi-site, active/active datacenter architecture provides the highest levels of availability focused on disaster avoidance through both light automation capabilities as well as

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proactive administrator-driven actions. [redacted]

1.4.2.9.1 Disaster Recovery Plan

INIT's disaster recovery plan, of which a sample template has been included, contains industry standard disaster recovery information. Because the proposed architecture is primarily designed to avoid disaster, the plan also includes details on the expected automated responses the system will take in certain common failure scenarios. Also included are templates for documenting business impact analysis and risk assessments that will be performed in collaboration and cooperation with ORCA agencies. Key personnel, application lists and dependency mappings are also detailed to provide operational intelligence to consumers of the

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disaster recovery plan. The DRP is intended to be a living document with updates made on a semi-annual basis to ensure accuracy, document changes, or to add additional information. A proposed disaster incident workflow and response plan document a recommended course of action and tracking mechanism that extends from disaster declaration and communication to system recovery priorities and order of operations.

Additionally, the disaster recovery plan would include data restoration procedures to restore data locally or from the proposed out of region data archive.

1.4.2.9.2 Out of Region Backup

[redacted]

1.4.3 System Integration Services

INIT will provide an open platform and work collaboratively with the ORCA Agencies and other parties to integrate new agencies, services, functionality and subsystems to the next generation ORCA system.

1.4.3.1 API Management

For API Management INIT proposes the comprehensive and widely used [redacted] The following diagram shows the proposed integration with the MOBILEvario APIs.

Client devices and software use the MOBILEvario APIs directly to provide the minimal latency times for the most critical system clients (for example the validators that require 500ms response times). Depending on the configuration that is determined during the negotiation or system specification phase, validator components can also be placed to use the API gateway. This depends on whether the vehicle routers (MARs) will provide a public internet or private APN connection.

With the API management, ORCA is able to publish APIs for different 3rd parties and publish even public APIs for everyone to use. ORCA can publish for example a public API to get the pricing information. Since this kind of information is normally read only, it can be cached in the gateway without placing too much burden on the fare collection system.

The Azure API management system also supports industry standard client authentication methods such as Oauth and OpenID. Authentication with client certificates is also possible.

ORCA can also set limits for certain API clients; for example limiting the number of API calls allowed per day. This is very important to secure proper system operation in case of malfunctioning API clients or DoS attacks on public APIs.

General information on

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1.4.3.2 Onboard Integration

INIT currently provides the CAD/AVL equipment for the majority of the buses that participate in the next generation ORCA system (i.e., for King County Metro (KCM) and Community Transit (CT).

Consequently, INIT can provide the onboard integration more cost-effectively and with lower implementation risk than other proposers. These advantages are especially amplified for the higher-level of integration required for the KCM busses. The integration at KCM, and potentially at Community Transit will require the INIT CAD/AVL DDU to also act as the next generation ORCA DDU. INIT will be able to provide single sign-on easily on these agencies' buses.

INIT's also has extensive experience with onboard integration to other vendors' onboard equipment, such as Clever Devices and Conduent. INIT will integrate with the remaining Agencies' onboard CAD/AVL equipment to obtain geolocation data, work status information (i.e., route/run/trip), and to provide single sign-on logon.

INIT will realize this interface over one of the open onboard communication standards – such as, J1708/1939, Ethernet/Wi-Fi, Bluetooth, and/or USB. The specific details will be determined during the design phase.

1.4.3.3 Customer & Agency Interfaces Integration

As discussed, connections between the back office and customer and agency interfaces – such as, the customer website, customer mobile app, and agency mobile apps, will be performed through INIT-provided APIs.

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1.4.3.4 Washington State Ferries

INIT will utilize the core next generation ORCA APIs to interface to the Washington State Ferries (WSF) frontend devices including the

- Turnstiles (fare gates used for walk-on passenger fare payment at certain WSF locations)
- Handheld validators (mainly use for fare payment – however, include additional capabilities to query an account and adjust next generation ORCA value and products)
- POS system (to collect fare payment at a passenger or vehicle tollbooth, do a transit account query, use ORCA stored value, or load value/product)

INIT understands that all fare amounts, including calculated peak fares by trip, will be determined by the new WSF fare collection system, EFS2, and the next generation ORCA back office will only determine the time-based peak pricing.

The table below shows the expected types of WSF transactions and the transaction data involved.

	Fare Payment	Account Query	Purchase Fare Products/ Add Value	Purchase Media
Date and time	✓	✓	✓	✓
Device ID Station/location ID	✓	✓	✓	✓
Card/account number	✓	✓	✓	✓
Transaction type (e.g., card sale, value load, account inquiry)	✓	✓	✓	✓
Cards sold				✓
E-purse or fare products loaded		✓	✓	
Passenger Type	✓	✓	✓	✓
Transaction value	✓		✓	✓
Account History		✓		
Payment type and amount			✓	✓
Transaction result (*e.g.*, success, failure)	✓		✓	✓
Transaction ID	✓	✓	✓	✓
Product used (E-purse, monthly pass, multi-ride, etc.)	✓		✓	✓
Remaining value (multi-ride rides, E-purse value)	✓	✓	✓	✓
Product expiration date (multi-ride, monthly pass)	✓	✓	✓	
Trip ID (Route Run and Block)	✓			

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1.4.3.5 Data Access & Reporting Platform (DARe)

INIT will work with the Agencies and the DARe vendor to design, build and test a system to Extract, Transform and Load (ETL) data from the next generation ORCA back office to the DARe for reporting. INIT will ensure that the data transmission module is secure, reliable and meets the ORCA Agencies' ISMS requirements. The data transmitted to the DARe will not include any PII or any data that would put the DARe in PCI scope. Customer and transit account identifiers will be obfuscated with a one way hash. INIT will transmit this data to the DARe at least once a day. As called for in the RFP SoW, the design details of this transmission module will be determined collaboratively during the design phase.

1.4.3.6 Retail Network

MOBILEvario is INIT's account based open architecture back office system that enables the integration of various types of sales clients. This can support a range of devices from individual POS devices up to and including an entire retail sales network.

The main task of a retail sales network is to sell customers new smartcards and to add stored value to existing cards. Since, in an account based fare collection system, the smartcard is used merely as an account identifier and all information is stored in the back office, it is very important that all retail sales transactions are immediately sent to the APIs without any batching being performed which would delay the newly loaded value being credited to the customer's account. This way the passengers will be able to use the card on a bus or platform validator directly after purchasing it in the store. The instantaneous availability of loaded value increases customer satisfaction by eliminating the waiting period for value added to the ORCA card.

According the next generation ORCA RFP, the primary distribution channel for next gen ORCA fare media and stored value cards will be an extensive network of retail merchants. The retail network will consist primarily of merchant locations that currently sell prepaid debit cards (e.g., gift cards) and where the point-of-sale (POS) system is already integrated with at least one prepaid debit card network provider.

This scenario is identical to the retail network approach that was implemented by TriMet for the HOP Fastpass system in Portland, Oregon. The retail sales network implemented for the Portland HOP card uses ReadyCredit as the retail network. Retail outlets that are connected to this retail network include Safeway, New Seasons, Fred Meyer, 7-11 and others providing card distribution throughout the greater Portland metropolitan area.

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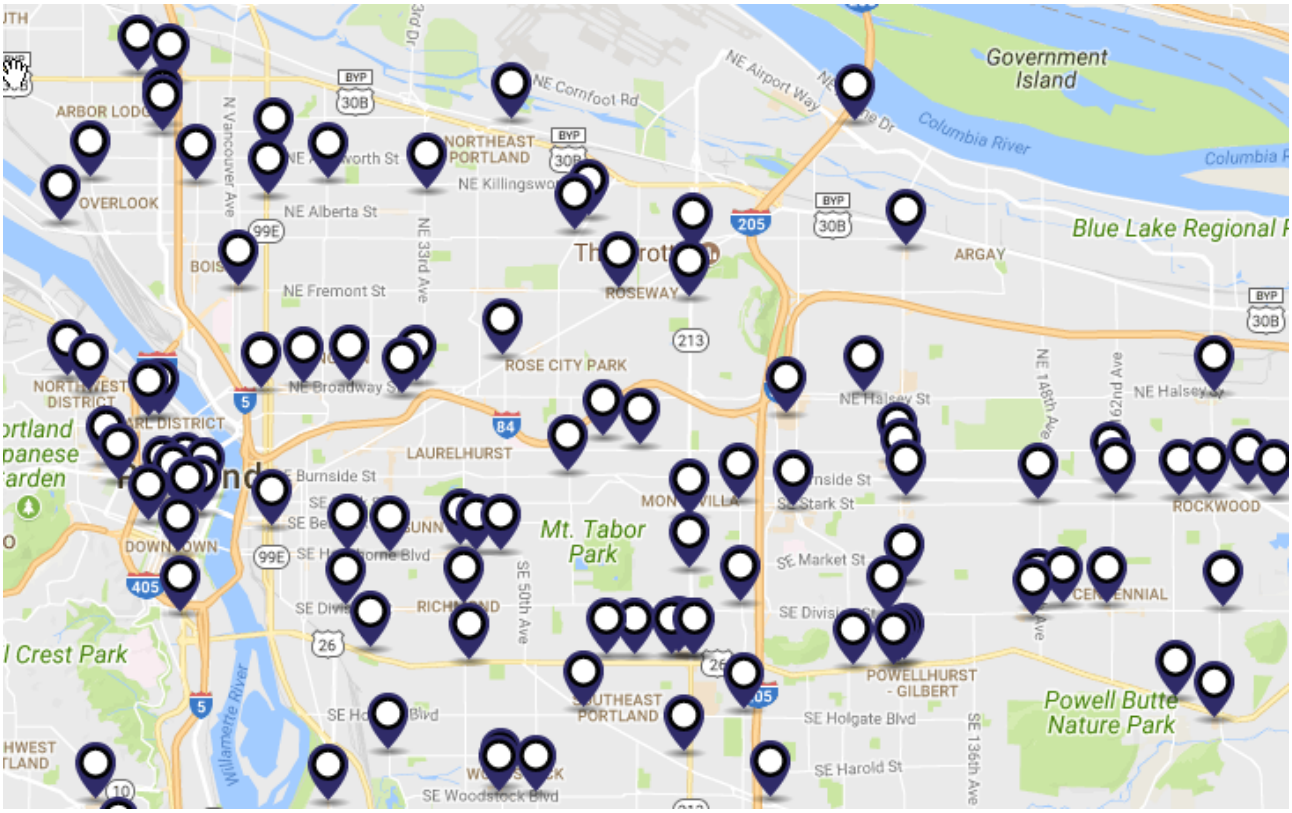

Retail locations accepting HOP transactions in the Portland metropolitan area

The following diagram shows the main system components of the Retail Sales Network integration. The central service uses the REST/JSON API provided by the MOBILEvario system to add value/products to the card accounts (aka. transit account) and sell new cards. We do not envision that the payments of the retail network will be processed via the API's, but this would be possible too.

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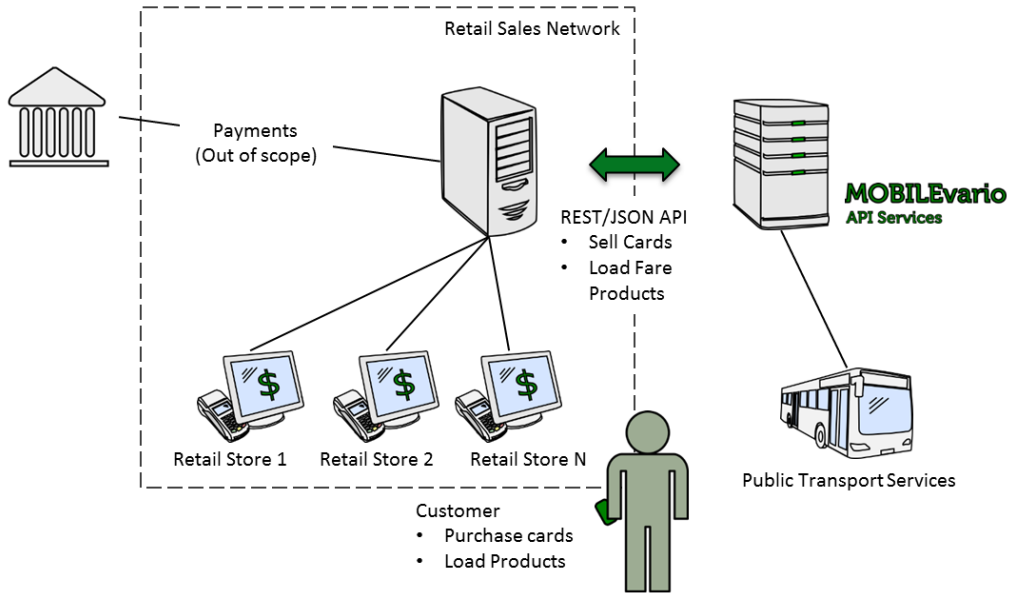

Retail Network System Components

1.4.3.6.1 Standard use-case

The retail network can either sell new passes or cash value loads. Giving the retail network the ability to load pass products may require complex interaction between the clerk and the retail load terminal (e.g. choosing the right agency, selecting the right product and fare category, selecting the right validity dates).

To avoid a complex selection process, other projects, like the HOP system in Portland, only allow cash value loads.

The following is a description of a normal sales procedure:

1. Customer selects a card from the card hanger or brings an already purchased card and passes it to the sales person.
2. The sales person swipes the card (either using the magnetic stripe) or scans it (using a barcode reader) to initiate the sale process.
3. The clerk asks for an amount of stored value to be added to the account and enters this amount into the POS.
4. The POS calculates the transaction amount. If the system detects that the card is new, the cost of the card will be added to the transaction.
5. The customer pays the amount owed.
6. The POS system generates the JSON transaction data for the MOBILEvario Sales API.
7. The transaction is sent to the MOBILEvario API.

The API supports cancellations and refunds. This is especially important for situations where communication problems between the retail network and the backend exist.

The Retails Sales Network will have its own sales channel identifier that is submitted in every transaction. Based on this identifier the retail network can be invoiced for the amount loaded to the cards.

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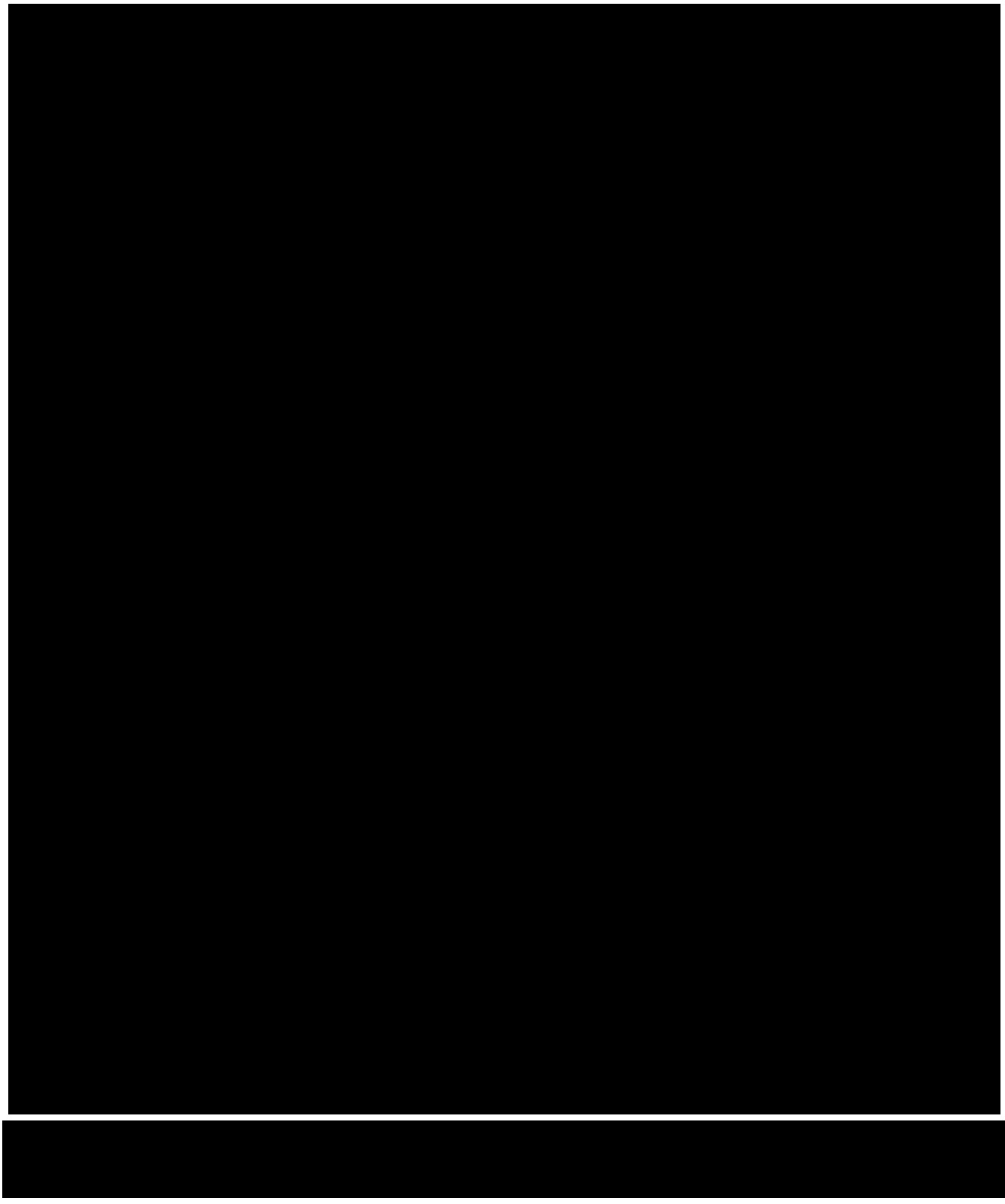
1.4.3.6.2 Retail Network API example

The most important end point for any sales client is the Sales API which is used to issue a card and/or add a fare product to the cards account. Following table shows the different fields in the transactions:



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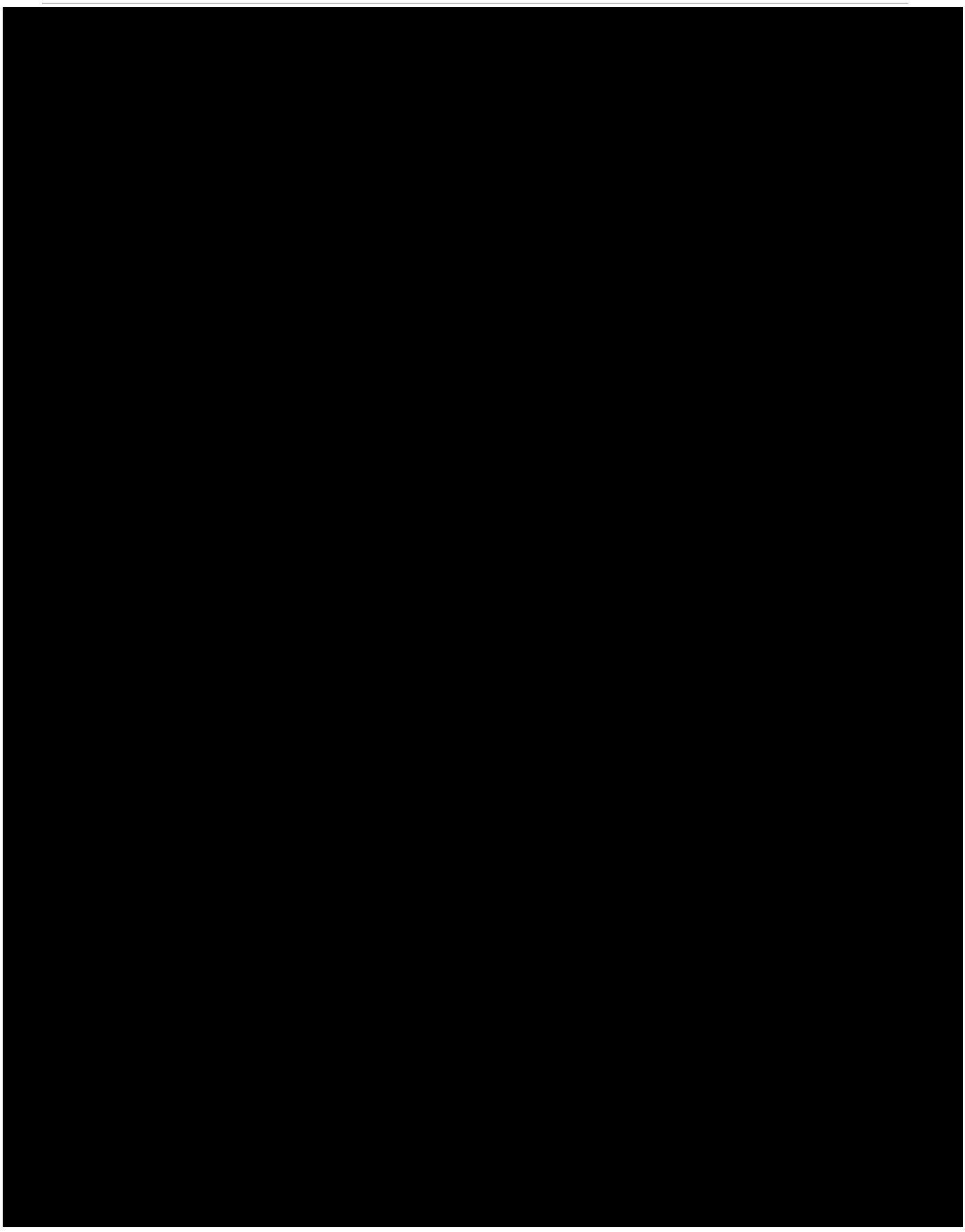

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1.4.3.7 Back Office Integration with Existing Solution

INIT will exchange data with the legacy ORCA system via the DARe repository. During the transition, INIT will obtain legacy ORCA transit account information via the DARe and provide negative lists to the legacy ORCA system using its facility for the bulk uploading of lists. The actual method of information exchange and the design details will be determined collaboratively during the design phase.

1.4.3.8 ADA Paratransit

INIT will replicate the legacy ORCA integration with King Countys ADA paratransit system in Phase 1, and have it available for all participating ORCA Agencies.

Specifically, the next generation ORCA system will receive a list of eligible paratransit customers. INIT will support an agency-specific paratransit monthly pass, and the system will restrict sales of such a pass to eligible customers only. INIT will export a list with pass sales details from the back office on a daily basis for import into agency paratransit databases.

1.4.3.9 Vanpool

INIT will replicate the current legacy ORCA System integration with vanpool systems in next generation ORCA system in phase 1.

There will be one or multiple different Vanpool products (agency-specific and regional) that can be purchased on the website. Since the Vanpool cars do not have validators on board, it needs to be further discussed how the proof of payment for the product purchases will be handled.

In addition to purchasing products, the Vanpool customers will be able to perform single ride transactions with flexible prices on the website and mobile app. This will be considered a 'fare payment' and will use similar API calls than a standard tap on a validator.

1.4.3.10 Additional Integrations

INIT's proposed next generation ORCA System will support additional integrations beyond Phase 1 to include additional agencies and additional modes. The System will support the addition of unlimited new agencies including fare rules that are part of the existing design. The system will provide a scalable framework to support the growth in users and data inherent in adding agencies. The System will be able to integrate with the Kitsap Fast Ferries reservation system in Phase II. All agencies added after the initial implementation will use the System's user interfaces, process flows, and business rules as designed during the initial implementation. Additional agencies will be able to have revenue sharing and apportionment turned on or off according to the existing apportionment rules.

The System will support the addition of new transportation connections, modes and products (e.g., parking) with unique fare pricing and all the configurability of existing modes and products without additional development. The System will support additional modes (Transportation Connections) through APIs that allow third party developers of external applications to communicate with the System in order to manager fare products, transit accounts, and report transactions.

For further details see Tab 6 of this proposal.

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1.5 A Service Proven and Innovative Solution

*Include a detailed description of **how** your proposed System conforms to the service- proven and other capabilities in the Scope of Work Sections 3 through 7, and, if applicable, clearly indicate whether or not the solution requires new development (and the extent of development required) or commercial-off-the–shelf (COTS) applications. Describe how the firm proposes to satisfy the service-proven capabilities and still be the innovative solution described in Scope of Work Section 1. For each furnished device that has been used in service, list public agencies or private organizations for which device has been supplied. Include the following information for each:*

a. Agency or company name and contact person,

b. Business address and phone number,

c. Model number (and original equipment manufacturer, if applicable) of the module,

d. Quantity of equipment provided, and

e. Approximate number of years in revenue service.

1.5.1 INIT's Proposed System conforms to the Scope of Work

INIT meets the ngORCA capabilities by specifically meeting each of the ORCA Agencies' customer, technology, cost, and agency project goal. INIT's proposed system conforms to ngORCA's required service-proven and other capabilities by utilizing a combination of system modules and devices that include:

1. Service-proven INIT AFCS modules and devices
2. Best-of-breed Commercial Off The Shelf (COTS) business applications
3. Industry leading firms with proven AFC track record for externally sourced apps, and
4. New development for innovative enhancements

1.5.1.1 INIT Meets the ngORCA Required Capabilities

The table below indicates how INIT's proposed solution meets the ORCA Agencies' project goals.

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next generation ORCA Goals / Required Capabilities Customer Goals	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Ease of use	INIT provides intuitive user-friendly design for ngORCA onboard validators and platform validators. Customer, institutional and agency facing websites and applications are developed under common UI/UX guidelines and principles ensuring user adoption. High volume applications are deployed through web-browsers for improved consumption and adoption. Agency employees also enjoy the ease of use of familiar web-based and client-server based, point-and click administration tools for back office administration, tariff management, and reporting. INIT administration tools provide the highest levels of configuration flexibility. A UI/UX consultant will assist INIT and the ORCA agencies in ensuring common design principles will support system adoption and use.
Convenience	INIT provides multiple channels to load and manage accounts – including websites, mobile websites, Vending Machines (VMs), call-center functionality, and customer service terminals (CSTs). INIT provides this capability with a service-proven, real-time account-based system so that customers can use their cards immediately after loading. *To enhance customer convenience INIT is offering its service-proven open-payments solutions in Phase I.* The INIT solution supports real-time transactions and real-time fare calculation for quick and accurate transaction time. The INIT solution supports offline transactions which ensure continuous boarding even in the event of back office systems being offline or during cellular service interruption.
Equitability	Equitability is supported through cash-enabled vending machines, gift cards available through retail outlets and through innovative fare capping technology. Fare capping allows agencies to guarantee a fixed maximum price for varying terms including daily, weekly or monthly limits.
Existing relationships	INIT's web-based institutional portal provides an easy to use, full-featured administration tool for companies, universities, and social service agencies. The institutional site mirrors the design of the customer facing web site which will be familiar to ngORCA riders.

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next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Seamless transition for customers	INIT will implement the ORCA Agencies' innovative transition strategy which utilizes the intermediary DARe database to minimize customer impact. *INIT will advance the Phase 5 and 6 transition schedules via resource loading to minimize the period of side-by-side legacy and ngORCA field devices which involves the most customer impact with customers potentially not receiving the most up to date account information.*
Open customer communication	INIT enables effective customer communication through powerful content management systems for customer information channels – such as, websites, VMs, etc.
Technology Goals	
Open architecture	Since the inception of its Automated Fare Collection (AFC) system, INIT has utilized an open architecture with extensive use of Application Programming Interfaces (APIs) which allow ease of interfacing between different system components – including third-party components.
Modular design	INIT's System highly modular design allows for the use and interchangeability of third-party Commercial-off-the-Shelf (COTS) solutions. This is supported by INIT's open API architecture and Azure API Management gateway.
Real-time communications	INIT provides a proven real-time solution which enables customer transactions to occur within milliseconds – customer can use their cards or smartphone "virtual cards" immediately after loading fare products or value onto their transit accounts. The robust solution allows for low risk offline operations with local approvals and store and forward capability.
High availability	INIT utilizes an active-active, load-balanced geographically redundant dual-site Infrastructure as a Service (IaaS) solution at Level 4 data centers to provide disaster avoidance and an extremely high availability hardware and software solution. Additional offsite, out-of-region data backups ensure resilience from generally rare, but increasingly prevalent regional disasters.

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next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Compliance with security standards	INIT has recently deployed multiple Automated Fare Collection (AFC) systems which are certified PCI compliant. INIT's security strategy involves industry best practices including, tokenization and cryptography. Additional IT security best practices such as log management, flow monitoring, file integrity management, endpoint protection and intrusion detection systems are used to protect the production environment. The Oracle Enterprise database is fully encrypted at the table level.
Minimize transition-only software	INIT's solution, based on the ORCA Agencies innovative transition plan, involves very minimal transition-only software. Although INIT will develop an interface to the DARe for information exchange with the Legacy ORCA, this interface will also be utilized for reporting of long-term data.
API integration	Since the inception of its Automated Fare Collection (AFC) system, INIT has leveraged the use of APIs to realize an open architecture platform. This use of APIs to integrate different applications and devices enables the easy use of best-of-breed third-party COTS solutions.
Scalability	INIT's use of an Infrastructure as a Service (IaaS) solution allows for easy scalability as ngORCA expands agencies, modes, usage, and customers.
Cost	
Minimize dependencies on a single vendor	INIT's open architecture solution will allow for easy integration of different third-party COTS applications resulting in a higher-level of multi-supplier environment, increasing competition and reducing costs.
Manage and minimize risk to cost and schedule	INIT's use of a service-proven solution, extensive experience in the implementation of Automated Fare Collection systems and integrating to INIT CAD/AVL onboard equipment on the vast majority of the vehicles will significantly minimize risk to the program cost and schedule.
Lower Total Cost of Ownership (TCO)	The INIT solution lowers the TCO through the use of a service-proven platform (which minimizes development costs), an open architecture system (which increases competition), an INIT to INIT onboard system (minimizing complex, costly integration), and a Seattle office to provide deployment and ongoing support locally.

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next generation ORCA Goals / Required Capabilities Agency Needs	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Preserve operating revenues	During the transition, integration with the DARe will protect data and operating information and therefore protect operating revenue. After transition, a robust financial management application and advanced multi-agency revenue distribution function will ensure accurate revenue reconciliation.
Revenue distribution	INIT brings an extensive track record in implementing multi-agency Automated Fare Collection systems with successful and accurate revenue distribution.
Access to information	INIT employs a browser-based standard reporting application, VASAweb which provides easy access to standard reports. Further information is available in web-based systems management dashboards from MOBILEsymon, JIRA Service Desk, Riada Insight, and MOBILEGuard.
Increase ORCA usage and market penetration	INIT appreciates the business advantages of increasing usage and penetration, and will act as a partner and support the ORCA Agencies to advance this goal from a technology, business and operations perspective. *As indicated above, INIT proposes to advance the use of its open payments solution from Phase 2 to Phase 1 which should assist in increased use of ORCA.* The high performing transactional system combined with the user-friendly and well-designed institutional and customer facing websites will encourage increased adoption and market penetration. The use of fare capping within the INIT platform will increase good will amongst riders by being able to ensure a guaranteed best fare.
Operational efficiency	INIT incorporates extensive experience in the transit industry and will deploy its operations-centric solution to optimize System operations, administration and maintenance. With a COTS-based solution and a very strong subcontractor partner team, the INIT team will be able to roll-out new functionality and upgrades faster. Given the separate test platform, INIT's existing remote field device software update capability, and the configuration and change management application, the INIT solution will facilitate the ORCA Agencies to quickly assess and pilot new technology features and implement them efficiently. INIT's open architecture and extensive use of APIs will enable successful integration and operation with legacy and third party systems.

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next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Work within the limited space available	INIT appreciates the space constraints on transit vehicles and has integrated with all major onboard transit equipment providers in a wide variety of locations including busses, LRV, streetcar, ferry, stations, garages and offices.
Scalable to agencies of varying sizes	INIT's system is very scalable and has been successfully implemented for multi-agency platforms with agencies ranging in size from several hundred vehicles to several thousand vehicles.

1.5.1.2 INIT's Service Proven Automated Fare Collection System

The table below shows how the proposed INIT system is service-proven – indicating that all the system components and devices have been deployed in other systems previously.

INIT's Service-proven Automated Fare Collection System

System	In-Service Date	ngORCA Proposed Back Office	ngORCA Proposed Wayside & Onboard Validators	ngORCA Proposed VMs	ngORCA Level Reliability, Accuracy, Availability
Portland, Oregon	Jun. 2017	●	●	Not in Scope	●
Turku, Finland	2016	●	●	Not in Scope	●
Sacramento, CA	Jul. 2017	●		Not in Scope	●
Tampa, FL	Pilot Q2 2017	●	●	Not in Scope	●
Luxembourg		●		●	●
Bremen, Germany		●		●	●
Grand Rapids, MI	Pilot Q3 2017	●	●	Not in Scope	●
Honolulu, HI	Pilot Q1 2018	●	●	●	●
Orange County, CA	Pilot Q4 2017	●	●	Not in Scope	●

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1.1.1.1 A Balance of Service-Proven, COTS, and Innovative Modular System Design

INIT's proposed System provides a balance of service-proven, COTS and innovative modular design as indicated in the table below. This approach balances the risk mitigation and cost-effectiveness associated with service-proven components, and state-of-the art functionality associated with new development. Even though INIT's modules are service-proven, they continue to be updated and are very current. The most recently successfully implemented systems include Portland, Turku and Birmingham. Systems currently being deployed include Honolulu, Tampa and Grand Rapids.

System Module / Application	INIT Service Proven Module	COTS Module	Externally Sourced Modules	Innovative Development/ Customization (Estimated)
Account-based Transaction Processor (ATP)	MOBILEvario OVS			[redacted]
Customer Relationship Management (CRM)	MOBILEvario CSW	[redacted]		
Asset Incident Management				
System Manager	MOBILEsymon			
Fare Media Management	MOBILEvario Inventory Management			
Financial Management Application				
API Management Application				
Customer Website			[redacted]	
Business Website				
Mobile Website				
Agency Mobile Apps (Fare Inspection & Validation)				
"Virtual Ticket" Mobile App				

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1.5.1.3 Service-Proven Devices and Modules

The table below illustrates the type, quantities, length of time and references for the hardware devices that we are proposing for next generation ORCA project.

Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Original Version)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]								

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Original Version)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]								[redacted]
								Reference contact available on request
								Reference contact available on request
								Reference contact available on request
								Reference contact available on request

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Original Version)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]								

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Original Version)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]								

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Original Version)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]								

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Original Version)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]								

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1.5.1.4 Fare Media

For the next generation ORCA system, INIT proposes the [redacted], which provide an excellent option for account-based transit applications because of the limited storage capacity that is needed. Additional features of this of [redacted] include:

- [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

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[redacted]

1.6 INIT's High-Reliability Field Devices and Subsystems

Specifically for Field Devices and Subsystems (Scope of Work Section 4):

a. Provide a detailed description of each of the following proposed devices, software, and associated mounting systems:

i. Onboard Validator

ii. Driver Display Unit

iii. Wayside Validator

iv. Vending Machine

v. Customer Service Terminal

b. For each device listed in 6.a. above:

i. Provide drawings that show dimensions and materials used

ii. Describe supported functionality as it relates to the capabilities in Scope of Work Section 4

iii. Describe the proposed customer interfaces for each device

iv. Describe the communication interfaces provided

v. Describe the interchangeability of modules and assemblies among devices and ease of maintaining the components of the system and the expected reliability of the equipment

INIT's extensive experience and wide range of fare collection solutions including wayside validators, onboard validators, driver display units, vending machines, and customer service terminals provide a coherent customer experience, with similar look and feel across all the POS service points throughout the entire next generation ORCA system. The customer payment experience is designed to be a uniform and smooth experience for all riders including commuters, infrequent customers (including tourists), children, the elderly, persons with disabilities, customers with impaired vision, customers with impaired hearing, and non-English speaking customers.

INIT's highly configurable Vending Machines (VMs) and validators will facilitate ORCA agencies to design a coherent customer experience for all customer facing equipment and applications. INIT and its User Interface/User Experience (UI/UX) consultant, will work collaboratively with the Agencies to develop a design that defines the UI/UX components – including,

- Consistent cross-platform branding
- Interface displays
- Lettering
- Lights
- Colors
- Tactile feedback
- Brightness
- Graphics

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- Animation
- Screen savers
- Surface texture
- Component size and height

1.6.1 INIT's Service-Proven PROXmobil3 Vehicle Onboard and Station Platform Validator

INIT is proposing the same validator for vehicles and platforms. This simplifies operations and maintenance due to the benefit of shared spares and common training.

For well over a decade, INIT has provided validators to process tickets and electronic fare media serving riders around the world. We are now in our third generation of smartcard validation/processing devices, the PROXmobil3. Our latest generation of validators is designed to process all currently available smart media, barcoded paper and mobile tickets.

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PROXmobil3

Passenger Terminal

The Future of Mobility

Flexible, fast and secure

An easy-to-use fare collection system makes public transportation more attractive. Especially now that electronic fare management and passenger-operated terminals are in great demand.

Like its predecessor, INIT's new passenger terminal PROXmobil3 supports all variations of e-ticketing. The housing is more sleek taking up less aisle space on the vehicles.

With its 12.0 cm (4.75-inch) display PROXmobil3 offers passengers a convenient and intuitive way to manage all their ticketing transactions. For instance, they can select the ticket that is best suited for their needs, store tickets on smart cards, or validate bar code tickets. VDV-KA, ITSO, Calypso and boarding control are supported, as well as credit card based applications according to the EMV standard or account-based ticketing. The software supports different standards, even combined in one system.

The intelligent terminal can be operated as well as a stand-alone device as it is equipped with WLAN and GPRS/UMTS. PROXmobil3 is available in two versions: for mobile use inside vehicles and for stationary use at platforms.

Features

- Contactless payment in the vehicle
- Controlled boarding
- Check-in / check-out
- Automatic fare calculation
- EMV, NFC
- On-board or at platforms
- Easy installation

PROXmobil3, INIT's Space-Efficient and User-Friendly Validator

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1.6.1.1 Hardware

The PROXmobil3 meets the stringent requirements of the ADA standards. Furthermore, the PROXmobil3 fully complies with all environmental requirements, as stated in the RFP.

PROXmobil3 Reliable and Easy to Maintain Hardware

- **The Environmental Light Sensor** ensures that the screen brightness is appropriate for all lighting conditions making it easy to read even in bright sunlight.
- **Customer Display** with optional touch function gives passengers information on the validation status and shows passengers information about the payment options (such as MasterCard and Visa logos).
- **Reader EMV L1 & L2 and PCI/PTS certified** reader fast and secure closed and open loop payment card validations.
- **Barcode Reader (unpriced option)** can read all industry standard barcode formats with high speed. The barcode decoding is implemented with a HW accelerated barcode decoding module.
- **Service Port** is a magnetic coupled USB 2.0 port that provides maintenance personnel an easily accessible interface. Non-standard waterproof design adds an additional layer of security while protecting internal electronics from water and dust.
- **Mechanical Lock** is used to lock the PROXmobil3 device to the mounting plate.
- **Mounting Plate** is firmly attached to the mounting pole. The mounting plate contains integrated memory where the vehicle number and any specific configurations are stored. Thus, the device can be exchanged without any configuration effort—Hot swappable. The mounting plate also contains backup memory for transactions to further protect your transaction history.

PROXmobil3 =

Hot swappable Validator!

- **Cellular Communication (unpriced option)** to communicate with the back-end in real-time using 4g/LTE

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INIT provides "Hot Swappable" field devices. Because logs of transactions as well as core configurations are stored in an intelligent mount, one need only swap out an INIT PROXmobil3 should a unit fail in the field. This can be done in a matter of seconds saving you valuable time minimizing any impact on your revenue and customer confidence. On boot-up, it will pick up without the need for further configuration or programming.

The PROXmobil3 can be equipped with a 2D barcode scanner, located at the bottom of the device. In the event the agencies will require barcode scanning in the future, the validators could be modified to include the reader. The convenience of placing the barcode scanner at the bottom of the device allows for a minimal footprint onboard a bus, where space is already limited.

1.6.1.1.1 ADA Compliance

The onboard validator was designed such that obstruction is minimal and to make access simple so that ADA compliance can be achieved. Within the vehicle, an ADA compliant location for the validators will be identified and confirmed by the agency together with INIT.

In order to be compliant, the validator must be installed at 48" (see requirement 308.3.1 of the ADA Accessibility Guidelines) maximum above the finished floor surface and provided in an area that provides a minimum of 30" x 48" of clearance in the floor space for wheelchair users to approach and access either by parallel or forward approach (see requirement 305 of the ADA Accessibility Guidelines).

If the validator is mounted in the dash console of the vehicle and is set back greater than 10" from the edge, forcing the user to reach over an obstruction, then a maximum of 46" to highest operable part or element is required (see requirement 308.3.2 of ADA Accessibility Guidelines).

A speaker included in the validator will provide different audible tones to provide visually impaired persons with the validation result (either positive or negative).

With regard to the applicable ADA requirements, it is important to remember that the on-board validator is located in an attended environment (bus operator).

1.6.1.1.2 Enclosure

The PROXmobil3 is ruggedized and specifically designed for the transit industry with a proven track record. The PROXmobil3 has a safe design with all validator corners rounded, no exposed or accessible bolt heads, nuts, sharp edges, or cracks on outside surfaces. The display is flush-mounted in the housing. The validator housing covers for accessing modules and subassemblies are secured with mechanical locks. The keys are uniquely serialized and cannot be copied.

The dimensions of the PROXmobil3 validator are 5.5" x 8.3" x 1.6" (width x height x depth).

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PRODUCT INFORMATION

Passenger Terminal

PROXmobil3

- Support of different standards (VDV-KA, ITSO, Calypso, etc.)
- Compact housing
- Hybrid card reader
- Back-up storage of sales data on a µSD card in the mounting plate

	Technical Data
Display	12.0 cm [4.75"] Diameter 754 x 480 dots 262k colors 900 cd/m² LED-backlight (controlled) Projected Capacitive Touch (optional)
Processor and Memory (RAM)	32-Bit ARM Cortex-A9 800 MHz 512 MByte DDR3L
Memory (Flash)	2 x 1 GByte µSD-card
Interfaces and Modules	Ethernet 10/100 Mbit WLAN IEEE802.3 a/b/g/n (optional) UMTS/LTE (optional) 2D Barcode scanner (optional) Audio output
Contactless RFID Reader	Chip cards (contactless): ISO 14443 a/b; Mifare(R) EMVCo Level2 (Mastercard, Visa, American Express, Discover), PCI PTS SRED certified optional: – VDV-KA – ITSO – Calypso NFC reader compliant Up to 4 safety modules (ISO 7816)
Power Supply	8 V – 33 V; max. 10 Watt
Dimensions	140 mm [5.5"] x 212 mm [8.3"] x 41 mm [1.6"] (width x height x depth) Installation using quick-change bracket; device secured by lock
Weight	approx. 1.1 kg [2.43 lbs]

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1.6.1.1.3 Installation & Mounting

The PROXmobil3 is capable of a variety of installations as shown in the figure below. Whether it's on a platform, bus or LRV, the PROXmobil3 has been designed to support the agencies requirements, even in outdoor environments.

Ease of PROXmobil3 Installation and Mounting

Because of its compact footprint, even dashboard mounting is possible. INIT works closely with our clients to find the optimal locations for the equipment supporting both ergonomic and aesthetic considerations. As seen here, most installations include vertical mounting, however, INIT can also provide a horizontal mount if preferred by an agency. The horizontal mount, unpriced in this proposal, is available for a small upcharge at the agency's request.

1.6.1.1.4 Power

The PROXmobil3 can operate with the wide voltage range from 8V to 33V. When the bus ignition is turned off, the onboard validator will remain powered for a configurable time to allow completion of transmission of any and all data files and transaction records.

1.6.1.1.5 Communications

The figure below provides an overview of the onboard communications, which involves a single cable to the onboard validator to provide Ethernet connection, power, ground and the ignition signal to turn the validator on and off.

The validator will utilize Ethernet to connect to the ORCA Agencies' provided Mobile Access Route (MAR), the INIT or third-party CAD/AVL Vehicle Logic Unit (VLU), and the INIT or third-party DDU.

For [redacted] Interfacing between INIT-only onboard components will lead to a very simple, cost-effective, low risk and quick integration for the KCM vehicles. INIT utilizes this same architecture for the HOP FastPass project in Portland and Vancouver, WA, which utilized INIT for both CAD/AVL and AFC. For the Community Transit vehicles, INIT can also provide a simple, cost-effective, low risk, and quick integration,

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given that it involves communications between INIT-only components. For the CT vehicles, INIT can provide a separate DDU for the fare collection or share the existing one being used for CAD/AVL. Given that the KCM and CT vehicles make up the vast majority of next generation ORCA vehicles, there would be a significant advantage to utilizing an INIT System – especially, for the more complex KCM interface involving the sharing of the DDU for both CAD/AVL and AFC. For the non-KCM and non–CT vehicles, INIT will interface to the third party onboard CAD/AVL equipment.

The platform validator will connect to the back office via Ethernet to a station switch and then via the Agencies' WAN.

For the platform devices, the PROXmobil3 validators may be connected using standard PoE.

1.6.1.2 Software (Functionality)

When the vehicle ignition is turned on, the PROXmobil3 will boot and go through its self-diagnostics. Any errors or anomalies will be logged and sent to the central system where MOBILEsymon, INIT's system monitoring too, will record and process them according to mutually agreed policies.

If no issues are found, the validator will finish its initialization routine and display a gray screen stating "Not in Service". This status and message will be pushed to the DDU for display to the operator.

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Once the operator logs on the DDU, the validator will change its display to the default passenger screen, e.g. 'Please tap on'.

The onboard CAD/AVL system will report the vehicle location to the validator periodically. On door cycle events the onboard CAD/AVL system will push the stop and location information to the validator so that any passenger payment interaction may be correlated with the route, stop and location.

1.6.1.2.1 Transaction Records

Onboard and wayside validators will generate, store and transmit a discrete data record for each transaction and/or validation performed, and include the information indicated in the table below

Onboard PROXmobil3 Transaction Record	Wayside PROXmobil3 Transaction Record
[redacted]	[redacted]

PROXmobil3 Onboard and Wayside Validator Transaction Records

1.6.1.2.2 Audit Registers

INIT's validators include local audit registers for data and analysis purposes, which maintain counts for the following events as applicable:

- [redacted]

- [redacted]
- [redacted]
- [redacted]

1.6.1.2.3 Events & Alerts

The PROXmobil3 validators will provide real-time status of device events and alerts to the MOBILEsymon, INIT's system manager – including

- Power on
- Power off
- Operator login and logout
- Route changed
- Back office communications failure / restoration
- Maintenance parameter change
- New software received/activated
- New configuration data received/activated
- New list received/activated
- Internal clock reset
- Validator clock error
- Data memory near full/full
- Validator "heartbeat" check

In addition to providing real-time status information, the validators will locally store events and alert logs for up to 3 months in the event of loss of communications to the back office.

The validators will transmit "heartbeat" messages at an adjustable frequency to confirm communication with the back office and basic status.

1.6.1.2.4 High-Speed Validation Process with Offline Provisions

The figure below provides a flow chart of the validation process which includes an inherent provision for offline situations, by providing a local validation in the event the validator does not obtain a response from the ATP.

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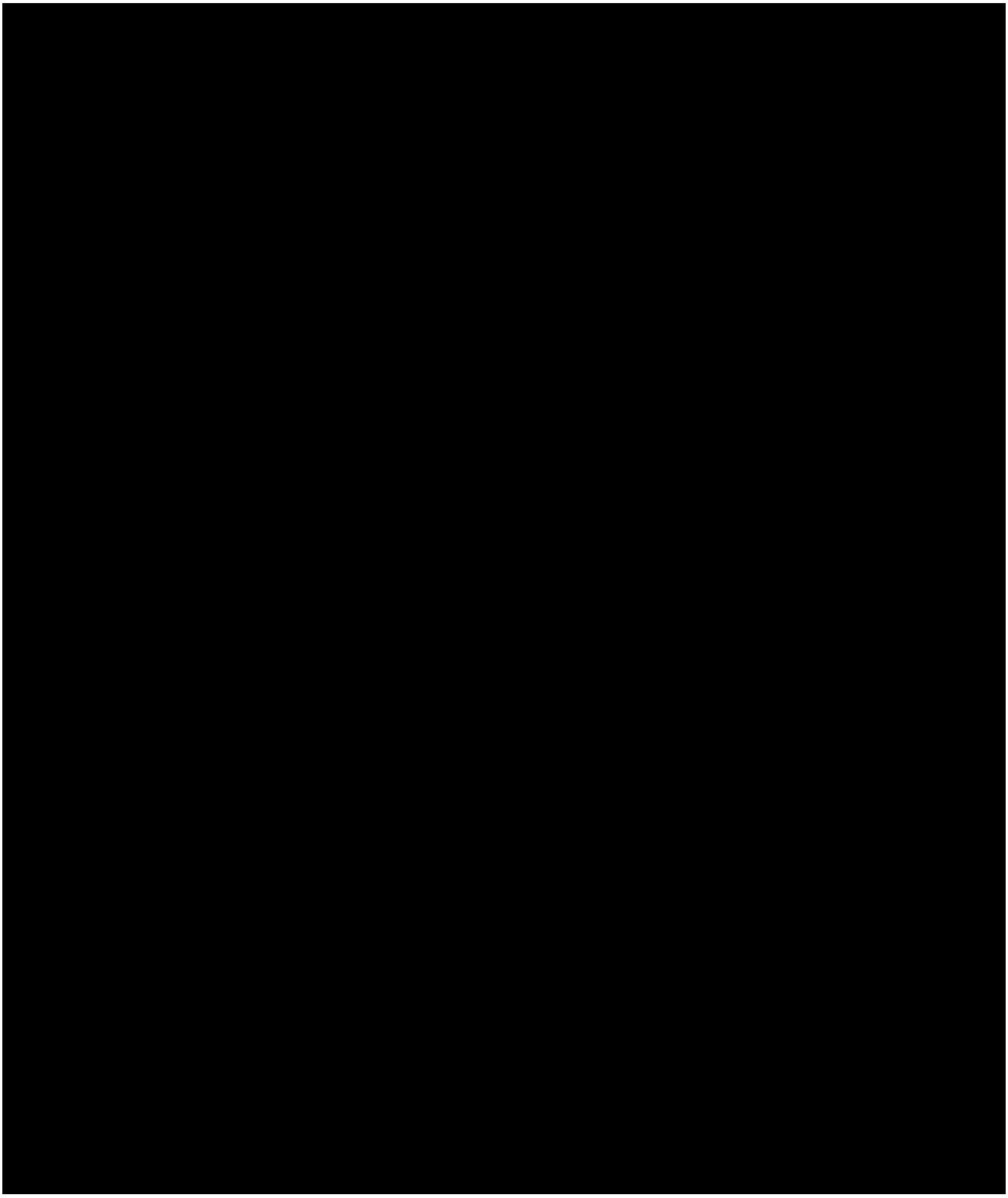

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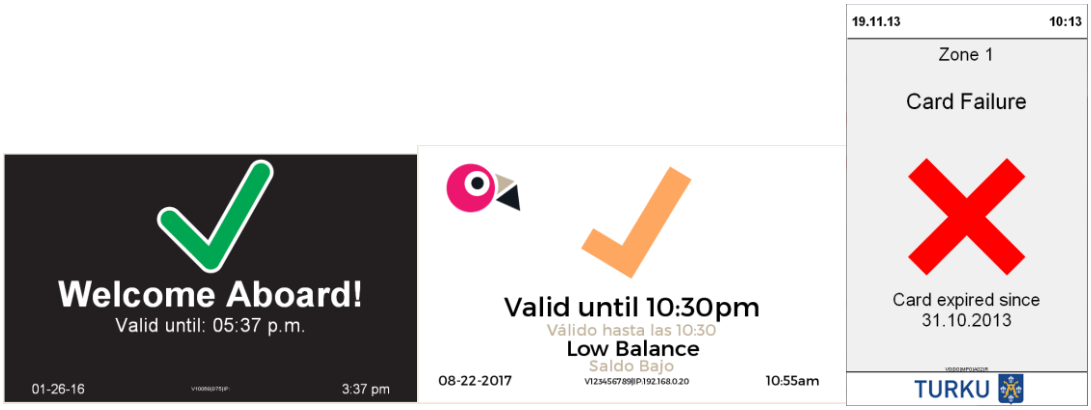
1.6.1.2.5 Customer Interfaces

The PROXmobil3 customer interface is highly configurable. From left to right in the pictures below, you can see the look and feel of the user interfaces for the HOP FastPass (Portland, OR), Tampa and Turku. These projects are all account based systems, making them very similar to the next generation ORCA functionality. The PROXmobil3 display is LED based with a light sensor to determine brightness. As evidenced above, the GUI will be customized to fit the look and feel of the next generation ORCA design. A speaker included in the validator will provide different audible tones to provide visually impaired persons with the validation result (either positive or negative).



INIT's Highly-Configurable Validator User Interface

1.6.1.3 Maintainability

INIT provides "Hot Swappable" field devices. Because logs of transactions as well as core configurations are stored in an intelligent mount, one need only swap out an INIT PROXmobil3 should a unit fail in the field. This can be done in a matter of seconds, saving you valuable time minimizing any impact on your revenue and customer confidence. On boot, it will pick up without the need for further configuration.

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Easy validator replacement

1.6.2 INIT's Color, High-Resolution TOUCHit2 Driver Display Unit

INIT is proposing its TOUCHit2 Driver Display Unit (DDU) for the next generation ORCA project.

INIT's Transit-Rugged Touchscreen DDU

1.6.2.1 Hardware

The TOUCHit2 consists of a brightness sensor for regulation of the display brightness, status LEDs and touch sensitive display. The 6.5", 800x480, full-color touch screen is ergonomically designed, and the display has LED backlight for optimal contrast and extended life-time. The TOUCHit2 is designed with a high resolution screen giving drivers easy to read information even in bright sunlight. It automatically adjusts to ambient light conditions and offers a night mode.

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The compact housing contains:

- All electronic components
- TFT Display
- Touch panel
- Connector to the on-board computer

1.6.2.1.1 Controller Board

The electronics of the TOUCHit2 are specially designed for automotive use. The components are nearly all manufactured in SMT (Surface Mount Technology). This offers the possibility of a compact design and the advantages of high-quality mechanics. The components are selected to fit the required industrial temperature range.

The TOUCHit2 is controlled by a 32-bit CPU-Module with ARM Cortex A9 processor from Freescale. The device features 512 MB RAM and 4 GB Flash Memory. A touch controller from Texas Instruments performs signal interpretation of the touch panels.

1.6.2.1.2 TFT-Display

The color display is a TFT display with LED Backlight

- Aspect Ratio:16/9
- Screen diagonal: 6.5 inch
- Brightness: 600 cd
- Display Resolution: 800 x 480 dots
- Visible area: approx. 5.7" x 3.1" (144 mm x 78 mm)

1.6.2.1.3 Touch Panel

The touch panel works with analog resistive technology and is coated to feature an anti-glare surface. The lifetime of the touch foil is specified to one million finger touches. As confirmed by the agency, a touchscreen solution is acceptable, therefore physical buttons will not be provided. Since there are no physical buttons, additional virtual buttons can be added to the graphical user interface to perform future functions. Because the touchscreen is resistive, it can be operated with gloves or other material.

1.6.2.1.4 Enclosure & Mounting

The TOUCHit2 features a strengthened polyamide housing with dimensions of approx. 7.28" x 4.13" x 1.42" (185 mm x 105 mm x 36 mm) W x H x D. It is designed to withstand all the required bus environmental and operating conditions and to withstand the tough conditions of the bus environment.

The TOUCHit2 has various mounting accessories available to integrate or to mount to different locations of the different bus types. INIT will provide all necessary hardware and mounting brackets. The mounting location will be decided together with the Agencies so that the bus operator has an unobstructed view. The connector on the back of the device enables power and Ethernet connection with just one cable, making the installation simpler.

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1.6.2.2 Software

The operating system on the TOUCHit2 is Linux and will provide all system functions needed such as Ethernet communication drivers.

1.6.2.2.1 Operations

On system startup, the TOUCHit2 checks its hardware and boots the operating system. After a successful boot, the driver display application is loaded. As soon as the application is running, a connection to the PROXmobil3 bus validator is established. Fare validation results of transactions performed on the validator are transmitted to the TOUCHit2 to display them to the bus operator. The driver display also updates status information shown on the screen and is ready to send commands to the validator e.g. to enable the Maintenance Mode. If the connection to the PROXmobil3 can't be established, the driver display will show an error status.

1.6.3 INIT's High- Configurable Smart Vending Machine

INIT is pleased to propose its state of the art VENDstation Full Featured Vending Machine (FFVM) and VENDmobile Light Featured Vending Machine (LFVM) as the choice Vending Machine (VM) solution for the next generation ORCA project. INIT VENDstation and VENDmobile VM's are the perfect solution to satisfy the contractual requirements as the current design of the VM's align with the specific goals and objectives of the agency, setting the stage for a new era of ticketing convenience for next generation ORCA customers. Both VM models are designed to be simple, low-maintenance, and low-complexity machines utilizing a cost-saving design that meets or exceeds the functionality and common design capabilities specified.

Our highly efficient and user friendly VM's will improve the customer experience and reduce VM waiting times, especially at high priority stations. INIT is an experienced and qualified supplier of VM's, providing proven and easily configurable options for full cash, limited cash (no change) and cashless configurations, enabling cost effective future enhancements at any time. Because of our commitment to Open Architecture, open APIs and COTS (Commercial off-the-shelf) based solutions, the VM's offer valuable benefits from low initial start-up costs to significant decreases in ongoing operations and maintenance costs.

Once installed, the new VMs, with their modular open architecture and open Application Programming Interfaces (APIs), will provide unmatched flexibility to control the VM configurations, implement future enhancements and support third party integration. A direct result of this flexibility is a significant improvement in the VM useful life, and the elimination of excessive ongoing costs related to the complexity of unproven,

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custom designs. This simple, but extremely flexible open system is highlighted in the table below:

Benefits of the INIT VENDstation and VENDmobile VM System
✓ **Reduced Capital Costs and Ongoing Operations and Maintenance Costs** ▪ Experienced and qualified supplier of VM Systems ▪ Proven Modular Designs in both Cash and Cashless Configurations ▪ Commitment to Open Architecture and COTS based solutions ▪ Experienced Project Staff for cost effective project management
✓ **Provide Integration Flexibility for Cost Effective Future Enhancements** ▪ Modular Open Architecture and Open APIs enables effective Third Party Integration ▪ Configurable, Modular VM and TOM Designs for Simple, Cost Effective Updates ▪ Enhanced Control Over System Configurations ▪ Unrestricted Access to APIs, Keys, Data Formats and Data
✓ **Improved Customer Experience – Reduce Lines for Ticket Purchase** ▪ Install Field Proven, Standard Configuration INIT VMs ▪ Significantly Reduce Transaction Times ○ Eliminate Confusion with Simplified Purchase Screen Flow ○ Improved Ticket Issuance Speed ▪ Improved System Monitoring for Minimal Maintenance Response Times

1.6.3.1 General Capabilities

For clarification, the INIT VENDstation and the acronym FFVM are one and the same. Likewise, the INIT VENDmobile and the acronym LFVM are one and the same. When referring to the functionality of a specific Vending Machine, the acronym or the INIT tradename (VENDstation or VENDmobile) will be used. Otherwise, the term VM will refer to both Model Vending Machines as referred in the RFP.

In keeping with the preferred goal of a common platform approach, the internal components of the VM's, where applicable, are essentially the same and can be interchanged between each type of VM seamlessly. The table below details the components between each VM which are interchangeable:

INTERNAL COMPONENTS	FFVM	LFVM
Controller (VENDpc + VENDpc extension)	Same	
Push Buttons	Same	
FEIG closed and open loop card reader	Same	
Coin handling Unit with Escrow but without change	Coin carousels that enable Change	Escrow for refunds, no possibility for change

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INTERNAL COMPONENTS	FFVM	LFVM
Bill Handling Unit MEI SCR small version	SAME	
Bank Card Processing Unit - Ingenico iSelf	SAME	
1 x Double printers (2 paper rolls in total)	Printer unit is the same. Paper roll width 300mm. Sheet metal & mounting differs from LFVM.	Printer unit is the same. Paper roll width 130mm. Sheet metal & mounting differs from FFVM.
Smartcard Dispenser	Same	

In addition, INIT's cash and "no change given" VM variants allow the transit agencies to pick the right variant at each station. The logic flow of the transaction for both VM's is the same. The following figures depict the easy three step process the VM follows during the patron transaction. The only difference is the removal of the Coin recirculation components necessary for issuing change.

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1.6.3.2 Hardware

The following chapters focus on the INIT VM's hardware.

1.6.3.2.1 Enclosure

The high security VM housings are made of 2mm thick stainless steel with reinforced corners. The secure, modular VM enclosure is constructed to withstand rugged harsh environmental conditions against moisture, dust/grit/sand, humidity, electrical storms, exposure to urban and marine environment, and the range of elevations and altitudes in the operating region, while providing next generation ORCA customers with a convenient customer interface.

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The COTS based service proven design supports a high availability, low maintenance model, where the ORCA transit agencies can provide a positive purchase experience to its customers. As detailed in the table below and illustrated in figures, the ergonomics of the user interface front panel and component layout for both VM's provide a smooth and easy to use transaction experience for the customers.

INIT VM Features	next generation ORCA Benefit
Simple, service proven VM design	• Low capital and ongoing operating costs • Proven functionality to allow for timely VM acceptance and expedited replacement of existing malfunctioning VM's.
Modular, COTS based VM Components	• Low risk, low maintenance, low complexity as compared to custom designs • Extremely low maintenance costs • Reduced downtime for improved customer experience
Flexible, Configurable VM	• Flexibility for next generation ORCA authorities based on passenger flow • Cost savings based on flexible configurations

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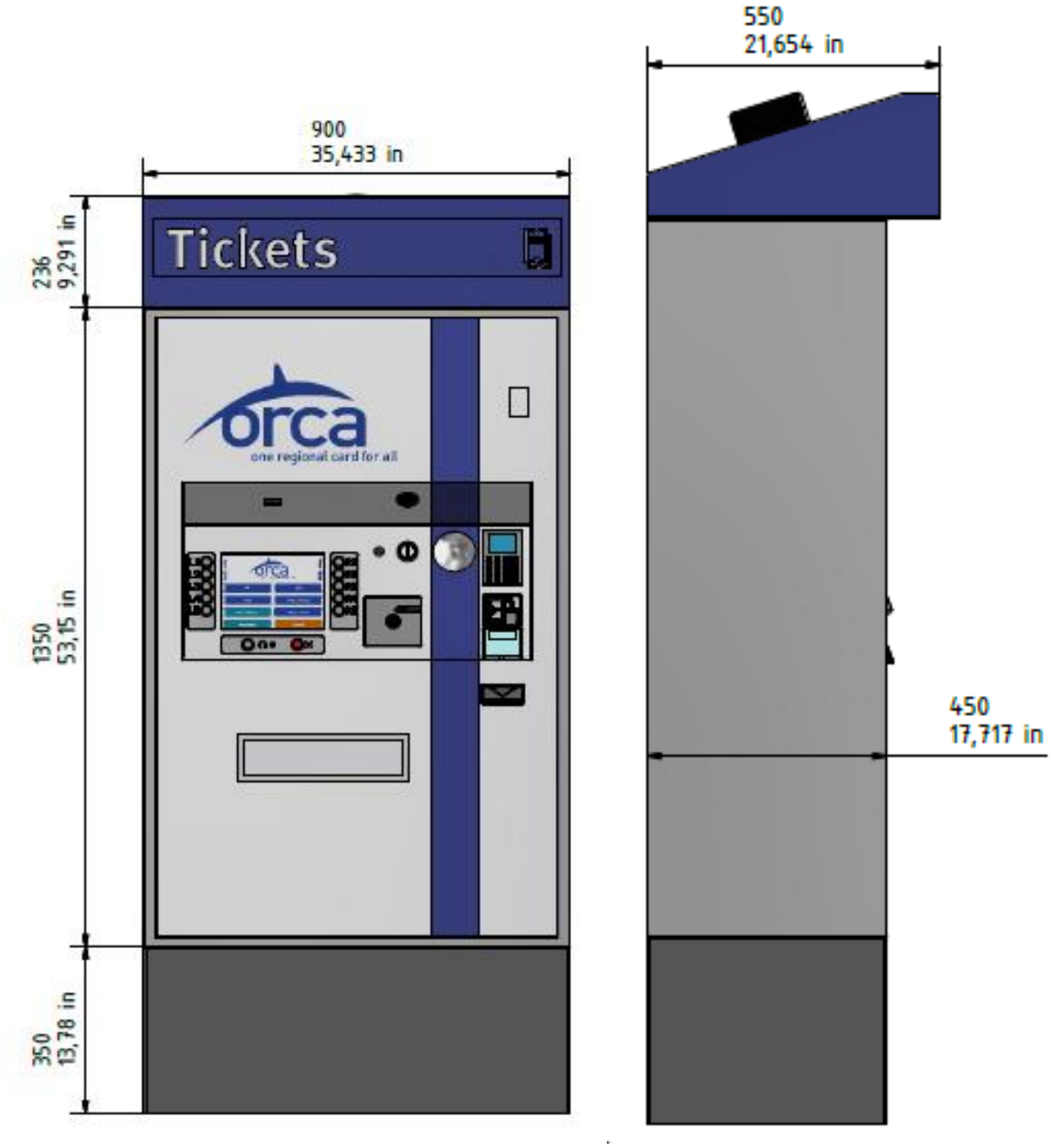

Exterior and Overall Dimensions of the VENDstation (FFMV)

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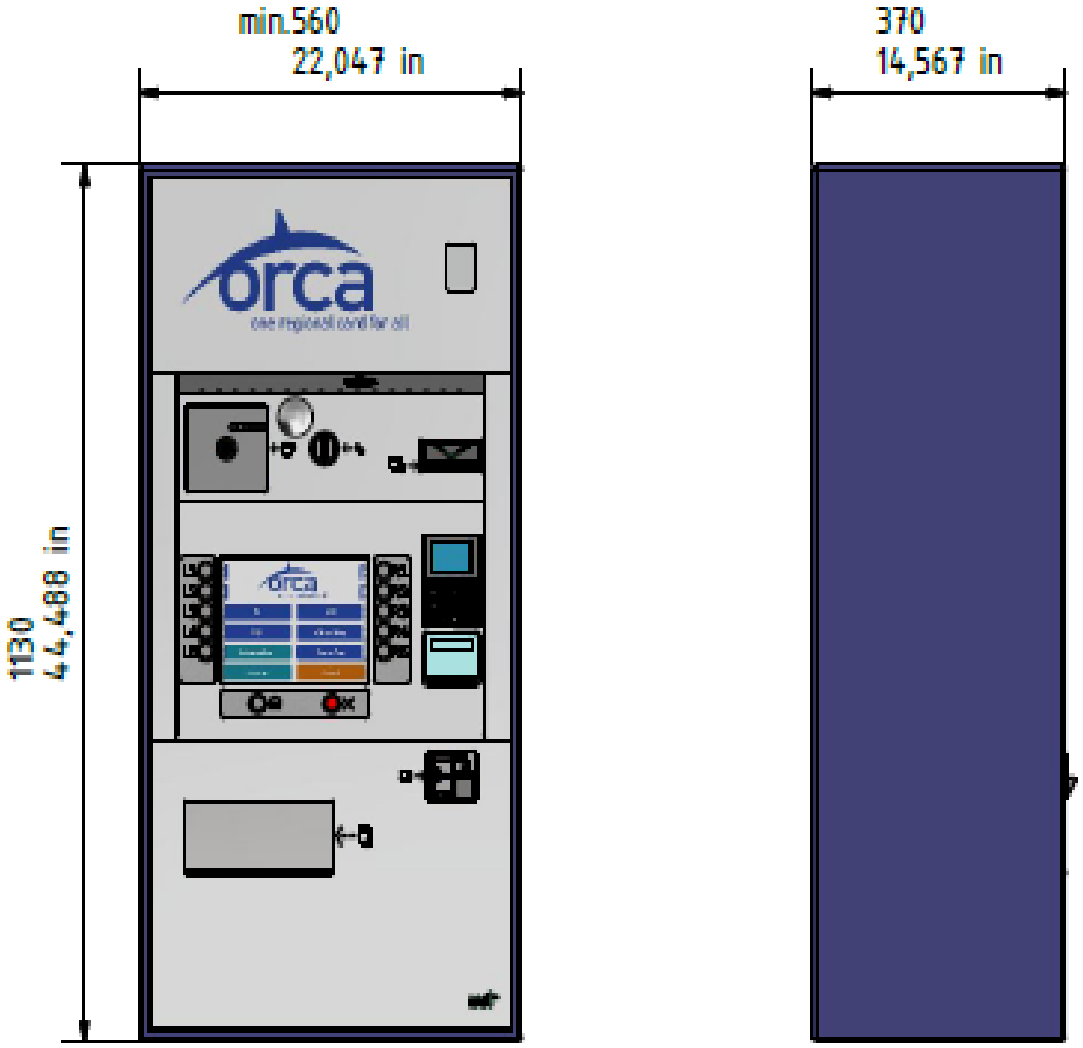

Exterior and Overall Dimensions of the VENDmobile (LFMV)

1.6.3.2.2 Modular Design

INIT's flexible modular design allows the VM's to be configured for each customer's specific requirements. The figures below shows the location of components of the VENDstation and VENDmobile VM's.

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The following table shows common and unique features and functionality of the INT VM's.

INIT VENDstation & VENDmobile	Features and Options
Pedestal / base	• Standard pedestal made from powder coated stainless steel • FFVM: Standard pedestal made from concrete
Housing	• 2 mm powder coated stainless steel • Anti-graffiti coating (optional) • Reinforced corners • Interior hinged door
Printers	• FFVM Up to 4 thermo printers with 300 dpi resolution • LFVM: Up to 2 thermo printers with 300 dpi resolution • FFVM: Up to 4 paper rolls with up to 300 mm diameter • LFVM: Up to 2 paper rolls with up to 130 mm diameter • Paper width up to 84 mm • Paper weight up to 80-120 g/m² • Paper level monitoring (optional) • Paper tracking using 1D barcode reader (optional) • Full and partial cut possible
Card Dispenser	• Up to 500 cards • Card return reject bin for up to 10 cards • Write and read encoding/decoding of ISO14443 proximity cards)
Coin Processing	• Electronic coin shutter prevents non-metallic objects from being inserted. Self-cleaning function. • Entire coin path within device monitored by 7 photoelectric sensors • Electronic coin validator • FFVM - Up to 6 change magazines, correctly sorted, with 50 coins per magazine. Escrow function based on "first-in-first-out" process • Self-closing stainless steel cashboxes with a 6,5 l volume • FFVM- Up to 3 "big" hoppers with up to 1100 coins or up to 4 "small" hoppers with up to 250 coins. Hoppers in lockable stainless steel boxes. (optional)
Uninterruptible Power Supply (UPS)	• Uninterruptible Power Supply
Bank note handling SCR	• Escrows 15 banknotes • Cashbox: Lockable, removable and durable with 600-note capacity • Security Gate Module: Mechanical security, anti-stringing protection

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INIT VENDstation & VENDmobile	Features and Options
	• Acceptor Head: Multi-width (3.27") SC Advance acceptor head • Security and/or stainless steel inlet (o)
Barcode reader	• Allows for quick scanning of mobile ticketing or barcodes on paper tickets (optional).
Security	• Locking o Locks on three sides o Lock bar with nine 6 mm stainless steel hooks o Security lock o Vibration secure door lever o Sensors for monitoring the locked status of the door • Hinge o Stainless steel hinge o Adjustable
Display	• Horizontally installed 10" display • 1024 x 768 resolution • 1000 cd/m², easily readable including under direct sunlight
Touch	• Capacitive touch
Contactless customer cards	• Write and read customer cards
Ticket tray	• 1mm stainless steel with liquid drain • Plastic cover with stop and return spring • Electrically lockable cover (o)
Credit card terminal	• Integrated PIN pad, EMV card reader and contactless card reader
Cover	• Stainless steel standard cover with logo and lighting • FFVM: Cover with illuminated and changeable title box •
Miscellaneous options	• Illuminated arrows for customer direction guidance • Electrical lock cover • Microphone • Camera

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1.6.3.2.3 Display

The VM has a trans-reflective backlit flat panel touch screen display which provides optimal view in bright sun light as well as at night time. The display detects customer selections and is unaffected by rain, temperature and sunlight. All content shown on the display is ADA compliant. User input is given via the touchscreen or with the tactile feedback push buttons (12) next to the display, corresponding to the active regions of the touchscreen.

The touchscreen display is the primary customer interface, used to guide the customer through simple and easy to read instructions on how to complete the fare purchase process. To simplify the process, one button (virtual and/or physical) is consistently allocated to language, while another is dedicated to the CANCEL function. Customer selections are consistently displayed, eliminating confusion in any sequential purchasing process. The display is installed on the front door of the VM, situated so its view is not obstructed and to avoid any parallax effect.

1.6.3.2.4 Bill Handling Unit

The Bill Handling Unit (BHU) is the proven design of the [redacted] unit without bill recycling. The unit includes a bill validator, escrow module and bill vault. The SC product line has redefined expectations for note acceptors by improving acceptance rates, jam rates, security and the cost of operation. The reliability that has resulted in an installed base of more than 1.5 million units worldwide is now the engine that drives a unit engineered to further reduce the costs associated with cash management. New bill designs are easily programmed to add to current bill designs.

The bill validator is equipped with a protective shutter to ensure that foreign matter does not enter the BHU while the machine is not accepting bills. The bill validator will remain closed until a transaction is selected for which cash payments are available. The shutter will automatically open once payment due has been displayed. The specification highlights of the MEI SCR are as follows:

SCR Components

- Cashbox: Lockable, removable and durable with 600-note capacity

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- Security Gate Module: [redacted]
- Acceptor Head: Multi-width (3.27") SC Advance acceptor head

SCR Technical Specifications

- Acceptance Rate: 98% or greater on initial insertion
- Note Memory Capacity: Up to 100 notes, four ways
- 15 bill escrow (exceeds requirement of 10 bills)
- Note Dimensions:
  - 2.44" - 3.27" width
  - 4.72" – 6.53" length
- Interface: RS232/USB²
- Protocol: Recycling EBDS (REBDS)
- Power Supply: 24VDC + 10%
  - Standby: 10W max Accepting: 30W max
  - Stacking: 125W max
- Environmental: Operating Temperature: 0º–60º C
- Storage Temperature: -30º C–70º C
- Humidity: 5–95% relative humidity
- Product Weight: 7.57 kg (16.69 lbs.) 9.33 kg (20.56 lbs.) packaged

1.6.3.3 Coin Handling Unit

The Coin Handling Unit (CHU) is the proven design of the COTS based chassis CH 800 series unit from the German company WH GmbH. CH800 is a complete self-locking and self-closing coin handling solution for indoor and outdoor machines. The CH800 consists of following main components:

- electronic anti-pin system
- electronic coin selector
- electronic motor reject
- escrow
- Protective shutter for coin acceptance

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The coin acceptance is self-cleaning and opens only for metallic objects. Only one coin is accepted at a time. The integrated escrow provides a universal solution for pre-vend coin storage requirements. All inserted coins are safely stored in the escrow prior to the confirmation of the sales transaction. Any interruption of the vending process results in all coins being returned, reducing the likelihood of coin manipulation and attempts of money laundering.

The VM software determines the amount of coins in coin storage and calculates the weight. When the weight reaches a certain threshold parameter, the device stops accepting coins. The INIT MOBILEsymon system monitoring software monitors the CHU storage and issues pre-assigned notifications to optimize service and maintenance response times.

1.6.3.2.5 Bank Card Processing Unit (BCPU)

The VM Bank Card Processing Unit (BPCU) is the COTS based, field proven [redacted] components shown in the figure below. The BPCU solution consists of the following proven and certified components:

The [redacted] components are installed at ADA compliant locations on the front of the VM's.

1.6.3.2.6 Smart Card Encoder / Dispenser

Extended Use Smart card encoder dispenser is easily configurable for EU or LU card dispensing and encoding by simply changing card dispensing carriage. As shown in the figure below the unit is setup to dispense EU cards. The encoder head unit remains the same.

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1.6.3.4 Smart Card Reader

The COTS [redacted]EMV and PCI certified Smart Card OEM terminal is INIT's choice for smart card contactless ticketing applications. This service proven smart card reader is added to the front of the VM terminal as shown in the figure below and mounts flush the front of the VM.

[redacted]

1.6.3.2.7 Receipt Printer

The VM provides high speed and resolution receipt printing with the integrated printer. The paper roll can be up to 11.8in in diameter and thus provides enough paper for long interval paper exchange. After printing the ticket, the integrated cutter cuts the paper and the receipt falls into the output tray. In case multiple receipts need to be printed, the cutter is able to make partial cuts which leave the receipts loosely connected together. The printer is also able to print high resolution 2D barcodes for any possible automatic data evaluation. Highlights and technical specifications of the printer unit:

- High Resolution: 300dpi, High Speed: 7.87in/s
- Max print width 3.2in
- Max paper width: 3.30in
- Cutter: full and partial cut
- Easy paper loading
- Max paper roll diameter: 11.81in
- Paper weigth: 1.9 -2.8 lb/ft2

The next generation ORCA VM will be equipped with one EU dispenser and one Paper Media Dispenser. Each paper media dispenser is capable of using two separate paper rolls (ticket stock and/or receipt paper). Each dispenser is equipped with two (2) printers, effectively providing a separate printer for each roll. Each printer unit comprises a printing unit, a cutting unit, paper sensors and a controller. A holder for the paper rolls is installed on the rear wall of each unit. The paper ticket stock roll is tracked with a barcode reader. It is important to note that the individual paper rolls are configurable.

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The integrated printing units offer the following features:

- Max. printable paper width: 81.3 mm
- Resolution: 300 dpi
- Maximum Print Speed: 200 mm/s
- Specified lifetime print head: 100 km
- Cutting unit: 1.5 m sections (full and partial cut)

The VM's Paper Stock Rolls and Printers Provide Flexibility to Optimize Configurations at each Location	

The Paper Media Dispensers and Configurable Paper Rolls (Ticket Stock or Receipt Paper)

1.6.3.3 Customer Interface

The INIT FFVM and LFVM front panel provide a simple to use and easy to understand for the experienced and occasional rider.

One of the key success factors of VM is to enable the rider to use it quickly and conveniently without additional support from the agency. We achieve this with an overall clear design, including a simple and powerful user interface.

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INIT's simple to use intuitive next generation ORCA FFVM Customer Interface

The front panel customer interface includes:

- Touchscreen display with twelve (12) active regions
- Twelve (12) buttons corresponding to the active regions on the screen
- Coin slot input
- Bill Handler Input
- Bank Card Processing Unit (contact / contactless)
- PIN Pad
- Contactless Smart Card Reader
- Audio interface
- Media dispense tray
- Instructional graphics and text
- Information sign(s)

Features of the customer interface include:

- ADA compliance
- Audio interface with internally mounted speaker
- Media dispense tray for tickets / receipts / change
- Payment options via coins, bills and bank cards.

1.6.3.3.1 Screen flow - Simple Patron Purchase Process

1. The user first presents the fare media (if available) to the card reader located next to the screen.

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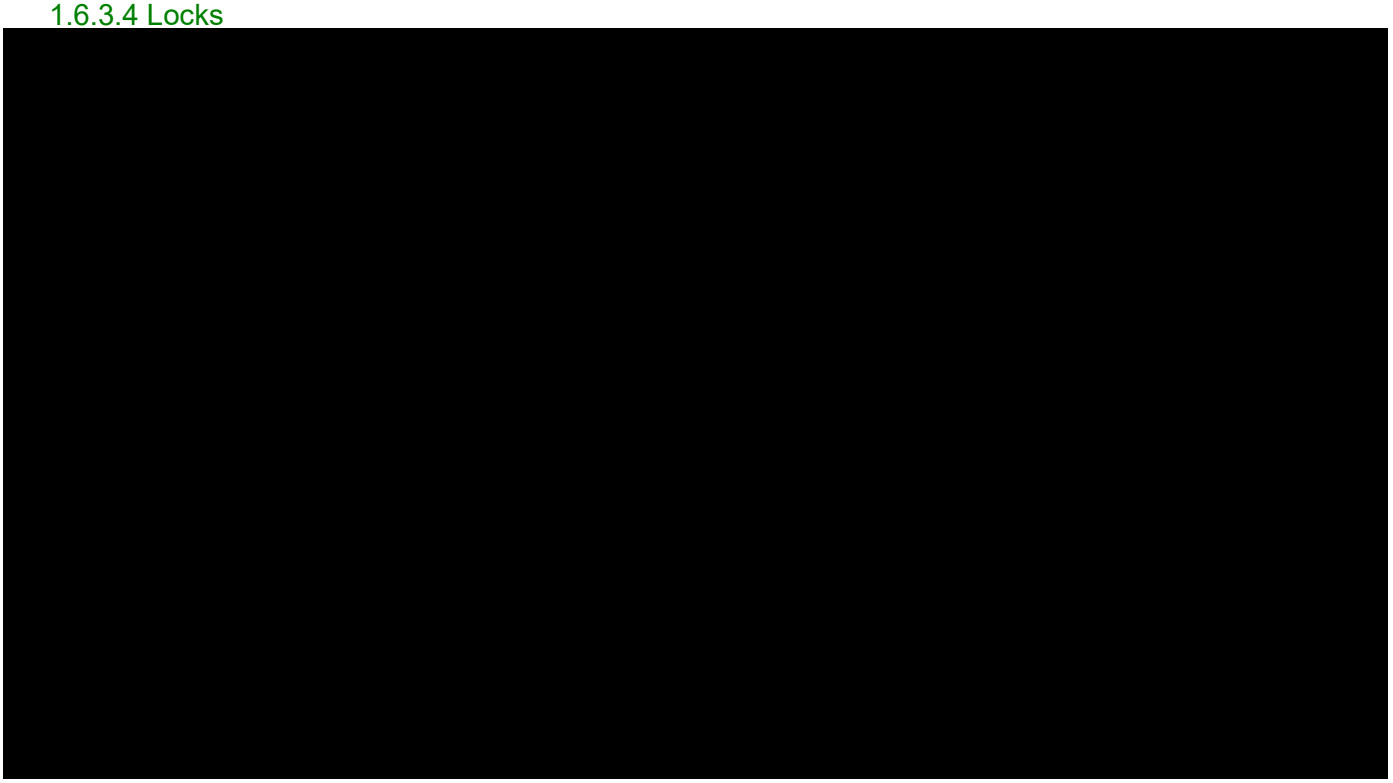
2. After this, the display shows products or functions available for the presented card (for example available stored value load amounts).
3. After selecting the value load amount, the display prompts the user to enter cash or credit card in section "2. Pay". The user can also select to issue a new card.
4. If 'Credit Card' is selected, the user is prompted to complete the credit card process by entering/tapping the credit card.
5. After payment confirmation, a receipt is issued and dispensed in the receipt/ticket tray. If the user selected to issue a new fare media (extended use card), a new card is issued and dispensed as well.

1.6.3.4 Locks



1.6.3.5 Alarms

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1.6.3.6 Communications

The VM's communicates with the central system via Ethernet Interface. Communication via mobile network or WLAN is also possible if Ethernet is not available. The VM provides a SCADA interface for the Rail control discreet signals. The electrical level and function of the signals are to be specified and finalized during the system design phase. The VM provides protected inputs and outputs for this purpose.

1.6.3.6.1 Cellular Modem (Option)

The VM's can be equipped with an industrial mini PCI express card enabling cellular (LTE) communications. The exact card is dependent on the cellular provider being used. INIT offers this optional modular 3G/4G cellular modem, supporting all 3G and 4G frequencies, on all major US carriers, as a backup communications channel. If exercised, INIT provides the modem for the agency-provided 4G/LTE cellular data service. When communicating in the wireless mode, all TVD and back office functions are the same as in the hardwired Ethernet mode.

1.6.3.7 Power Supply FFVM

The FFVM uses a modular COTS [redacted] Switching Power Supply. It is a 320W industrial AC/DC power supply designed to operate in a harsh environment with high dust density, humidity, vibration and altitude. It is housed in a robust aluminum case and fully potted with heat-conducted silicone. [redacted]

1.6.3.8 Software

This chapter provides details of the software used within the INIT Vending Machines.

1.6.3.8.1 1.6.4.1 Transaction Records

The VM's generate, store and transmit a unique data record for each transaction performed. The record is stored locally in non-volatile memory until confirmation of receipt and database storage is received from the back office. Six (6) months of transaction data is stored to support financial audits. Offline transactions are recorded as such in the transaction record, to support easy identification and tracking. The transaction record details will be finalized during the design review phase of the project. At a minimum, the unique transaction record will include:

1.6.3.8.2 Audit Registers

The VM's employs audit registers for data tracking, verification and analysis. They store counts and values for specific events in non-volatile memory. The audit records are transmitted to the back office for reconciliation at a configurable time period, usually at the end of each service day.

The audit record details will be finalized during the design review phase of the project. At a minimum, the audit registers maintain counts and values for the following:

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[redacted]

1.6.3.8.3 Events and Alarms

[redacted]

[redacted]

[redacted]

screen for disabled customers. The audio tracks the change in transaction status as the customer navigates the screen flow. The voice annunciation supports the multi-lingual capabilities of the VM as finalized during the design review phase of the project.

1.6.3.9.2 Multi-Lingual Capabilities

The VM provides multi-lingual capability through the use of a display selection button. English is the default language and the alternate language selection is active at all times on all screens while the VM is in service. Pressing the button causes the display and audio messages to toggle to the selected language. INIT will implement the supported languages and their corresponding audio and text translations provided by next generation ORCA.

1.6.3.9.3 Customer Operations

The VM performs the following minimum customer operations:

- Sell one or more tickets in a single transaction
- Accept specialty codes for promotional products
- Interface with other systems integrated with VM

The final list of customer functions is determined during the design phase of the project and will be worked out in close collaboration with the UI/UX consultants.

The VM displays a progression of simple, intuitive screens to complete a transaction. Available options are determined by the status and configuration of each VM. The information displayed is configurable by authorized agency staff.

Clear instructions guide the customer to the sequence of steps necessary to complete their transaction. English speaking customers complete their purchase in three (3) screens or less, guided by audio tones to provide feedback each time a button or screen is pressed. Sales transactions are generated and sent to the back office for reconciliation. Corporate Quick Card transactions are initiated by the Bank Card Processing Unit reading the customer's card and sending that data to the back office to generate a sales transaction.

To keep the purchase process simple, intuitive and convenient, the following operational features are provided:

- Idle Mode
  - Screen saver activated after programmable idle period
  - Screen saver terminates automatically when transaction initiation detected
- Degraded Mode
  - Transactions are stored locally until communications restored
- Offline Mode
  - TVD takes cash payments for fare products designated for offline sale
  - Send data generated in offline mode when communications restored
- Payment Features
  - Automatic detection of form of payment
  - Insert coins and bills in any sequence
  - Credit or Debit prompt, with PIN required for Debit
  - Bank card authorization prior to ticket issuing

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- If bank communications down – VM enters "cash only" mode
- Cancel transaction any time before full payment or authorization
- Failure during transaction automatically cancels with screen notification
- Cash returned and Credit/debit reversed for cancelled transactions
- Adjustable time-out period for no input between transaction steps
- Time from full payment / authorization to media issuance less than three seconds
- Time between successive media issuance less than two seconds
- VM readiness less than three seconds after completed or cancelled transaction

- Receipt features
  - Receipts are provided (configurable)
    - Upon customer request
    - Automatically for transactions above a configurable dollar value
    - Optionally for transactions below the configurable value
    - For every transaction
    - Never (when receipt stock is empty)
    - Within three seconds of completed transaction
  - Print format
    - Indication that not a valid ticket
    - Machine number
    - Date
    - Time
    - Purchase station name or location
    - Transaction amount
    - Machine unique sequence number
    - Additional info for bank card transactions

1.6.4 INIT's User-Friendly Customer Service Terminal

INIT will provide a COTS PC-based Customer Service Terminal (CST) with peripherals to support the Customer Service Offices (CSOs), remote use in the field, and the ORCA Agencies mail center.

1.6.4.1 Hardware

The following table defines the Customer Service Terminal (CST) hardware components and quantities for the different applications.

INIT's COTS Full Featured CST PC and Peripherals Overview & Quantities

	CSO	Remote App.	Mail Center	Item Ext.	Specific Description / Model Number
QTY (Estimated)	**15**	**12**	**14**	**41**	
Computer	15	12	14	41	HP EliteBook x360 1030 G2
Keyboard/Mouse	15	0	14	29	Logitech MK520 Wireless Keyboard and Mouse Combo
Closed Loop Media Processor	15	12	0	27	INIT PROXmobil3 validators
Image Capture (Separate)	15	0	0	15	Logitech HD Pro Webcam C920

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	CSO	Remote App.	Mail Center	Item Ext.	Specific Description / Model Number
Document Capture	15	0	14	29	TBD
Secure Cash Storage	15	0	0	15	MS-Cash Drawer (J-423-USB-M-B)
Bank Card Processing	15	12	14	41	Ingenico Mercury iPP320, v3, PIN Pad/Reader/SCR/Contactless
Receipt Printing (Desktop)	15	0	14	29	Epson TM-T20II Direct Thermal Printer
Receipt Printing (Mobile)	0	12	0	12	TBD
Customer Display	15	0	0	15	Hewlett-Packard LV3000 Smart Buy Logic Controls Pole Display 7" Video with USB Connector
EU Printer (High Volume)	0	0	14	14	
EU Printer (Smaller Low Volume)	15	12	0	27	HID Fargo HDP5000 Dual Side Base Model Printer
Cellular Comms	0	12	0	12	TBD
Uninterruptible Power Supply	15	0	14	29	TBD
Antivirus Software	15	12	14	41	ESET Antivirus
Farpmocs Spftware	15	12	14	41	DeepFreeze and Winselect

INIT's COTS Full Featured CST PC and Peripherals Overview & Quantities

1.6.4.1.1 Customer Service Terminal Computer

The recommended hardware to support deployment types in a customer service office, special location or a mail center, is a high performance, dockable laptop with the required peripherals integrated or added to create a fully functional customer service terminal. INIT is proposing a Windows 10 Professional, HP EliteBook x360 1030 G2. The EliteBook model provides a small, ultra-light, sturdy and flexible machine usable in any of the Orca Agencies' deployment intentions. Equipped with an Intel Core i5 processor, 8GB of RAM, 256GB Solid State Drive, and 13.3' Full HD touch screen, the EliteBook's small form factor and long battery life will provide flexibility and endurance and enjoyment for customer service representatives use. If the ORCA agencies prefer a different primary computing platform, INIT is open to exploring other Windows-based alternatives that the agencies prefer.

1.6.4.1.2 Customer Service Terminal - Dock

In the customer service office and mail centers, an HP Elite USB C dock will be used to facilitate easy connections to the required peripherals detailed below. Multiple USB ports, display connections and a wired network port are available in the driver-free dock.

1.6.4.1.3 Customer Service Terminal External Monitor

The Agencies indicated that in some deployment options, an external display may be desired to be added to the customer service terminal. INIT is proposing an HP EliteDisplay E220t 21.5-inch Touch Monitor. Reflecting the desires of the high definition, integrated touch screen on the HP EliteBook, the proposed 21.5 inch display boasts the same high definition and touch capabilities.

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1.6.4.1.4 Customer Service Terminal – Keyboard and Pointing Device

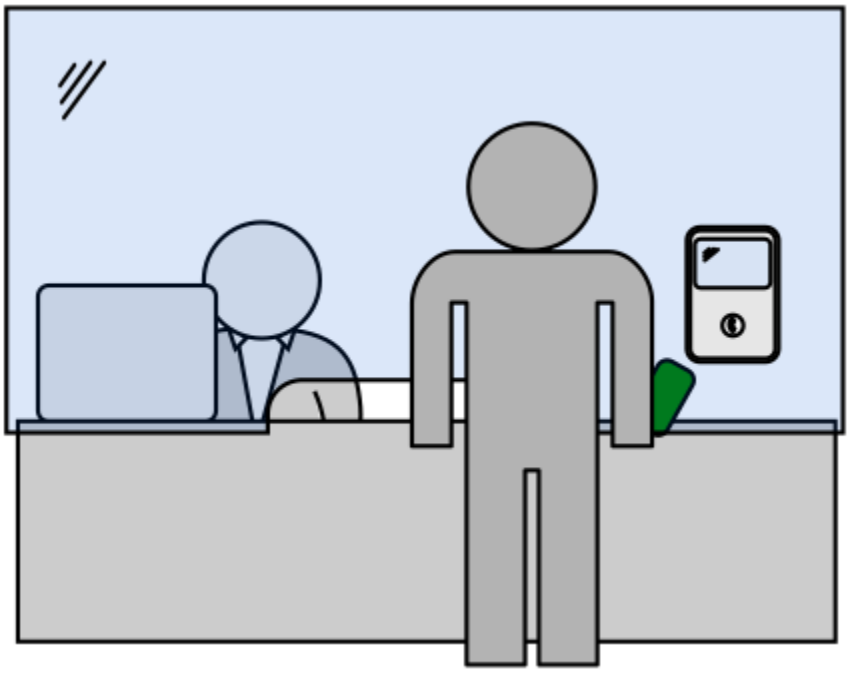
For traditional installations within the Mail Center and Customer Service Office, an external, wireless keyboard and mouse combination will be provided. INIT proposes the Logitech MK520 Mouse and Keyboard combination. The keyboard and pointing device will connect to the Customer Service Terminal via Wireless USB interface.

1.6.4.1.5 Customer Service Terminal - Closed Loop Media Processor

INIT proposes to use a PROXmobil3 validator as the Closed Loop Media Processor in the Customer Service and Mail Center environment. The validator can either be mounted on a desktop stand, against a wall or behind glass.

The major advantage in using a validator instead of a standard USB card reader is the ability to read virtual cards and Open Payment cards in a PCI compliant way.

Riders will already be used to tap their card on the validator and therefore it will be very intuitive for the customers to do the same for customer service purposes.



Service Center Closed Loop Reader

1.6.4.1.6 Customer Service Terminal – Image Capture

For traditional installations within the Mail Center and Customer Service office, an external wireless webcam for image capture is provided. While the agencies indicated that the integrated webcam will be used for special events installations, INIT recommends including the image capture device for all installation types to maintain standardization and quality. The use of the integrated image capture device will create variability in both the process and the quality of the images. The HP KQ245AA Premium Autofocus Webcam is a 12MP webcam which will be used for point and shoot photo capability and can be attached to either a laptop screen or to the recommended external monitor. A button dedicated for taking photos on the top of the webcam

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as well as tilt and pan capability provides an easy and familiar process for taking a photo. The image capture device will connect via USB interface.

1.6.4.1.7 Customer Service Terminal – Document Capture

For the purpose of document capture, INIT proposes the HP ScanJet Pro 3500 Flatbed scanner. With both flatbed and document feeding capabilities, the HP scanner can scan in both color and black and white as well as either single or double-sided at up to 50 pages per minute. The document capture device will connect via USB interface.

1.6.4.1.8 Customer Service Terminal – Secure Cash Storage

A secure cash storage device will be connected to the customer service terminal via USB. The HP USB Standard Duty Cash Drawer will be controlled by the Customer Service Terminal software.

1.6.4.1.9 Customer Service Terminal – Customer Display

In order to provide a customer friendly visual display, INIT has included an HP LV3000 Pole Display which provides a 7 inch, customer facing screen that connects to the Customer Service Terminal via USB.

Customer Display

1.6.4.1.10 Customer Service Terminal – Bank Card Processing

For Bank Card processing, INIT will provide the [redacted] Payment Terminal. The [redacted] is a PCI certified, technically advanced smart terminal that supports EMV, Chip and Pin, Magstripe and contactless media. The [redacted] is an ideal smart terminal to standardize on for both fixed and mobile payment solutions providing industry standard capabilities, in an attractive housing, with 15 key back-lit keypad and color LCD display.

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Bank Card Processing Unit

1.6.4.1.11 Customer Service Terminal – Receipt Printing

The [redacted] Printer is included as part of the Customer Service Terminal peripheral for receipt printing and check validation for traditional customer service office and mail center deployments. The [redacted] is a high-performance multifunction printer with fast receipt printing, drop-in validation for deposit slips, checks, cashier checks and batch tickets, high-resolution graphics, superior slip handling, the highest reliability in its class and the industry's leading MICR accuracy.

1.6.4.1.12 Customer Service Terminal – Mobile Receipt Printing

The agencies indicated that a mobile receipt printer capable of being carried on a belt or carrying case would be an ideal solution for the special event installations. To address this desire, INIT has included an [redacted]. Weighing only .5 lbs, the ultra-light, ultra-mobile receipt printer has broad compatibility, NFC support, wireless, and external battery and carrying case accessories. INIT has included costs for both additional chargers and carrying cases designed for the [redacted] product line.

1.6.4.1.13 Customer Service Terminal – EU Smart Card Printing/Encoding

The [redacted] Card Printer and Encoder is a cost-effective and reliable solution that features a high resolution 600 dpi printing option for superior text and image quality. The reverse transfer technology provides full bleed capability. With Wi-Fi and direct connect capabilities, single printers could be deployed in a one-to-many configuration utilizing a built-in print server to be integrated into virtually any networked environment.

1.6.4.1.14 Customer Service Terminal – Uninterruptible Power Supply

A [redacted] will be provided for the Customer Service Operations and Mail Room deployments as required by the RFP. While the UPS can provide protection and limited uptime

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for some of the Customer Service Terminals and it's peripherals, the built-in battery of the HP EliteBook laptops may make additional UPS' unnecessary.

1.6.4.1.15 Customer Service Terminal – USB HUB

A [redacted] is included to ensure enough USB connections and power for the variety of USB devices, printers, and peripherals included for the Customer Service Terminal.

1.6.4.1.16 Customer Service Terminal – Communications

Communications to the Customer Service Terminal will be through either the wired or wireless interface of the HP EliteBook laptop.

1.6.4.2 Software and Operations

INIT's VarioCSW is comprehensive software for customer relationship management, customer support and retail. INIT proposes the VarioCSW to be used for Customer Service Offices (CSOs), remote field applications, and the mail centers.

1.6.4.2.1 VarioCSW Overview

The core functionality includes:

- Selling all supported fare media to customers
- Loading and selling products and stored to transit accounts
- Query transit accounts based on diverse criteria (active, inactive, blocked, fare category etc.)
- Register and unregister transit accounts to/from institutional and customer accounts
- Generate transit account stored value adjustments
- View transit accounts transaction history
- View sales transaction and adjustment history
- Read and edit account information
- Generate fare payment cancellations/reversals
- Transfer value between transit accounts
- Blocking and un-blocking transit accounts (fare media)
- Viewing transaction and product loading history
- Configure/Add auto-load function for transit accounts and set the funding sources
- Generate sales transaction refunds
- Reading smartcards and display account information
- Replacement of closed loop fare media (associate the new card with the background customer account)
- Refunding transit accounts (refund maybe pending for a configurable number of days to allow all transaction be processed)
- Processing smartcard orders (from the website or call center)
- Printing smartcards (with personalization)
- Adding or removing smartcard products or values

The adjacent screenshot shows the main view selectors of the VarioCSW software.

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1.6.4.2.2 Anti-virus

The customer service terminal will be configured with ESET Endpoint Protection providing anti-virus, anti-malware, network access protection, botnet protection, and exploit blockers. Updates, configurations and monitoring is managed centrally by the ESET Remote Administrator deployed in the back office..

1.6.4.2.3 Security

The customer service terminal will be configured with [redacted] providing an optional 'golden' configuration to prevent unnecessary or unwanted changes within the environment. [redacted] makes computers indestructible and ensures a 'reboot to restoration' process for a quick and easy way to troubleshoot and restore a problematic machine to a previous known good state.

1.6.4.2.4 User Interface

[redacted]

The CSW has two main views, the Point of Sale view to be used at the front counter to sell cards, products and cash value and the Call Center view to support customer service in a call center environment.

1.6.4.2.4.1 Point of Sale

The Point of Sale view is designed to quickly sell products, passes and cash value loads in a customer service counter environment.

The point of Sales window is the main interface to perform sales to the customer in a fast and efficient manner. The Sale area consists of the Cart and the Available Products. The Available Products display a list of all items, which can be sold in the current context. Selecting an item will add the item into the Cart. The Cart collects all items of the current sale, so that they can be processed on block. The 'check out' completes the current sale. The Cash up dialog is displayed and further selections are provided to complete the payment (e.g. select split payments). Once the payment is completed, a receipt will be printed.

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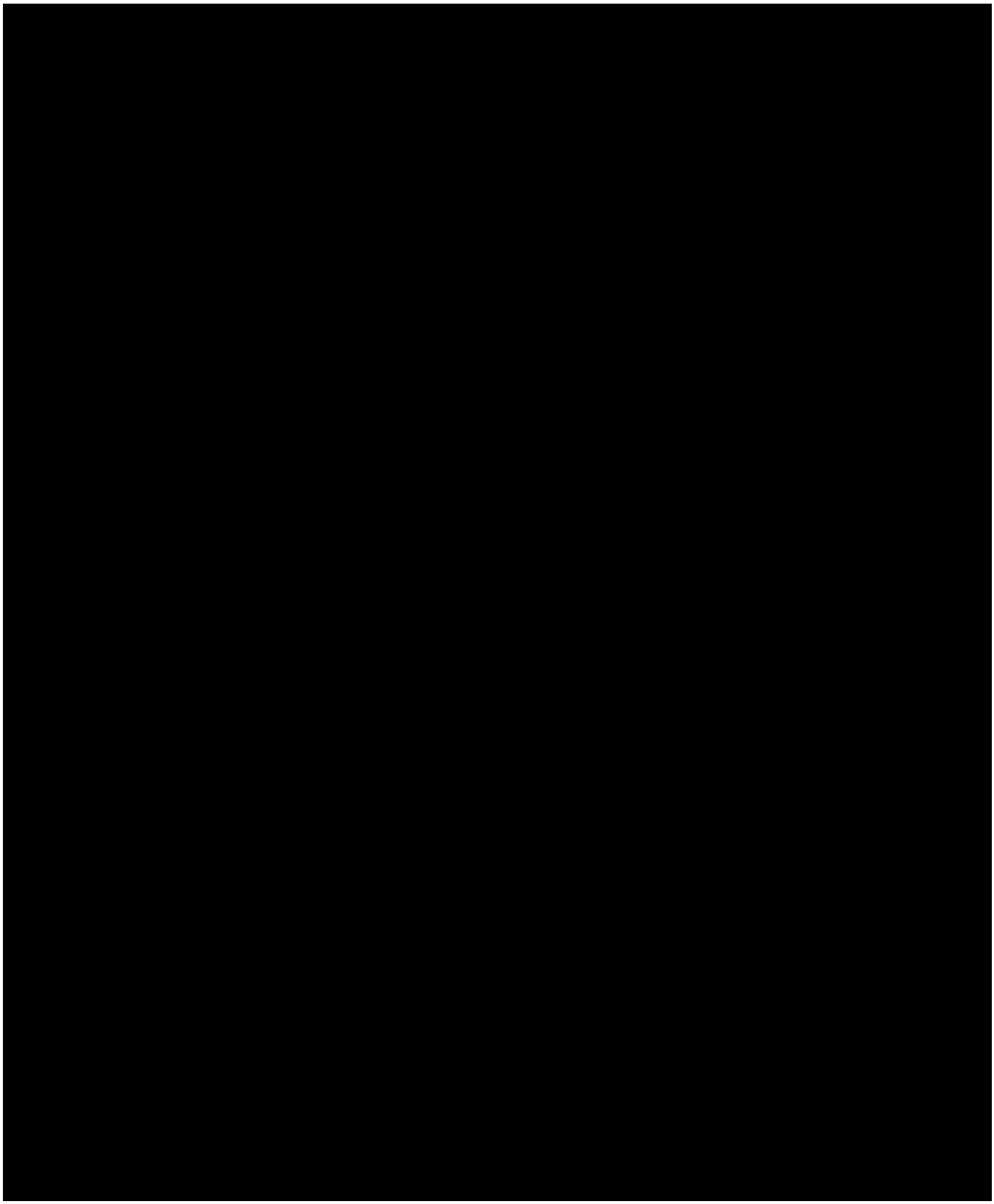

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1.6.4.2.5 VarioCSW for Customer Support

The second main view of the CSW application is the Call Center view. The view provides a full picture of all relevant information of a customer and all linked cards like the transaction history, current trips, balance and previous customer service events related to the customer.

All card related functions like blocking of an account, requesting a card replacement or selling products can be performed with the Call Center view.

[redacted]

1.7 INIT's User Friendly and Intuitive Website and Mobile Applications

Specifically for Website and Mobile Application (Scope of Work Section 5):

a. Provide your proposed subcontractor's development methodology for the following items:

i. Customer account website

ii. Content management system

iii. Customer mobile app

iv. Agency mobile apps

b. Provide previously designed website URLs and credentials to websites developed by the proposed provider.

c. Describe how the proposed UI/UX solution provider will design a common user experience across multiple platforms.

d. Provide a draft licensing agreement(s) for items in this section.

For the externally sourced applications, INIT is proposing:

- [redacted]

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- [redacted]
  - [redacted]tes;
- [redacted]
  - [redacted]
- [redacted]
  - [redacted].

1.7.1 M[redacted]Proven AFC Websites

1.7.1.1 [redacted]AFC Website Development Methodology

[redacted]

- Defined Requirements and Expectations
- Defined Work Plans, with estimated man-hours, costs, and Phase milestones
- Defined Deliverables, by Phase
- Defined client Review and Acceptance procedures
- Scope Control through a defined Change Management procedure
- Defined Risk Management procedures
- Regularly scheduled Project Status Review Meetings with the INIT project manager and Agencies
- Written Weekly Project Status Reports, stating project actual performance versus the plan, identified risks and remediation plans, pending Change Requests, and Open Issues impacting the project
- Consistent emphasis on client Involvement throughout the project – client involvement is an essential component in all of Marathon's work. Marathon takes great care to ensure that important stakeholders are involved in the project and their input is included.
- Effective Knowledge Transfer to client's staff

1.7.1.1.1 Management Plan

A [redacted] web portal project consists of the following phases: Analysis, Design, Development, Testing, and Deployment. Quality is built into each phase of a web portal project through close client collaboration, approved deliverables, and testing. Below is a description of each phase and how it contributes to producing a superb solution.

1.7.1.1.1.1 Analysis

In the Analysis phase [redacted] will work closely with INIT and the client to validate the web portal requirements. The result of this analysis is the Requirement Specification. This document records the client's feature requests and how the web portal meets those requirements. This is accomplished in the following sections:

1. Requirements – this section records each client's requirement that pertains to the Web Portals. Each requirement is mapped to a Web Portal feature or page that satisfies the requirement.
2. Pages – this section documents the global web portal features and each page required to meet client's requirements. Each page description includes a set of "ability to" statements and a list of use cases required to implement those "ability to" statements. Also, each item in this section is linked to a Test Case that ensures every "ability to" statement is met.
3. Use Cases – this section documents each use case. The use case is a process flow that includes how the web portal interacts with the INIT MOBILEvario application and client's chosen payment gateway.

Finally, the Requirement Specification remains a working document throughout project execution and is kept up to date so there is always a clear understanding on what the web portals will include.

1.7.1.1.1.2 Design

[redacted] follows a strategic design process in which we work closely with the client to create a design that is focused on both the user and client's goals in mind. Design deliverables include:

- Style Tiles
- Site Map
- Wireframe / Mock-ups for each page

1.7.1.1.1.3 Development

[redacted] Development phase combines the work done in Analysis and Design to build out the web portal pages. Specifically, the Marathon Developer's use the Design Mock-ups and Requirement Specification to guide their work. Page development goes as follows:

1. Application set-up.
    a. Set-up Umbraco content management system.
    b. Set-up Development environment. Use the web portal base to save implementation time.
2. Page Building – create pages in accordance with approved designs and requirement specification. Customize web portal base to meet unique client requirements.
3. Internal Testing – there are four steps of internal testing.
    a. Design –validate page matches approved design.
    b. Cross-Browser and Device – validate page works according to design
    c. Functional – validate the page meets the functional requirements.
    d. ADA – validate the page meets WCAG 2.0 level AA standards for accessibility compliance.
4. Rework and Issue Resolution – correct issues identified in Internal Testing.

1.7.1.1.1.4 Testing

This Testing phase corresponds to the Web Portal Factory Acceptance Test (FAT). In this phase INIT and the client will use the Marathon Test Plan and Test Cases to validate the application meets the requirements. FAT process includes the following:

1. Build Test Plan and Test Cases. Map Test Cases to client requirements via the Requirement Specification.
2. Setup the Test Environment and Deploy Applications.
3. Review testing process with INIT and the client.
4. Commence Testing
    a. Marathon, INIT, and the client execute Test Cases and record issues.
    b. INIT, the client, and Marathon review and triage issues. Categorize the issues into the groups fix, defer, and new requirement.
    c. Marathon resolves assigned issues and updates application.
    d. INIT and the client verify issues is resolved.
5. FAT is complete when all Test Cases have been executed and passed. A Test Case is passed when all assigned issues are resolved.

The above process is completed for each page and system required to deliver the portal requirements.

1.7.1.1.1.5 Deployment

After FAT there are several more phases of deployment and testing before the overall transit solution is deemed ready for the public. These testing phases are integration tests that include all of the INIT systems and not just the web portals. Also, these tests introduce testers that include actual customers in the later phases. But each of these tests mirror the same process

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described in the Testing Phase. We plan the test cases, configure the environment, deploy the application, run the tests, record any issues, and correct issues and update the software.

1.7.1.2 [redacted] Live AFC Websites

[redacted] has designed, developed, and deployed the fare collection portals listed below with URLs and user credentials. Each Agency was delivered both a customer web portal and an institution web portal. To provide the agencies with greater control and flexibility, the portals were developed using the [redacted] The following information summarizes the key capabilities of Umbraco.

- Security
  - Built on the Microsoft.NET and SQL Server Platform, a global standard for application development.
  - Granular user permissions - You have full control over your users permissions to content and actions, removing the risk of user-based errors.
  - [redacted] core team uses parameterized queries to prevent SQL injection.
  - Every 6 months the Umbraco core team utilizes a security firm to do a penetration test.
  - Any 3rd party security/penetration test reports are handled seriously by the Umbraco core team.
- Usability
  - Powerful editing capabilities – editors are empowered to do more with intuitive editing tools, media management, responsive views and approval workflows to send content live.
  - Media Management – your editors become designers with robust media capabilities of file management, easy drag-drop media insertion and responsive cropping, right inside the Umbraco back office.
- Flexibility
  - Painless Integration – use the fully extensive API to seamlessly integrate Umbraco with any 3rd party service.
  - The admin is built using AngularJS making it easy to customize. This means it doesn't require any .NET code. All the libraries are included so only code required for the control and custom HTML need to be written.
  - Fully customizable data-types give complete control over the structuring of page types.
- Scalability
  - [redacted] supports both traditional and cloud architectures.
  - [redacted] can be used for small, simple websites to large enterprise sites.
  - Can be configured within a load balanced environment.

Further, the websites were built to be ADA and Section 508 compliant. The Web Portals meet the Web Content Accessibility Guidelines (WCAG) to ensure the content of the websites are accessible to all site visitors including those with disabilities. The target for the Web Portals is WCAG 2.0 level AA standards for accessibility compliance. This means Web Portals will be compliant with the World Wide Web Consortium (W3C) Level A and Level AA standards. Validating the standards were met was accomplished by performing iterative internal testing

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using accessibility auditing tools for automated testing during development. Further, manual testing was performed to ensure a thorough accessibility review.

The web portals are built on a reusable code base that enables Marathon to deliver a robust solution in less time. The features described in the *INIT Customer Fare Collection Web Portal Technical Description* and the *INIT Institution Fare Collection Web Portal Technical Description* represents the core application which can be extended to meet additional client requirements.

Fare Collection Portals

1. Portland, OR

Customer Website: https://myhopcard.com/

Institution Website: https://myhopcard.com/programs/

2. Grand Rapids, MI

Customer Website: [redacted]

- [redacted]

Institution Website: [redacted]

3. Tampa, FL

Customer Website: [redacted]

[redacted]

- [redacted]

4. Honolulu, HI

Customer Website: [redacted]

- [redacted]

[redacted]

[redacted]

[redacted]

1.7.2 Bytemark's Proven Mobile AFC Apps

Founded in 2011, Bytemark is an international provider of fare collection technology employing over 90 talented individuals globally located in offices in New York, Toronto, the UK, Australia, and India. Bytemark's core offering is a comprehensive suite of products that digitize transit passes, tickets and fare media in a variety of innovative ways. Purchase of these fare products by transit riders is simple and instantaneous by means of web-based and smartphone-based purchasing experiences. Agencies are provided with powerful fare validation solutions, and cloud-based access to a full-suite management portal to manage and report on their operation. Bytemark products have been implemented for over 20 transit agencies including New York Waterway, Toronto Transit Commission, Capital Metro Transit (Austin, TX), and King County Metro (Seattle, WA).

1.7.2.1 Core Services and Products Produced

The Bytemark mobile ticketing platform encompasses smartphone apps, point-of-sale plug-ins, open APIs, mobile software development kits (SDKs), a back office module for user management, fare management, and a reporting engine. We provide clients with a PCI certified payment gateway that connects to a wide array of popular processors (First Data, Elavon, Chase Paymentech, Pivotal Payments etc).

1.7.2.2 Proven and Ready

Bytemark's mobile ticketing technology and applications are proven solutions, with mobile ticketing systems operating in:

- King County Metro - Seattle, WA
- Sound Transit – Seattle, WA
- Seattle Streetcar – Seattle, WA
- King County Water Taxi – Seattle, WA
- New York Waterway - New York, NY
- NYC Ferry – New York, NY
- Capital Metropolitan Transportation Authority - Austin, TX
- Northern Indiana Commuter Transportation District - Chicago, IL
- Massachusetts Department of Transportation - Boston, MA
- Metrolinx - Union Pearson Express - Toronto, ON
- Toronto Transit Commission - Toronto, ON
- York Region Transit - York, ON
- Hillsborough Regional Transit Authority – Tampa Bay, FL
- One Ticket – Edinburgh, Scotland
- Sacramento Regional Transit – Sacramento, CA
- Metropolitan Atlanta Rapid Transit Authority – Atlanta, GA
- Des Moines Area Regional Transit Authority – Des Moines, IA

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Along with our existing deployments, Bytemark and its subsidiaries are currently developing / deploying mobile ticketing systems for:

- Seattle Monorail – Seattle, WA
- The Rapid – Grand Rapids, MI
- Rotterdamse Elektrische Tram (RET) – Rotterdam, Netherlands
- Warsaw Public Transport (ZTM) – Warsaw, Poland

1.7.2.3 Constantly Evolving

The mobile environment is quickly evolving, producing opportunities for transit to leap forward in technological solutions for operations and passenger tools. Bytemark is always looking forward and incorporates new technology as it comes to market.

1.7.2.4 Focus on Security

Bytemark's systems excel in technical design, with security features that provide significant protection to our customers. We operate our own Payment Gateway allowing us to connect to multiple payment processors. The Bytemark Gateway is PCI Level 1 certified and is audited by third party security firms

1.7.2.5 Flexible Mobile Ticketing

Bytemark has a wide array of transit clients and has had the opportunity to work with agencies with a diverse set of business rules and transit products. Current implementations include zone based, time based, top-ups, bicycle fares, student, senior, family passes, origin-destination pairs, and various other tiered pricing schemes.

1.7.3 [redacted]

[redacted]

1.7.4 Common UI/UX across Multiple Platforms – [redacted]Customer Centric Approach

[redacted]

[redacted]

- [redacted]
- [redacted]
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[redacted]

- [redacted]
- [redacted]
- [redacted]s.

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d. [redacted]

1.7.5 INIT's Agency Focused, Cost-Effective Licensing Agreements

Neither [redacted] their native mobile app nor [redacted]n for their website require licensing agreements. Their work is for hire and belongs to INIT where the ORCA agencies will be granted full rights under the terms of the contract.

1.8 INIT's Back office: Open-Architecture and Interchangeable Modular Applications

Specifically for Back Office (Scope of Work Section 6):

a. Describe in detail each component of the proposed back office including details such as:

i. System hardware

ii. Interfaces

iii. Operating system

iv. Databases

v. Applications software

vi. Supported functionality

b. Identify any proprietary hardware, interfaces or software utilized, indicate whether industry standard equivalents are available, and if so, describe the benefits justifying use of the proprietary product.

c. Considering the information provided in Scope of Work Section 6.3, explain in detail the reasoning for choosing the proposed CRM solution including why other solutions were

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not proposed. For example, if you are proposing a CRM solution that does not leverage another agency's existing CRM application, explain why the agency's existing CRM software was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions.

d. Considering the information provided in Scope of Work Section 6.7, explain in detail the reasoning for choosing the proposed financial management solution including why other solutions were not proposed. For example, if you are proposing a financial management solution that does not leverage another agency's existing financial management application, explain why the agency's existing financial management application was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions.

e. Describe in detail the proposed systems for providing the full range of services including:

i. Monitoring and management of field devices

ii. Authorization of payments, debit and credit networks

iii. Data collection from devices

iv. Timely and accurate transaction processing

v. Clearing and settlement between participants

vi. Third-party billing and funds collection

vii. Financial reconciliation

viii. System management and monitoring

ix. Indicate which applications and functions are already operational, and which have to be developed. Also, indicate which applications have been purchased from industry vendors and which have been or will be developed on a proprietary basis.

f. Describe the proposed reporting system and the types of reports that will be provided to meet the system needs including KPIs, device health, and asset inventory reporting.

g. *Describe how the agencies will be able to generate custom reports using provided data and standard report generator tools*.

INIT's back office system is comprised of MOBILEvario (which provides the fare collection specific functions), and Commercial-Off-The-Shelf (COTS) systems – such as, the Customer Relationship Management (CRM) and Financial Management Application (FMA). This section related to the back office generally follows the order of the Scope of Work Section 6, Back Office Applications.

The information requested above in 8.e.i-ix is addressed in the associated subsystem (for instance, subsection i, "Monitoring and Management of Field Devices", is included in the System Manager section (i.e., Section 1.8.5).

1.8.1 System Hardware

The proposed Fare Collection System requires a robust network and information technology infrastructure to provide system availability and performance expected by consumers. The infrastructure and systems proposed below meet or exceed functional requirements while considering agency provided constraints and assumptions. While INIT is confident that the

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hardware and software proposed below meet requirements; INIT recognizes the rapid pace of technological advances between initial concept and design review may introduce desirable modifications. Further, the duration of the contract ensures technological advancement whose impact and inclusion cannot be estimated. INIT intends to provide the current available technologies, software and components within the offered price framework that meet the system requirements. Further changes and modifications may be necessary due to product obsolescence, incorrect assumptions, or additional constraints added by the agency. Iterative, collaborative design modifications can be made with the input of the ORCA agencies' during design specification and review phase.

1.8.1.1 Concept of Operations

The next generation ORCA information technology back office design consists of a highly available server, network and storage infrastructure built on enterprise class hardware located in two separate data centers in the Downtown Seattle and Tukwila area and a third, out-of-region data backup location. INIT recommends locating both operating datacenters within the ORCA operating region to provide extremely low-latency options between all agency networks and the back office infrastructure. Further benefits extend to consumers as response times dependent on latency-variable cellular networks. With two local datacenters connected by a low-latency network, INIT recommends a hybrid approach to business continuity and disaster recovery by combining load balancing, data replication, and failover capabilities into a resilient and flexible infrastructure.

The proposed back office servers are configured in a highly available virtual cluster providing high availability, performance and redundancy. The capacity and capability of the server and storage infrastructure is duplicated at the secondary site. Redundant networking load balancers, gateways and switches allow for the highly available, stretched cluster between these two separate datacenters. This allows for the parallel operations of external back office applications such as customer facing websites, vehicle facing services and other API services. Standalone systems and databases operate at a single datacenter with fluid migration or failover to the secondary datacenter. Connectivity between the agencies networks and the back office locations can be accomplished through a variety of wide area connection options [redacted].

While a multi-datacenter strategy provides premium disaster avoidance and resilience, additional data protection is required to ensure against data loss in the unfortunate and rare event of a regional disaster. This is accomplished through backup technology built specifically to support a virtual infrastructure and move it to a secondary, geographically different location. This strategy supports the data-protection 3-2-1 rule ensuring, 3 copies of the data, 2 different storage types and 1 offsite copy. Data and virtual machine image backups will be performed at one of the Seattle locations, compressed, de-duplicated and copied to the primary site and replicated to the secondary site after being compressed and de-duplicated. This level of data protection ensures recoverability following a disaster which requires recovery or data discovery from a previous point in time.

All hardware and software required includes support and warranty throughout the duration of the contract and hardware refresh and/or upgrades have been included at regular intervals throughout the duration of the expected operational period.

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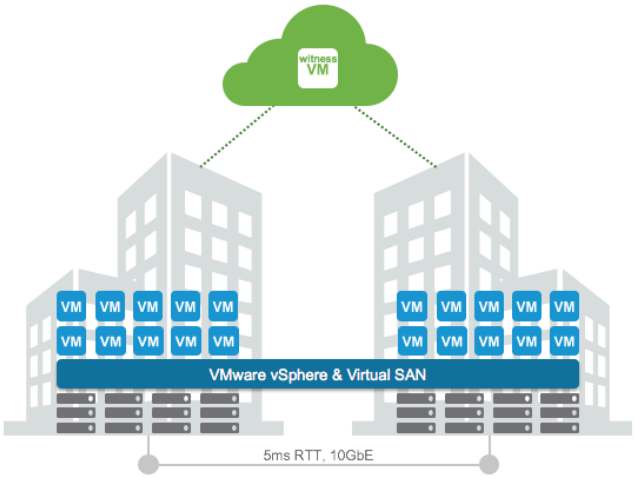
1.8.1.2 Servers

The physical servers providing the compute resources of the multi-site, virtual cluster supporting all back office operations are Dell PowerEdge R740, with dual Intel Xeon Gold 5118, 12 core processors and 256GB of RAM. VMware will be installed and run from 2 redundant, 64GB SD Cards. Further enterprise class redundancy extends to dual, hot-plug power supplies, redundant storage controllers, and redundant network connections. The specific number of host servers and their final configurations will be determined during design review based on resource requirements and available technology available during the implementation phase.

The physical servers providing the compute resources for the testing facility environment and out-of-region data backup locations are Dell PowerEdge R730xd, with dual Intel Xeon, 8 core processors and 128 GB of RAM. VMware will be installed and run from local storage comprised of a combination of SSD and NL-SAS drives providing enough capacity to run all virtual machines or store the off-site data.

1.8.1.3 Storage

Enterprise class storage using industry standard RAID and Hot Spare drive capacities is configured in a stretched storage configuration across both datacenters. A stretched storage cluster is implemented in specific hosting scenarios when downtime is not acceptable and application owners look to infrastructure solutions to provide disaster avoidance and recoverability generally unavailable at any other technology layer. While specific storage consideration and design will not occur until design review, stretched cluster, replication and redundancy configurations provided by hardware such as the HPE 3PAR 8200 or VMware vSAN technology will be used to create the highly available back-end storage, accessible from either primary or secondary datacenters. Using tiered storage strategies combining solid state drives (SSD) and near-line SAS (NL-SAS) drives, the stretched storage solution provides the right performance and reliability of the back-end storage, to whichever virtual machine or application needs it, wherever that service happens to be running. Capacities are configured in a way that a failure of a drive, server, array, or site, will not impact the availability of the customer facing back office, and will automatically triage any affected stand-alone virtual machines to surviving resource hosts. This effectively creates a self-healing storage strategy capable of automatically responding to and triaging traditional availability-limiting events.



Storage

1.8.1.4 Network

Enterprise class networking services for data and storage networking is provided by Cisco Nexus 3000 10GB switches deployed in high available pairs in both back office datacenters. The Cisco Nexus 3K device family are high-performance, high-density 10Gbe data center switches running Cisco's NX-OS providing both layer 2 and layer 3 switching and routing capabilities at ultra-low latencies. As dedicated and fully managed devices, the Nexus switches provide single-tenant networking with enterprise class features enabling the multi-site routing and failover between the datacenters.

1.8.1.5 Firewall

Firewall and gateway security is provided by a highly available pair of Cisco ASA 5515X firewalls. Cisco, the leading manufacturer of enterprise-class networking equipment, has extended the ASA firewall product line beyond traditional layer 3 firewalling, introducing next generation features such as integrated intrusion prevention capabilities. Each datacenter site receives a pair of CISCO ASA devices configured in an active/standby configuration.

[redacted]

1.8.1.7 Operating System

INIT's back office infrastructure servers leverage Microsoft Windows Server 2016. Windows Server offers a proven enterprise class datacenter platform that can scale to run the largest workloads. Windows Server will provide the operating system, file management, security, directory services, and DNS services to the INIT applications and supporting infrastructure. INIT licenses Windows Datacenter Server allowing for unlimited virtual machines and virtual machine migrations throughout the infrastructure.

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1.8.1.8 Databases

INIT's back office infrastructure is built on enterprise class database technology from Oracle (Oracle Enterprise Edition) which provides services for the storage, organization and retrieval of data. Oracle is a premier relational database system underlying critical databases around the world. INIT implements Oracle within a virtualized environment which provides improved capacity, availability, flexibility, scalability and recoverability for the system.

Capacity and Performance - Database capacities are scalable and flexible and provided by the underlying enterprise-class storage which is designed for high-performance and high availability through redundant drives and storage processors.

Security – [redacted]

High Availability – [redacted]

[redacted]

[redacted]

Flexibility – Implementing Oracle within the virtual environment allows for high flexibility of resource allocation as well as creating either permanent, temporary or ad-hoc test environments from production resources. The Shareplex solution can also be used to provide improved flexibility of data access by facilitating transaction level data replication to test environments, data warehouse environments, or other non-production, database instances.

Scalability – Implementing Oracle within the virtual environment allows INIT to scale database size and performance based on observed need. Allocating additional resources is both simplistic and quick, allowing for efficient allocation of resources on demand instead of allocating and dedicating unused resources up front.

Recoverability - In addition to the high availability and recoverability provided by Quest Shareplex, a virtualized Oracle instance also allows for quick and efficient backup and recovery. Leveraging virtualization specific backup technologies, the Oracle database is capable of being backed-up on an aggressive schedule to a separate off-site storage location. These quick, non-production impacting backups provide an additional layer of protection ensuring that any catastrophic loss of system will have a minimal impact to data loss.

1.8.1.9 Back Office Applications Software

The following chapter focuses on the back office application software.

1.8.1.9.1 Microsoft Windows Server

Servers will be equipped with Microsoft Windows Server 2016. Windows Server offers a proven enterprise class datacenter platform that can scale to run the largest workloads. Windows Server will provide the operating system, file management, security, directory services, and DNS services to the INIT applications and supporting infrastructure.

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1.8.1.9.2 [redacted]

[redacted]

1.8.1.9.3 VMware vSphere Enterprise Plus 6.5

VMware is a leader in virtualized infrastructure solutions and has been widely adopted across both large and small IT infrastructures. VMware abstracts server hardware resources and makes them shareable among the virtual machines that comprise the Fare Collection system. This helps decrease application downtime through efficient scheduling of resources, capacity optimization, workload isolation, and data protection. VMware is a key component of providing highly available, resilient, self-healing private cloud architecture.

VMware's High Availability (HA) clustering reduces the cost and complexity of traditional clustering solutions while providing cost-effective failover protection against hardware and operating system outages. HA is used to reactively, but automatically restart a failed VM on a surviving host. VMware's vMotion live workload migration tool allows moving an entire virtual machine from one physical machine to another without downtime. This seamless migration transfers the virtual machines active memory and precise execution state between physical hosts.

VMware vCenter provides centralized management of virtualized resources including hosts, storage and networks. It provides unified management of all hosts and VMs from a single console and aggregates performance monitoring of clusters, hosts, and VMs. The management console provides key performance indicators, predictive analytics, performance management and capacity analysis. vCenter is a key component of VMware's core feature set and its management features are available through a web browser. INIT intends to deploy vCenter Server with VMware's purpose built VCSA appliance in a High Availability configuration.

1.8.1.9.4 [redacted]

[redacted]

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[redacted]

1.8.1.9.5 [redacted]

[redacted]

1.8.1.9.6 [redacted]

[redacted]

1.8.1.9.7 [redacted]

[redacted]

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1.8.1.9.8 Solarwinds Network Performance Manager (NPM)

SolarWinds NPM is an essential component of the monitoring infrastructure. NPM provides network mapping, management, performance metrics and fault management for the network devices and connectivity required for system service delivery. Additional capacity forecasting and trend reporting provide actionable, proactive information allowing engineers to prevent network issues from impacting service delivery. Integrated with both SAM and DPA, SolarWinds NPM is critical to the ongoing operation of the Fare Collection system infrastructure.

1.8.1.9.9 Solarwinds Server Application Manager (SAM)

SolarWinds SAM is the primary server monitoring, analysis and fault management software for the ongoing support and optimization of the virtual machines. SAM monitors availability, response time, CPU, memory, and disk usage and includes capacity planning and metrics to assure proactive notification of potential capacity problems. SolarWinds SAM is part of SolarWinds Orion and integrates with both NPM and DPA.

1.8.1.9.10 Solarwinds Database Performance Analyzer (DPA)

SolarWinds DPA for Oracle provides a database performance monitoring and management tool used for visibility into the supporting system databases. Insight into database response time, system health, trend analysis and specific analysis of concerns of running virtualized databases, DPA provides INIT IT and Development staff the tools necessary to optimize and ensure the databases are running effectively. SolarWinds DPA is part of SolarWinds Orion and integrates with both NPM and SAM.

1.8.1.9.11 [redacted]

[redacted]

1.8.1.9.12 [redacted]

[redacted]

1.8.1.9.13 [redacted]

[redacted]

1.8.2 MOBILEvario – INIT's Service-proven AFC-specific Back Office Applications

MOBILEvario is a powerful back office system, which is (among other features) an accounting and payment administration system.

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MOBILEvario covers the traditional administration applications for revenue management (sales control and the keeping of accounts), fare management (products and matrices), seller media, user accounts, clearing house functions, personnel administration, various reports and access control.

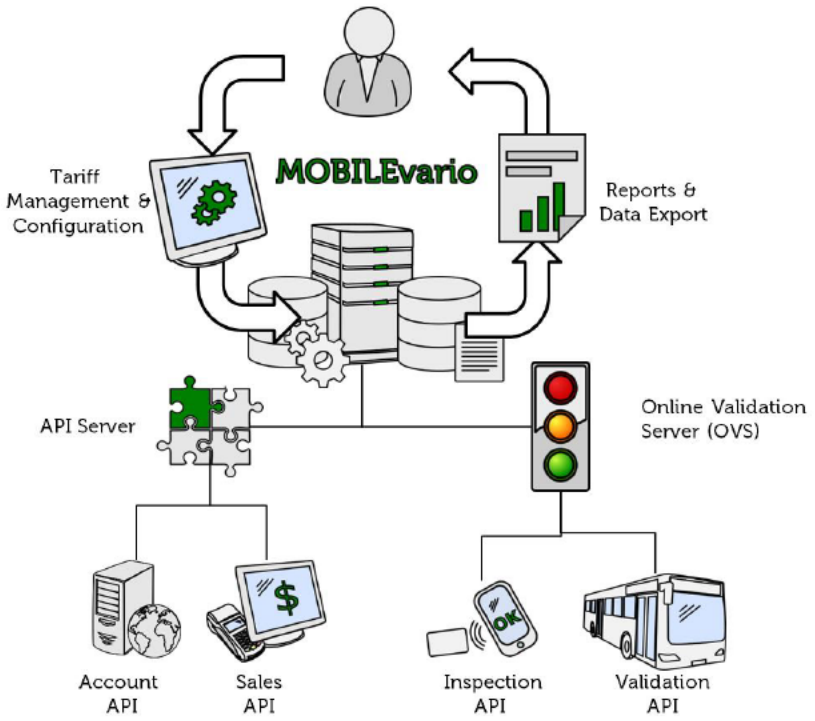
All tabular representations can be exported in a variety of formats so that the ORCA Agencies can use this data in additional third party software packages.

The modular architecture of the system results in future orientation and flexibility, resulting in investment certainty.

The following figure shows the main components of MOBILEvario central system on a very general level.

1.8.2.1 INIT's Service-proven Open Architecture APIs for Communications with the Back Office

A core aspect of INIT's account based systems is the use of Application Programming Interfaces (API). The RESTful (Representational State Transfer) APIs provide an open architecture that supports vendor independence and streamlines integration with other payment channels. The APIs provide functionality for any 3rd party devices and networks to sell and validate fares. The client devices or customer interfaces all use INIT's APIs to sell and validate fares.



Open Architecture Approach for Communication with the AFC Back Office

Testing facilities allow the next generation ORCA team or Third Party Vendors to design and test their solutions. This protects Agencies' valuable investment for many years to come as it allows them to enhance the system autonomously.

The APIs provide a standard and easily understandable interface to the proposed system. These APIs demonstrate the open architecture of the system. The APIs provide the next generation ORCA Agencies full flexibility to integrate 3rd party sales and fare validation solutions if desired in the future. The following table lists some of the main APIs of MOBILEvario.

Specification	Description
Product API	API is tasked with product related operations
Fare Distribution API	(or Sales API) API for selling fare products and adding stored value on transit accounts.
Fare Payment API	(or Validation API) API used by platform and vehicle validators for real-time fare validation and stored value usage.
Fare Inspection API	API used by fare inspection devices to check if a given fare media has a valid transit product.
Transit Account Management API	API used by POS devices, web portals and CRM system to list transactions do value adjustments etc.
Customer Account Management API	API used by web portals and CRM system to manage registered users.

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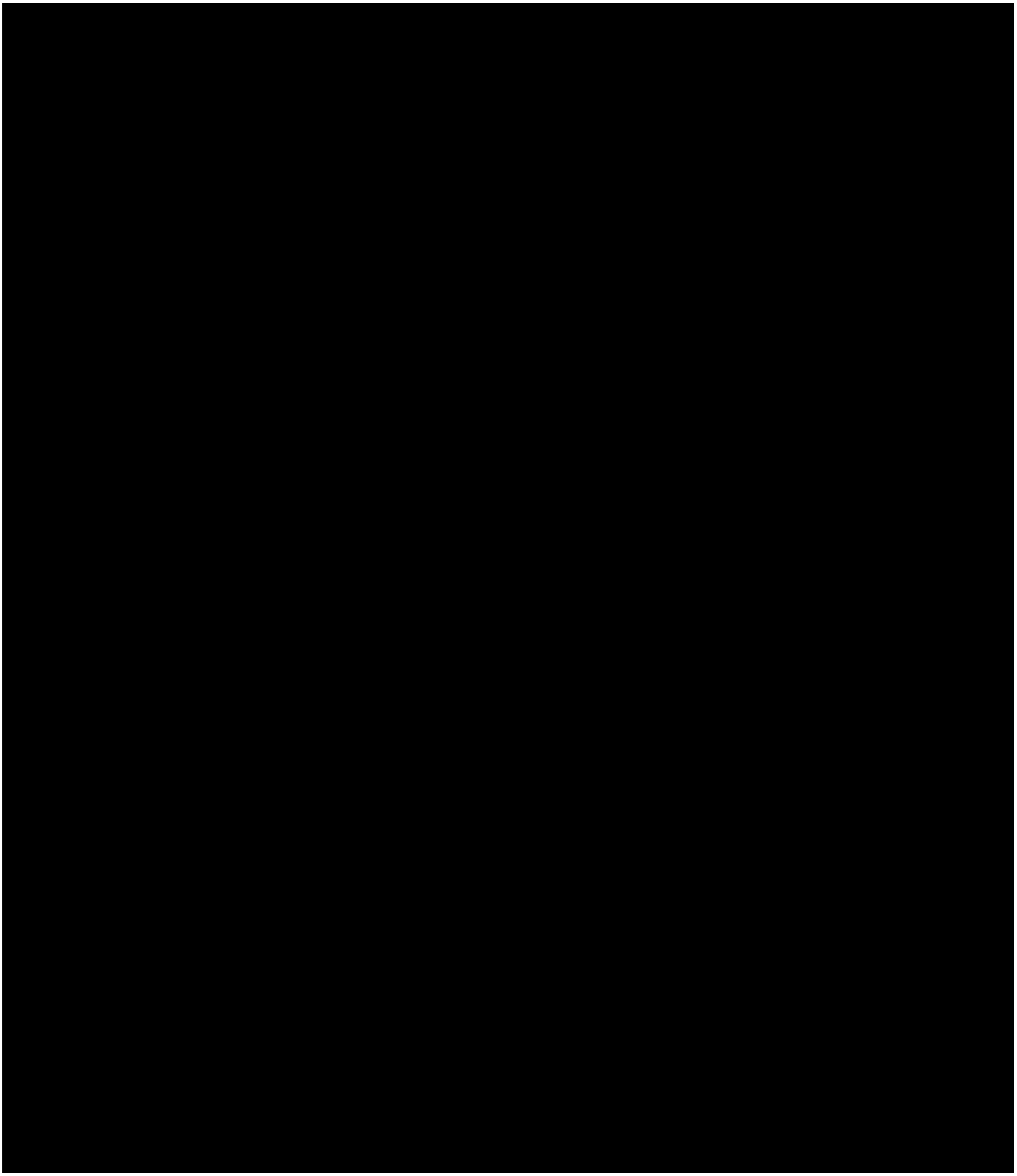
Specification	Description
Cardholder API	API used to query and modify data maintained on cardholders
Device Management API	API for remotely managing and monitoring devices in the City system

1.8.2.2 Online Validation (Account-based Transaction Processing)



1.8.2.3 Fare Table Management

MOBILEvario Fare management provides a powerful user interface for adding and modifying fare products, their prices, validity times, business rules, zones, calendars, and many other

attributes. Business Rules can be configured for all fare products in MOBILEvario. Business rules may include capping, transfer rules, unlimited ride fare products/period passes, etc.

1.8.2.3.1 Overview of functionality

To ensure the next generation ORCA project can utilize all business rules necessary to support enforcement of each unique fare policy, the Fare Management (FM) module creates, edits, and manages all products and fare data. The FM module includes but is not limited to the following functions:

This is just a subset of all the rules that can be defined in the Fare Management module. The data is stored in an SQL compliant database and will be released to the Online Validation Server. In this database, it is possible to store different Fare versions. One fare can be defined for a certain validity period and stored while another defined and stored fare is currently valid.

1.8.2.4 System Administration

The MOBILEvario Admin Tool is used to administrate all central and general settings of the MOBILEvario system. The main functions of the Admin Tool are:

- User Administration (defining users, groups and their access rights),
- System Parameter configuration (configuring the values of the operational and policy

1.8.2.5 Revenue Management

MOBILEvario Revenue Management provides a user interface to filter, group and list transactions based on sales channel, device, sales person etc. While Revenue Management is not an accounting tool, it is a very useful module for troubleshooting and producing ad-hoc reports and data exports from the production database. It is an invaluable tool when performing validity checks.

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With Revenue Management, it is possible to review sales data and perform statistical evaluations in real time. The sales data originates from the integrated distribution channels: Web sites, Validators, Mobile App, etc. Individual transactions and summary data are readily accessible by channel, vehicle, and even by the specific processing devices. Results can be printed or exported for use in other applications as needed.

Revenue Management provides Sales control and Debtor (Distribution channel) Account Management. This is essential for tracking accounts and collections for 3rd party sales channels like a local convenience store. You can define maximum credit allowances for each entity and track their performance. Here you can also block sales should they not honor their responsibilities (e.g. bad debtors).

The sales control module provides various functions to display and control sales data for each agency.

All sales records include the sales channel as well as values, date/time, locations and other pertinent information for reporting and analytical needs. Sales Accounting is handled by MOBILEvario's accounting module.

Each agency only has access to the sales data provided by their service or sales points. A set of specific users may be granted access rights to see all transactions in the system. We would expect this to be an oversight committee of the next generation ORCA project.

1.8.2.6 System Parameter Management/Configuration Management

All device parameters are managed in the MOBILEvario Parameter Management tool on a regional or agency specific level. Those parameters are e.g. the passback time of the validators or specific parameters like the time until the device shuts down once the vehicle is turned off.

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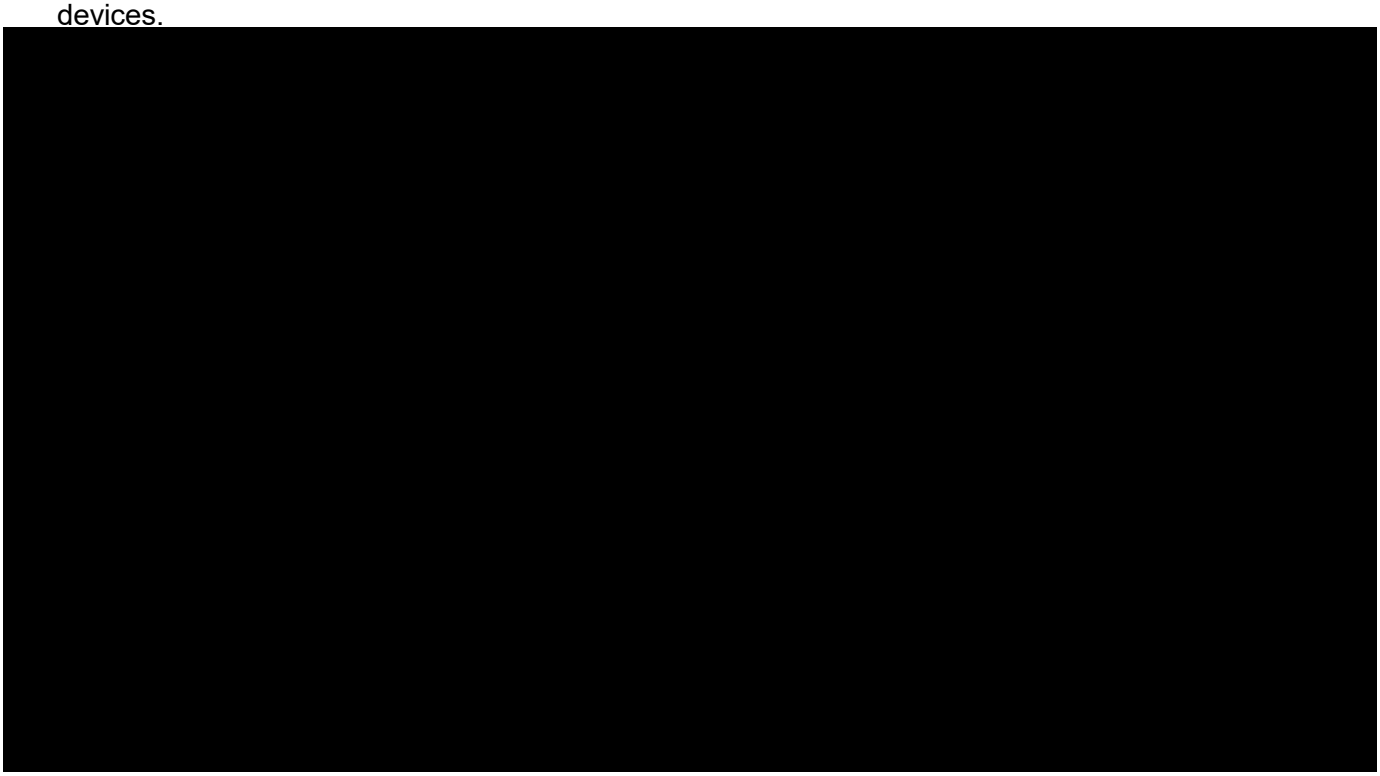
MOBILEvario Parameter Management is a web-based tool and enables modifying predefined system parameters and thresholds as well as assigning and transmitting them to the necessary devices.



1.8.2.7 Master Data Management

1.8.2.8 Sales Personnel Management

MOBILEvario Debtor Management is a tool to manage the system sales personnel. [redacted]

[redacted]

[redacted]

[redacted]

1.8.2.9 Form Designer

The MOBILEvario Form Designer enables configuring the layout of forms for smartcards, customer emails and reports. Following screenshot shows the main elements of the user interface:

(1) Toolbar and window name, indicating the currently opened form and the name of the application, (2) Tab bar, (3) Form list, (4) Report explorer and field list, (5) Toolbox, (6) Variable work area, (7) Property grid, (8) Group and sort

The form designer enables you to configure e-mails and smartcards which are available as predefined templates. The following predefined templates are available:

Template	Use	Description
Account related mail	E-mail	
Autoload related mail	E-mail	

Template	Use	Description
Cardholder related mail	E-mail	[redacted]
Contract related mail	E-mail	
Default receipt	Sales receipt	
New card	Customer cards	
New report	Any	
Order related mail	E-mail	
Smartcard related mail	E-mail	

1.8.2.10 Card Inventory Management

MOBILEvario's web based Card Inventory Management provides an inventory management system for the fare media (e.g. extended use cards). The web based GUI enables the agency to import cards to the system whenever they are delivered from the card manufacturer and perform all necessary inventory and reporting functions with the tool.

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1.8.2.11 Revenue Processing System

The following chapter focuses on the Revenue Processing System.

1.8.2.11.1 Revenue Recognition

The following diagram provides a high level overview of the steps and accounts involved in the revenue management and reconciliation process:

1. [redacted]

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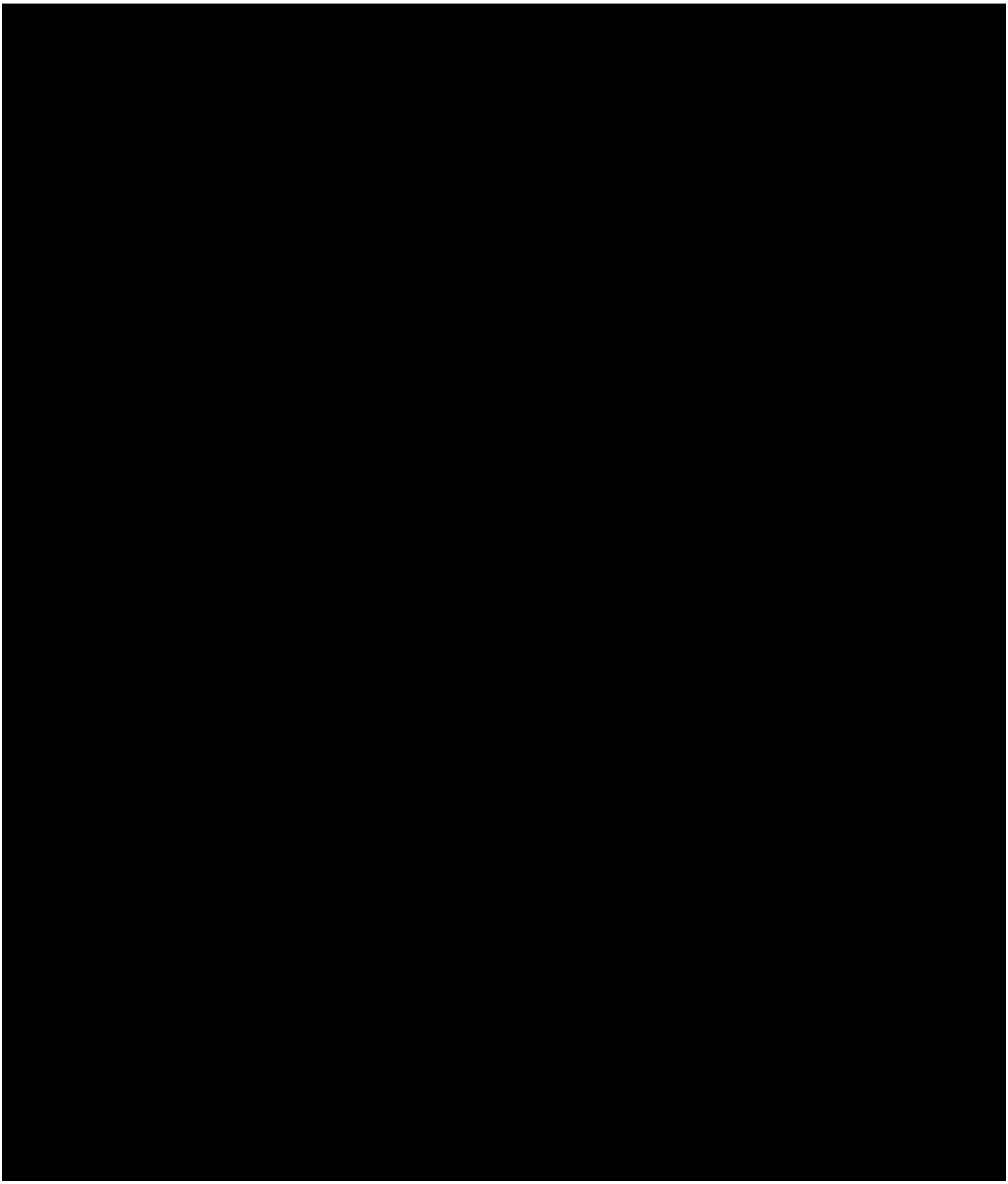

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1.8.3 Customer-Service Focused CRM

Considering the information provided in Scope of Work Section 6.3, explain in detail the reasoning for choosing the proposed CRM solution including why other solutions were not proposed. For example, if you are proposing a CRM solution that does not leverage another agency's existing CRM application, explain why the agency's existing CRM software was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions.

INIT evaluated the following COTS CRM solutions for next generation ORCA:

- [redacted]

INIT recommends, and has included as part of its main offer, the use of a cloud based, Software as a Service (SaaS) [redacted] solution because it fully meets the requirements in the Scope of Work Section 6.3 and is rated number one by several independent software research firms – including, Gartner, Forester, and Software Advice, which states that

- [redacted] more highly recommended by customers (79% vs. 51%)
- Customers rate [redacted] ease of use higher than Dynamics
- Customers rate [redacted] customer support higher than Dynamics.

[redacted].

The [redacted] Platform provides high levels of performance, reliability, and security. [redacted] built and maintains a multi-tenant application architecture that has been designed to enable the service to scale reliably, and cost-effectively to accommodate millions of users. next generation ORCA will not need to maintain any hardware or software. The [redacted] cloud based architecture will allow next generation ORCA to deploy the proposed solution rapidly and scale at will for future needs.

[redacted]

INIT's proposed solution integrates several applications into a single CRM application. The core applications of this solution are INIT MOBILEvario and Salesforce. Salesforce will deliver the customer service management features and provide customer service representatives (CSR) with a single interface to service all customer inquiries and requests. Using the Salesforce

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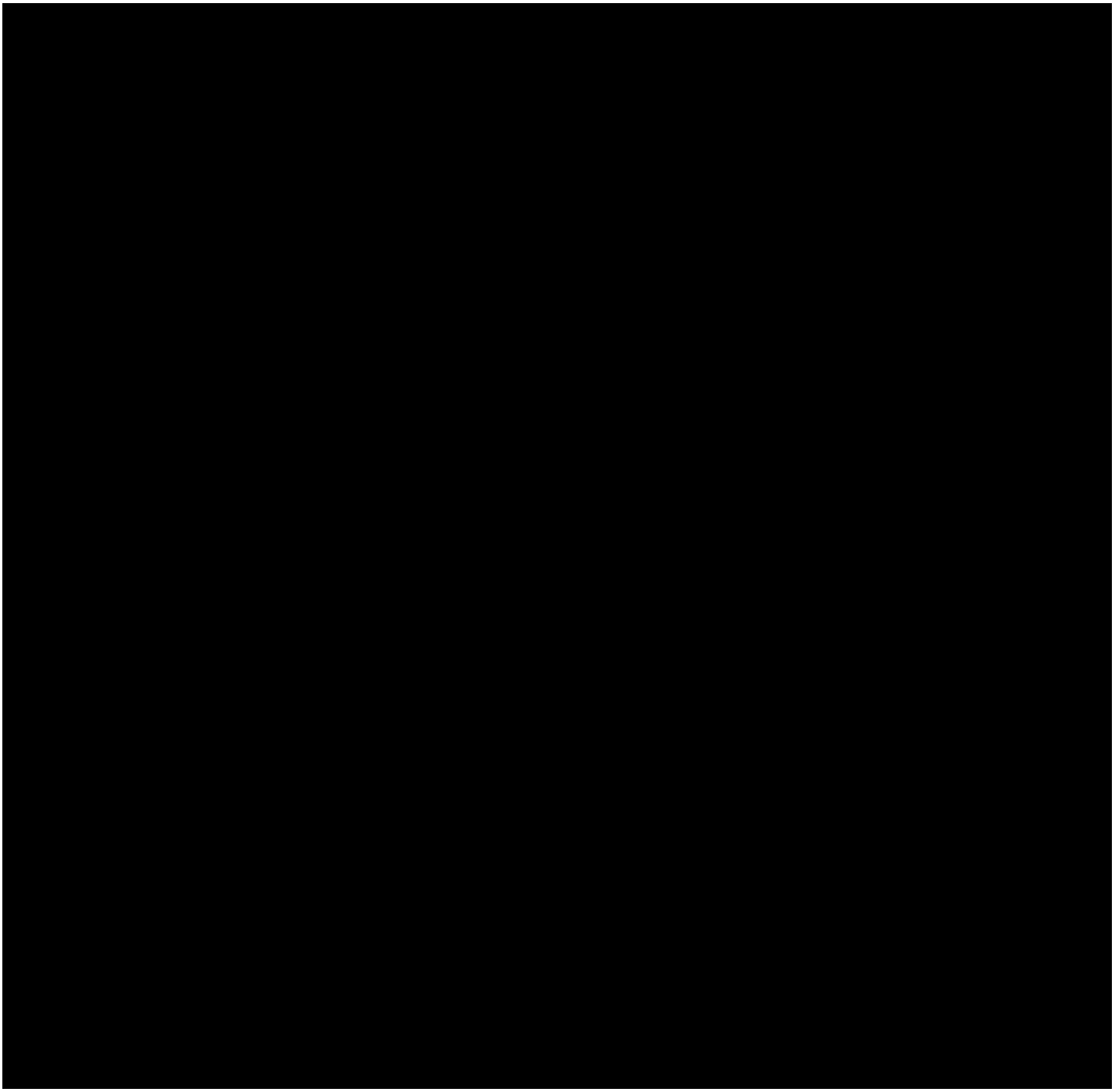
API's, the web portals and mobile apps will be able to offer website service requests while also providing a rich customer self-service solution. MOBILEvario will provide the Customer Account Management functions. Using the MOBILEvario Web API's INIT will extend the Salesforce capabilities to enable the CSR's to support customer and transit account actions.

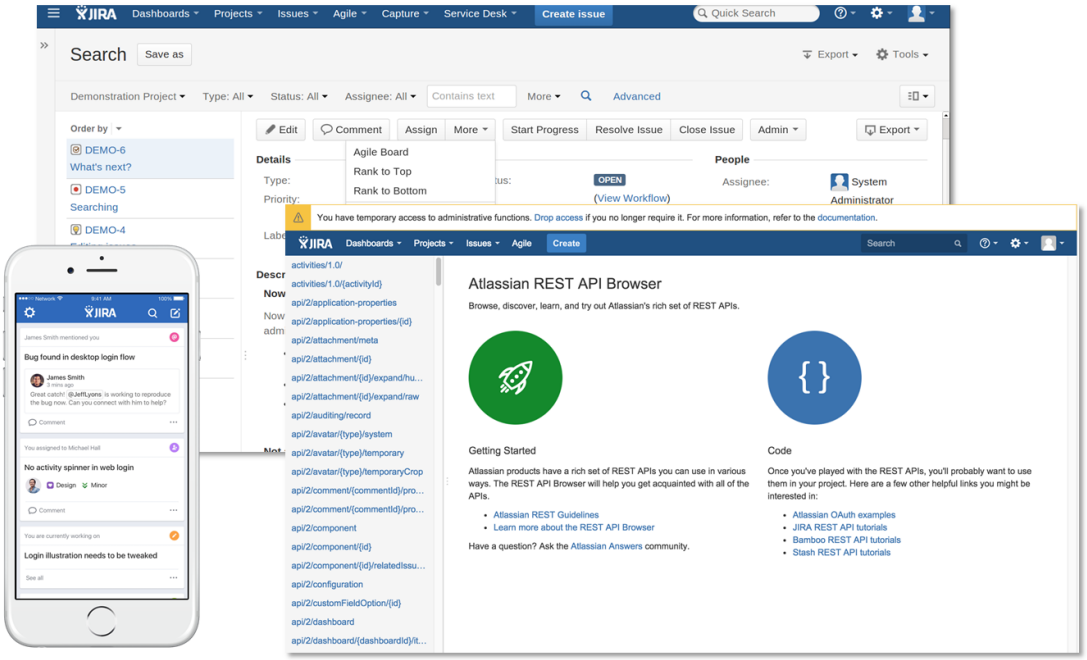
1.8.4 Asset Incident Management (AIM) Application



[redacted]

1.8.4.1 Incident Management (JIRA)

INIT proposes to use JIRA for the incident management application for its status as industry leader in incident management and its wide adoption in world-class companies across many industries. Jira is currently implemented company wide at INIT for issue management. INIT also successfully uses Jira in projects where customers can issue tickets directly in their project specific Jira instances. The key to effective incident management is a process that records, categorizes, prioritizes, responds and resolves. JIRA provides the framework for capturing the details required for each step of the process as well as the workflow to move the process along effectively. Combined with good documentation and automated inventory and status', JIRA combines the people, process and technology required to manage the inevitable incidents.



Incident Management

Together with the Insight asset management software, the two modules also provide an asset incident management with superior usability and scalability. Benefits for the next generation ORCA system

- ✓ Industry standard incident management system with proven track record
- ✓ Large customer base with excellent references including many public transport agencies
- ✓ Excellent open API support - perfect addition to INITs open architecture model.

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- ✓ Low risk solution since INIT is already deploying Jira internally and externally
- ✓ Excellent configurability for workflows
- ✓ Easily understandable user interface with drag'n'drop functionality for workflows.
- ✓ Many extension modules available in the Atlassian market place ("app store")
- ✓ Mobile clients available in Android and Apple stores

1.8.4.2 Asset Management [redacted]

[redacted]

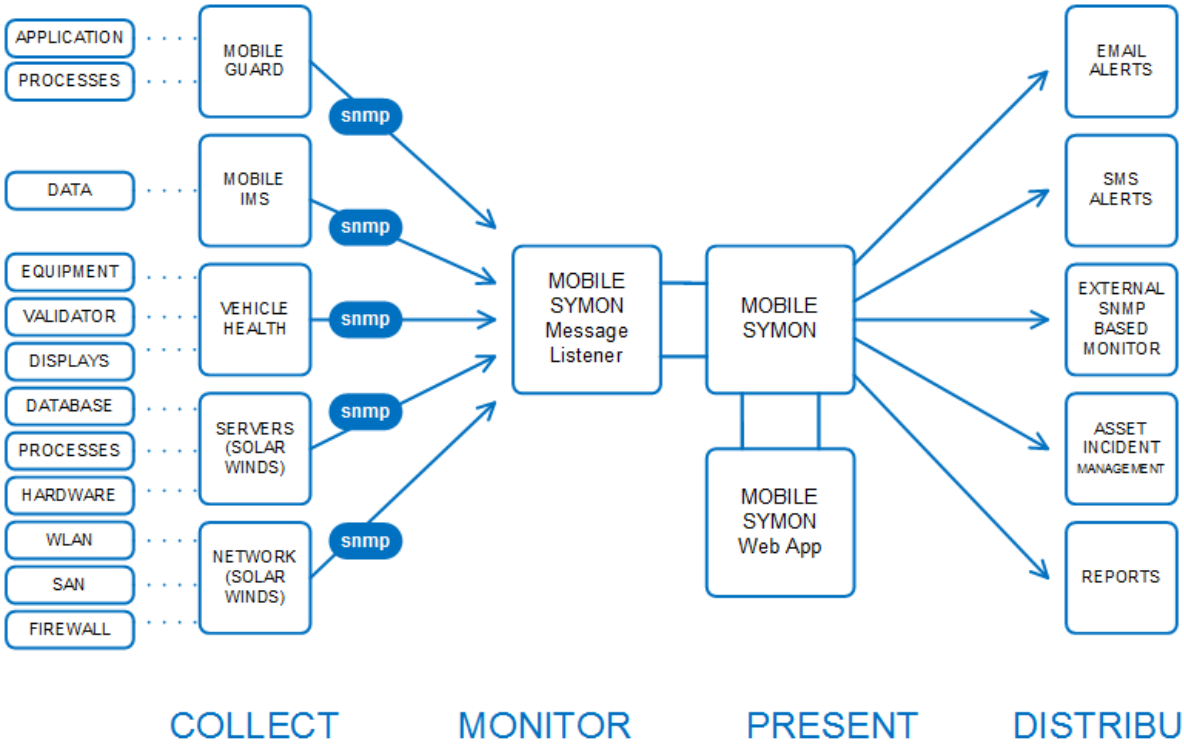
1.8.5 System Manager - Automatic System Monitoring

INIT's System Manager, MOBILEsymon is a web-based, systems monitoring application which provides system monitoring, dashboards, reporting, and alarms for system assets and

performance tracking. MOBILEsymon is a sophisticated monitoring system which provides real time status information and alerts for the AFC system including:

- Backend hardware
- Backend software and databases
- Wayside Validators
- Vehicle hardware
- Frontend software system components

MOBILEsymon works in conjunction with other system monitoring tools including INIT's MOBILEguard process monitor and SolarWinds Network Performance Monitor to provide a single pane of glass for asset status. MOBILEsymon collects, monitors, presents and distributes the consolidated data to next generation ORCA agencies. By defining alarm conditions and actions, the responsible persons will be notified of potential system issues via established email or optional SMS distribution groups so that corrective actions may be taken. In addition to the web-based dashboards, MOBILEsymon can also distribute information to several external sources including existing customer-owned network management systems and with the Asset Incident Management system through API integration.



MOBILEsymon

1.8.5.1 Dashboard

The dashboard is a configurable page which gives an overview of the monitored systems status, messages and status changes. Available are a System and a User dashboard.

System dashboard Provides an overview of system groups. The system dashboard can only be adjusted by the administrator.

User dashboard Each user can create several dashboards for his/her responsibility area. For each group different widgets can be added and their position changed. The system can be configured to only alert certain users

MOBILEsymon dashboard with intuitive KPI's

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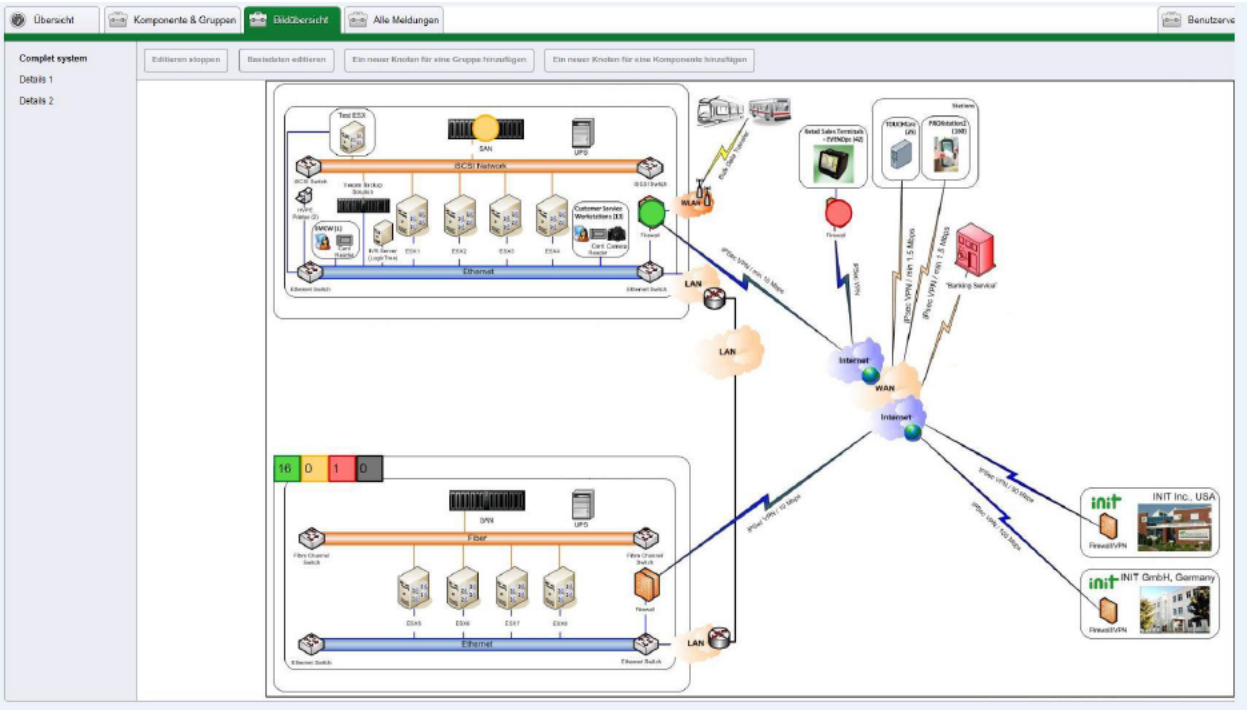

MOBILEsymon's graphical dashboard shows VM status at a glance

1.8.5.2 Automatic alerts

To manage issues in real-time, a user configures automatic notification about status changes to be sent via e-mail and/or ORCA provided SMS service. The user assigns alerts to be issued when certain conditions are met. If the condition is satisfied, the action(s) will be carried out.

[redacted]

In the Components & Groups view, the user can access all visible components. Components can be combined into groups and one component can be part of several groups.

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1.8.5.3 MOBILEguard

MOBILEguard monitors and controls the ITCS databases, the ITCS processes, the hosts and the file systems. The application is accessed via a standard web browser making it available to any user with user privileges. MOBILEguard is based on the Java JMX (Java Management Extension) and can therefore be managed through all JMX enabled tools or accessed via RMI (Remote Method Invocation).

MOBILEguard includes the following features:

Database monitoring	The online databases are constantly monitored. In case a database requires more space, a volume is automatically added and an alarm is generated. In the case of database problems, an alarm is generated.
Process control	Java applications are monitored, started and stopped automatically. If problems are detected, an alarm is generated. In the case of a crash, the Java machine is automatically restarted. Online monitoring of live data communication is possible with the ability to manually restart an application.
Host monitoring	Using Peer To Peer technology, MOBILEguard will automatically check the heartbeat of all other services encountered in the network. If a service fails, e.g., a server is down, an alarm is generated. An alarm is generated when the server returns.
File System monitoring	Specified storage devices are monitored. In case a device is not accessible or in case a device may become full, an alarm is generated. Predefined directories are checked for file activity. If log files are not written to within a defined period, an alarm is generated. Old log files and database backups are automatically deleted according to ORCA defined requirements.
Alarm	Using Peer-2-Peer technology, alarms can be distributed to all

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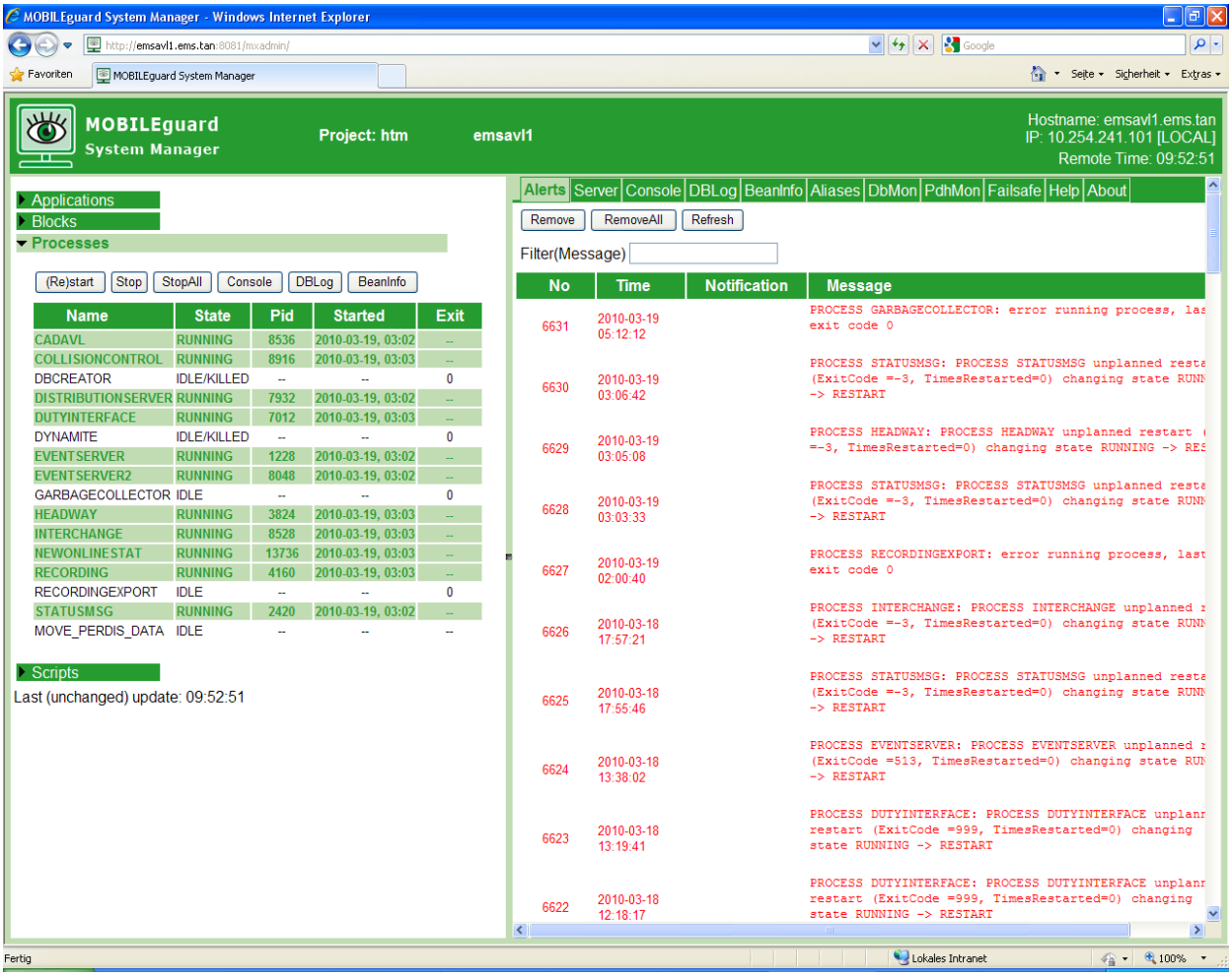
management MOBILEguard services on the network. Alarms can be configured to be forwarded via e-mail, SMS as well as being sent to MOBILEsymon.



MOBILEguard's Dashboard

1.8.6 Fare Media Management Application

The MOBILEvario suite has a web-based module called Card Inventory Management. This module has a proven track record, having worked very effectively on all of our AFC systems. The tool provides full inventory functionality to control all fare media inventory.

[redacted]

Given the ORCA Agencies' stated desire for a COTS FMM, INIT evaluated different solutions. The best solution for this purpose is the solution provided [redacted] However, based on technical and cost analysis, INIT's recommendation is to use the internal MOBILEvario module as it meets all the stated requirements and is significantly more cost-effective.

We are including [redacted] solution as an option, and are open to using this COTS solution if the ORCA Agencies determine this is the most suitable for the next generation ORCA program.

1.8.7 Best Value Financial Management Application

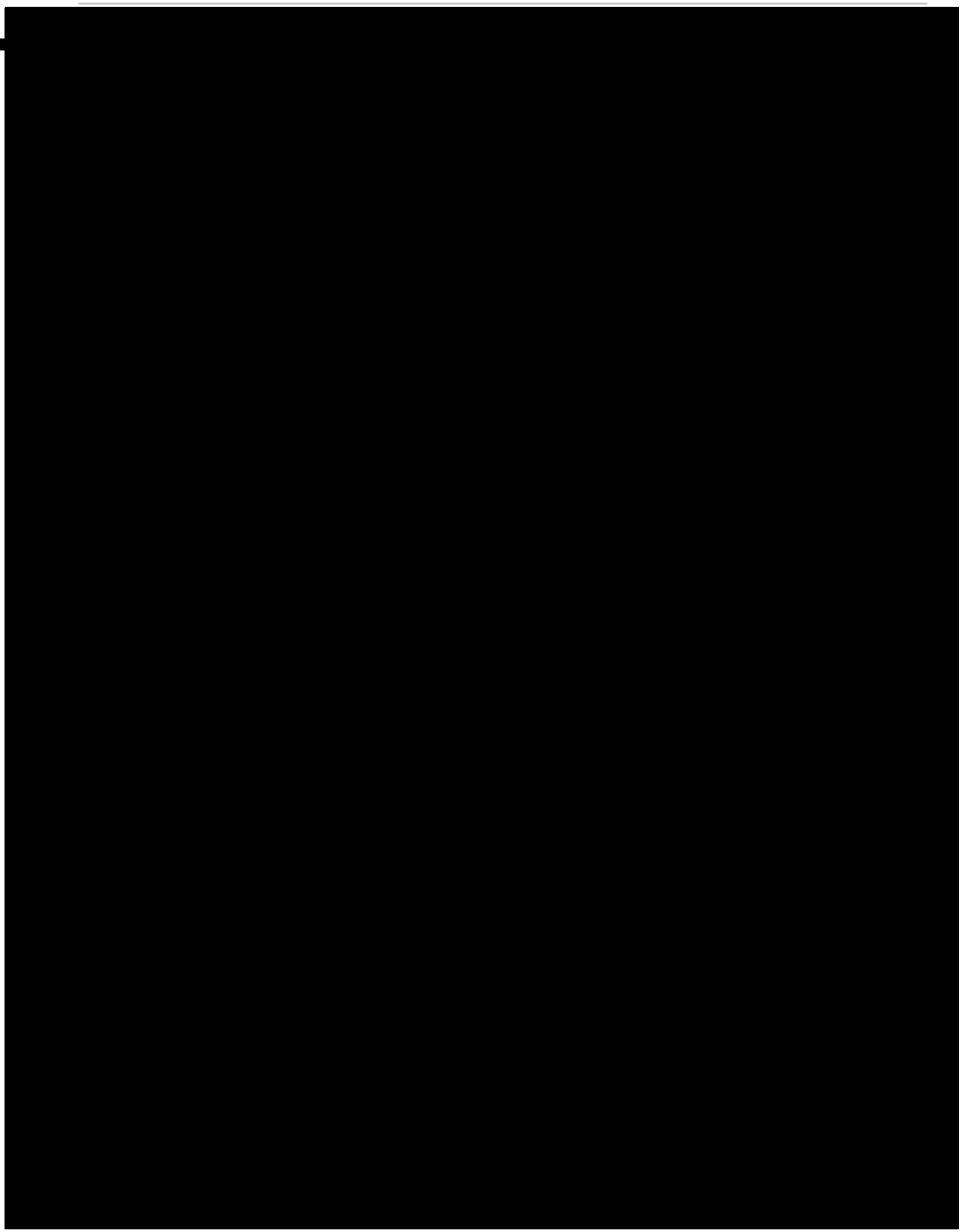
Considering the information provided in Scope of Work Section 6.7, explain in detail the reasoning for choosing the proposed financial management solution including why other solutions were not proposed. For example, if you are proposing a financial management solution that does not leverage another agency's existing financial management application, explain why the agency's existing financial management application was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions.

INIT evaluated three COTS applications for the Financial Management Application for next generation ORCA system:

1. [redacted]

[redacted]

[redacted]te



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1.8.7.1 Financial Modules / General Ledger

The General Ledger is the core accounting application that receives the following transactions from the INIT MOBILEvario revenue system:

- Sales transactions (typically Fare Products (deferred revenue) or rider optional product sales.
- Payment transactions from the full range of payment sources including Cash, Credit/Debit cards and other electronic payment methods.
- Earned Revenue entries (daily transactions where deferred d revenue is converted to earned revenue)
- Reconciliation transactions where credit/debit card transactions or retail network transactions are reconciled and amounts are moved from "Credit card receivables" or "Cash in Transit" accounts to "Cash in Bank" accounts as the money is actually received.

1.8.7.2 Accounts Receivable & Order Entry / Billing Module

These modules are used for Institutional customers who provide full or partial transit subsidies to their employees or patrons and who require an invoice (monthly or annually) for the institutional products they purchase. The Accounts Receivable module will additionally prepare monthly statements of outstanding balances and will monitor credit limits established for each institutional customer.

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1.8.7.3 Accounts Payable Module

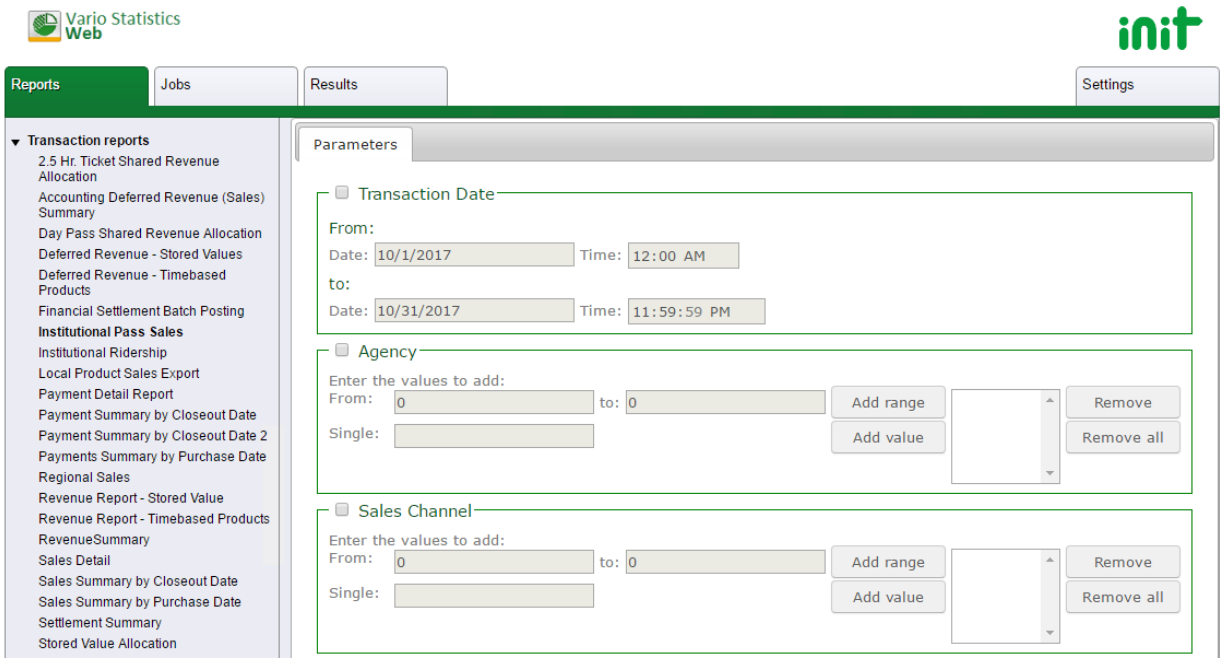
As defined in the scope of work, the Sage accounts payable module will support vendor management, voucher and vendor invoicing, refund processing and general accounts payable functions.

1.8.7.4 Financial Reporting and Query Module - VASAweb System Reporting

INIT's tool to provide access to customized and canned reports is called VASAweb. The web-based tool makes it easy to run, schedule, view and download reports in all standard formats like Microsoft Excel.

Customized filters can be applied to all reports so that they can be run for a specific date range or for a specific agency.

The underlying technology for VASAweb is Crystal Reports. All Crystal Reports can be integrated into VASAweb.



VASAweb Reporting tool

1.8.8 Central Payment Application

As part of the MOBILEvario product suite, INIT is providing a central payment application to process all credit card and ACH payments. The central payment application is using APIs to connect to all devices that need to initiate payments. The central payment application is used for all internal payment initiations (e.g. for autoloads) too.

The most important factor when designing the central payment application is to keep PCI scope in mind. INIT has a unique approach to keep the PCI scope of the system as low as possible. To achieve this, credit card information is encrypted on the device side or is directly entered on the banks server (hosted page solution). In addition, credit card information is never stored in the system.

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1.8.8.1 Payment Gateway

In order to provide reliable, flexible and versatile 100% PCI compliant payments, INIT recommends to use the CreditCall payment gateway. The credit call gateway provides the P2P encryption and tokenization and serves as the payment interface for both card not present (CNP) and card present (CP) payments.

With CreditCall as a Payment Gateway, INIT could implement OpenPayment functionality on the validators in Phase 1, without additional costs.

INIT's understanding is that the Payment Gateway and all transaction costs are not part of this scope of work. INIT will provide a Central Payment Application that connects to a Payment Gateway. INIT prefers to use CreditCall as the Payment Gateway, but the INIT Central Payment Application could work with other Payment Gateways too.

1.8.9 Configuration & Change Management Application

INIT proposes Atlassian's JIRA Service Desk with Bitbucket, which is a COTS SaaS solution, for the next generation ORCA Configuration and Change Management Application. The use of this solution offers significant advantages, for example:.

- Utilization of the system administration applications (i.e., Asset Incident Management, issue management, and configuration and change management) on a single Atlassian platform, with a single user interface / user experience and easily shared data;
- INIT is very experienced using Jira. INIT currently uses JIRA for issue management and change management on all its customer projects (well over 100).

The Atlassian IT Service Desk template comes with a change management workflow. This workflow ensures that change requests are recorded, assessed, approved, and implement in a tracked way. We recommend starting with our default workflow and adapt it to the project's business needs. The IT Service Desk template connects certain requests to a change workflow. We set up the workflow to complement the following change management process. Use the workflow to transition change request records alongside these ITIL recommended activities:

- reviews
- planning
- approvals
- implementations

The JIRA service desk provides a default change management workflow that can then be adapted to the ORCA requirements during the system design phase.

1.8.10 Performance Reporting

INIT utilizes Crystal Reports for its underlying reporting platform. INIT will provide following canned KPI reports on a monthly basis starting at SAT:

- Device reliability
- Device accuracy
- Device availability
- Back office accuracy

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- Back office availability
- Server authorization rate
- Maintenance response times

The reports will include tables and graphical charts showing the current and historical performance of each device or system under measurement. The reports will include a calculation of credits to be assessed in the current month based on current and prior performance. The System will allow the Agencies to run, view and download reports. Additionally, INIT has budgeted 100 hours for agency-specific modification of canned reports.

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INIT's Proven Methodology and Approach to Implementation and Operation and Maintenance Services

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

The Future of Mobility

Confidentiality Statement

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The sections listed below contain trade secret information that provides a business advantage to INIT over competitors. These sections are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

CONFIDENTIAL SECTIONS:

2.2 The INIT Team Organizational Chart

2.3 INIT's Highly Qualified and Experienced Key Personnel

2.4 INIT's Key Personnel are Available and Accessible

2.5.2 Implementation Services

2.6 INIT's Proven Transition Methodology and Approach

2.7 Operational knowledge transfer and excellence through effective O&M manuals

2.8 INIT's Experienced and Proven Risk Management Approach

2.9 Discuss any special considerations or challenges

2.10 An Achievable Project Schedule

2.12 INIT's Partnership with ROOT for Effective Operation and Maintenance

2.14 INIT's Sample Disaster Recovery Plan

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2 Methodology & Approach to Implementation and Operations & Maintenance

As a global leader in transportation innovation and technology, we believe you will find INIT's combination of service-proven implementation, technology and user experience design, as well as our industry leading secure, open, extensible system architecture to be advantageous in meeting the needs of ngORCA. Equally important is our success in creating and delivering an experienced, collaborative, and agile project management methodology; ensuring that our team's focus on the critical factors of overall project success are always at the forefront.

With legacy ORCA nearing end-of-life, schedule and focus on the core requirements are essential in order to deliver a modernized, customer-focused, secure system with cost-efficiencies as well as minimal disruption of the current operation Puget Sound riders have come to enjoy and expect. As the System Integrator (SI) for several of our fare collection projects, we believe INIT is equipped to do just that.

The pace with which technology moves in today's competitive environments is often faster than people do or are prepared for. As such, in addition to our Research and Development group, we have built into our project teams the capacity to build a robust focus on helping our customers translate technological visions into real-time benefits for their patrons.

Changes in technology are inevitable; this is why we have built-in flexibility as part of our overall system architecture with user experience at the forefront. INIT's vast experience in partnering and collaborating with technology experts and vendors in their given field(s) and integrating them as part of the overall solution further expands the capacity for us to accommodate changes that arise. We will work with the Agencies to identify areas in which configuration or implementation changes are the most cost-effective with an eye specific to risk mitigation.

With over 30 years of experience in driving transit innovations, it is clear that both transit and technology are our passion. Pointedly, rather than wait for technology to change and drive our business, we seek to be part of that passion and drive and deliver the change with our customer in a manner that is mutually beneficial for the customer and their patrons.

INIT is poised to deliver for ngORCA an innovative, seamless, extensible, and accessible customer-centric solution.

2.1 INIT's Capability Conformance - Matrix Tab 1

INIT's Capability Conformance Matrix can be found in the Appendix.

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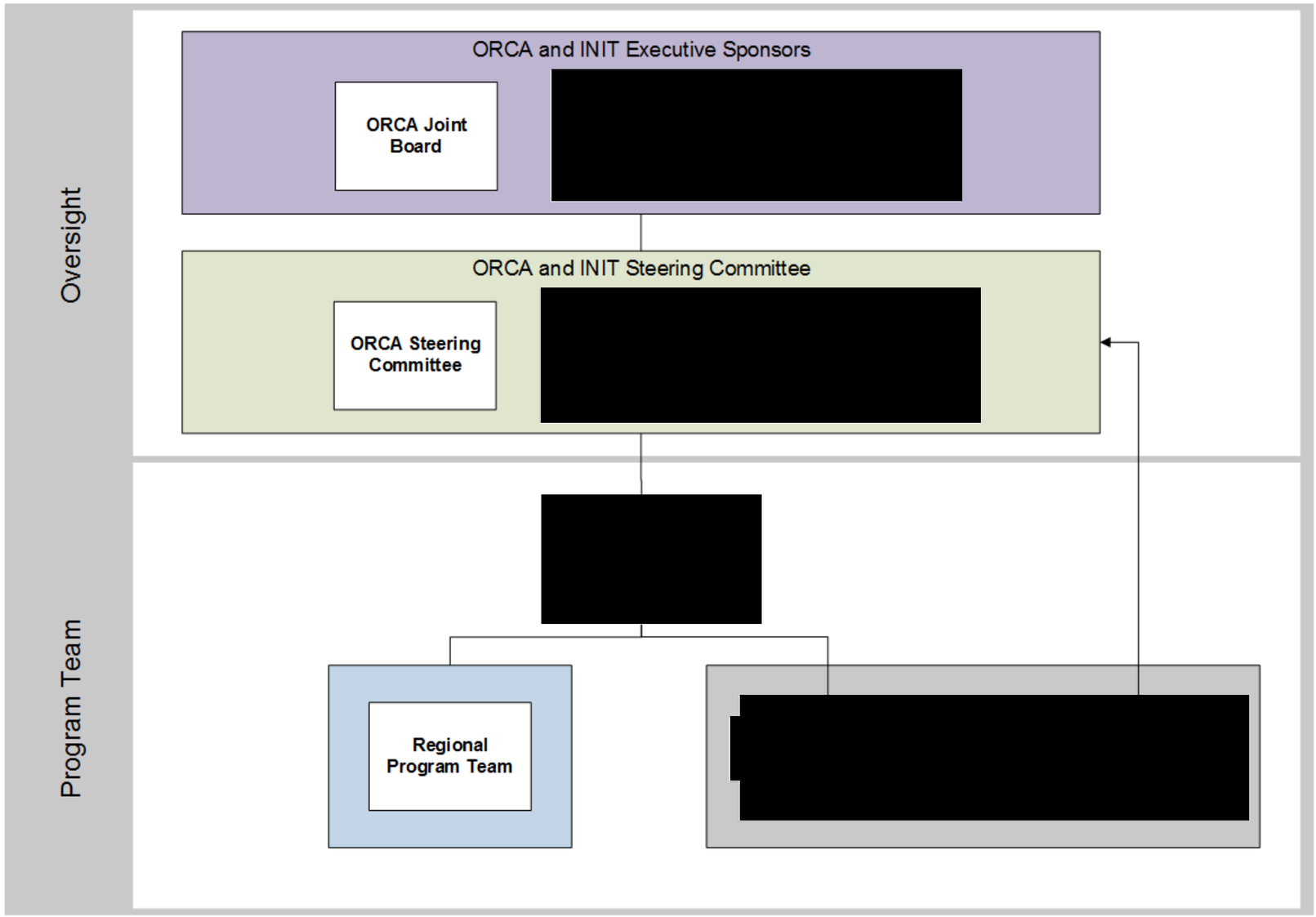
2.2 The INIT Team Organizational Chart

INIT's approach to project oversight is very similar to the ORCA organizational structure. We have identified INIT Executive Sponsors and a Steering Committee. Our hope is to form an integrated group of Executive Sponsors and Steering Committee working toward common goals.

The Sponsors and Committee shall maintain a broad and consistent oversight of the Project. The Steering Committee shall ensure that the project retains the required visibility and attention throughout its duration. The Committee shall be apprised by the other project team members on a regular basis of the project's status—and shall intervene only when a matter is escalated to them directly, or when they see causation or action required to maintain the overall expectations of the project.



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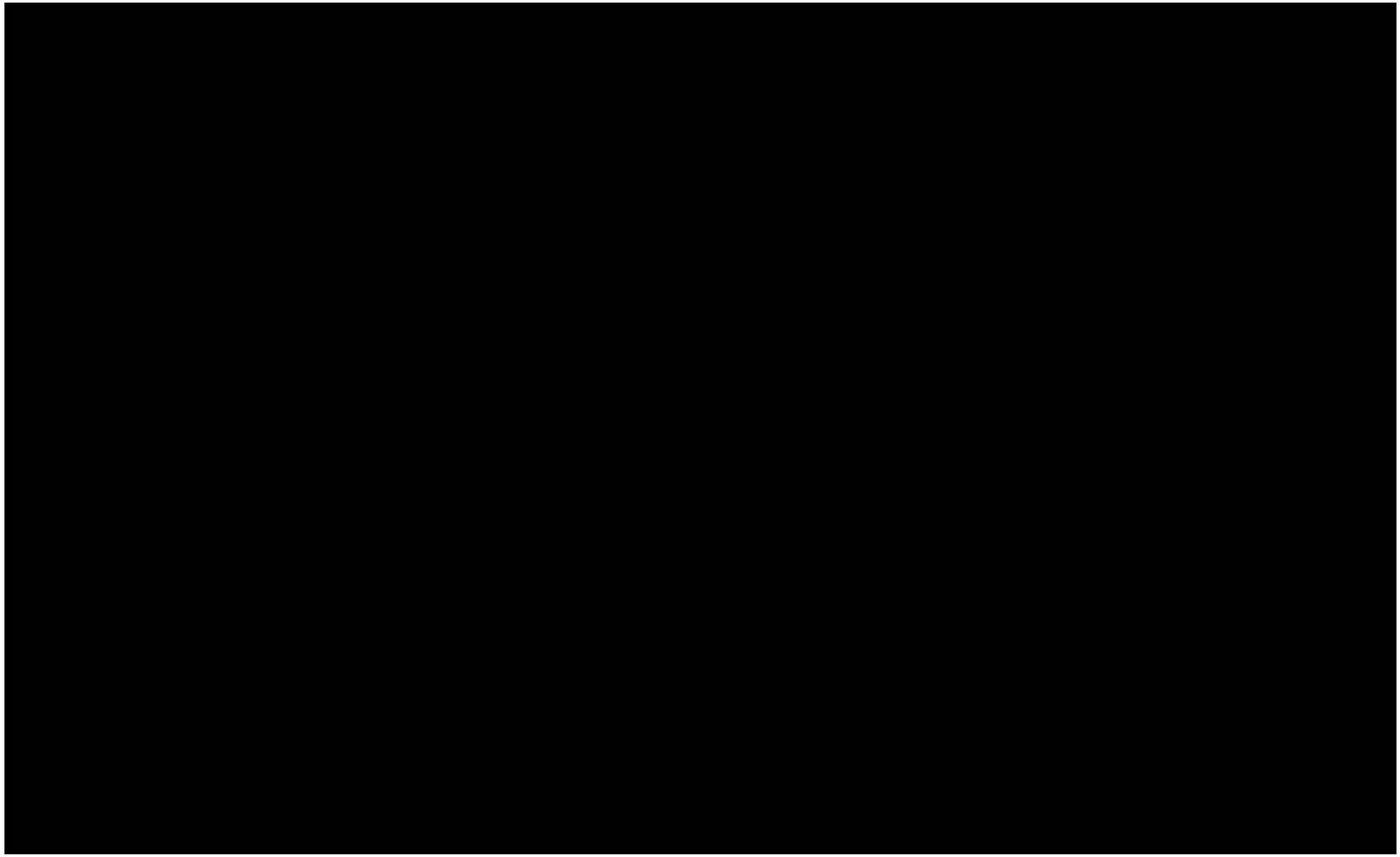
The INIT Project Management Team, comprised of proactive, determined and innovative professionals, align the principles of Project Management set forth by the Project Management Institute (PMI), while ensuring the on-time delivery of INIT's high-quality projects.

INIT will be responsible for assigning all necessary resources to meet its obligations under the ngORCA contract. As a central component of this effort, INIT has assigned to the project a team of highly qualified personnel having the management skills and technical expertise to work with the ngORCA team in a professional and highly responsive manner. INIT shall provide the team with the lines of communication and authority required to ensure that INIT's obligations are completed expeditiously using its most qualified personnel.

The following organization chart has been developed to provide the ngORCA team with a comprehensive overview of the INIT organization, project controls, planning methods, and schedule.



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2.3 INIT's Highly Qualified and Experienced Key Personnel

Table 2-1 - INIT's Highly Qualified and Experienced Key Personnel

Name	Description of Key Individuals' level of involvement in the project	% on this project	% of time in Seattle
[redacted] Project Manager Seattle, WA	INIT's ngORCA Project Manager, responsible for full contract and project delivery. Will report to the Sound Transit ngORCA Program Manager for the duration of the project. [redacted] will be manage and direct all INIT activities, and has the authority needed to make contract and personnel decisions necessary for the successful execution of this project.	100%	90%
[redacted] Business Application Lead Seattle, WA	[redacted] has the unique experience with both card-based and account-based fare collection systems. She will report to [redacted] and be responsible for guiding project resources through the duration of the project.	100%	100%
[redacted] Lead Engineer Seattle, WA	[redacted] will guide all engineering efforts – from design through implementation and launch. Like [redacted] has experience with both card-based and account based systems, as he led both of INIT's initial North American project's engineering efforts.	[redacted]	[redacted]
[redacted] Lead Software Development Engineer Seattle, WA	[redacted] will lead all development efforts occurring in Seattle. This includes managing the team of Seattle-based developers who will handle tasks such as database and reporting.	100%	100%
[redacted] Solution Architect Karlsruhe, Germany	[redacted] is INIT's lead solution architect for all of its fare collection projects. As such, he brings a very broad amount of experience to this project and will serve as a project advisor throughout its duration.	20%	10%
[redacted] Finance and Accounting Software Engineer [redacted]	[redacted] will assist with the transition to the new accounting system and ensure reports are accurate. [redacted] played a similar role with INIT's TriMet project, and is currently the lead engineer on our [redacted] fare collection project.	20%	15%

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[redacted] Back Office Engineering Team Lead Karlsruhe, Germany	[redacted] is a team manager for INIT. [redacted] will lead all development efforts occurring at INIT's headquarters. [redacted] has experience across a broad set of fare collection projects, including TriMet.	75%	10%
[redacted] Supply Chain & Installation Lead Seattle, WA	[redacted] will be responsible for successful installation and documentation for all INIT provided and integrated equipment. [redacted] has a background in complex implementations, and is also INIT's Safety Engineer for this project. [redacted] will be in Seattle for the duration of this project.	50%	100%
[redacted] Project Manager - Development Karlsruhe, Germany	[redacted] will be a member of the INIT project management office, and will manage the projects efforts which are occurring at [redacted] plays a similar role for INIT's [redacted] fare collection project.	50%	10%
[redacted] Project Manager – Training Seattle, WA	[redacted] will be a member of the INIT project management office, and will be responsible for all training and documentation.	50%	100%
[redacted] Business Analyst [redacted]	[redacted] will lead INIT's business analysis efforts, and is responsible for ensuring clear and agreed to specifications for all elements of INIT's integration efforts. [redacted] has a strong background in transit projects, and will bring her knowledge and experience with Puget Sound's transit evolution of her past 20 years' experience consulting in the region.	25%	25%
[redacted] Information Technology Lead Chesapeake, VA	[redacted] He will have responsibility for all back office IT, including connectivity and security. He will oversee the IT team and oversee all processes related to their management and operations.	25%	20%

2.4 INIT's Key Personnel are Available and Accessible

Table 2-1 lists INIT's highly qualified personnel assigned to the ngORCA project and details their percentage commitment and expected time in Seattle. This team is empowered with both the authority and the open lines of communication necessary to collaborate with ORCA's project team to ensure that obligations are met without negative impact to the Agencies or their customers.

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In addition to the project team, INIT proposes an Executive Steering Committee be assigned to the Project. This committee is comprised of executives from both the ORCA Joint Board and INIT. The committee maintains a broad and consistent oversight of the project, and ensures that the project receives visibility and attention throughout its duration. The Steering Committee is informed on a regular basis of the project's status, and intervenes when necessary to maintain the velocity and expectations of the project.

2.5 INIT's Experienced Methodology and Approach to Implementation Services

2.5.1 Explanation of Section Numbering

In this section we provide our response detailing INIT's methodology and approach to the Implementation Services specified in the ngORCA Scope of Work (SOW), Section 2. For ease of comparative review and evaluation, in order to maintain a one-to-one numbering sequence between this section 2.5 and the SOW Section 2, we have advanced the section numbers in this document. In so doing please note INIT's first sub-section reference below of 2.5.2.1 has the third and fourth integer corresponding with the SOW Section 2.1. For the sections that follow, the third and fourth integers will increase accordingly so that they map to the SOW sections that follow (e.g. 2.5.2.2 equates to SOW Section 2.2 Design Review & Approvals).

2.5.2 Implementation Services

2.5.2.1 Project Management

Nothing is more important to INIT than having satisfied customers. We achieve this by working in close cooperation with our customers and partners; strictly adhering to our ethics. Our corporate culture is linked to our ethical guidelines which we proudly publish on our website. These ethical guidelines build the framework of our daily actions and commitment to quality.

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Figure 2-1: INIT website

INIT's methodology and approach to planning, execution, tracking, and reporting of all tasks will begin with a sound Project Management Plan (PMP). The PMP will include the baseline for setting up, carrying out, monitoring, and delivering all the elements associated with project deliverables. This methodology, based upon the Project Management Body of Knowledge (PMBOK) augmented with INIT's years of experience deploying complex AFC systems has proven to be successful in our past performance on other projects. The Project Management Plan, also identifies and designates critical communications between various project partners, including essential customer, contractor (prime and subcontractor), as well as any external communication links. Our PMP includes a collection of formal detailed documents, clear communications channels, task lists, target start and end dates, budget overview, and a list of required resources. It also introduces our risk management methodology, which helps to identify the potential challenges, and threats, by recognizing, exposing, and mitigating risks impeding successful timely execution of the project. Our approach will also convey to ngORCA transit agencies that we clearly understand the Agencies goals, objectives, and requirements as set forth in the RFP.

2.5.2.1.1 Project Manager & Lead Engineer

INIT is a proven industry leader in designing and delivering high-quality solutions for our public transit partners and INIT's Project Management Methodology is integral part of our success. The INIT Project Management Team, comprised of proactive, determined and innovative professionals, align the principles of Project Management set forth by the Project Management Institute (PMI), while ensuring the on-time delivery of INIT's high-quality projects.

In conjunction with the Project Management Team, INIT proposes an Executive Steering Committee be assigned to the Project. This committee is comprised of executives from both the

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ORCA Joint Board and INIT. The committee maintains a broad and consistent oversight of the project, and ensures that the project receives visibility and attention throughout its duration. The Steering Committee is informed on a regular basis of the project's status, and intervenes when necessary to maintain the velocity and expectations of the project.

INIT's Steering Committee member, [redacted] is [redacted] and possesses over twenty years of systems experience–including significant experience on system implementation and large-scale system migrations. [redacted] has overseen two successful fare collection launches while with INIT. [redacted] is also located in Seattle and will be there from the Project Kick-off through Final Acceptance.

INIT's Lead Engineer, [redacted] is a Senior Systems Engineer with eight (8) years of electronic fare collection experience. [redacted]s was recently the Lead Engineer for INIT on our [redacted] which the proposed ORCA system is based on. These systems involve multiple points of open integration with third party systems and devices. [redacted] will be responsible for all technical aspects of the project, and have all INIT's project engineers report directly to him. [redacted]

2.5.2.1.2 Project Meetings

INIT understands the importance of effective communication and realizes that it is a key factor in successful project delivery for large-scale complex projects such as ngORCA. As such, we strongly agree with ORCA's requirement for regular project meetings and frequent and direct communications. To conduct project meetings efficiently, INIT provides an agenda prior to each meeting and meeting minutes (including action items) following each meeting.

As part of the initial planning for ngORCA, INIT proposes the following meetings as critical to successful and engaged communication:

- Project Kick-off
- Weekly coordination / status meeting
- Monthly progress review meeting
- Phase transition / planning meeting
- Ad-hoc technical and administrative meetings

<u>Project Kick-off</u>

INIT will conduct the ngORCA Project Kick-off meeting no later than 14 calendar days after Notice to Proceed (NTP). Additionally, in parallel to the planning and coordination of the ngORCA Project Kick-off, INIT will launch an Internal Project Kick-off with all INIT Project Team members (including all key project management and engineering personnel) to outline the project plan, begin scheduling internal technical and planning meetings, validate task assignments, and so forth so as to ensure preparation for adherence to the near-term project deliverables for a timely and effective start.

The ngORCA Project Kick-off with the ORCA's key stakeholders will set the stage for project communications, ensuring an understanding of the scope and schedule of the project, and the expectations and responsibilities of all parties.

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The meeting will occur once and at a time and location mutually agreeable by the parties. The content of the meeting will include at minimum, the following agenda items:

- Introduction of key ORCA and INIT personnel
- Review of the project roles and responsibilities
- Review of INIT's scope of work
- Presentation of the draft project baseline schedule and near terms planning activities
- Identification of risks and project concerns
- Propose initial meeting dates and time for recurring meetings

Weekly Coordination and Status Meeting

Effective project communications are enabled by Weekly Coordination and Status Meetings. These meetings facilitate the coordination of project activities, provide status of project schedule and other deliverables that are due or may become due, as well as provide a forum for decisions that must be made prior to the next Monthly Progress Review Meeting.

INIT will prepare and submit an agenda two (2) business days prior to the meeting. INIT's lead project staff (e.g. Project Manager and System Engineer) will be in attendance in person while other designated personnel may attend (either in person or remotely based on location) based on the pre-determined need outlined in the agenda.

INIT will document minutes during the meeting and submit to ORCA via email for review three (3) business days following each meeting for review and notation of any changes needed.

Meeting agenda, minutes, and action logs will be saved to the collaboration site for ease of access.

Monthly Progress Review Meeting

INIT will conduct an executive-level in-person Monthly Progress Review Meeting at a designated ORCA location through the lifecycle of the project. If required, additional video or teleconference meetings can be scheduled.

In preparation for this review INIT will submit the agenda and a Monthly Progress Report five (5) business days prior to the meeting. This report will provide a high level overview of progress of the overall project from the previous calendar month.

Content will include such items as:

- Minutes of prior meetings
- Project schedule updates
- CDRL content, submittal list and schedule
- Action item log and Master Issues List
- Progress and issues arising since last meeting
- Sequence of critical work and manufacturing schedule
- Budget, milestone and invoice status
- Corrective actions to maintain schedule
- Assessment, review and update of:
    - Engineering, manufacturing and quality control
    - Safety Assurance Program

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    - Risk Plan and Risk Register
- Other priorities that require immediate attention

INIT will document minutes (including action items) for all monthly Progress Review Meetings and submit to ORCA three (3) business days following each meeting.

Phase Transition Planning Meeting

In the project schedule INIT has detailed several key milestones which represent various phases of the overall program delivery. As preparation for the next phase (e.g. design to development, project to operations) INIT will coordinate and schedule transition meetings to evaluate and discuss the key deliverables, schedule, and other information specific to the pending work.

This is a project level in-person, small group meeting with key personnel from both INIT and the Agencies who are critical to the planning and oversight of the upcoming activities.

Ad-hoc Technical and Administrative Meetings

To facilitate ongoing discussions to address various elements of the project delivery, additional ad-hoc meetings may be necessary to mitigate schedule impacts or to discuss technical matters between subject matter experts.

2.5.2.1.3 Project Management Plan

The Project Management Plan will serve as the key document to plan, execute and control the project. It will provide the following elements:

- Organization chart identifying key project personnel and contact information
- Master program schedule, identifying key program milestones and activities
- Schedule for all project design and manufacturing elements that require agency approval
- Project meeting schedule
- Methodology to control program schedule, scope, cost, and risk
- Project risk management processes and risk register, including identified project risks and actions required to mitigate them
- Transition and change management processes and procedures
- Safety processes and procedures
- Quality assurance processes and procedures to ensure that the requirements of the contract are being met
- Subcontractor management and communications
- Document and Master Issues List (MIL) control processes and procedures, including version and traceability controls
- Configuration management processes and procedures for all submittals and subsequent revisions

2.5.2.1.3.1 Master Schedule

The proposed preliminary master program schedule, covers all project activities and milestones for the duration of the contract includes:

- Work item description

- The work item sequence, showing successor and predecessor relationships
- Work item duration
- Critical path of work completion

If INIT is the successful proposer, INIT will add the narrative explanation of the work involved and the basis for estimated time duration as part of the PMP.

The preliminary master program schedule indicates tasks that ORCA is responsible for, and the version that would be submitted as part of the PMP would identify the task breakdown between INIT and the subcontractors.

The detailed master program schedule is created and maintained in Gantt format using Microsoft Project. To provide a solid project plan, INIT has, in some cases, added slack as provision for additional challenges or unforeseen events. INIT has also assumed that all design submittals require resubmittal, should ORCA add additional design changes after receiving the initial design packages or further clarification become required.

INIT has included an electronic version of the preliminary master program schedule on the USB flash drive delivered with each proposal. The initial version is shown in *Section 2.10 An Achievable Project Schedule* below.

2.5.2.1.3.2 Scope Management

The Scope Management Plan as part of the PMP and ensures scope is both well-defined and in line with the contracts requirements. This plan will be the foundation for all necessary change management discussions and change orders.

The content of the Scope Management Plan will provide the process description for the scope verification, and scope control of the ngORCA Project. The plan documents the scope management approach, roles and responsibilities as they pertain to project scope, scope definition, verification and control measures, scope change control and the project's work breakdown structure.

INIT utilizes Scope Management as a set of processes to ensure the project team identifies and performs all of the tasks required to complete the project as defined in the Contract and the Technical Specifications while excluding work that is out of scope and updating the scope baseline as an output of the Change Management Plan. The Scope Management Plan details how the project scope is defined, developed, and verified. The plan clearly defines who is responsible for managing the project's scope and acts as a guide for managing and controlling the scope.

Project scope management typically includes a five-step process of requirements collection, scope definition, creation of a work breakdown structure (WBS), scope verification, and scope control. INIT understands that the Agencies completed the requirements collection and scope definition as part of this RFP. Upon Contract award and Notice to Proceed, INIT would then responsibility for the remaining steps which include 1) creation of a Work Breakdown Structure (WBS), 2) scope verification; and 3) scope control.

Requirements Traceability Matrix

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As part of the Scope Management Plan, INIT will develop and include a Requirements Traceability Matrix (RTM). The RTM is a Microsoft Excel spreadsheet created and maintained by INIT. It serves as a cross-reference, which links each requirement and deliverable with the applicable System Design Document(s) / ORCA Program Document and test procedures. The RTM is updated throughout the project and utilized during design, implementation, test and project close out.

INIT utilizes a RTM to map the requirements specified in the contract to specific deliverables. It provides bi-directional traceability between the contract and design documentation, allowing users to determine the origin of each requirement and track that each contract requirement has been fulfilled. It is accomplished by examining the ORCA contract for all requirements and entering them into a Requirements Traceability Matrix (RTM) template. The project team then reviews and assigns the responsibility of each requirement and distributes the RTM to appropriate parties. By completing the RTM, the goal is to:

- Fully understand the requirements
- Improve the quality of the product currently being developed
- Ensure that all requirements will be met
- Facilitate change management, especially changes that may impact cost and/or schedule

All Changes will also be added to the RTM and the work carried out as part of the Change Management Plan processes.

2.5.2.1.3.3 Cost Management

The Cost Management Plan is part of the PMP and describes the framework, tools and processes INIT uses to monitor and control the project budget and manage costs throughout the project lifecycle as well as outlining the process for approving changes that affect cost and identify who has the authority to approve those changes. It will also outline the format and metrics for how project costs are measured, reported, and controlled.

There are several factors that will comprise the overall project budget as well as performance metrics to evaluate progress; these will be further elaborated as part of the Cost Management Plan. In general, the Program Manager will be responsible for managing and reporting on the budget for the duration of the project.

Costs will be managed based on the Control Accounts outlined as part of the Work Breakdown Structure (WBS). INIT will utilize Earned Value Management calculations as the means and methods to measure, report, and control project costs. As a general approach, the following calculations are preferred:

- Schedule Variance (SV)
- Cost Variance (CV)
- Schedule Performance Index (SPI)
- Cost Performance Index (CPI)

Cost and schedule variances will be tracked and monitored for adherence to stated thresholds.

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2.5.2.1.3.4 Risk Management

INIT will provide a PMP that includes a risk management plan to control project costs, maintain project schedule, and improve project performance.

The Risk Management Plan is an integral part of risk management for the overall project. Effective project planning requires identification and assessment of risks, and the actions necessary to mitigate the risks. As part of the Risk Management Plan, INIT will undertake the requisite planning activities involved in establishing the infrastructure to support effective risk management. The primary activities are:

- Establish the risk management organization and assign roles and responsibilities
- Evaluate the capability and availability of project staff to perform risk assessment to determine whether additional resources are required
- Plan an initial assessment and periodic monitoring/audits. The periodic audits are proactively aligned with key project checkpoints where audits uncover the highest severity risks

The Project Team (INIT and ORCA personnel) works closely to identify members of the Risk and Issue Management team that is responsible for risk management. Table 2-2 provides risk management roles and responsibilities that will be updated with ORCA during the development of the project management plan.

Table 2-2 - Risk Management Roles and Responsibilities

Role Names	Role Definitions
Project Manager	• Drives the risk management process for the entire project with early start • Participates in risk identification, mitigation, and tracking progress • Accepts or rejects the level of risk for the project • Updates the risk register
Project Team	• Performs the risk management process for the project • All members of project team will be encouraged to convey any risks they identify
Risk Identification Process Team	• Provides input to the process for identifying risks • Includes representatives of all affected groups involved in the project (including the Project Team, Steering Committee, organization management, etc.), as well as any others expected to have insight into risks for this project (such as Internal Audit, and/or external reviewers)
Risk Mitigation	• A project team member will be assigned for each risk mitigation action item • Assignee ensures actions are performed to reduce exposure from the risk, focused on probability and consequence of the risk • May be members of the project team, other affected groups, user, customer, management, and others, depending on the risk item

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To facilitate documenting and tracking risks, INIT will establish and update the ngORCA Risk Register. The Risk Register is a pre-formatted form designed for the identification and tracking of project risks. All project risks are cumulatively recorded and tracked using this form.

For the ngORCA project, the INIT Project Manager regularly reviews the entire project, identifying potential risk factors, and providing counter-measures to deal with such risks. These reviews are performed internally on a weekly basis, and jointly with ORCA on a monthly. Identified risks and counter-measures are noted within the associated meeting minutes, and recorded in the project's risk register.

2.5.2.1.3.5 Change Management

The Change Management Plan is part of the PMP and will describe how INIT and the Agencies will manage and control changes to the existing system baseline. This plan will describe how a Request for Change (RFC) is initiated, approved, and processed.

INIT utilizes a formal change control system as part of its overall quality and control processes. In so doing, changes are introduced, discussed, and approved in a controlled and coordinated manner prior to implementation. This method and approach reduces risk, ensures planned changes are fully scoped with an assessment and impact analysis thereby limiting the introduction of defects or faults within the system or unnecessarily causing impact to the project schedule.

While any project team member can make a suggestion for a change, a formal Request for Change must be submitted by the Agency designee so that INIT is clear on the intent and build the requisite proposal. Once a formal request has been made, INIT will be responsible for managing and administering the change control activities including updating the change log and keeping the Agencies up to do on progress. These activities will encompass formal control and approval of changes to documentation, drawings and diagrams, hardware, or software; all requested changes will be managed in a central configuration management database.

2.5.2.1.3.6 Safety Assurance

INIT's Project Management Plan will include the Safety Assurance Plan. This plan identifies all safety processes and procedures to identify safety risks, the responsible party for managing the risks, and all corresponding mitigation plans.

INIT's Safety Engineer Jim Stamateou will oversee the project delivery from a safety perspective. The Safety Engineer documents, reviews and approves all system safety analyses to insure hazards are adequately identified and their impact is eliminated or controlled. Jim will validate that INIT's staff and its subcontractors have received the requisite training applicable to needs of the project and that the training is in conformance with the applicable standards, rules, codes, and regulations. In effort to ensure compliance the Safety Engineer will perform periodic audits and report the findings to the Program Manager.

2.5.2.1.3.7 Quality Assurance & Control

To ensure a high level of quality on a consistent basis, INIT has implemented a certified Quality Management System that adheres to the ISO 9001 global standard. INIT has maintained an active ISO 9001 certification since 1997. INIT is responsible for the quality of its products and

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work, as well as that of its subcontractors. The dedication of the INIT team in providing quality products and exemplary customer service is fully supported by the company's Mission, Business Principles, Quality Principles and Quality Strategy as follows:

Mission

We support transit companies in their task to shift the growth in traffic to public means of transport. Innovative solutions make bus and rail more efficient, user friendly and thus more competitive compared to individual transport.

Business Principles

- Our products meet the highest quality standards and offer long-lasting value
- Our company satisfies real needs
- Quality is the responsibility of all employees
- Quality management is a prime responsibility of our Management Team
- Honesty and reliability are an integral part of our company and a deeply rooted tradition
- Protecting the environment is a priority for us

Quality Principles

- Our performance fills our customers with enthusiasm
- Our products and services offer high levels of performance and impeccable quality
- The benefit to the public transit agency and its passengers is our focus
- Our capable and creative employees master the transit industry challenges of the 21st century through their own capabilities and continuous job training
- Continually increase market share through successful implementations and satisfied customers

Quality Strategy

We reach higher levels of quality through:

- Close cooperation and constant communication with customers and partners
- Standardization of services and products
- Continuous efficiency control and improvement of processes
- Individual quality objectives for our employees
- Promoting training and further education of employees
- Excellent working environment and the latest tools
- Appreciation of special efforts

INIT understands the importance of quality in all aspects of the project. Ultimately it is the quality of INIT's products and services that will allow ORCA to perform the critical functions that are essential to day-to-day operations of the ORCA service. Upon request, INIT will gladly provide a more detailed description of our Quality Assurance and Management Process, including a thorough explanation of INIT's ISO process.

2.5.2.1.3.8 Subcontractor Management

INIT reviews subcontractor's performance history, quality control processes, safety controls, financials and references to ensure subcontractors will be able to meet performance criteria and

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deliver per schedule. Where special skills or processes are required, INIT reviews subcontractor training and certification records to ensure their personnel are qualified to perform these functions.

The PMP includes a Subcontractor Management Plan that identifies all subcontractors and the tasks they have been tasked to perform. Further, the Subcontractor Management Plan provides an overview of INIT's approach to working with suppliers and subcontractors. All subcontractors on the ngORCA project are subject to the reporting and performance criteria outlined in this program.

This plan also includes the procedures for organizing and communicating with subcontractors, including the sections of the technical specification in their scope of work they are performing. They are also contracted with the expectation of adhering to the project schedule in the context of the overall project implementation. INIT's subcontractors are available for all required meetings, as indicated in their schedule, and other meetings that may require their attendance.

The Subcontractor Management Plan will also detail the associated Disadvantaged Business Enterprises (DBEs), the tasks they have been selected to perform, and the revenues associated with that DBE throughout the project lifecycle.

As noted above, INIT will ensure subcontractors are informed of all applicable requirements in the specification and that appropriate engineering and project management tools are utilized for coordination and communication. Any plans, specifications, drawings, schedules and documents relevant to any subcontractor's portion of the work will be shared. The proprietary nature of any Agency or INIT intellectual property will be protected by a requirement for a Non-disclosure Agreement whenever appropriate.

The following communications and reports will be required of all subcontractors:

- Provide at weekly and/or monthly status reports as agreed;
- Provide frequent updates, as agreed in writing, during critical project phases such as equipment installations or testing;
- Attend safety orientations, pre-job meetings or kick-off meetings provided by INIT prior to any work beginning; and
- When appropriate, participate in ad-hoc technical or troubleshooting meetings and discussions.

The Subcontractor Management Plan will also include the process and procedures, including risk mitigation or recovery strategies, required to replace subcontractors should it become necessary at any point during the life of the project.

2.5.2.1.3.9 Communications Management & Document Control

This Communications Management and Document Control Plan is part of the PMP and will describe the framework for controlling project communications for the ngORCA project as well as outlining the document repository and system used to file all project documents that are formal in nature.

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Communications is one of the most critical aspects of a project. To ensure a high quality of communication throughout the delivery of this project, INIT subscribes to a general list of goals as follows:

- Easy exchange of information through informal communications;
- Documentation of formal communication (major issues, resolutions and/or agreements);
- High quality, reliable tracking, and easy access to high quality, reliable tracking, and easy access to formal and informal project documents.

Communications will be of the highest priority in executing this project. Project communications includes meetings, reporting, tracking action items, issue resolution and so forth. The purpose of Communication Management is to identify the types and frequency of communications specific stakeholders should receive and who should respond as well as how said communications should be delivered. As the ngORCA project is comprised of varying levels of stakeholders, establishing a clear and effective plan will be central to ensuring appropriate, measured, and timely response as well as successfully distributing project information and status

Communication Management will include, but not be limited to, processing, design reviews, team meetings, submittals, correspondence, sharing of critical project management plan components, such as risk, QA/QC, scope control and the general involvement of ORCA review/approval persons. The processes of Communication Management that will be deployed include the following:

- Communication planning – Identify the stakeholders, determine the information and communication needs, expectations and resolve the issues
- Project structure – Published project organization structure, responsibilities and escalation paths
- Status Reporting – Collecting and distributing status reporting information available to project stakeholders in a timely manner
- Meetings – Planning and publish project meeting schedules with the ORCA, Subcontractors, INIT and other stakeholders

As part of the Document Control process, INIT will set up and administer a collaboration website as project resource for document storage and sharing including sub folders to address the various needs of the project (e.g. design reviews, operation manuals, installation guides, etc.).

2.5.2.1.3.10 Master Issues List

The INIT project team maintains a log of all identified items that require action through the time of project completion. The Master Issue List (MIL) is used as a status tool for all project meetings. No action item shall be assigned to ORCA without prior notification and concurrence. Each action item in the log contains:

- Item Number
- Action Required
- Description
- Assigned Responsible Party (individual and firm)
- Origin Reference (correspondence number, meeting, conference call, etc.)
- Requesting Party

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- Date Opened
- Original Due Date
- Current Due Date
- Status (Open / closed / in progress / deferred, etc.)
- Date Closed
- Progress Notes and History of Activity

The MIL will be updated by INIT, and made available on an unlimited basis, via our issue tracking tools with read/write access for Agency designees.

2.5.2.1.4 Change Control

INIT's change control process will follow our Change Control Plan as defined in the PMP which includes all INIT and subcontractor-supplied equipment and software.

During the design phases INIT will detail and document the low-level requirements necessary to carry out the work associated. In some instances, an iterative and agile approach can be undertaken to as to ensure the lowest level of detail is clear as well as time allocated for usability testing and validation to be incorporated where applicable.

Based on the maturity of the design and schedule dependencies, INIT will make suggestions for design freeze to the Agencies for consideration. Upon mutual agreement and clear understanding of all dependent factors a date or dates will be selected to reflect a point in time when the system design is substantially complete, and the Change Control process initiated.

2.5.2.1.4.1 Change Control Process

The Change Control Plan will identify how INIT will receive, record, document, and monitor changes to the scope baseline. Included will be procedures for identifying, documenting, requesting and approving a change. Those steps are outlined at a high level as follows:

- Initiating request by ORCA or INIT designee
- Receipt and acknowledgement by INIT
- INIT adds request to issue management system and assigns to INIT Lead Engineer
- Technical clarification, schedule and impact assessment by INIT
- Scope evaluation, configuration items affected or needing to be updated, and level of effort estimations by INIT
- Issue request updated and assigned to INIT sales
- INIT sales builds detailed proposal and submits for review
- ORCA review, decision to either move forward with change or discard
- If approved, ORCA issues a change order which is executed by both parties; if discarded, INIT closes request in issue management system and maintains the proposal as part of the project documents on the collaboration site
- If change order issued, INIT creates a new issue ticket to track the work and then updates the scope, schedule, and cost baselines as well as the Requirements Traceability Matrix and any system test documentation
- Work is carried out in accordance with the agreed change and monitored and tracked in the issue management system

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The regional test facility will be made available to facilitate agency validation testing. However, if the change is requested prior to certain integration phases of the project, validation testing will be carried out in accordance with the relevant test cycle. Once integration testing is underway and the regional test facility online, all changes will be validated in the regional test facility. INIT suggests that the Agency designee validate the change once INIT has performed the pre-validation testing and is able to ensure the change works as expected. Following Agency validation, the change is then progressed through the change control process to the deployment operations process. If said process is in the production deployment phase, the work is validated in production as well.

At a high level, implementing a change and tracking through the issue management tool INIT will utilize the following status flows (note, the status can move through each step at varying intervals based on the dependent factors present):

Status	Description
New	The ticket was created and processing must be confirmed by INIT
Investigating	The processing of the ticket has been started
Need Information	Agencies to provide additional information or take some type of action before the ticket can be processed further by INIT
Deferred	Handling of the ticket was postponed
Resolved	A solution has been provided and INIT considers the issue closed
Closed	The solution was delivered and the Agencies agree the issue is closed
Review Required	Review team to discuss the issue and help resolve/reconcile any differences in opinions as to the issue or solution being delivered or address any open questions stipulated
Ready for Delivery	A solution is ready to be delivered to the ORCA designated system
Approved for Test System	Customer agrees with the solution and approves the delivery to the ORCA regional test facility
Resolved in Test System	A solution has been delivered to the ORCA regional test facility
Approved for Production	The Agencies have tested the solution and approve delivery to the production system (if applicable)

As noted above, only the Agency designee can close work items in the issue tracking system. Changes introduced by a subcontractor will also follow the above workflow; however, additional documentation may be required for test validation.

The test system deployment process will differ from the production system deployment process as the production deployment exposes the system and its users to more risk just by its very nature. In light of that, INIT proposes as part of this plan the introduction of a Change Control Board (CCB) comprised of short list of INIT and Agency representatives. Generally speaking

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key stakeholders should be involved; however, a clear structure of representatives and designation should be discussed and agreed as part of the design review.

As part of the Weekly Progress and Status Review Meetings, the INIT Project Manager will keep and maintain a change control log for changes requested, irrespective of their formality. As part of that, INIT will disseminate detailed status updates and next steps for formal requests in process. Additionally, as part of the monthly progress report INIT will also summarize the requests for change and change order status including noting those recently approved.

2.5.2.1.4.2 Hardware & Software Versioning

Version Control is critical to the success of the project. INIT's Version Control plan as defined in our Project Management Plan will maintain version number, revision history, author/developer, and reason for the change.

All software and project documents will be assigned a unique transmittal number, which INIT will assign consecutively while maintaining a correspondence index.

All database scripts added to the database will have a clear versioning number assigned so that any database changes are trackable.

Different hardware versions are clearly defined on the serial number label on every device.

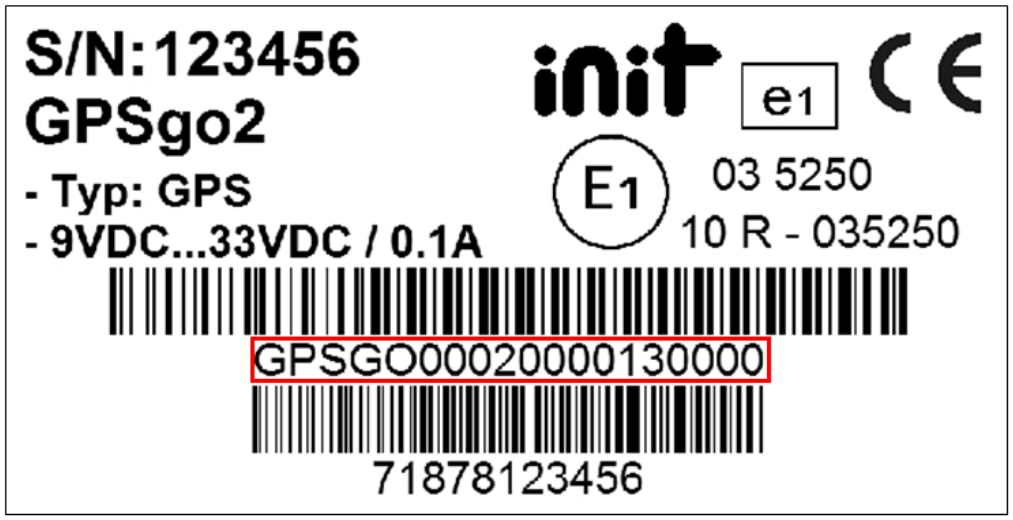

Figure 2-2: Serial number label with hardware version highlighted

2.5.2.1.4.3 Component Identification

The ngORCA system implementation will include deployment of several thousand units of equipment to meet the system interface needs at each Agency as well as to address region-wide equipment and with that installation, support, and maintenance needs spanning the Puget Sound region. To ensure successful tracking and identification of each unit of equipment, INIT will development an Equipment and Component Identification and Labeling Plan.

Each item of equipment, regardless of the manufacturer will be labeled at minimum with the supplier's name, part number, and serial number. Note however that INIT does not supply

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Electronic Serial Numbers (ESNs) for its equipment. Because there will be multiple suppliers and Original Equipment Manufacturers (OEM), the label itself will vary in appearance.

Every device will be labeled in duplicate. One label will be visible from outside and easily accessible for auditing purposes and one label will be hidden (e.g. on the back of the validator between the device and the mounting plate).

For the coordination and tracking of each item of equipment, the Agencies will be supplied with a MS Excel spreadsheet outlining the equipment being delivered. Additionally, the Agencies will receive an updated MS Excel spreadsheet together with the delivery of additional or spare components.

In the event a device requires repair, replacement, or analysis, these identifiers will be used in the ngORCA System to ensure appropriate tracking and history information is maintained.

For units of equipment where production runs are performed simultaneously, the label will provide a sequential series of serial numbers. If production runs are broken out there will be similar number styles or format; however, a break in the number sequence will likely occur. As an example, if unit X has a run of five devices they could be identified using the following serial number pattern: X1231, X1232, X1233, X1234, and X1235. If at a later date another two (2) devices are ordered, the sequence could be adjusted to the following: X3231 and X3232. The differentiating element in this hypothetical example is the second integer, changing from a one (1) to a three (3) to account for the gap in the manufacturing run.

2.5.2.1.4.4 Issue Management

JIRA is a flexible and scalable Issue Tracking System provided by Atlassian. Starting with the first project delivery, the JIRA Ticket Tracking System will be set up and accessible for the member agencies to enter any occurring issues. Issues can be reported by email/ phone and will be entered into the JIRA Ticket Tracking System by INIT personnel OR directly into the JIRA system by the agencies. The JIRA Ticket Tracking System generates a specific ticket number, in which issues are tracked to completion.

When a project is completed, the project moves into a maintenance support phase, in which issues are handled by the helpdesk. The JIRA Ticket Tracking System will also be used during this maintenance support phase.

As an integral part of customer support and our Quality Management system, INIT uses JIRA as our issue tracking system for the reporting, investigation, and remediation of incidents as described below.

All issues are assigned to a person responsible for managing corrective action who will then involve the appropriate team members. JIRA workflows tailored to the identified issue help manage the process by defining and tracking the issue through its various steps to resolution. Typical workflows include gathering information, identifying root cause, and creating a plan with action due dates. All activities are captured in JIRA and email alerts are sent automatically to stakeholders.

Overviews of all project issues and the associated corrective actions are clearly indicated on various dashboards in JIRA to track progress.

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After System Acceptance, the project moves into the warranty and support phase where the JIRA Ticket Tracking System will also be used.

2.5.2.1.4.4.1 Create an Issue

The “Create Issue” dialog is shown below. In this example, a new feature has been requested. The workflow associated with this new feature will include approvals, estimates, design reviews, incorporation into the traceability matrix, documentation updates, quality gates, agency approval and more. This form will be customized to the ngORCA members’ preferences.

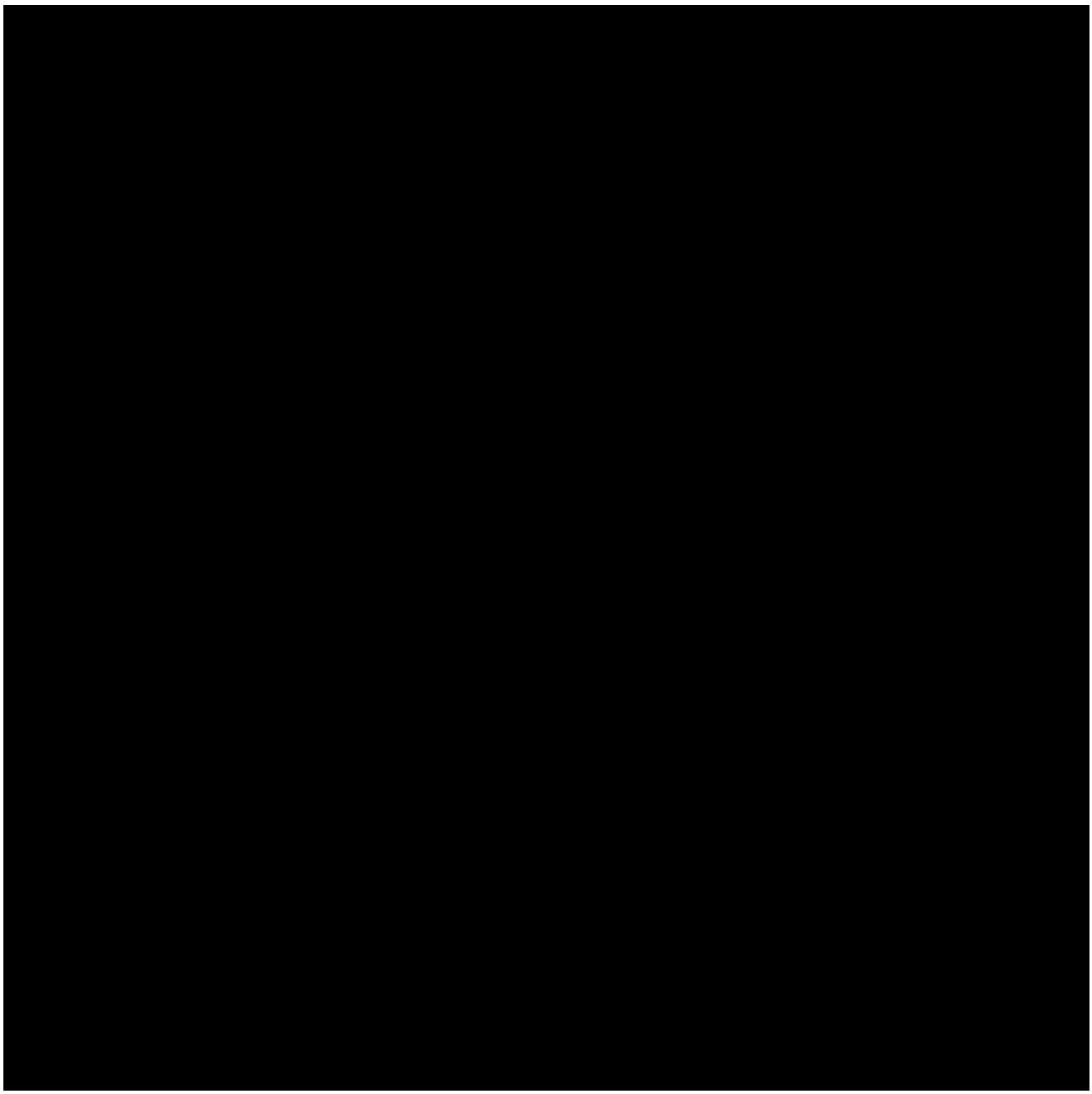


Figure 2-3: JIRA - Create Issue

2.5.2.1.4.4.2 Issue Tracking Workflow

A sample Issue Tracking Workflow is shown below. The ngORCA actual workflows will be customized to meet your needs. After the issue is created and assigned to a team leader, it undergoes an information gathering process. The result may be that the root cause is identified and the team begins to work on the resolution. In the testing phase or even once considered resolved, it may be determined that more information, engineering and testing is required. It is even possible that circumstances in the field warrant the issue to be reopened. Less critical issues may be postponed but will remain in the system to be tracked until resolved. Whatever the path, JIRA tracks the progress with reports identifying how long an issue has been open and what activities have occurred. ngORCA stakeholders will have access to the system to track and monitor progress.

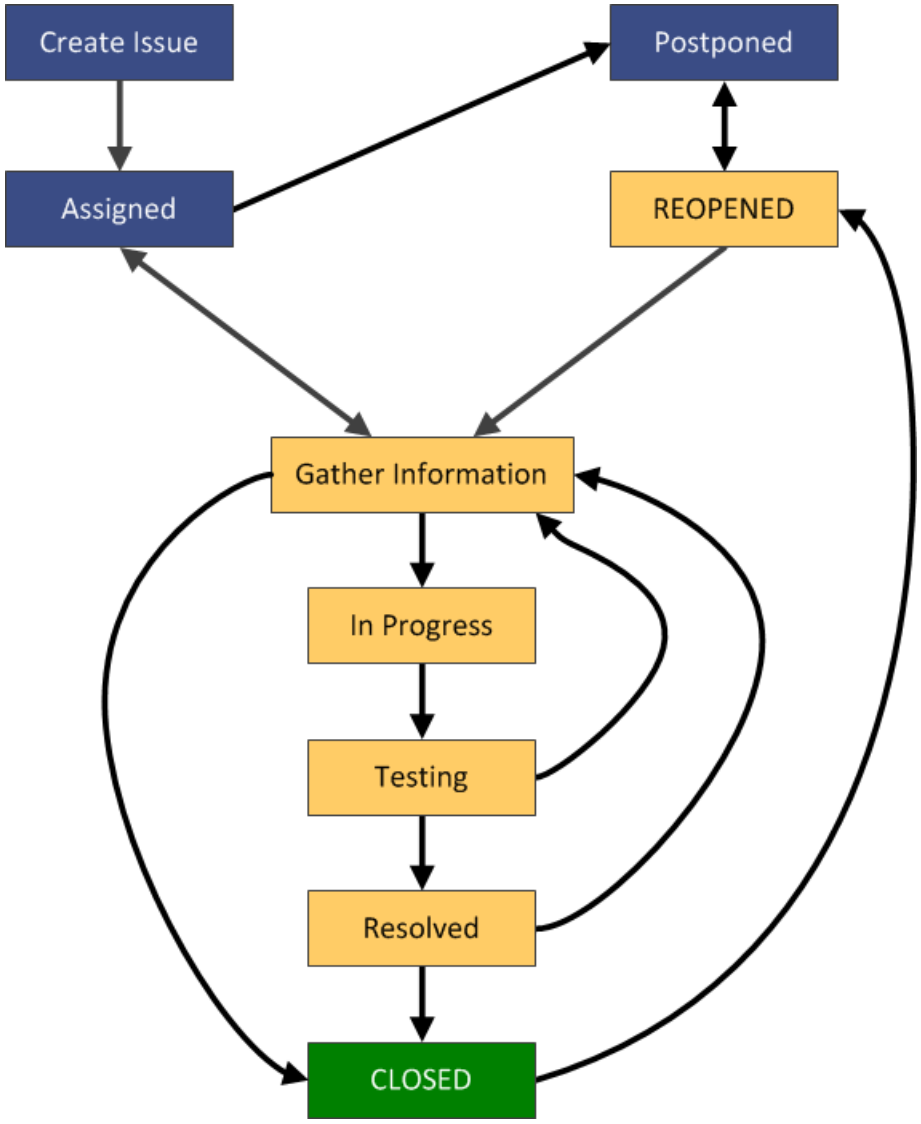


Figure 2-4: Example JIRA Workflow

2.5.2.1.4.4.3 JIRA Issue Details

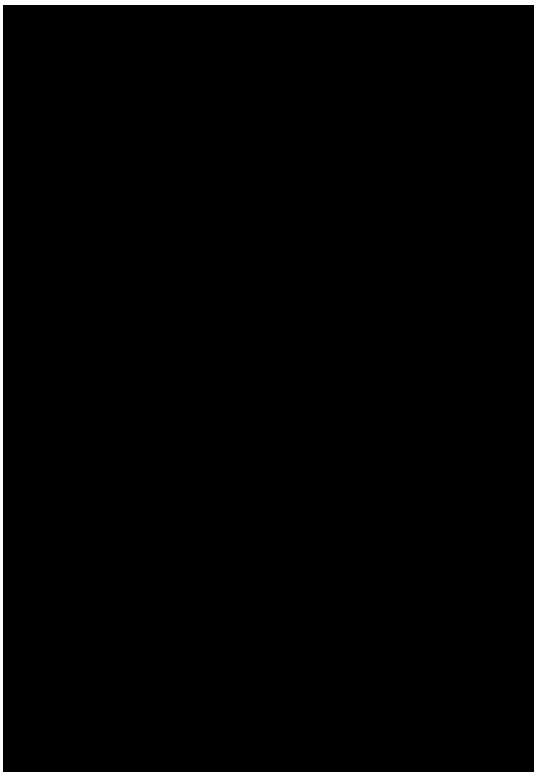
Shown below is a typical issue dashboard. This issue was a concern about how the backend system will react during the Disaster Recovery system, System Check. As you can see, this was a subtask of the Disaster Recovery (DR) system check and assigned to the TOND team.

Users can add comments, change the issue, add drawings, attach documents and more.

Figure 2-5: Issue Details - Top half

Below, the activity tabs show [redacted] made a comment as he researched the issue. The switchover worked just fine and the issue was closed.

Figure 2-6: Issue Details - Bottom half



More features are shown in this section broken out from the right side of the screen.

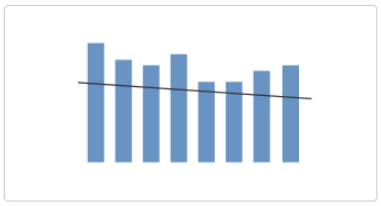
Starting at the top you can see how the data can be exported as XML, WORD and printable format.

Created [redacted], this issue has 2 watchers. The two individuals signed up as watchers and receive emails whenever activity occurs. Authorized ORCA personnel, can click on the field and add themselves as watchers. They can also review the history and contribute with comments.

The date the issue was created, last updated and resolved is also provided.

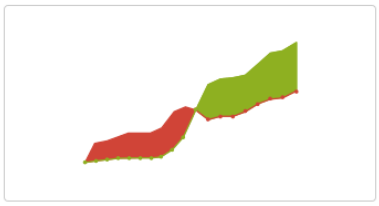
2.5.2.1.4.4.4 Reports

JIRA provides built in reports useful for analyzing trends and status.



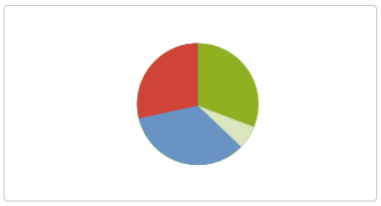
Average Age Report

Shows the average age of unresolved issues for a project or filter. This helps you see whether your backlog is being kept up to date.



Created vs. Resolved Issues Report

Maps created issues versus resolved issues over a period of time. This can help you understand whether your overall backlog is growing or shrinking.

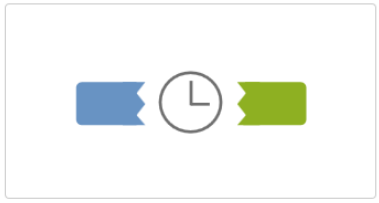


Pie Chart Report

Shows a pie chart of issues for a project/filter grouped by a specified field. This helps you see the breakdown of a set of issues, at a glance.

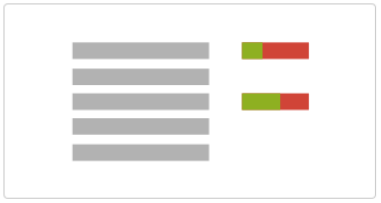
Recently Created Issues Report

Shows the number of issues created over a period of time for a project/filter, and how many were resolved. This helps you understand if your team is keeping up with incoming work.



Resolution Time Report

Shows the length of time taken to resolve a set of issues for a project/filter. This helps you identify trends and incidents that you can investigate further.



Single Level Group By Report

Shows issues grouped by a particular field for a filter. This helps you group search results by a field and see the overall status of each group.

As seen below, the ngORCA JIRA Issue Tracking system can include the reports listed. Custom reports can be easily defined and saved. All reports are exportable to spreadsheet compatible files, PDF and printable.

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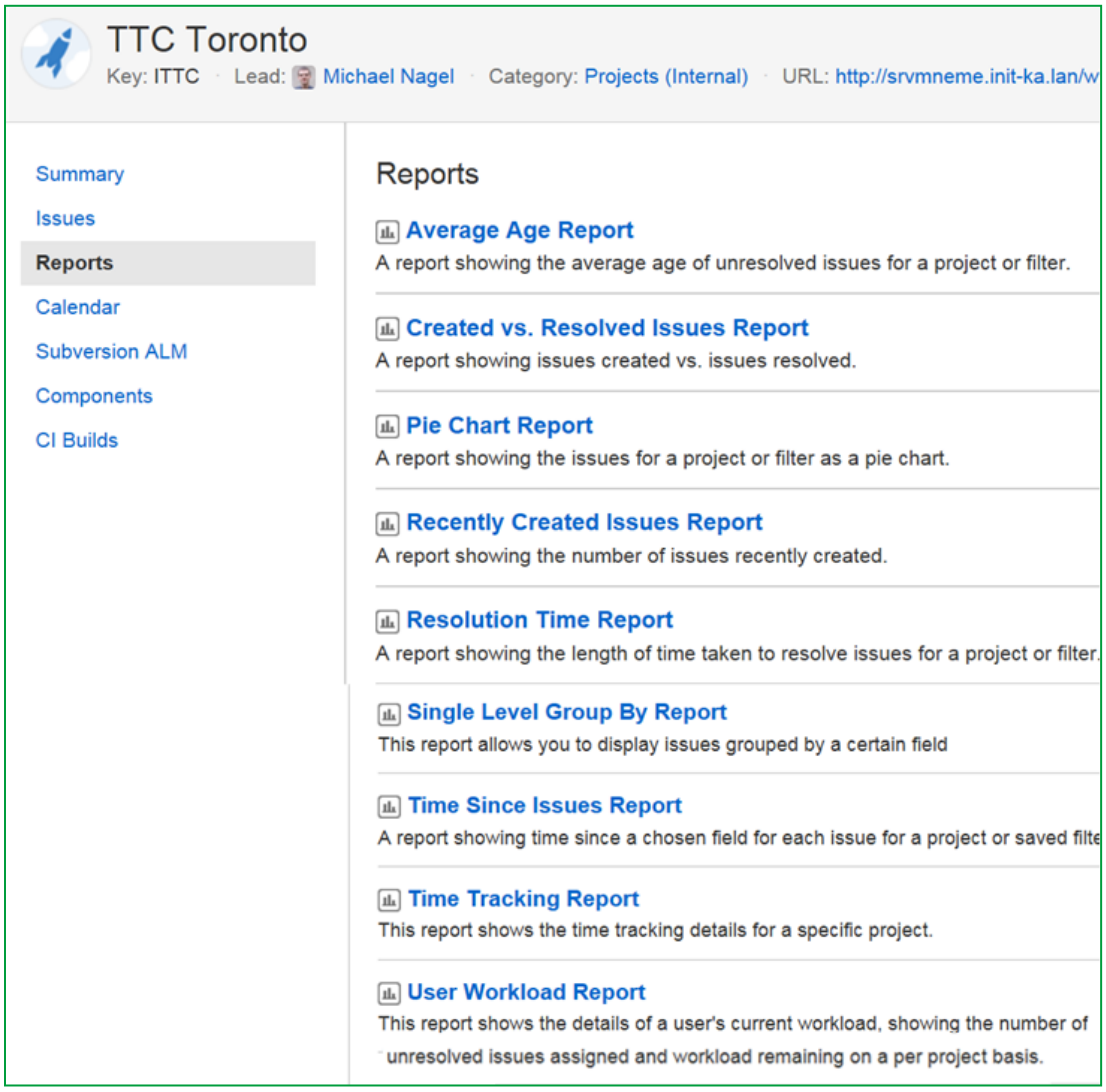

Figure 2-7: JIRA Report List

2.5.2.2 Design Reviews & Approvals

INIT's project management and technical team possess extensive experience in the design of complex, large-scale account-based fare collection systems. Additionally, INIT has partnered with a UX/UI firm to help ensure oversight and implementation of common design practices and guiding principles for key user interface elements.

While time-intensive for many stakeholders, INIT has found that a comprehensive design review process is one of the keys to mitigating overall project risk. As part of this process we will address all functional and technical requirements, review possible scope changes or other considerations, identify unknown risks, and maintain a clear path of the schedule's requirements and dependencies.

The first phase of the ngORCA project is comprised of three specific design reviews: Conceptual (CDR), Preliminary (PDR), and Final (FDR). These formal design reviews will include the review of System Design Documentation, hardware samples, and functional software demonstrations of INIT's existing comparative systems or prototypes.

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At each stage the Agencies will formally approve INIT's proposed design before moving to the next phase of its evolution. In so doing INIT will validate that the ngORCA system elements are on track to meeting the technical, functional, and operational adequacy requirements of design and that the approach undertaken will sufficiently track against the requirements of the Scope Baseline as stated for delivery in the project schedule.

In addition to submitting all the specified materials during the design phases, INIT will also submit a Requirements Traceability Matrix (RTM). The RTM will outline how the design is addressed in each of the specified requirements. The RTM will also serve as a risk mitigation tool by ensuring that all the requirements addressed during the design phase are documented and made part of each next phase of the project lifecycle.

2.5.2.2.1 General Requirements

Managing a balance of cost, risk, change, and schedule can be quite challenging. However, addressing and engaging in a thorough and robust design process ensures that all such factors are transparent, known, and documented.

The Design Review Plan will be written with the intention of meeting both the design needs of each particular phase(s) of the project as well as taking into consideration the relative maturity of the subject of the specific document area and the design phase it is being reviewed. In some instances certain elements will be more advanced than others whereas some may require more clarification in a given design phase then initially planned.

Regardless, in order to successfully move through the design review phase INIT's plan will focus on both quality and efficiency so as to best maximize the project schedule while also adhering to the technical, functional, and program requirements as set forth in the SOW.

The first iteration of the Design Review Plan will be provided within 30 days of NTP and, outline in more detail the format for how the various design review stages will occur. As part of that, INIT will define which documents will include subsequent demonstrations or prototype reviews as part of the stated design review phase.

For tracking and management purposes INIT will provide and maintain a document control tracking sheet. This sheet will outline the design review package for each phase (which is to be submitted not less than 21 calendar days prior to any review meeting); denote the requisite documents, their submission / review / approval state, and the state of approval in the specific design phase. Where applicable INIT will also provide estimates on the level of completion of the document in order to be considered for design approval and also needed for work initiation. Additionally, following review the Agencies will then in turn provide INIT with the first iteration of the design review MIL, documenting any questions, comments, concerns, or requests for clarification.

One of the key documents to be addressed as part of this process is the first iterations of the ORCA Business Rules as this document details the relevant fare structures, revenue sharing and apportionment tied to system launch. The final fare structure configuration will be documented and approved within 120 days of integration testing of the applicable components.

As part of each design review stage INIT proposes the parties plan and engage in a roughly week long, in-person design review workshop per phase at the Agencies meeting location. As

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part of this design review, INIT supports all stakeholder groups' participation. The specific structure of the workshops will be detailed further in the design review plan. Taking this approach enables INIT to bring in resources from other locations outside our Seattle office to participate (including vendors where applicable) which also extends the capacity for direct small group discussions, brainstorming and other technical clarification methods, as well as address design concerns or considerations in real-time.

During each phase INIT will strive to ensure feedback is heard, logged, and addressed by all those impacted. In so doing we believe we can both mitigate the need for rework as an outcome of unclear and/or undocumented requirements or business needs and as such avoid missing detail that might otherwise not be known until implementation - which becomes more costly as time in the project has progressed. It is expected that each document will undergo various iterations within each design phase. If the design document packages are revised as required they will be resubmitted within 14 days of completion of the design review meetings.

Those discussions points, issues identified, and decisions made will be documented and addressed during the specified design meetings where possible in the MIL. Residual issues will continue to be tracked in the MIL and actively worked until resolved during future iterations of the design review process. The Agencies will be responsible for final closure of all logged issues in the MIL. Following successful closure of identified issues the review package can be made available for Agency approval.

2.5.2.2.2 Conceptual Design Review

The Conceptual Design Review (CDR) will meet the objectives outlined in the RFP of familiarizing the ORCA agencies with the proposed system design. As CDR occurs in the very early stages of the project, certain documents will require the design review workshop in order to detail certain sections of the submittal documents. Such sections will be referenced with placeholders.

Following the submission of CDR, the Agencies will have 21 calendar days to review and comment on each specific document prior to the occurrence of the design workshop. Agency comments will be tracked in the Master Issues List (MIL) which is uploaded to the ngORCA project collaboration site where the Agencies can review at their convenience. In so doing the Agencies can further guide as appropriate the progress and structure of the design approach.

INIT and the Agencies will participate in CDR workshops, at Agency-designated facilities. During these workshops INIT will have onsite relevant subject matter experts (SMEs). The aim of the workshop will be to have clear direction and understanding of the necessary next steps for the Preliminary Design Review (PDR) submission as well as identify any gaps, actions, next steps needed to close out the CDR phase.

2.5.2.2.3 Preliminary Design Review

Following the CDR approvals INIT will begin the planning and delivery of the system documentation necessary for the Preliminary Design Review (PDR) phase.

For the PDR submission INIT will continue to update all relevant documents and include responses to Agency comments from the MIL to ensure all areas of concern, question, or revision are included and/or addressed from CDR to the extent practicable. Additionally,

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updates made to the PDR documentation will be done with the intent to provide approximately 75% of the systems design.

Following INIT's submission of PDR documentation the Agencies will again have time to review each submittal and comment as appropriate. INIT and the Agencies will schedule a second workshop in support of PDR, to be held at Agency-designated facilities. During this workshop INIT will bring relevant subject matter experts (SMEs) including but not limited to INIT resources and key personnel, INIT subcontractors, or other vendors supplying portions of the ngORCA integration.

INIT will provide the following during the PDR:

- Specifications for all proposed equipment
- Narrative descriptions of the major systems and subsystems
- System block diagrams identifying all interfaces between system components, including external systems that will not be provided by the INIT but will interface with the system
- Responsibilities and schedule for completion of detailed system interface definitions
- Software designs, including software block diagrams for key system components
- INIT's understanding of the intended operations and maintenance environment
- Master schedule to review and discuss primary milestones and risks
- Customer and operator user interface specifications, flow charts, and messages for all Contractor-supplied devices and systems, including accommodations for all boundary and error conditions
- Interface and communication specifications for all internal and external system interfaces
- Specifications for all configuration control systems
- Specifications for access control systems supporting back office operations;
- Requirements traceability matrix

Prior to the PDR, INIT will conduct site visits, station inspections, and additional requirements analysis activities as needed to further advance the system design documentation.

As with CDR updates for PDR, following the PDR workshop INIT will review the document MIL's and update the necessary materials accordingly and in preparation for FDR. Ideally, the framework and necessary steps for FDR at this stage will become clearer and requirements tied closely to the build phase planning.

2.5.2.2.4 Final Design Review

To prepare for FDR, the narrower requirements may necessitate sub groups to continue to break off so that clear outcomes and use cases can be illustrated in between the design review formal workshops. The FDR workshop will be scheduled to follow the FDR submittal, for the review and confirmation of the systems intended design.

The requirements of this review will be INITs provision of the final design updates and that all comments, questions, or clarifications from the MIL's provided by the Agencies are addressed and all action items closed out and validation that the UX/UI principles and guidelines have been adhered to.

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During this final formal design workshop INIT will bring relevant subject matter experts (SMEs) including but not limited to INIT key personnel, subcontractors, or other vendors critical to the eFare integration. The FDR meetings will seek to close as many gaps as possible, clarify the last requirements necessary for the system's final design and set the framework for development, procurement, fabrication, installation, testing, training, implementation, and deployment.

Activities of the FDR will include the following:

- Schedule compliance review and discussion of variances or delays
- Assembly drawings for all INIT-supplied devices, down to the Lowest Level Replaceable Unit (LLRU)
- Electrical schematic drawings for all INIT-supplied devices
- Preliminary "as-built" drawings and prototypes for all device mounting configurations
- Final system architecture drawings
- Detailed software specifications for all back office systems with software module descriptions in a narrative format and data flow diagrams to the lowest level of decomposition
- Detailed specifications for all application programming interfaces (APIs) supporting frontend and back office operations
- Detailed specifications for all system transaction formats
- Detailed descriptions of all message formats and data elements for device and system events and alarms
- Interface control documentation for all systems and subsystems
- Complete data dictionary and detailed database design documentation, including all tables, views, and materialized views for all database schemas in the system, in electronic format (e.g., ER Studio)
- Documentation of database programming features including, but not limited to; queries, query formats, triggers, jobs, functions, and procedures
- Requirements traceability matrix
- Installation plan

2.5.2.3 Installation & Transition

Integrated within INIT's program management plan is the transition and change management plan. The transition section of this plan describes how the old system will be transitioned to the new system; including all operations for ORCA, the public and all external stakeholders. Included in the plan are risk mitigation procedures for the transition process, including any additional equipment and/or staffing requirements for ORCA.

2.5.2.3.1 Installation & Transition Strategy

Essential for a good transitioning experience for the customers from the legacy ORCA system to the next generation ORCA system is a fast transition period where mixed validators (legacy and new generation) can be found within the system. This is why it is very important to perform the validator installation / replacement as fast as possible.

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INIT plans to perform detailed prototyping of every unique vehicle make/model/type and unique platform validator type way in advance to the fleet installation. Because of the limited real estate on the bus, INIT proposes to install the legacy validator again after the prototyping is complete. This will allow INIT to order all parts and cables needed for the fleet installation without expanding the timeframe of mixed validators in the system.

After reviewing the existing on-board validator installation for the legacy validators, INIT is confident that the existing installation brackets/poles can be reused. This would make the installation process very easy and time efficient.

For the platform devices, INIT is planning to install new poles / mounts but would reuse the existing infrastructure where possible to avoid complicated and time consuming installation of floor anchors etc.

Installation of the customer service center may be completed within one weekend to avoid having different systems running at the same time.

2.5.2.3.2 Installation & Transition Plan

As discussed in the Transition Strategy chapter, it will be essential to install the validators as fast as possible. To achieve that, INIT will use multiple experienced installation crews working in parallel at different garages.

In addition, separate installation crews will perform the platform validator installations to achieve a complete replacement of all validators as soon as possible.

INIT proposes to replace all platform validators before installing VMs in the field.

2.5.2.3.3 Site Surveys

INIT performs detailed site surveys and inspection for, all vehicle types, equipment and back office install locations, including rail stations, bus stops, and other agency locations, to identify before any installation activities begin. The ngORCA agency provides data on the correct operation of all power and signal cables, switches and routers, etc. they are providing. During the site inspection, plans for ingress and egress of the installations are determined

Initial vehicle, station, terminal, and wayside platform surveys will be completed as a part of the design review process. As part of FDR, INIT will submit the installation details and specifications for all equipment installations for agency review and approval.

Pre-inspection activities include testing existing systems, to which INIT must interface, as well as recording damage or other existing conditions prior to equipment installation. During pre-inspection, INIT identifies any modifications or additional provisions needed for installation of the System equipment and related system components, but will work as much as possible within the limits of intended location.

2.5.2.3.4 Prototype Installations

Per the installation plan, INIT performs a prototype installation of the field devices in each of the different field environments in which the equipment will be installed, including a prototype installation of all bus equipment for each vehicle type. At this point, INIT has assumed three

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different station types requiring prototype installations. The prototype installations remain in service for at least one (1) week to ensure the integrity of the installation design.

2.1.1.1.1 Onsite Work Requirements

All INIT employees and subcontractors, working within operating rail stations, platforms, and rights-of-way, will comply with applicable rail safety and operations rules and regulations. All personnel engaged in Installation activities will have attended ngORCA's safety training and will be dressed appropriately. INIT will deliver and execute the safety access plan for all onsite work. Safe access will be afforded to construction equipment, vehicles, and personnel in accordance with ngORCA policies and OSHA regulations. All access plans will be submitted to the Agency for review and approval. INIT is responsible for compliance with all Regulatory requirements applicable to the design, construction, Installation, and testing, including the application and granting of all applicable permits.

2.1.1.1.2 Installation Procedures

INIT will submit installation procedures unique to each agency for all hardware and software to be installed, in accordance with the approved installation plan, agency rules, and guidelines.

These procedures will include an installation procedures manual for each agency. The procedures will detail how any modifications made to agency-owned facilities and equipment as a part of equipment installations will be sealed and corrected in order to preserve the integrity of the infrastructure.

2.5.2.3.5 Shop As-built Drawings

INIT will submit shop drawings used in its manufacturing and assembly facilities to fabricate, assemble, and/or install components of the system. This is true for items manufactured from raw materials, items purchased as raw materials, or items purchased in ready-to-use condition. Shop drawings and their projected delivery dates are noted on the master program schedule.

No work indicated by any shop drawings will be commenced until drawings have been marked as "Approved" or "Approved as Noted." INIT will document each device installation in the form of an as-built drawing. The as-built documentation will identify equipment location information, wiring connections, and all additional information needed to maintain the newly installed infrastructure. All drawings will contain dimensions, physical details, connections, and other information pertinent to system diagnostics, maintenance and troubleshooting.

For each set of as-built drawings, the Program needs the SI to submit prior to final acceptance:

- One (1) copy on electronic media, in a format approved by the Agencies
- One (1) reproducible CAD-generated hardcopy

A master index of drawings is submitted to ngORCA agency, clearly indicating the organization of the shop and as-built drawings, listed by drawing number. The master drawing index also provides cross-references to related drawings, and the hierarchy of all drawings and drawing layers.

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2.5.2.4 Testing

INIT employs a rigorous test regimen to ensure that all assets delivered to the ngORCA agencies are fully functional upon initial delivery. This establishes the foundation for reliable system performance and high availability. We use that experience to deliver a test plan to the ngORCA agencies to fully demonstrate compliance with the requirements. INIT plans, performs, and documents all tests to proof the design of all components and subsystems, and the integrated system as a whole.

2.5.2.4.1 General Requirements

INIT will not begin any portion of system testing until all prerequisites have been successfully

completed and approved in writing by the ngORCA agencies. All testing phases will be completed in their entirety for each phase of deployment. The testing will be completed in three phases: Factory Testing, Integration Testing, and Acceptance Testing.

INIT will provide all labor and materials required for system testing, including fare media,

payment cards, support services, and facilities required to stage, inspect and test all hardware

and software being supplied. As part of the overall testing regime:

- INIT tests and verifies that they can successfully utilize the agency-provided communications networks for deployment of the system as designed.
- During all conducted tests, any and all hardware or software not passing inspection or test will be replaced, or otherwise corrected by INIT and retested.
- Prior to the start of any formal testing, INIT will conduct “dry-run” testing to identify and resolve any issues that arise before formal testing commences.
- Successful completion of each phase of testing will be subject to agency approval based on approved test criteria.

INIT will ensure that the Test Plan covers all inspections and tests to be performed, including those performed under the Quality Assurance plan. No tests will be performed until all the required prerequisites have been met. Test results will be submitted for review after completion.

2.5.2.4.2 Test Documentation

INIT will prepare and submit to the ngORCA agencies detailed test procedures for each test. These procedures will include the following:

- Information provided in the test plan (repeated)
- Mapping or references to the design documents and functional requirements related to the test
- Test methodology, including input and expected output
- Equipment and instrumentation to be used for testing
- Detailed breakdown of all hardware and software components under test
- Detailed test scripts
- On-line and off-line diagnostics
- Any related documentation (drawings, prints, supplier specifications, and recommendations)

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- Forms for recording data, including fields for date, time, location, and name and signature of persons conducting or witnessing the test
- All other information required to monitor and manage the inspection and testing
- Name and signature of the person who prepared the test procedure

Additionally, the INIT team will submit the Test Plan which will identify the inspection and testing to be performed at for each test. We will ensure that information provided for each inspection and test includes the following requirements:

- Test title
- Reference to contract requirements section requiring the test
- Organization performing and responsible for the test
- Inspection/test location
- Test objectives
- Test pass/fail criteria
- Test schedule
- Test procedure submittal
- Test start date
- Test duration
- Test report/certification submittal

2.5.2.4.2.1 Inspection & Test Plan

INIT will submit a draft inspection and test plan for the ngORCA agencies review and approval during the design reviews. A final inspection and testing plan, to be used in connection with all inspections and tests, is submitted no less than 30 calendar days prior to the start of any testing. The inspection and test plan include a detailed schedule indicating the sequence of each test, where and when each test will take place, and the number of INIT-provided staff covering each test. The inspection and test plan include plans for each factory and integration test:

1. First Article Configuration Inspection (FACI)
2. Factory Acceptance Test (FAT)
3. Production Acceptance Test (PAT)
4. Functional Unit Testing (FUT)
5. System Integration Test (SIT)
6. Field Integration Test (FIT)

The inspection and test plan includes the number and range of tests, as well as the criteria for acceptance of each phase of testing. All performance measurement procedures and acceptance criteria, including the number and type of failures allowed in each phase of testing, will be subject to the ngORCA agencies review and approval. The plan also includes any the ngORCA agencies-specified requirements identified during PDR.

The inspection and test plan includes volume or stress testing, for applicable devices, that simulates peak ridership and transaction volumes. Inspection and test procedures include detailed test scripts for each test case to be performed. Test scripts include test case setup

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instructions and preconditions, step-by-step instructions for performing the test, and expected results for each step. Embedded within the detailed inspection and test procedures are references to the design documents and functional requirements related to the test.

2.5.2.4.2.2 Inspection & Test Procedures

INIT will submit each inspection and test with all associated procedures for review and approval by the Agencies. A software installation plan and system configuration diagram for the agency test facility will be submitted as part of the procedures. Procedures will include detailed test scripts for each test case to be performed as part of the test. Test scripts will include test case setup instructions and preconditions, step-by-step instructions for performing the test, and expected results for each step. Re-testing will be performed if desired by the Agencies after corrective action has been implemented due to the result of any prior failed test. The Agencies may develop additional testing or test scenarios ad hoc during all phases of testing and have access to the test facilities, as available

2.5.2.4.2.3 Inspection and Test Reports

INIT submits a written report for each inspection and test performed, including copies of all data generated during the test, for the ngORCA agencies review and approval. Inspection and test reports include the detailed test scripts from the associated procedures noting any exceptions to the stated test conditions, all relevant setup and configuration information (e.g., fare media serial numbers and device IDs), and the results of the test as passed or failed.

Inspection and test reports include detailed results (e.g., all transaction data generated), detailed failure descriptions and resolution, modifications or repairs pertaining to the components or systems being tested, and any re-test results.

All transaction data generated during testing is submitted in Excel format to allow for simple storage and analysis by the ngORCA agencies. Detailed inspection and test reports are delivered for each factory and integration test defined. Reports are submitted to the ngORCA agencies for review and approval. No phase of testing will be considered complete until the associated report is approved by the ngORCA agencies.

2.1.1.1.2.1 Test Waivers

INIT understands they may request test waivers for components or subsystems that are at least substantially similar to previously tested components or subsystems, if agreed to by the Agencies. Specific testing requirements for each system component will be considered individually, and waivers will be issued on an individual test and component basis; it is possible the Agencies may grant a waiver for certain tests while others will still be required. Waivers will not be granted for integration or acceptance phase testing.

2.5.2.4.3 Agency Test Facility

INIT will identify and provide a secure facility in Seattle at a location approved by the Agencies for the placement of an SI-furnished test facility where the Agencies and SI may test current system hardware and software. The test facility will be configurable to utilize one or more of the back office environments described in Tab 1 “Technical Proposal of INIT's Account Based Open

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Architect System" of this proposal. These back office environments will include the account-based transaction processor and all specified support systems, which fully replicates the production environment. The test facility will have the ability to connect directly to the merchant acquirer or any other processing entity to fully test the processing of credit and debit transactions without processing transactions that will be reported by the processor. The test facility back office hardware will be identical to the production system hardware, but will not require system redundancy. The test facility will include separate hardware and software representative of each agency's installed system, including any existing equipment (*e.g.*, CAD/AVL system, MAR, mobile device) that is integrated with the new System. WSF will maintain its own Wave2Go test facility.

INIT will provide all maintenance support for the test facility equipment, systems, and interfaces through Final System Acceptance, and maintain the test facility software configuration throughout the terms of the warranty and software maintenance agreement for all devices and modules down to the Lowest Level Replaceable Unit (LLRU).

2.5.2.4.4 Factory Testing

Factory testing includes:

- First Article Configuration Inspection
- Factory Acceptance Test
- Production Acceptance Test

2.5.2.4.4.1 First Article Configuration Inspection

INIT conducts the First Article Configuration Inspection (FACI) before line production begins. After the first article equipment has been produced, INIT uses the manufacturing drawings to check that all parts and the top assembly are produced per the manufacturing drawings. All quality documents are provided to the ngORCA agencies. The equipment being inspected must meet 100% of the requirements of the manufacturing drawings before the start of Production and Factory Acceptance Test begins.

2.5.2.4.4.2 Factory Acceptance Test

INIT has performed Factory Acceptance Tests (FAT) on every system we have delivered and we are confident in our ability to meet the ngORCA agencies requirements for FAT. The components to be tested in FAT are from the first run of production units, and may be chosen by the ngORCA agencies. Once chosen, the units are not modified without the express consent of the ngORCA agencies. FAT is conducted at INIT's facility or at a subcontractor's facility selected by INIT. INIT will provide all necessary supplies for FAT.

INIT performs environmental testing to demonstrate compliance with the ngORCA agencies operating environment requirements. Maintainability testing demonstrates compliance with the ngORCA agencies maintainability requirements.

INIT is responsible to maintain reports of all tests conducted throughout FAT. The reports are submitted at conclusion of the FAT. Results not meeting specified requirements are fully documented and explained, and a corrective action plan is submitted.

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Successful completion of FAT is a prerequisite for the manufacturing of production system components. INIT updates Production Acceptance Test (PAT) procedures based upon experience gained from previous testing and/or system component operation. Test procedures are expanded to focus on areas that prove to be, or have historically been, troublesome. INIT is responsible for maintaining complete reports of all PATs that are performed. The reports note any failures, subsequent corrective measures, and retests. All completed reports are submitted to the ngORCA agencies for review and approval.

2.5.2.4.4.3 Production Acceptance Test

INIT and their subcontractors perform Production Acceptance Tests (PAT) on each system component as an integral part of their QA program prior to each shipment. PATs verify, and INIT certifies, that all system components contain the correct materials, are assembled properly, and function in accordance with the requirements. Testing includes validation against established performance metrics. PATs verify that each unit is produced to the same quality level as the unit presented at FACI and FAT. At a minimum, the following functions are tested:

- General device operation and performance in all modes
- Data generation and transfer
- Alarms generation and transmittal
- User interface control and display

The ngORCA agencies may choose to observe, participate in, conduct, or repeat testing on any item to confirm the validity of INIT's test results. the ngORCA agencies may also perform, at their discretion, ad-hoc tests to ensure the quality of the system components. INIT will provide appropriate access to support ad-hoc testing, if required. Successful completion of a PAT is a prerequisite for installation of that equipment at the ngORCA agencies facilities.

2.5.2.4.5 Integration Testing

Integration testing includes:

- Functional Unit Testing (FUT)
- System Integration Testing (SIT), and
- Field Integration Test (FIT)

2.5.2.4.5.1 Functional Unit Testing

The purpose of Functional Unit Testing (FUT) is to demonstrate in a controlled laboratory environment that each of the System components and associated software furnished by the SI meets all capabilities through final design, prior to full system integration. Successful completion of component-level software development, and installation of production equipment in the agency test facility are pre-requisites.

FUT tests are conducted by INIT at the ngORCA agencies approved test facility described in Section 2.5.2.4.3 above. FUT test procedures are submitted to the ngORCA agencies for review and. FUT functional and cycling tests demonstrate all base functions of the system components. Device interfaces with the back office necessary to perform the FUT testing may be simulated, if the interfaces or back office software is not ready to be tested.

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All media used in FUT is provided by INIT. INIT will document, inventory and track media usage during testing. Media used will be the same or similar to those planned for revenue service. the ngORCA agencies, at their discretion, may assign staff or representatives to witness and/or audit FUT testing. INIT is responsible for maintaining complete reports of all FUT tests performed. Results not meeting specification requirements are fully documented and explained by INIT, and a plan for corrective action is submitted. All test reports will be submitted to the ngORCA agencies at the conclusion of FUT for review and approval.

2.5.2.4.5.1.1 FUT Devices

FUT testing of the devices will cover the onboard validators, driver display units, wayside validators, vending machines, and customer service terminals. INIT will work with the Agencies and jointly develop the structure, timing, and pass/fail criteria of the FUT.

Cycle testing will be performed on all devices.

Subsequent to successful completion of the transactional FUT, INIT will environmental cycling test at expected extremes. Successful completion of the testing requires no failures or discrepancies in the functionality described in the SOW and agreed to at FDR.

2.5.2.4.5.1.2 FUT Back Office & Website

FUT testing for the back office applications, mobile apps and website will also be include in this section. Successful completion of the testing requires no failures or discrepancies in the functionality described in this SOW and agreed to at FDR, and 100 percent accuracy of all data exchanges and displays.

2.5.2.4.5.2 System Integration Test

System Integration Test (SIT) begins upon successful completion of FUT testing, in which all devices, back office applications, website, retail network, interfaces, integrations including CAD/AVL, Washington State Ferries field equipment, DARe, the Legacy back office and all other aspects of the System are exercised. In advance of this testing, INIT will submit detailed SIT procedures to the Agencies for review and approval. Successful completion of SIT confirms that when installed, the fully integrated system will perform, operate, and communicate as required in a controlled laboratory environment.

At a minimum, SIT testing will include:

- Prescribed days of continuous testing of all system components, during which the components will be operational 24 hours a day
- A minimum number of transactions at each system component type, including onboard validators, wayside validators, driver display units, vending machines, customer service terminals, mobile fare inspection app, and mobile fare validation app, testing all transaction types
- A minimum number of transactions each performed through the CRM application, customer website, customer mobile app, and agency mobile apps, testing all available functions
- All alarm and boundary conditions tested a prescribed number of times each

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During SIT, all software modifications will be reviewed, demonstrated, tested, and approved by the Agencies. The Program needs the SI to record version information for all software modules, including the date and time the software was created, size of each file, and version number. With successful completion and approval of SIT, all software and configuration files will be "frozen," and the SI will make no changes without agency authorization. Upon agency approval, Field Integration Testing of the System components may commence.

2.5.2.4.5.3 Field Integration Test

Upon completion of SIT and initial field installation activities, INIT will conduct the Field Integration Test (FIT) in which all devices, back office applications, website, retail network, interfaces, integrations including CAD/AVL, Washington State Ferries field equipment, DARe, the Legacy back office and all other aspects of the System are exercised in what will become the production environment. The entire production back office and a portion of each type of equipment must be fully installed and configured prior to the commencement of FIT. The Program needs the SI to submit detailed FIT procedures to the Agencies for review and approval prior to commencement of FIT.

For the FIT, the back office system will need to be fully deployed and operational before the first validator can be operational in the field. Every validator (old or new) will need to function with any card in the System. INIT work collaboratively with the Agencies to develop a FIT test plan that accomplishes the needs of field testing in an installed basis within the chosen transition approach.

INIT will create and include pre- and post-installation checklists and test reports for all installed equipment as part of the FIT procedures. The production system will be provisioned with data simulating the System's operational databases under full operational load, which will be defined in the FIT test procedure and approved by the Agencies prior to commencement of FIT. At a minimum, FIT will include:

- Prescribed days of continuous testing of all system components, during which the components will be operational 24 hours a day
- A minimum number of transactions at each system component type, including onboard validators, wayside validators, driver display units, vending machines, CSTs, agency fare inspection mobile app, and agency fare validation mobile app, testing all transaction types
- A minimum number of transactions each performed through the CRM application, customer website, customer mobile app, and agency mobile apps, testing all available functions
- All alarm and boundary conditions tested a minimum number of times each

Final transaction volumes and specifics of FIT testing will be included in the FIT procedures to be reviewed and approved by the Agencies.

Additionally, FIT will fully test all system redundancy measures, successfully demonstrate execution of the Disaster Recovery Plan, and include database accuracy testing, which will demonstrate the accuracy between the AUT and the relational database in which application-generated data is stored. The testing will also demonstrate atomicity, consistency, isolation, and durability of the database.

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2.5.2.4.5.4 Pilot Test(s)

INIT will work collaboratively with the Agencies to develop a Pilot Test Plan that accomplishes the needs of system testing in an installed basis within the chosen transition approach.

2.5.2.4.6 System Acceptance Testing

INIT will develop a System Acceptance Test Plan that describes system acceptance testing in detail, and submit it for approval by the Agencies. INIT understands the beginning of the SAT phase will be marked by the transition of the system of record from the Legacy back office to the next gen ORCA back office. SAT will be performed in the production environment with all components, subsystems, and third-party networks completely functional, operational, online, and in service. Following the completion of any SAT, the Program needs the SI to provide all testing data, reports, and other testing information to the Agencies for review and approval.

2.5.2.4.6.1 System Acceptance Test

The SAT serves to verify that the System and all provided equipment meet the System performance requirements specified prior to Final System Acceptance. INIT understands it is responsible for supporting all elements of SAT, including, but not limited to, System and APIs, equipment maintenance, media distribution, funds settlement, reporting, and customer support. INIT will meet regularly with the Agencies during SAT.

All testing prior to the SAT can be done by element, with some elements completing a test phase and moving on to the next phase before other elements have completed the first phase. The SAT will be performed on the entire system, as deployed. The SAT will measure overall system performance and the entire system will pass SAT as one unit.

During SAT, system components must meet or exceed all defined performance requirements. The Program needs the SI to identify and implement remedial action on the System after unsuccessful SAT at no cost to the Agencies. The SAT duration may be extended until all performance requirements are met during an agreed-upon duration.

2.5.2.4.6.2 Final System Acceptance

The rigorous testing regime described above will confirm the system meets the requirements and objectives, and successful completion of these tests will trigger final acceptance. INIT will request the written Final Acceptance letter once the system is fully operational, contractual conditions are met, and all major issues are resolved.

All system components and subsystems have been successfully tested, both individually and in an integrated environment to ensure that they meet the technical and functional requirements as detailed:

- SAT has been successfully completed and approved by the Agencies.
- All system devices are delivered, installed, and operational.
- All back office applications and software, including all required reports, are installed and fully functional.
- The website and all mobile apps are live and fully functional.

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- All spare parts have been delivered.
- Initial batches of fare media have been delivered and accepted by the Agencies.
- All requisite contract deliverables have been delivered to the Agencies and accepted.
- The Disaster Recovery Plan has been successfully demonstrated and approved by the Agencies.
- All required training has been provided and accepted by the Agencies.
- All required intellectual property has been delivered to the Agencies or the escrow agent.
- Final resolutions to all identified critical issues (as classified by the Failure Review Board) are fully implemented and accepted by the Agencies.

The Agencies will issue a certificate upon approval of the SI's request for Final System Acceptance.

2.5.2.5 Training

As an experienced integrator of Electronic Fare Collection and Computer Aided Dispatch systems for the transit industry, INIT understands the importance of training to the overall success of the project. Proper training allows ORCA staff and other stakeholders to fully understand the features of the new system, it's current benefits and how, as the agencies offer to the riding public increased operational efficiencies, the system will continue to provide increased rider convenience and satisfaction.

2.5.2.5.1 General Requirements

INIT will provide a comprehensive training plan and subsequent program that meets the training needs of the agencies. The training plan will emphasize modern, modular training delivered across multiple environments. Our plan will define each course including: instructor credentials, course methodology and approach, class content, training aides, and evaluation criteria for the attendees.

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Figure 2-8: Modern, Modular Training delivered across Multiple Environments

2.5.2.5.2 Training Plan

INIT's training plan will incorporate an approach to distribute training to the agencies directly from our experienced staff and from our major subcontractors. The training plan will meet the following core objectives:

- Training shall include course development, instructors, and all handouts, materials and classroom aids required to conduct the training.
- Practical training on equipment shall occupy a significant portion of all training classes.
- The training presentations and material shall be in English.
- Instruction shall cover equipment familiarization and systems operation. The minimum training is that which is necessary to bring those employees designated to the level of proficiency required for performing their respective duties including:
    - Familiarization with the general system design concepts and features
    - Hands-on training using the actual system or simulators
    - The ability to recognize any transit specific alerts designed into the system

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- Thorough and clear demonstration of the use and operation of the on-board equipment

- Pilot training sessions prior to operational on-site testing (mini-fleet) will be conducted to provide staff the basic knowledge needed for operational testing and use of the system.
- Train-the-trainer Instruction shall prepare agency trainers for delivery of classroom and hands-on training, as required, using the actual on-board hardware and software
- Deliver instruction on the setup, operation, and configuration of the training equipment as required.
- Ensure through testing or demonstration, that agency trainers and trainees have ability to perform each task associated with all system functionality. This is to be an objective for each task learned within each class.

The INIT Training System also provides trainers with all instructional material necessary to conduct training within their organization.

2.5.2.5.3 Training Materials and Equipment

Table 2-3: Instructional materials included

Training Materials	Description
Instructor Guides	The Instructor guide leads an instructor though a training class providing recommended verbiage and when to show each PowerPoint slide.
Power Point Presentations	The power point document is the primary presentation material for instruction. This document is matched directly to the Instructor guides.
Trainee Guides	The trainee guides leads the trainee or student (core user) through the training class. This guide shall be used as a compliment to hands-on and classroom training provided by instructor.
Hands On Training	Where applicable, INIT shall provide hands-on training on actual equipment or through the use of training equipment to simulate the actual behavior of the equipment for day-to-day operations.
Instructor Evaluation Sheet	INIT shall provide trainer evaluation comment sheet to assess the training course and preparedness of training instructor.
Operation Manuals	INIT shall provide copies of all user and training manuals as they pertain to the specific training class. One complete manual set per student shall be provided per course.
Quick Reference Guides	Where applicable, INIT shall provide quick reference guides for each training course. INIT intends to provide guides for specific areas of instruction related to specific user operations. INIT shall provide the quick reference guides for the following groups of users:

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	Operators Ticket Inspectors Customer Service to include the Customer Mobile app Vehicle Maintenance VM Maintenance

2.5.2.5.4 Training Courses

Table 2-4: Training Courses

Course Description	Duration	# of classes
[redacted]		

[redacted]		
[redacted]	[redacted]	[redacted]

2.5.2.5.5 Training Course Materials

The slides below are examples from a typical training course (entire course not shown):

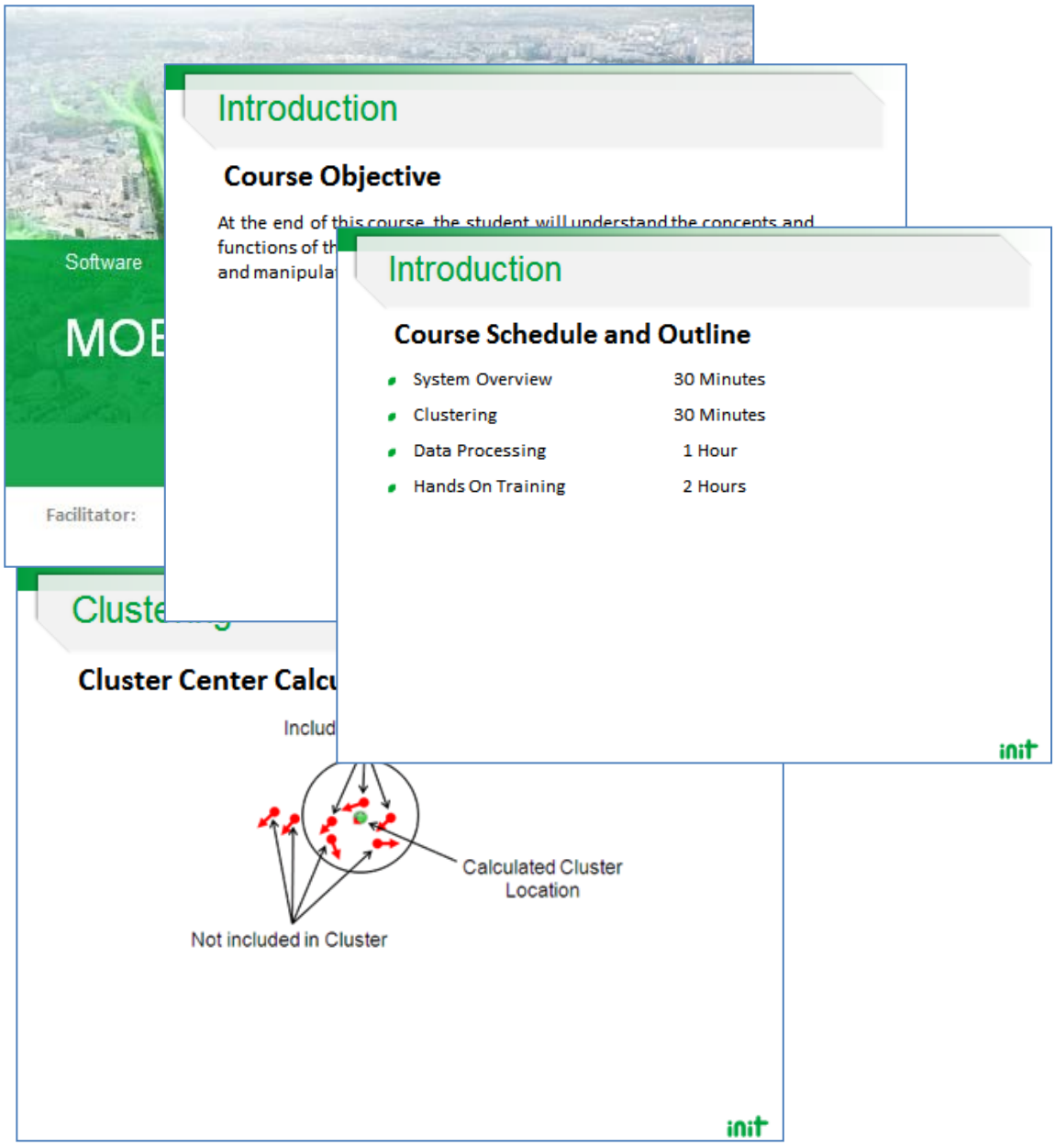

Figure 2-9: Sample User Training Materials

2.5.2.5.6 Manuals

INIT will provide instruction manuals that describe and illustrate in detail how to manage, operate, and maintain the next gen ORCA System delivered under the SI contract. The manuals

will include detailed documentation for all equipment, systems and software and will be submitted in hard copy and electronic formats as defined during design review. Sample manuals can be found on each USB flash drive that are submitted with each proposal copy and originals

2.5.2.5.7 Manual Content & Format

INIT understands the importance of well written precise documentation written in terms that are meaningful to users. Care will be taken to provide easily understood explanations and step-by-step instructions with cross-references to all drawings, diagrams and photographs.

Revision control of each manual will be recorded on a control list in the front of each document. The list will be updated with each revision and will show the date of each revision and the page reference. INIT will maintain all updates or revisions in the document control lists for each document.

The manuals will be concise and complete as possible ensuring that information gathered during installation and acceptance testing, and throughout the warranty and Software Maintenance Agreement (SMA) terms, will be incorporated into the manuals to be submitted to the Agencies.

2.6 INIT's Proven Transition Methodology and Approach

2.6.1 Minimal Customer Service and Project Impact Transition

A close collaboration between all partners involved is essential for a smooth transition. This includes the next generation ORGA project team, all agency personnel connected to the transition such as the marketing, finance, IT and maintenance departments as well as the legacy ORCA vendor, the DARe vendor and all third party next generation ORCA vendors, e.g. the Retail Network Provider.

One of the major factors for general public acceptance of the next generation ORCA system is to ensure that the first impression of the system is a positive one. This is why INIT sees the transition as the most critical phase of the project and will commit all of the necessary resources to complete this phase as smooth as is possible. INIT's primary goal during the transition will be

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to create a seamless transition in order to minimize the impact on the customer and to preserve operating revenue.

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2.6.2 next generation ORCA's Innovative Transition Plan

[redacted]

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2.6.3 Pilot Testing in a Brownfield Environment with Minimal Customer Impact

2.7 Operational knowledge transfer and excellence through effective O&M manuals

Attached to each proposal please find a USB flash drive containing the following manuals written for a similar project INIT performed on for Metro-Link in Portland, Or.

- eFare_MaintenanceManual_v1_2
- Manual_MOBILEvario_CSW_1.0
- Manual_MOBILEvario_Parameter_Management_1.0
- Manual_MOBILEvario_Tariff_Management_1.0
- Sample_FAT_TestPlan_PROXmobil3_v1
- INIT's ngORCA Preliminary Project Schedule

2.8 INIT's Experienced and Proven Risk Management Approach

Crucial is the successful handling of project risk. The risks involved here consist of completing the scope of services within each project on-schedule, within budget, and in full compliance with applicable requirements. Each Project Manager oversees the Risk Management Plan for their

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project. The responsibilities for risk management are held within the Project Management Team, which is composed of personnel from both the ngORCA Transit Agencies and INIT.

Key personnel from the Agencies include its Project Manager as well as Subject Matter Experts (SMEs) from Operations, IT, Accounting, Finance, Procurement, and other departments as needed. Key personnel from INIT are the Project Manager, System Engineer(s), Functional Managers, and any Technical Lead(s). Each member of the INIT team's responsibility for risk management is clearly assigned and explicitly incorporated in their respective job descriptions.

Apart from unforeseeable technical and customer-specific difficulties, the punctual completion of projects depends on the availability of sufficiently qualified personnel. External suppliers and subcontractors in the process create both risks and opportunities with regard to staffing, schedule, price, and quality. The INIT Project Management Team is directed to escalate any crucial issue(s) to the project's Joint Management Committee in a timely manner. This ensures that INIT management is involved and can initiate corrective measures for risk minimization.

2.9 Special Considerations or Challenges

2.10 An Achievable Project Schedule

The Master Schedule we have proposed as the System Integrator has taken the ngORCA program in its entirety into consideration. As such, we have represented the key tasks provided as part of the ORCA project timeline and imbedded our schedule so that it is integrated as a component of that; giving the ORCA agencies the purview of the overall project detail.

Taking this approach, we believe we clearly articulate the timelines needed to deliver INIT's portion of the overall program while also creating space to include the dependent factors and activities inter-related with the other major aspects of the system (e.g. DARe, Retail, etc.). This demonstrates INIT understands the key points in the schedule which contribute as a major driver to key program milestones.

In addition to this approach, INIT has also taken into consideration the Agencies point that this is a schedule-driven project due to the imminent nature of the current legacy system going end

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of life. With that, we have evaluated our overall delivery scope and note that there are certain aspects more mature (with respect to their final design) than others. However, there is a critical point where these systems and components must be integrated. We believe our schedule ensures just that.

To aid in the Agencies review of both the schedule as well as the critical path associated with the work of the System Integrator, INIT has included a column titled 'Critical'. If the column is marked with a 'Yes' then the activity is deemed to be on the critical path and the Gantt chart will reflect a red progress bar.

Also of note, as part of INIT's schedule submission, in addition to the System Integrator Master Schedule we are including two (2) other reports with the aim to facilitate both a comprehensive and quick reference review. They are the Critical Path and also High-Level Project Timeline.

Lastly, please note that we understand as part of Section 2.1.3.1 Master Schedule, the schedule is intended to be cost-loaded based on the guidelines of 2.1.3.3 Cost Management. At this early stage we wanted to look at the schedule and INIT's pricing model in parallel with an eye towards integration once each are near their final state.

2.10.1 Milestones

The primary milestones of the ngORCA program are comprised of six (6) core stages:

1) Procurement Phase
2) Design
3) Development
4) Testing
5) Deployment
6) Operations and Maintenance

Within items 2, 3, 4, and 5 are a set of key milestones; they are at the top of each section and denoted by green colored font. Where possible we have included the dependent relationships between the other ngORCA vendors and the stages of the program; however, because the specific detail in stages 4, 5, and 6 are not known, creating durations to try and map to the stated Start and Finish dates from Section 1.6 of the RFP would be manufactured and as a result be quite long. In so doing, this would inadvertently displace the System Integrator critical path which we understand is a vital part of Agency review.

2.10.2 Procurement Phase

The Procurement phase has been added at the start so as to provide a clear understanding of when Notice to Proceed will be issued for the start of the System Integrator work and also, to denote the other vendors that will also be integrated as part of the overall ngORCA program.

2.10.3 Design

During the design phase many major decisions will be made as well as a multitude of small to medium ones; those decisions are critical but can also be difficult to do when other constraints exist. We understand that time is a valuable asset to Agency stakeholders; with that in mind, as well as to maintain as much efficiency as possible, in the schedule we have proposed our

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industry-leading approach to system design. While not explicitly noted in the schedule, another major aspect of our design review will be the early engagement of our UX/UI partner as their involvement will be filtered across many elements of the overall system design.

We have taken into consideration the schedule-driven aspects of the program, the necessity of clear and thorough documentation, as well as the maturity of each system component. With that, as well as the existing service-proven implementation of significant portions of the INIT design and subsystems, we believe we can provide the most schedule and design advantage in the industry and successfully parse the design into at minimum two (2) separate 'packages'. In so doing we can work towards approval on specific documents and move those through the design review at a greater pace.

When reviewing the different design review stages, you will notice a staggered approach. We plan to attempt approval of package 1 sooner than package 2 at each interval. However, each design review stage in its entirety will not be formally 'approved' until all documents in both package 1 and package 2 have been formally approved. INIT's project team will create and manage a document control and tracking sheet that will keep the Agencies apprised to the various states and stages of each document.

In pursuing an agile approach at INIT we have found we can find more time to allocate to system areas which require further discussions, clarification, stakeholder buy-in, and so forth without impact to the overall design review and schedule as a result. In fact, we have found that we can actually gain some schedule advantage and increase the pace of the overall delivery. Additionally, as part of this approach we will begin to outline during CDR, where dependent decisions need to be made, where points of the design intersect, and where relevant, critical-path impact points.

Also of note is that each design review stages have a series of workshops to occur on site at the Agencies designated location(s) in the Puget Sound region. At each design review stage these workshops will vary in their approach. During CDR we will likely only have one primary week and will be attended by the core INIT project team and also key subject matter experts (SMEs) from both our US and German teams. We bring our SMEs to the discussion during these workshops as we have found this approach to on one hand, create efficiency in communication and collaboration and secondly, to begin to build the relationships necessary to extend the workshop interaction into effective discussions when they must be remote due to location differences.

Moving into PDR and FDR these workshops may be staggered between onsite and remote meetings, or a combination of both. Further, the occurrence of these workshops or other SME meetings will be greater as the fine tuning of the design becomes critical for the build stage.

2.10.4 Development

INIT takes an approach to system design that allows for the greatest flexibility for the longest duration. In order to maintain the schedule, at certain points decisions have to be final; however, we do not believe you have to compromise the integrity of the business needs in order to do that. With INIT you will experience thoughtful and creative technological and business solutions while also engaging in a collaborative process.

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During the PDR stage INIT will begin some of its development in order to better fine tune and understand the decisions that will need to be made during the following stages. Also, as the System Integrator the INIT API's are major factors in the overall ngORCA program implementation. Fortunately, INIT has built many of the API's required for ngORCA's needs and are currently in live operation in other projects. In light of these factors INIT will build upon their maturity in the early development stages so they are available as early as possible for other partners to build against. Along similar lines the back office is also a major part of the ORCA transition. As with the APIs, there are key dependencies that will have impact on the overall schedule necessitating conversations and plans be made earlier in the process. Fine tuning will continue to occur, but those major decisions will need to be outlined early on so that the path forward is clear.

As part of the build stage INIT will work on the testing and procurement of the system equipment. Equipment will go through the requisite pre-testing (environmental, shock, vibration, etc.) prior to their manufacture, have procurement, assembly and test stages at varying pace, as well as their own installation schedules. For the moment, this level of detail is not yet added to the schedule in significant detail but will be added as the final deliverables and schedules are established with line items per Agency, per item of equipment and so forth.

Additionally, the training program content will also become clearer as the development of system components are further along. With that, INIT will begin creation of the system manuals that form the basis of the training documentation. During this stage INIT will begin to submit and review with the Agencies these materials. Later iteration of the schedule will summarize the document packages associated with each training course and the courses themselves as well as their quantity will be built into the schedule, by Agency where appropriate.

2.10.5 Testing

There are several different stages that comprise the test phase of the program. Generally speaking, INIT will undertake functional testing first and as part of that execute on the various test stages that articulate the different needs of the system which can occur in varying timelines based on what factors are present. Following that, the system will undergo the integrated testing. Here INIT has added additional slack time specifically because this is often one of the most complicated elements of the schedule as it is the point where all elements need to come into alignment. INIT will elaborate the detail of the schedule (rolling-wave planning) as preparation for this phase comes into light and the detailed break-out of each test stage are clear.

Of critical importance is the balance between integrated lab testing and making the decision to move to a production state of this integrated test (field test). In so doing key decisions have to be made, the financial management application and reconciliation in place, and so forth as this testing becomes part of the production system.

2.10.6 Deployment

The deployment phase is comprised of multiple key factors. It is ensuring all the requisite equipment has been installed, tested, and functions according to design and that the development and integrated testing have occurred and are working in a stable manner in

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production. When these are in place it's possible to then invite alpha and beta testers to use the system. As this is real money and a live system, preparation and planning are key to a successful roll-out.

Once the system has gone through a beta test and any residual issues or functions have been deployed, we then move to the public launch – the scope of which can be mutually defined. This is an exciting point in the schedule but also a critical point as any future changes must be factored with both risk and impact due to the quantity of users engaged in the system. During this stage INIT will work with the ORCA agencies on deployment strategies and management to ensure the best possible outcomes.

The next key stage for Phase 5 is the system acceptance testing as determined by the performance metrics (KPI's) of the contract. During this stage the system is live and must adhere to these metrics and fall within the framework of the contract's requirements. At the moment the detail here is to simply note the acceptance test period, however, in future iterations of this schedule each KPI will be added as well as its associated test documents.

Outside of the above acceptance testing, there may be a punch list of items necessary in order to achieve final system acceptance in its entirety. As those activities are known they will be added so that the path for the project completion is transparent for all stakeholders.

2.10.7 Operations and Maintenance

While there are many steps necessary to be in place in order to stand-up and transition the project to operations, these details will be further articulated as part of the system documentation and later discussions. For the purposes of the schedule, Operations and Maintenance are noted to start upon achievement of Final System Acceptance.

2.10.8 Summary

In closing, we believe the ORCA agencies will find INIT's proposed schedule to be competent in meeting the needs of the ngORCA program timeline while also balancing the required time and dependencies for successful delivery of the required deliverables and outcomes within each specified stage.

With the experience of having delivered account-based fare collection projects with stages similar to what ngORCA needs, we are relying upon real experience, lessons learned, and the success of witnessing first-hand what results out of implementing best practice approaches to these complex systems.

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2.10.9 High Level Timeline

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Figure 11: INIT's High Level Schedule correlates with ngORCA's Schedule Driven Timeline

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2.10.10 Critical Path Timeline

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2.10.11 Detailed Timeline

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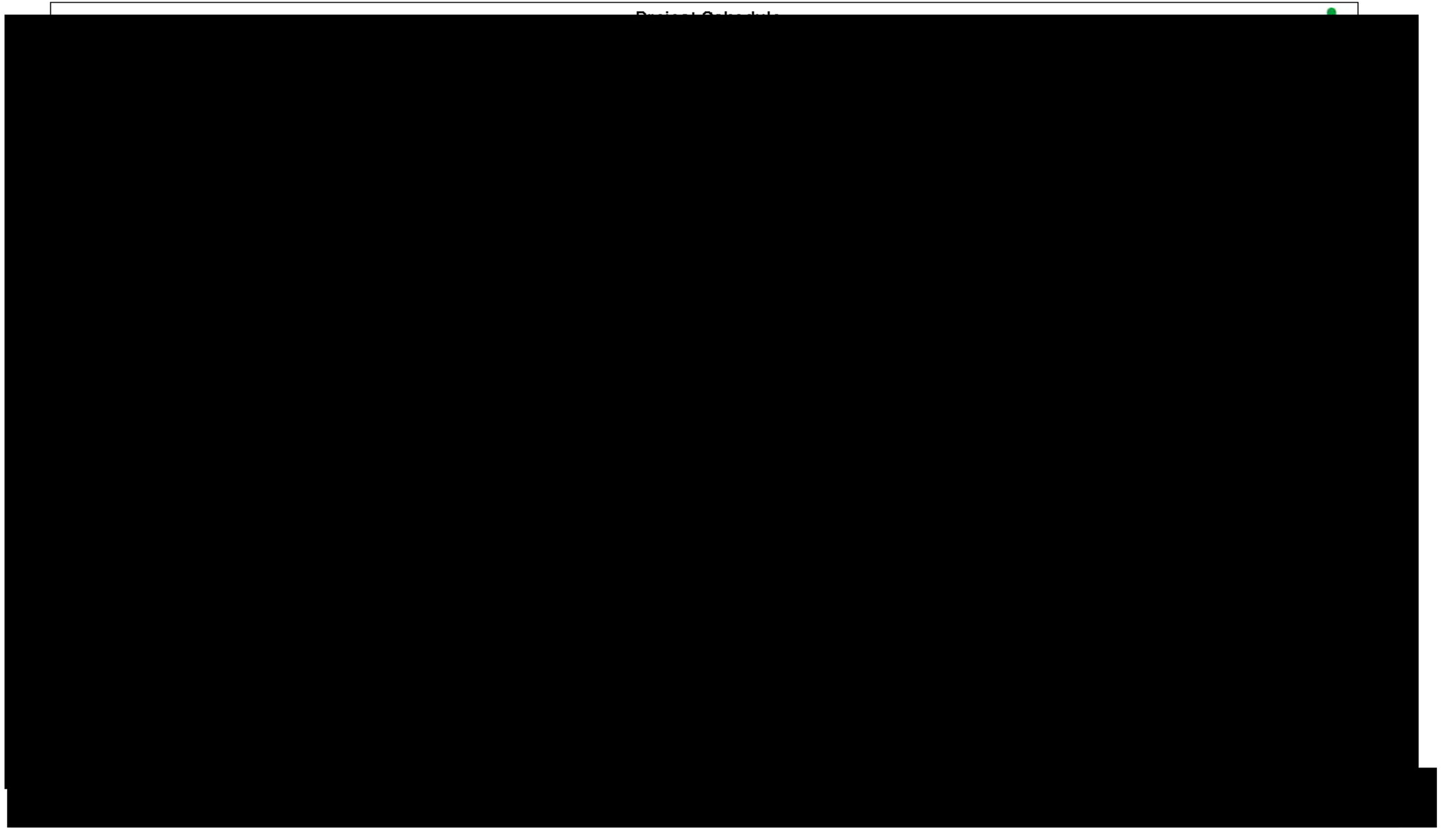

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2.11 INIT's Performance Guaranty

INIT proposes the following solution to performance risk security:

- For the period from Notice to Proceed until Final System Acceptance INIT will provide a Performance Bond equal to 100% of the contract value. This will provide Sound Transit the financial security of a third party surety supporting the completion of the project. The costs for the performance bond are priced as a separate line item in the pricing sheet.
- Once the system is in Maintenance and Operations phase INIT will provide a bank letter of credit. The amount and terms of the letter of credit will be negotiated as part of the service level agreement discussions. Additional costs for the letter of credit may apply

INIT is open to discuss any alternatives to this approach

2.12 INIT's Partnership with ROOT for Effective Operation and Maintenance

2.12.1 Staffing Plan for Responsive Operation and Maintenance

Our staffing plan includes a dedicated operations and maintenance team which has a sole focus on the effective management of the INIT integrated solution for ngORCA. The leadership for this group resides in Seattle, where our Service Operations Manager, Customer Support Representative, Field Technicians, and IT support staff will reside. They will integrate with the large INIT team which provides worldwide and third tier support, based in Chesapeake, Virginia, and Karlsruhe, Germany. This allows us to leverage the other support expertise we are delivering to Honolulu, New Zealand, and Luxemburg fare collection systems (as example). INIT is continuing to invest in this model to allow for follow the sun support combined with localized support, increasing both response times and effectiveness of the services needed.

We currently plan do as much equipment repair and maintenance in Seattle, Washington at a location capable of quickly diagnosing and returning to service critical field components. In the event this facility can't support a certain repair, failed components will be sent to our Chesapeake, Virginia, manufacturing, repair and rebuild facility.

2.12.2 Services for Successful Operation and Maintenance

2.12.2.1 Operations & Maintenance Model (12 years)

One of INIT's most valued system characteristics is its reliability and ease of maintenance, monitored and managed by a team of experienced professionals in their required field(s). As is the case with the INIT hardware currently supplied to some of the ORCA Agencies, all equipment proposed for next generation ORCA is designed to be hot swappable. This is true of our field equipment—validators and terminals—and of our central IT systems.

The next generation ORCA System is comprised of system equipment and applications, each to be managed and maintained in accordance with the system design and conformance requirements. The customer interface components associated with the client-side equipment will be managed by the Agencies for first line maintenance while INIT will take over any second line maintenance as well as system component repair or replacement.

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In addition to the front-end applications is INIT's centralized system comprised of robust server and network infrastructures collectively referred to as the 'Back Office' (BO). Once these BO applications and infrastructure are configured and deployed, they will require ongoing support, monitoring, and periodic updates to ensure efficient system operations for the duration of the Agreement.

As part of the Operation and Maintenance (O&M) obligation INIT, as the System Integrator, will support the Agencies Regional ORCA Operating Team (ROOT) for the full duration of the 12-year O&M Agreement term, starting at conclusion of the one-year Warranty term, in the following areas:

- COTS and custom software maintenance
- SI-provided field equipment (including test and training) – repair refurbishment or replacement
- SI-provided field software (including test and training)
- Regional systems local test facility hosting
- Regional systems local test facility maintenance
- Develop fraud controls
- Disaster Recovery Plan
- Disaster recovery implementation
- Website hosting
- Back office system hosting + HW maintenance
- Maintain compliance with ISMS prescribed controls

All hardware is designed to be securely mounted but with the right keys and tools, they may be replaced in a few moments. Once replaced, they boot immediately, auto configure and are back in operation within minutes of being exchanged.

All servers are monitored by MOBILEguard which monitors each process providing restarts and error notifications even by email as appropriate. Beyond this we have our MOBILEsymon (system monitor) application which supervises all reports from each MOBILEguard instance and each of the devices in the system whether fixed or mobile.

In addition, system reporting tools provide dashboard views of overall system performance and service issues. Finally, for the central system a full disaster recovery site is supplied with instantaneous mirroring to protect both ORCA data and operation

Service and maintainability is more than just hardware and software. It is about people. We feel that our track record of providing personal service-proven support on our other fare collection and CAD/AVL projects has shown our commitment to ensuring that any disruption to service is mitigated and managed as early and efficiently as possible.

2.12.2.2 Warranty (1 year)

INIT seeks to provide high-quality services to support ORCA in the operation of INIT's Intelligent Transportation System implementations. Following system acceptance, the next generation ORCA system will undergo a one (1) year Warranty term. During this term INIT warranties the repair and replacement of the affected SI-hardware, software, and labor associated.

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The consistent maintainability of the INIT system for the Agencies assumes they are able to promptly notify INIT of failures in system components through the use of the INIT support line, Returned Material Authorization (RMA) form or the INIT on-line problem reporting system. As part of notifying INIT of a concern regarding any of the hardware or software, the Agency in-turn providing accurate information and details of system conditions surrounding the failure, as well as details of the failure and any error messages noted will greatly help support our efforts to minimize disruption to patrons and ensure no revenue impact.

Once a problem is properly logged with INIT and determined to be covered under the warranty or maintenance agreement, it is INIT's responsibility to respond to problem reports in a manner determined by the system impact and assigned problem priority.

INIT's Software Warranty will include the following key activities:

- Remote error analysis and repair of reproducible problems through a VPN data connection
- Includes version updates of existing system features, error correction, and assistance with temporary corrective actions, for reproducible errors
- INIT Support Line available 24 hours, 7 days per week

INIT's Hardware Warranty will include the following key activities:

- Includes parts repair of defective hardware supplied by INIT as part of this project
- The customer is responsible for all labor to troubleshoot and remove faulty equipment
- Replacement equipment will be obtained from the customer's on-site Spare Parts Inventory
- Defective equipment will be returned to INIT for repair. INIT will send a repaired or replacement unit to replenish the customer's Spare Parts Inventory. INIT pays for shipping both ways.

2.12.2.3 System Hosting: Back Office, Regional Test Facility, and Websites (14 years)

INIT's provision of the next generation ORCA system back office (including next generation ORCA websites) requires that hosting of the production and redundant systems as well as the ORCA Regional Test Facility occur as part of the system implementation as well as through the duration of the warranty and System Hosting support phases of the contract. The Warranty term is one (1) year while the System Hosting support term is 14 years.

The back office hosting infrastructure as defined in Section 6 of the SOW will be managed and maintained through the one (1) year Warranty term and the 14-year System Hosting Support Agreement. As part of that, the System Hosting Support processes will address the back office operations hosting that deals with disk storage space, access and connectivity, and necessary disaster recovery / redundancy practices.

The website hosting will include those elements required in Section 5 of the SOW; specifically designed to account for scalable storage space, system access, and the appropriate connectivity for the system website's operation. While not inherently the same, INIT will manage and maintain the Websites as part of its duties related to the back office requirements.

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2.12.2.4 Systems and Operations Maintenance (12 years)

INIT will undertake the duties necessary to perform back office operations and support under the System Operations and Maintenance agreement for the specified term of 12 years. This term will begin upon conclusion of the next generation ORCA one-year Warranty period.

The next generation ORCA system is comprised of multiple back office systems and environments as well as third party and external integrations. As such, INIT will deploy its world-class System Operations team to champion the day-to-day management of the information security related functions including analyzing and managing information generated from the centralized logging system, file integrity management system, ensuring backups, handling events generated by various system monitoring applications. The INIT System Operations team will also provide monitoring of the overall next generation ORCA environmental health daily and taking required actions to ensure integrity of the expected performance metrics are adhered to.

During the terms of the agreement, INIT shall be responsible for the following activities:

- Monitoring system performance and health;
- Ensuring timely and accurate processing of transactions;
- Overseeing operation of all back office support systems (e.g., CRM, Financial Management, etc.);
- Overseeing website operation;
- Maintaining system configuration (making configuration changes upon approval);
- Testing and deployment of website and configuration changes;
- Supporting report updates and ad-hoc data requests; and
- Providing reports that confirm KPIs have been met.

Systems monitoring, management and reporting are critical to operational efficiency and application service delivery. INIT will as part of the system implementation, design and developed the MOBILEsymon dashboard and MOBILEguard service monitor applications to monitor all next generation ORCA system devices.

The resources assigned to carry out the work associated with the back office operations will have experience and background as an IT professional required to function as a Service Operations Manager; overseeing and coordinating all back office operations. The Service Operations Manager shall oversee all aspects of service delivery and specifically address the following:

- Design and deliver support and service solutions in line with agency requirements and industry best practice;
- Ensure operational procedures and practices are well defined, documented and understood by the agencies and support personnel;
- Ensure support teams are skilled, trained and developed to enable them to deliver high quality service and support;
- Work closely with the Customer Support Services and Technical Support Services Managers to ensure support teams understand the scope of the Honolulu project and support requirements and are able to meet these requirements within the expected performance criteria and KPIs;

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- Be responsible for customer escalations and act as a point of escalation both in and out of hours as required;
- Directly manage local third-party IT service providers to ensure timely delivery of quality work;
- Monitor the effectiveness of the team against SLA/KPI‟s, driving through change as needed to deliver continual service improvement;
- Review monthly service performance and KPI reports with agencies to ensure services are delivered within expected levels and discuss opportunities for improvement;
- Participate as a member of the failure review board (FRB) where deficiencies are reviewed; and
- Identify opportunities for efficiency, cost reduction and continuous improvement

The accuracy of the database is maintained by INIT's MOBILEvario relational database model. This model organizes data into multiple tables where each record is identified by a unique key. Relationships between tables are established by referencing the unique keys of the two tables.

In addition to the above, INIT will carry out the following operational activities, taking corrective action as needed, performed on a regular basis as follows:

Daily Operations

- [redacted]

Weekly Operations

- [redacted]

Monthly Operations

- [redacted]

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- [redacted]

Quarterly Operations

- [redacted]
- [redacted]
- [redacted]

address future needs, the Agencies may also desire to refresh website content, update tariffs to manage fare policy changes, or the Agencies may also want to pursue system enhancements or upgrades. Change is an inevitable aspect of the system's operation but all maintenance and change activities must be managed in a clear, transparent, and structured way.

In order to address the multitude of preventative and standard maintenance needs of the software and the changes that will occur as part of that, INIT will submit a Software Maintenance Plan which will include the processes and procedures for each element. The plan will include those items noted above as well as deployment operations, risk management, production monitoring and roll-back planning.

At all times, INIT will maintain the next generation ORCA software to a level which meets the system requirements and performance metrics as set forth.

2.12.2.7 Communications, Response and Resolution

As part of the Software Maintenance Plan, INIT will create a Stakeholder Management Plan. The Stakeholder Management Plan will outline key personnel (register), stakeholder groups, and stakeholder roles within the operational organization. As part of this plan INIT will define the level, type, and frequency of communications they should receive or be party to (e.g. distribution and notification lists, test plans or reports) include routine reports, maintenance calendars, root cause summaries and so forth. To ensure appropriate communications are adhered to, the plan will be updated periodically as contact information or stakeholder engagement changes.

The operations desk will be available during normal business hours Monday thru Friday (Pacific Time) and will make available to ROOT the INIT service hotline providing service response in the event of a system critical issues 24 hours per day, seven (7) days per week. In the event of system critical issues requiring INIT be onsite, the plan will outline the process for occurrence.

To facilitate and carry out the Software Maintenance Plan INIT will engage its Service Operations Manager, an IT professional tasked with the oversight and implementation of all back office operational duties. The Service Operations Manager shall oversee all aspects of service delivery such as:

- Design and deliver support and service solutions in line with agency requirements and industry best practice
- Ensure operational procedures and practices are well defined, documented and understood by the Agencies and support personnel
- Ensure support teams are skilled, trained and developed enabling them to deliver high quality service and support
- Work closely with the customer and technical service managers to ensure support teams understand the scope of the next generation ORCA system and support requirements and are able to meet these requirements within the expected performance criteria and KPIs
- Be responsible for customer escalations and act as a point of escalation both in and out of hours as required
- Monitor the effectiveness of the team against service level requirements and system KPI's, driving through change as needed to deliver continual service improvement

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- Review monthly service performance and KPI reports with Agencies to ensure services are delivered within expected levels and discuss opportunities for improvement
- Participate as a member of the failure review board (FRB) where deficiencies are reviewed
- Identify opportunities for efficiency, cost reduction and continuous improvement

2.12.2.8 Software Change Management

INIT's proposed central system for next generation ORCA will rely on various types of configuration data to ensure data integrity and automated system operations. For example, the system includes valid lists of drivers and routes to validate drivers and route information during the driver logon process. Other examples include the use of tariff tables to define tariffs to support fare policies, and the use of various velocity checks to combat fraud.

While some changes are simple, such as changing velocity check parameters, other changes are more complex or could have a high impact if introduced improperly. As such INIT will require robust functional and regression testing to ensure the integrity of the system's performance.

To address the varied change needs of the system while in operation, INIT will develop a Software Change Management plan as part of the Software Maintenance Plan. This plan will address the methods and means changes are requested, reviewed, and approved prior to their development, deployment ops for releasing to test, functional and regression tests and reports, and deployment ops for production implementation and change monitoring. As part of this plan will be the frequency of reports and meetings necessary to manage, communicate, and collaborate on the changes.

2.12.2.9 Software Enhancements

As part of the Software Change Management plan discussed in the previous section, INIT will outline the means for how requests are made and the process in general from initiation of the request to how the work can be undertaken as part of the approval steps in the process.

INIT sustains a robust technical sales team who are able to respond and engage in change discussions on many levels. At times, prior to a formal request, discussion is needed to understand and communicate the technical limitations or potential impacts of a change to system software. If the enhancements include additional integrations or engaging a third-party, the need for these technical discussions and clarification early on are critical. The INIT technical sales team or Lead Engineer will be available to the Agencies for these direct discussions.

In the end, our aim is to ensure the Agencies are empowered with accurate and sufficient information to make the needed business decisions or assessments around enhancements desired and that there are committed sales and technical staff to the next generation ORCA system. In so doing we believe we will be able to provide a complete and clear technical solution as part of any response to a formal change that is requested and so do in a timely manner which considers to the schedule impact that may be present.

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2.12.2.10 Field Equipment Maintenance

Once the system has been accepted by the Agencies, first line maintenance will be performed by the Agencies whereas second line maintenance repair will be undertaken by either INIT or the relevant OEM. INIT will manage and maintain spares and stock inventory to facilitate the first line maintenance efforts of each Agency.

To facilitate the purchase of new or additional equipment and spares, INIT will provide a spares price and consumables list for Agency reference and ordering as well as comment on any special tools or items needed to facilitate the repair efforts.

As serviceability and maintainability are essential to a successful handover of operational functions, INIT will ensure the Agencies receive the appropriate training and information necessary. Additionally, INIT staff and engineers will be available as needed to support first line maintenance efforts should further issues arise which limit the Agencies ability to perform the required functions or steps.

2.12.2.11 Agency Test Facility

As part of the obligations associated with test of the next generation ORCA system during the project delivery, INIT will stand up a regional test environment for access by Agency and INIT staff. The detail of this solution is more fully covered in Section 2.5.2.4.3 above.

INIT will continue to host and maintain this test facility for the duration of the agreed terms and in accordance with the contract's requirements. The purpose of the test facility is an integral part of the overall test and deployment strategy and as such will be managed and maintained in a similar fashion as the production system (e.g. software patches, compatibility, etc.).

2.12.2.12 Fraud Controls

During the next generation ORCA project deployment INIT will design and develop as part of the system implementation various controls and detection methods for dealing with fraud. When the system moves into the operations phase, INIT will undertake those same strategies and methods as part of the system operations and service management functions.

At a high level, some of the fraud detection methods INIT has proposed are as follows:

- Data analytics to support fraud detection based on ridership data
- Agency-configurable velocity checks
- Detection of potentially cloned cards

Since the next generation ORCA implementation will be comprised of multiple third parties, the individual vendors will be empowered to access and develop against INIT's RESTFUL (Representational State Transfer) Application Programming Interfaces (APIs). These APIs provide an open architecture that supports vendor independence and streamlines integration with other payment channels. To ensure fraud prevention, INIT will implement strong security controls to restrict fraudulent use of the APIs and authenticate all users in accordance with the ISMS.

In addition to the detection of fraud and the API security levels in place, next generation ORCA will be built with fraud prevention strategies as follows:

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- Configurable passback protection by fare media type, fare product, agency, mode, and passenger type capable of being set differently for different device types
- Upper ride limits on period passes generating automated alerts, with the configurable auto-blocking
- Configurable “floor limit” for stored value (which can be set to zero or a negative value) with configurable auto-blocking
- Ability to set credentials and transit accounts to “observation mode”
- Blocking credentials and transit accounts automatically and manually (including on a bulk basis)
- Master Status Lists (MSLs) including ‘hot’ (negative) lists of blocked cards which are regularly updated to field devices for offline validation provisions
- Writing limited information to cards for offline validation purposes

The next generation ORCA system will be an account-based, online system. However, at times network disruption may occur (wireless coverage issues or other forms of communications interruptions) requiring it function in an off-line mode as summarily noted in the bullet points above.

To ensure fraud protection during off-line operations, the system will provide both ‘hot’ (negative balance) and ‘cold’ (positive balance) lists to validate devices at set intervals (configurable to a period of time, for example 5 min. intervals) so as to enable validators to detect ‘hotlisted’ cards and deny fare validation where appropriate.

2.12.2.13 Disaster Recovery

INIT’s proposed back office solution for next generation ORCA addresses both disaster avoidance and disaster recovery; the proposed solution favors disaster avoidance strategies to limit the impact of failure and need for disaster recovery and prepares for disaster recovery.

The primary business continuity objectives of next generation ORCA are covered by the multi-data center, active/active infrastructure. The active/active datacenter strategy allows for smooth failovers allowing operations to transparently move workloads between geographically separate infrastructures. Further, through the use of load balancing inbound connections, disruptions in a single datacenter have little to no impact to the continued operation of the system.

While disaster avoidance works against disaster recovery in some respects, INIT will deploy a more specific disaster recovery solution which ensures out-of-region data backup in a separate hardware environment. This third, out-of-region site does not support continual or failover operations due to distance and latency, but is intended specifically as a data-backup only solution. Business continuity, disaster avoidance, disaster recovery and backup solutions are documented in the Disaster Recovery Plan. The plan also addresses other ISO guidance regarding business continuity including risk assessments and business impact analysis.

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2.12.2.14 Performance Measurement

2.12.2.15 General Capabilities

System performance is measured on multiple levels, from the network level over the different processes and services running in the back office up to the client applications and devices. The data that can be reported on and how it is being collected depends on the system and the way the performance is measured. Based on the captured data, different KPIs are calculated and reported at the end of the month to provide an overview of the systems performance in general and to ensure that the agreed level of operational performance is met.

INIT will provide a Performance Maintenance Plan which will identify the methods and approach to tracking and reporting the KPIs. Where possible the approach taken will seek to be automated whether related to the capture or reporting of the data elements.

2.12.2.16 Key Performance Indicators

As part of the Software Maintenance Plan INIT will include the means and measurements required to develop the requisite quantifiable measurements of performance to assess INIT's operation of the system.

The plan will outline the data source, calculations, and output for the following KPIs: Frontend Device Reliability, Frontend Device and Back Office Application Accuracy, Back Office Application Availability, Operating Performance Requirements, and Incident Response Times.

2.12.2.17 Failure Review Board

As far as possible, INIT will provide a list of expected exceptions and events for each device or application for classification as Chargeable or Non-Chargeable Failures. The classification will be used to determine during performance reporting if a failure will be chargeable against one or more of the KPIs.

To determine the severity of an exception or event and to classify it as chargeable or non-chargeable failure, a Failure Review Board (FRB) will be established as specified. From INITs side the FRB members will include the System Engineer, the Project Manager, and the Customer Support Service Manager.

Newly classified chargeable and non-chargeable failures will be added to the list maintained in the back office system to be used during the next calculation of the KPIs.

2.12.2.18 Performance Reporting

As noted above, INIT will collate and summarize the data applicable to the KPI metrics and perform the measurement calculations on a monthly calendar cycle for the duration of the operation agreements. This will result in a detailed report of overall system performance and result in a meets or fails summary of each KPI. Where possible, KPIs will be measured with automated elements of the system.

To prepare for the operational elements of the system and achieve system acceptance, the KPI metrics and reports and will be exercised during the integration and acceptance testing.

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Where applicable the monthly reports will provide historical data or trend analysis so as to also provide a broader overview of overall system health at a high level.

2.12.2.19 Credit Assessment

As part of the operations agreement INIT will sustain the obligation to meet the requisite KPI metrics. Should there be instances where the KPI has failed then the agreed deduction to the associated payment would be reviewed and where applicable apply to the associated invoice.

2.12.3 Level of Effort to Optimize Value

We expect our Services Operations manager to be fully dedicated to the support of this system, with the support of our customer support, field tech and IT support teams. Our plan is to operate the system as efficiently and effectively as we can, bringing down the amount of support that is required – especially over time. We plan an initial team that will be available throughout this contract and are capable of providing for all required KPIs and to maintain the overall ORCA customer experience. We have found with our current fare collection systems, both in North America and worldwide, that a well-designed and well-engineered system can operate at a very high level of accuracy with a minimum level of support and maintenance. We plan to leverage and enhance this through this project with ngORCA.

2.13 INIT's Warranty

2.13.1 Introduction

INIT seeks to provide high-quality services to support the ORCA agencies in the operations of INIT's Fare Collection System implementation.

The assumption is that the ORCA agencies promptly notify INIT of failures in system components through the use of the INIT support line, Returned Material Authorization (RMA) form or the INIT on-line problem reporting system. Furthermore, the ORCA agencies are responsible for providing accurate information and details of system conditions surrounding the failure, as well as details of the failure and any error messages noted.

Once a problem is properly logged with INIT and determined to be covered under the warranty or maintenance agreement, it is INIT's responsibility to respond to problem reports in a manner determined by the system impact and assigned problem priority.

A warranty or maintenance information package will be delivered at the start of warranty and maintenance with current support contact information including phone numbers, on-line support system information including user manual and pre-structured problem report forms.

One Year Warranty: A Standard One Year Warranty Service for hardware and software is included in the purchase prices and begins on the date of acceptance.

Maintenance: The optional maintenance service starts after the One Year Warranty.

Additional Services: Additional services exceeding the scope of standard warranty and maintenance are available.

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2.13.2 Standard One Year Warranty

The warranty includes services for hardware and software. Warranty begins on date of system acceptance or as agreed upon in the RFP response or contract.

2.13.2.1 Software Warranty

- Remote error analysis and repair of reproducible problems through a VPN data connection.
- Includes version updates of existing system features, error correction, and assistance with temporary corrective actions, for reproducible errors.
- INIT Support Line available during standard Technical Support hours (9:00am to 5:00pm regardless of agency location).
- Version upgrades of existing software features. These upgrades include additional functionality within already licensed applications, e.g. new map functionality or new sort or filter functionality. This does not include new system features.

2.13.2.2 Hardware Warranty

- Includes parts repair of defective hardware manufactured by INIT.
- The customer is responsible for all labor to troubleshoot and remove faulty equipment.
- Replacement equipment will be obtained from the ORCA agencies' on-site Spare Parts Inventory.
- Defective equipment will be returned to INIT for repair. INIT will send a repaired or replacement unit to replenish the customer's Spare Parts Inventory. INIT pays for shipping both ways.

2.13.3 Additional Services during Warranty and/or Maintenance Period

In addition to the standard services and extended maintenance, the following services are available and included in the proposal:

2.13.3.1 Extended Hours Software Phone Support

- The INIT Support Line delivers extended service hours for the diagnosis and resolution of A1 errors (classifications below).
- The service hours are extended beyond the regular working hours to cover 24 hours, 7 days a week, 365 days a year.

2.13.3.2 Third Party Software and Hardware

2.13.3.3 IT Hardware & IT Software

INIT does not directly provide the extended maintenance and support offerings for this equipment (IT hardware and software like servers, workstations, Windows, Oracle, etc.). However, INIT will procure the appropriate level of support and maintenance from the IT vendor.

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2.13.3.4 Other Third-Party Software and Hardware

Third party software and hardware will be covered by the One Year Warranty if included as part of an initial purchase from INIT. This includes for example Bytemark's Mobile Application system.

2.13.4 Problem Reporting

Problems may be reported via the toll-free support line or by email. All issues are logged and managed in an on-line tool. You have real time assess to the current status of every item logged. Following is a screenshot of a dashboard to show the powerful tools available.

Once a problem is properly logged with INIT, the support staff will respond in a manner determined by system impact and assigned problem priority.

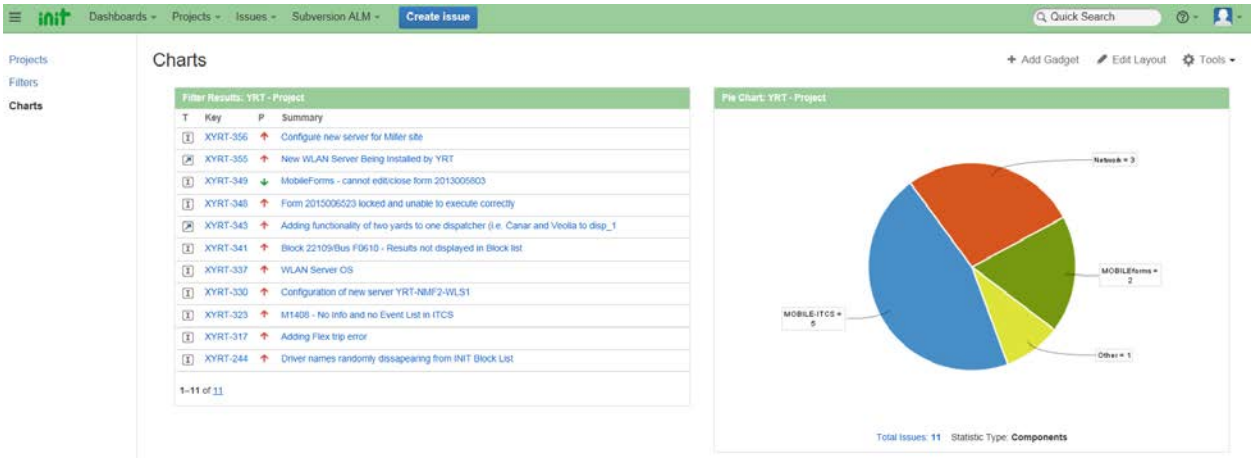

Figure 2-12: Sample Dashboard

2.13.5 Problem Classifications

Problems and errors are prioritized according to the architecture of the system and based on their system impact as described below.

Note that this document does not attempt to include all possible examples of problems as it is impossible to predict what possible problems could arise in any complex system.

[redacted]

- [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

2.13.6 Problem Response

2.13.6.1 Software

1st level support: Conducted on-site by well-trained staff of the ORCA member agencies or ORCA system administrators. This involves examining at first the system environment provided by the ORCA agencies (e.g. hardware, network, internet access and other system requirements).

2nd level support: Response to problems happens via phone by INIT staff.

2.13.6.2 Hardware

1st level support: Conducted on-site by well-trained ORCA member agencies staff. This includes the exchange of equipment or subcomponents (e.g. VM bill and coin collection subcomponents) and shipment of equipment to INIT for repair.

2nd level support: Response to problems happens via phone and/or by equipment repair by INIT staff. This includes the shipment of equipment back to the ORCA agencies.

2.13.7 Phone support

INIT maintains different levels of phone support (INIT Support/Hotline):

- Standard INIT Support: For all error categories A, B and C (described above) Monday through Friday 8:00 a.m. to 5:00 p.m., excluding holidays.
- Extended Support (Hotline Support) additional support hours 24 hours a day, 7 days a week for A1 and A2 errors (described above).

The INIT Support will log the call and offer resolution if possible. If resolution is not possible, a qualified INIT employee will remotely diagnose the system.

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2.13.7.1 Response Times

Response time is the time period until INIT will start with maintenance work. Beginning and end of this time period, depending on the way the error has been reported, is only calculated within the applicable support hours. The ORCA agencies can report errors to the Contractor either via phone, email or by creating a ticket within the issue tracking system Jira. Critical errors, especially errors of the category A1, A2 and B1 shall always be reported via phone at first to make sure the earliest possible start of the maintenance work.

Error notification via phone:

In case the ORCA agencies reports an error via phone, the response time will start when INIT receives the call and end as soon as an INIT employee picks up the phone.

Error notification via email:

In case of an error notification via email, the response time will start with acceptance of the mail by an INIT employee, at the latest on the next working day, and end as soon as a corresponding Jira ticket is created by INIT.

Error notification by creating a Jira ticket:

In case the ORCA agencies reports an error by creating a Jira ticket himself, the response time will start with generating the ticket and end as soon as the ticket is marked as read by an INIT employee.

Errors notified outside the agreed support hours shall be treated as if they have been reported on the beginning of the next working day. For example: Within the standard support hours, the response time for errors reported by means of a Jira ticket at 7 p.m. shall start at 8 a.m. on the next working day and end as soon as it is marked as read by an INIT employee.

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[redacted]

[redacted]

2.13.8 Problem Escalation

[redacted]

2.14 INIT's Sample Disaster Recovery Plan

A sample disaster recovery plan is included as an attachment at the back of this tab in the proposal.

2.15 INIT's Commitment to the Environment

We see transit as intrinsically "green," and have aimed to make direct contributions to our community through an ongoing commitment to sustainability. INIT is a proud signatory of the APTA Sustainability Commitment and has contributed to the creation of measurable guidelines for APTA business members to achieve higher levels of sustainability. Even this proposal is printed on 30% recycled paper.

Our manufacturing facility, Superior Quality Manufacturing (SQM), recycles the lead-free solder used in making their electronic boards. Additionally, INIT's cable manufacturer, Total Quality Manufacturing (TQA), recycles 100% of scrap cables through a partnership with a local cable recycler.

Simple changes in habits, like the removal or paper towels and replacement with hand dryers has made a large impact. By the first year, 593 pounds of paper towel usage was eliminated. The impact on the environment is calculated to be the equivalent of 11 trees with an estimated decrease in the company's carbon footprint of 69%.

2.16 INIT's Progressive Green Approach

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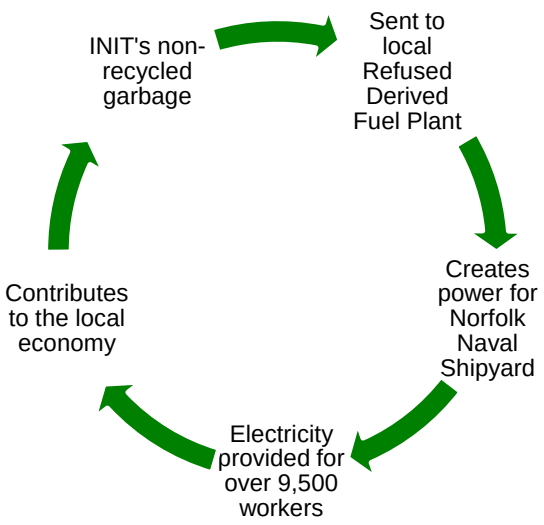
INIT is a socially responsible business partner with a unique approach to fostering sustainability in our corporate and manufacturing practices.

As a zero waste to landfill company, we purchase recyclable products, reuse our shipping and manufacturing packaging, partner with an electronics recycler for repurposing manufacturing devices, and contribute all non-recyclable, non-compostable garbage to a Refuse Derived Fuel Plant (RDFP). The RDFP facility treats and burns the garbage creating electricity to power the local Norfolk Naval Shipyard, which is home to over 9,500 workers.



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Extensive Experience and History of Innovation in Transit Technology

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

init

The Future of Mobility

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The sections listed below contain trade secret information that provides a business advantage to INIT over competitors. These sections are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

CONFIDENTIAL SECTIONS:

3.2 Extensive Recent Account-Based Fare Collection Projects

3.3 Customer References

3.5 INIT's Financial Performance

3.5.1 Stellar Financial History

3.5.2 A solid Financial Forecast

3.6 INIT's Recent Fare Collection Wins

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3 INIT's Extensive Experience and History of Innovation in Transit Technology

As the lead procurement agency for the Central Puget Sound Regional Fare Collection Coordination Project (ORCA), Sound Transit, is seeking an innovative Systems Integrator to collaboratively develop, build and test the best solution for the region. It is our strong belief that INIT's Electronic Fare Collection Management (MOBILE-EFM) product suite and our decades of experience as an Innovator and System Integrator in public transit will provide ORCA with the optimal technologies, processes and support services to assure the successful deployment and ongoing operations of a Next Generation Fare System for the Puget Sound region as specified in your RFP.

Having implemented more than 50 Electronic Fare Collection Systems worldwide, our system has advanced and matured based on a strong cooperation with our worldwide community of Transit Agency customers. With INIT being a leading vendor of Electronic Fare Collection and Intelligent Transportation Systems (ITS), we are uniquely qualified to understand your needs across the full bandwidth of your operations. See the figure below for a graphical view of INIT's 25 years of fare collection History.

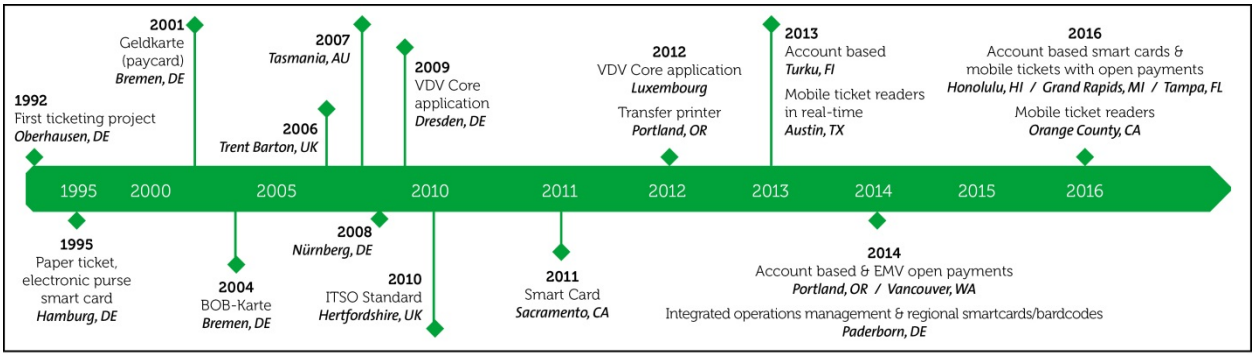

Figure 1: INIT's 25 Years of Fare Collection History

After a very thorough analysis of your RFP, we are pleased to confirm that ORCA's requirements are very similar to INIT's MOBILE-EFM Project recently implemented at TriMet in Portland, OR. Due to the similarity in scope and design of the Portland MOBILE-EFM System which features: a Multi-Agency, Account Based and Open Payments based System, Open APIs, a fully redundant back office, multiple fare product distribution channels etc., INIT can offer Sound Transit and their partner agencies a prompt and reliable implementation of the next generation ORCA (ngORCA) Regional Fare System.

The ability of INIT to deploy and grow a solid and experienced Seattle based team will be vital to the success of your project. INIT will deploy key technical and project management resources for the duration of the implementation phase of the contract to enhance the existing team already located at INIT's Seattle office. Additionally INIT is committed to provide the requisite employees and partners to fully maintain and operate the ngORCA Fare System during the operation and maintenance phases of the project.

We are excited about the prospect of working with Sound Transit and your partner agencies to collaboratively develop, build, and test the best solution for the transit agencies and their

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customers in the Puget Sound region. We are convinced that you will be amazed by the functionality, flexibility and reliability of our company and our best-in-class fare collection solutions and especially the outstanding team of Transit Professionals that we have assembled for this project.

3.1 INIT and Its Project Partners

3.1.1 INIT Innovations in Transportation, Inc. (INIT)

INIT was incorporated in the Commonwealth of Virginia in January of 1999 to serve the North American market, exclusively focusing on Intelligent Transportation Systems (ITS) for public transit. INIT GmbH, our sister company, was founded in 1983. Both companies are wholly owned by our parent company, INIT SE (formerly AG), which is located in Karlsruhe, Germany.

Years in Business

INIT GmbH has been in business for 34 years and INIT has been in business in North America for 18 years. The INIT SE group of companies has not changed ownership during this time, Its founders are still heavily involved in the business of providing services dedicated to public transit, giving INIT unmatched insight into the deployment of all types of ITS projects. Founder & CEO Dr. Gottfried Greschner continues to be involved and working at INIT on a daily basis. An investment in INIT's technology is an investment in our ITS future as well as yours.

Our North American Office Locations

INIT Innovations in Transportation, Inc.'s brand new consolidated North American headquarters office is in the City of Chesapeake, Virginia. We are at the midpoint of the US Atlantic Coast, 3 ½ hours south of Washington, DC, at the mouth of the Chesapeake Bay and adjoining the cities of Norfolk and Virginia Beach.

INIT Innovations in Transportation, Inc.
Phone (757) 413-9100
www.sales@initusa.com
www.initusa.com

INIT operates in a multi-purpose 67,000 square foot facility which includes dedicated areas for Software Development, Customer Support, Engineering and Sales, manufacturing, and a dedicated laboratory for testing and development.

INIT maintains Regional offices in Seattle, Toronto, New York and Tampa with personnel dedicated to providing and supporting the latest technology and a totally functionally compliant system for our clients.

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INIT has formed a joint venture with the manufacturing company, Superior Quality Manufacturing (SQM) . SQM will provide through-hole and wave soldering, circuit board assembly and final assembly of several of our electronic devices including but not limited to: Proximity Readers, MDT's, Ticket Vending Machines (TVMs) and on-board computer backplanes. SQM is co-located within our Chesapeake, VA headquarters.

An additional joint venture with a major cable manufacturer, Total Quality Assembly (TQA) manufacturers the majority of INIT's cables, harnesses and mounting hardware equipment for our vehicle equipment installation needs. TQA is also co-located within our Chesapeake, VA headquarters.

Because both companies are subsidiaries, INIT is able to closely monitor quality and adjust production priorities in order to best meet the needs of our customers. Integrating both SQM and TQA into the INIT environment creates additional benefits for the ngORCA project. Additional orders, cable replacements, etc. can be quickly implemented due to the working relationship and proximity of the teams and then delivered to ORCA. Finally, by investing in these companies, INIT continues to show the commitment to supplying American Made products.

Public transportation is an indispensable part of modern society. As one of the world's leading suppliers in the area of fleet management, passenger information and electronic fare collection systems, our primary goal is to help transit authorities make public transit services more attractive, faster and more efficient.

Customers such as TriMet, Grand Rapids, CDTA, RTD- Denver, and dozens more, benefit from the fact that INIT uses innovative mobility concepts, giving these forward-thinking transit authorities a technical advantage. This may be in the form of standard off the shelf or if needed customer specific, tailor-made solutions. As a supplier of turnkey systems, INIT develops, produces, installs and maintains integrated hardware and software solutions for all key tasks required within a transit agency.

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Figure 2. INIT has over 30 customers in North America and more than 400 customers worldwide

INIT is a proven, experienced and accomplished systems integrator with over 30 transit agency customers in North America. We feel that INIT is best suited to maximize ORCA's investment with minimum risk as you implement and deploy the ngORCA system.

3.1.2 Bytemark

Founded in 2011, Bytemark is an international provider of fare collection technology employing over 90 talented individuals globally, with offices located in New York, Toronto, the UK, Australia, and India. Bytemark's core offering is a comprehensive suite of products that digitize transit passes, tickets and fare media in a variety of innovative ways. Purchase of these fare products by transit riders is simple and instantaneous by means of web-based and smartphone-based purchasing experiences. Agencies are provided with powerful fare validation solutions, and cloud-based access to a full-suite management portal to manage and report on their operation.

Bytemark products have been implemented at over 20 transit agencies in North America including New York Waterway, Toronto Transit Commission, Capital Metro Transit (Austin, TX), and King County Metro (Seattle, WA).

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3.1.5 ESP Enterprises

ESP Enterprises is the leading services company providing installation and maintenance to all Fare Collection Equipment Manufacturers and Transit Focused Electronics suppliers in North America. ESP was formed in October of 2002. They have ongoing projects with ACS, Accenture, Avail Tech, Bytemark, Clever Devices, Conduent, Cubic Transportation Systems, Genfare, Lecip, Lilee, March Networks, Parkeon, Safety Vision, Scheidt & Bachmann, Trapeze, TSI Solutions, Vix, and Xerox and INIT.

ESP's primary goal is to supply with a labor force that's trained with skills specific to transit industry requirements and equipment. Their experience and knowledge of Mass Transit operational requirements and equipment provide foresight into the logistical and project planning requirements necessary for successful installation activities.

ESP operates under the need for scalable responses to their customers' needs and deadlines. As part of their operating philosophy we provide skilled labor and supplement as needed with local personnel who can be trained and supervised by more experienced staff. If requested by either the customer or transit authority ESP provides experienced oversight staff for a local subcontractor. This methodology allows ESP to rapidly scale their work force to meet the installation requirements of their customers and reduce related travel costs.

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3.2 Extensive Recent Account-Based Fare Collection Projects

The projects listed below illustrate the firm's ability to perform the requirements of this contract.

3.2.1 INIT Projects

3.2.1.1 Portland and Vancouver HOP Fastpass

Tri-County Metropolitan Transportation District of Oregon, (TriMet)

Project Information

The HOP FastPass system is comprised of a joint-venture among three different transit agencies: TriMet, C-TRAN, and the City of Portland Streetcar. TriMet maintains the prime contract whereby INIT is the system integrator for the Portland, OR and Vancouver, WA metropolitan service area.

TriMet provides approximately 100 million trips per year. TriMet operates in the 24th largest metro area but is 11th in transit ridership. Additionally, nearly 1,200 employers in the area offer transit passes as an employee benefit. TriMet has approximately 700 buses, 97 light rail stations, 5 commuter rail stations, and 253 paratransit buses and 15 paratransit vans. The local public transportation network set up and operated by TriMet is considered one of the most innovative systems in the U.S. Portland is the third largest metropolitan region in the Pacific North West after Seattle, Washington and Vancouver, B.C.

C-TRAN ridership included approximately 5.8 million riders in 2015. C-TRAN offers regular bus service, express bus service, and limited bus service. Additionally, the C-TRAN program provides paratransit services too.

The City of Portland Streetcar is comprised of seventeen streetcars serving three unique lines in the Portland area. Weekly ridership averages around 15,000 for a total year to date of 1,674,550.

Mode Supported/ Number of Vehicles:

660 Fixed Route Buses

69 Light Rail Vehicles

268 Paratransit Vehicles

INIT's Responsibilities

INIT is the System Integrator for the TriMet HOP Fastpass program. The contract comprises of the design, build, test, and implementation of an Account-Based electronic fare (MOBILE-EFM) payment system for the Portland, OR and Vancouver, WA region serving customers of TriMet, C-TRAN and the City of Portland Streetcar. The Portland system is named "HOP FastPass." The system went into service in July 2017, two and a half years after contract award.

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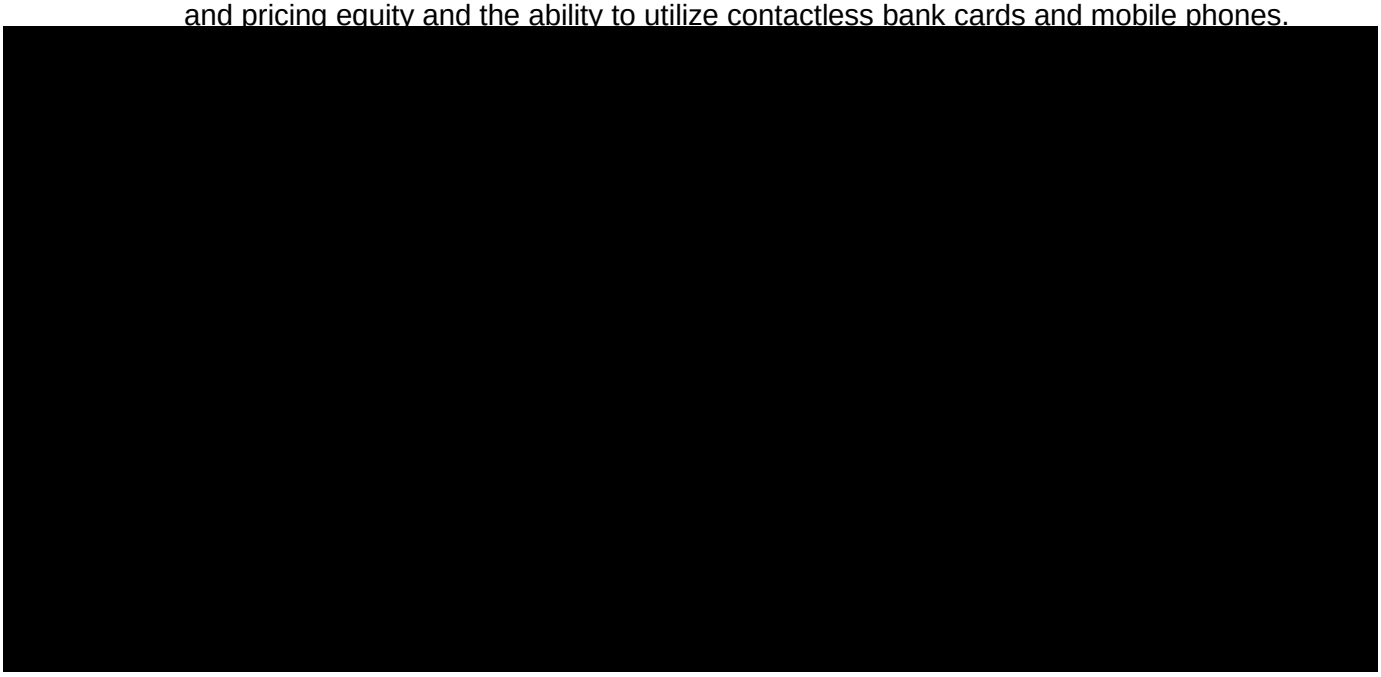
The HOP system supports both closed-loop and open-loop payment methods and mobile ticketing. The MOBILE-EFM system design is comprised of INIT's comprehensive Central Processing module, more than 1,100 on-board and platform contactless payment validators and approximately 100 retail POS units. INIT has also provided an Interactive Voice Response (IVR) system, Customer Relationship Management (CRM) tool, Maintenance and Management Inventory tool, as well as a Customer Web portal and Institutional Web portal for large business or institutional accounts and an initial 1,300,000 contactless smart cards.

Project Services

INIT provides a state-of-the-art electronic fare collection solution for TriMet. The contract includes the provision and the implementation of an account based solution, including:

- MOBILEvario backoffice with account processing, payment gateway, data warehouse, ledger, revenue clearing/settling, reporting, statistics, etc.
- Approximately 1,100 validators, on board buses/light rail and on platforms
- Retail Sales Terminals
- Open Architecture with various APIs to internal/external systems
- Closed Loop Payment, including integration with retail network provider
- Open Payment
- Fare Aggregation, Fare Capping
- IVR system integration from Enghouse
- Integration with Mobile Ticketing
- Web portal design and development (subcontracted to The Brigade)

The e-Fare solution will greatly enhance the already progressive bus, light rail, and commuter rail network in Portland. TriMet's ridership will benefit from more convenience and pricing equity and the ability to utilize contactless bank cards and mobile phones.



Account-Based with Open APIs

The MOBILE-EFM system is account-based and will support both closed-loop and open-loop payment methods as the future mobile ticketing. The system includes back-office clearing, revenue processing system and real-time fare processing. The MOBILE-EFM

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system's design is comprised of INIT's comprehensive Central Processing module, more than 1,100 onboard and platform contactless payment validators combined. INIT will also provide an Interactive Voice Response (IVR) system, Customer Relationship Management (CRM) tool, Maintenance and Management Inventory tool, as well as a Customer Web portal and Institutional Web portal for large business or institutional accounts and an initial 1,300,000 contactless smart cards.

As part of INIT's System Integrator role, the TriMet e-Fare project includes the integration with several third party systems. Following INIT's Open Architecture approach, open Application Programming Interfaces (API) will be available to external partners such as fare payment and inspection, mobile ticketing, device management and CAD/AVL information.

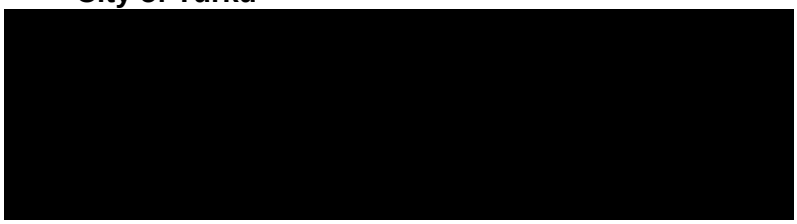
Relevance to ORCA

Riders of HOP will find installed on each bus, along each rail platform and C-TRAN BRT platform, as well as throughout the Portland Streetcars, the INIT validator or PROXmobil3. The PROXmobil3 is capable of accepting multiple forms of fare media included closed loop cards branded for HOP specifically, a personal credit card, mobile tickets, and also mobile payments (such as Samsung pay or Apple Pay).

First time riders can acquire a new HOP FastPass at the hundreds of ticket vending machines located throughout the city, at the transit ticket offices, and also at hundreds of retailers where they can purchase the hangar card like any other 'gift' cards available for sale. Riders can register their card, adding personalized information but also obtain balance protection so that if the card is ever lost or stolen, they can simply request to block the card and obtain a new one.

3.2.1.2 Turku, Finland Account-Based System

City of Turku



Project Information

Turku is a city on the southwest coast of Finland at the mouth of the Aura River, in the region of Finland Proper. The city has a population of more than 180,000 inhibitants and is the 3rd largest urban area in Finland.

The City of Turku Public Transport manages and supervises the bus network which is mainly operated by private companies.

Mode Supported/ Number of Vehicles: 260 fixed-route buses

INIT's Responsibilities

INIT validators called PROXmobil2 are installed to every bus in the Turku region as well as integrated driver device EVENDpc that provides possibilities to sell and validate tickets, top-up accounts, print receipts, provide passenger information and many other functionalities.

Passengers can validate their traditional travel cards or QR codes from their mobile

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phones with INIT's validators. In the future roadmap there are also possibilities to pay the travel by contactless EMV card and/or NFC capable mobile phone.

The agency also co-operates with many event organizers in the Turku region to provide combo-tickets which include access to the event itself as well as usage of public transportation by using the QR code printed into the ticket.

For account management and more information about their current balance, passengers can log in to JLT's website. Furthermore, the system allows possibility to large institutions for bulk distribution such as schools, universities, social services programs, or major corporate entities. The Institutional website provided by the 3rd party integrated to our MOBILEvario back-office system allows the administrator to easily upload or download needed information in bulk. The system is prepared to utilize zones, selection of new fares and tariffs if and when ever the customer wants to utilize those.

When the final system acceptance is reached, INIT will begin a comprehensive 7 years warranty and maintenance contract.

Project Services

INIT is providing state-of-the-art integrated fleet management system including an electronic ticketing and fare collection solution for the region. The contract includes the provision and the implementation of: PROXmobil 2 Smart Media Processors and GPS enabled On-Board Computers with Wi-Fi technology on approximately for 260 buses, account-based ticketing which allows all information to be stored and managed in the back office system – in real-time. The ticket medium (e.g. a smart card) itself only contains a unique identification number (ID). This solution allows for a flexible and inexpensive use of various ticket media (2D barcode, proximity card, etc.) and offers more abuse protection in case of card loss. Most critical to the operation is the INIT provided Back-Office System, MOBILEvario, which is used for tariff management, regional revenue reconciliation and clearing functions.

Account-Based with Open APIs

Account based ticketing solution. The contract includes approximately 300 on-board computer incl. ticket printer EVENDpc and boarding control system PROXmobil2, open Sales API for 3rd parties to integrate to the system, open real-time passenger information interfaces, ticket inspection application and more. The core of the system is INIT's back-office System MOBILEvario that provides a sophisticated yet easy to use solution for ticket processing and clearing revenues. MOBILEvario's powerful online validation server processes account transactions in real time.

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The Föli system is an ID-based Ticketing system. It is highly flexible, supports various ticketing methods and sales channels, offers open interfaces (API) for the integration of 3rd party solutions and is client-based.

This and the use of comfortable passenger apps use the options new technologies, communication methods and digitalization offer to the fullest and make Turku a smart city. In addition, fare management can be handled much more efficiently.

It is the first of its kind system that went into operation and is part of the MaaS ecosystem. It set a new bar for ticketing systems in the Nordic Countries, which led to a suggested new Finland-wide approach for integrated mobility services and won the SLUSH award. The system is complemented by an integrated ITCS system that also provides RTPI.

Relevance to ORCA

INIT replaced the legacy ticketing system through a comprehensive transition strategy which allowed the existing card scheme and old fare system to remain in use while the new account-based ticketing system was implemented.

As a part of the migration process, [redacted]

[redacted]

In addition, the INIT validator PROXmobil was installed and ready for the new ticketing system. Also thanks to the migration plan, there was no immediate urge to replace all old equipment in vehicles.

3.2.1.3 Tampa Bay Flamingo Account-Based Multi-Agency System

Tampa Regional Working Group

[redacted]

Project Information

The Regional Working Group (RWG) in Tampa consists of five county transport companies covering approximately 4100 sq. mile service area for the counties of Hillsborough, Pinellas, Hernando, Pasco, and Sarasota. Additional project partners include the Florida Department of Transportation (FDOT), and the Tampa Bay Area

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Regional Transportation Authority (TBARTA).

Mode Supported/ Number of Vehicles:
600 Buses
11 Streetcars

INIT's Responsibilities

The contract between INIT and RWG involves the deployment of an integrated fare system using account-based smart cards and mobile ticketing. INIT's passenger terminals, PROXmobil3, were installed on more than 600 buses for the validation of the new fare media.

INIT also supplied the back-end clearing and processing system MOBILEvario to facilitate the management of the RWG's individual customer accounts, setting of fare rules, revenue processing and statistical evaluation reporting MOBILEvario will benefit the RWG by allowing them to provide a seamless fare structure across eight counties while ensuring the secure administration of each agency data.

Also included in the project are interactive Voice Response (IVR) applications and new enhanced web portals to allow customers to check their balances, register their cards and load values, as well as manage mobile payment applications using their smartphones. Riders are able to use the mobile app across the Tampa Bay area by showing their purchased fare via the phone to the driver.

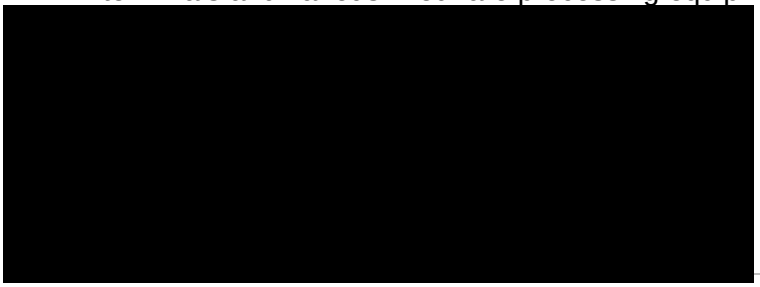
Project Services

The Tampa Regional Working Group (RWG) is comprised of five local transit agencies, with Hillsborough Area Regional Transit (HART) as the lead procuring agency. These agencies have chosen INIT to provide an account-based, regionally inclusive electronic fare payment system, in which customers in all applicable regions can travel within the Tampa area and use the same electronic fare payment strategy.

INIT is providing more than 600 PROXmobil3 electronic readers for Fixed Route vehicles to the RWG. Additionally, INIT will provide its MOBILEvario back end system to integrate the fare strategies of all 6 agencies. Moreover, INIT will take on the installation, mobile application, web development and IVR with accomplished and qualified subcontractors.

As part of the procurement, INIT is interfacing with several CAD/AVL providers. Each of the regional agencies has their own CAD/AVL solution, to which INIT must interface. This abundantly demonstrates INIT's integration capabilities, for which INIT's open architecture APIs and dedicated engineering teams are responsible.

INIT is also providing the initial supply of agency-issued smart cards, retail sales terminals and various fixed fare processing equipment.



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[redacted]

Account-Based with Open APIs

Supports contactless EMV fare cards (Open Payments), branded regional fare media (Closed Loop).

- Multi-client, regional EFM system
- Smart card & mobile ticket proximity readers
- Back-Office clearing and revenue processing system
- Open APIs for integration with third parties.

Relevance to ORCA

The Tampa Flamingo fare collection project is an account-based, multi-agency system. INIT is partnering with Bytemark [redacted] for mobile ticketing and the customer website. According to Lucien Campillo, HART's Director of Enterprise Project Management: "Our experience with INIT and their subs has been outstanding. Their design review process and test procedures have far exceeded our expectations. The personnel they assigned to the project have been top-notch. Leadership for the organization monitors the project and the correct amount of emphasis is applied if there are any issues. The project management team has been dedicated and is very concerned about the quality of all deliverables. I cannot say enough how much we have enjoyed working with INIT's professional team"

3.2.2 Bytemark Projects

3.2.2.1 Mobile Ticketing Pilot: Transit Go Ticket

King County Metro, Sound Transit, Seattle Streetcar, King County Water Taxi

[redacted]

Modes: Bus, Light Rail, Streetcar, Water Taxi

Transit GO Ticket is the regional mobile ticketing platform Bytemark launched for the Puget Sound region that is led by Seattle's King County Metro (KCM) and Sound Transit. After a competitive bid process, Bytemark was awarded a contract for mobile ticketing services with KCM in February 2016 and launched the mobile ticketing solution to the public in November 2016.

Mobile Ticketing Use-Case:

- Download the Transit GO Ticket app for Android, Apple or Windows mobile devices.
- Create an account
- Purchase one or more tickets through the app using a credit card or debit card.
- Activate the tickets needed just prior to boarding

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- Show the mobile display to a transit operator, a water taxi fare collector, or have it available if requested by a fare inspector on RapidRide, Link light rail or Sounder.
- Transfers are allowed between Metro buses within a two-hour window.

Bytemark's Responsibilities

Bytemark is delivering a "lab" component as part of the project. Bytemark is demonstrating alternative validation methods and trip planning tools as part of the lab. The research and development component to this project ensures that new innovative ideas will be presented and tested in an iterative way.

Project Services

- Services: Bytemark developed and managed mobile applications (iOS, Android, Windows), ticketing platform and back office software, validation software, validation hardware.
- Launched in November 2016. In service.
- [redacted]

Account-Based with Open APIs

Bytemark deployed an account based mobile ticketing system. Users register their account through email and password or utilizing OAUTH2 protocol and taking advantage of existing credentials and social sign-on. Users can manage their account, add and securely store payment methods (PCI Level 1 secured), purchase and manage ticket and value.

The Bytemark Platform is built on a microservices architecture facilitated by RESTful and open APIs. The goal of a microservice architected platform is to provide an environment where loosely coupled services can work harmoniously yet independently from each other. This independence means that an update to one microservice does not affect the rest of the platform. External services are not required to configure with the internals of the platform or other microservices as they only interact through APIs, thus they are not required to share equivalent data structures.

API endpoints are available for nearly all modules and functions on the Bytemark platform. APIs will follow RESTful standards.

1. The APIs will use HTTP methods explicitly
2. The API will be stateless
3. API responses will be JSON formatted
4. API access will be restricted to trusted 3rd
5. Each service call will require an identifier

Relevance to ORCA

This project is directly relevant to the Orca scope of work as we have gained valuable experience working with KCM and Sound Transit to deploy the mobile ticketing

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application. We have gained a clear understanding of the requisite fare system, legacy systems and procedures, and organizational approach to software projects.

3.2.2.2 Mobile Ticketing Application System

Capital Metro Transportation Authority (CMTA)

Bytemark partnered with Capital Metro in August of 2012 to develop a mobile ticketing system pilot project offered during November's Formula 1 event in Austin, Texas. Capital Metro has been Austin's regional public transportation provider since 1985. CMTA services 32 million people every year with 50 metro routes, 8 express routes, and 19 University of Texas shuttle routes. The pilot launched on November 10th and remained live until November 24, 2012. Capital Metro was the first transit agency in the nation to offer a visually verified mobile ticketing and payment solution across both bus and rail services. The mobile app allows riders to avoid lines at ticket vending machines and eliminates the need for exact change or cash to purchase transit fares -- turning Apple or Android smart mobile devices into a transit passes.

Following the successful pilot project, Capital Metro issued a Request for Proposal for a fully hosted mobile ticketing system on January 8, 2013 and received six proposals by the closing date of February 16, 2013. Proposals were scored based on the following criteria: qualifications and performance of the firm, technical approach and qualifications of the project team members. Bytemark was rated highest, all factors considered. The full deployment of the live solution launched in January 2014.

App Features Include:

- Quick access home screen – Users can activate a ticket directly from the app home screen
- Payment Card Industry security standardized
- Accepts Discover Card, Visa, MasterCard and American Express payments.
- Capital Metro's mobile trip planner, service alerts, real-time arrival information, maps and schedules.
- Option to purchase multiple passes on one device for groups traveling together.
- Embedded security to cut down on fare evasion and provide cost savings to Capital Metro.
- The Virtual Visually Validated (V3) ticket screen with multiple built-in security features to ensure authenticity.

Project Services

- Services: Bytemark developed and managed mobile applications (iOS, Android, Windows), ticketing platform and back office software, validation software, hand held validators. Bytemark contracted INIT to provide onboard validators.
- Launched in January 2014. In service

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- Duration: 5 Year Contract

[redacted]

Account-Based with Open APIs

Bytemark deployed an account based mobile ticketing system. Users register their account through email and password or utilizing OAUTH2 protocol and taking advantage of existing credentials and social sign-on. Users can manage their account, add and securely store payment methods (PCI Level 1 secured), purchase and manage ticket and value.

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API endpoints are available for nearly all modules and functions on the Bytemark platform. APIs will follow RESTful standards.

1. The APIs will use HTTP methods explicitly
2. The API will be stateless
3. API responses will be JSON formatted
4. API access will be restricted to trusted 3rd
5. Each service call will require an identifier

Relevance to ORCA

Working with Capital Metro was Bytemark's first experience deploying a citywide mobile ticketing platform across multiple transit modes and services. Their work with INIT on this project to integrate onboard validators will be useful when deploying a unified system for Seattle.

3.2.2.3 MARTA Mobile Ticketing Project

Metropolitan Atlanta Rapid Transit Authority (MARTA)

[redacted]

Project Information

MARTA operates a network of bus routes linked to a rapid transit system consisting of 48 miles (77 km) of rail track with 38 train stations. It is the eighth-largest rapid transit system in the United States with roughly 130,000,000 annual riders.

Bytemark's Responsibilities

The MARTA Mobile Ticketing pilot was a competitive pilot through a traditional procurement process. Bytemark launched the Breeze Blu mobile ticketing application for

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MARTA in July 2016. The pilot was completed September 2016.

Breeze Blu was one of the first mobile ticketing projects in the US to be deployed in a gated environment. Bytemark worked with Mobill, a Swedish hardware provider, to retrofit existing Cubic fare gates with a barcode reader to validate mobile tickets. Fifteen buses and two bi-directional gates at four stations were retrofitted with barcode scanners.

Bytemark is now in the process of developing the full production implementation which is scheduled to launch in the Fall of 2017.

Mobile Ticketing Use-Case:

- Download the MARTA Blu app for Android or Apple mobile devices.
- Create an account
- Purchase one or more tickets through the app using a credit card or debit card.
- Activate the tickets needed just prior to boarding
- Show the mobile display to a transit operator or validate the barcode on the fare gate reader.

- Services: Bytemark was contracted by Kapsch to provide the mobile ticketing components.
- Bytemark developed and managed mobile applications (iOS, Android), ticketing platform, integration with Kapsch validation software and back office.
- Launched in October 2017.
- Duration: 3 Year Contract
- Cost: $2,000,0000

Project Staff

Melanie Artale, Project Coordinator

Account-Based with Open APIs

This system was deployed as an account based mobile ticketing system. The identity and account management engine is operated by Kapsch and not Bytemark. Bytemark integrated with the Kapsch system for this contract. The mobile application uses API's to communicate with the backend.

The Bytemark Platform is built on a microservices architecture facilitated by RESTful and open APIs. The goal of a microservice architected platform is to provide an environment where loosely coupled services can work harmoniously yet independently from each other. This independence means that an update to one microservice does not affect the rest of the platform. External services are not required to configure with the internals of the platform or other microservices as they only interact through APIs, thus they are not required to share equivalent data structures.

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1. The APIs will use HTTP methods explicitly
2. The API will be stateless
3. API responses will be JSON formatted
4. API access will be restricted to trusted 3rd

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5. Each service call will require an identifier

Relevance to ORCA

The MARTA project provided Bytemark with additional experience working with third-party fare collection vendors integrating our mobile ticketing application in a larger fare collection system. Mobile validation in a gated environment gave us valuable insight on how users expect to utilize their device to interact with validation hardware / gates.

3.2.3 [redacted] Projects

[redacted] has been an INIT partner on our Tampa Bay and Grand Rapids automated fare collection systems.

3.2.3.1 CRM Integration [redacted] Implementation

[redacted]

[redacted]

[redacted]'s Responsibilities

[redacted]

[redacted]

Relevance to ORCA

CRM Integration [redacted]

3.2.3.2 CRM Integration/[redacted]

Liberty Tax

[redacted]

[redacted]

Relevance to ORCA

CRM integration [redacted]

3.2.3.3 CRM Integration [redacted]

[redacted]

Project Information

[redacted]

[redacted]

Relevance to ORCA

CRM integration

3.2.4 ESP Enterprises Projects

3.2.4.1 Mobile Ticketing Pilot: Transit Go Ticket

Cubic

[redacted]

Cubic is a leading supplier of intelligent transportation systems for bus, rail, light rail, etc.

Installed all manufacturer equipment per Cubic's specifications.

Duration of project: 9/2012 – 2/2013 & 5/2015 – 7/2015

Project Staff

[redacted]

Relevance to ORCA

Relevant in size and scope with comparable equipment. Working with multiple agencies. Similar equipment.

3.2.4.2 Ticket Vending Machine Installations

Genfare

[redacted]es

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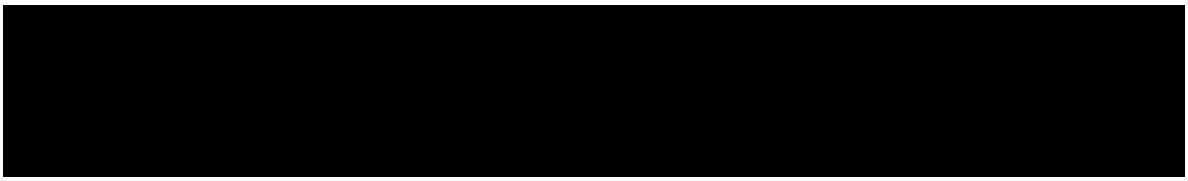
ESP installed all manufacturer's equipment as per Genfare specifications and also assisted with warranty and maintenance after installation.

Installation of ticket vending machines all associated network cabling.
Duration of project:



Project included ticket vending machines on the rail station.

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3.3 Customer References

Customer references for the INIT team can be found below.

3.3.1 INIT Reference Information

Tri-County Metropolitan Transportation District of Oregon, (Tri-Met)

[redacted]

Honolulu Authority for Rapid Transportation (HART), Honolulu, Hawaii

[redacted]

Hillsborough Area Regional Transit Authority (HART), Tampa, Florida

[redacted]

Our experience with INIT and their subs has been outstanding. Their design review process and test procedures have far exceeded our expectations. The personnel they assigned to the project have been top-notch. Leadership for the organization monitors the project and the correct amount of emphasis is applied if there are any issues. The project management team has been dedicated and is very concerned about the quality of all deliverables. Cannot say enough how much we have enjoyed working with this professional team"

- [redacted], HART

3.3.2 Bytemark Reference Information

Sacramento Regional Transit District

[redacted]

Capital Metro Transportation Authority (CMTA)

[redacted]

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[redacted]

Northern Indiana Commuter Transportation District (NICTD)

[redacted]

3.3.3 [redacted] Consulting Reference Information

[redacted]

[redacted]

3.3.4 ESP Enterprises Reference Information

Cubic

[redacted]

Genfare

[redacted]

ACS/Genfare/Parkeon

[redacted]

3.4 INIT and Our High-Performance Partners' Organizational Structure

INIT has included our subcontractors in the organizational chart provided in Section 2 of our proposal where we show the relationship between the team leads and the subcontractors. Subcontractors are clearly marked with green banners.

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3.5 INIT's Financial Performance

3.5.1 Stellar Financial History

The audited financial statements for INIT, Inc. and it's subsidiaries for the last-three (3) years are attached in this section as Appendix A.

You can also view INIT SE's financial statements on our website by clicking on the following link:

https://www.initse.com/ende/investors/financial-reports/financial-reports-archive.html?#c2901

3.5.2 A Solid Financial Forecast

INIT has provided our audited financial statements which demonstrate a solid financial history. Thanks to prudent financial management over the last seventeen years, we have built a strong reserve.

As a member of the publicly traded INIT Group, we continuously prepare internal financial forecasts for our supervisory board. This planning is reviewed and approved on a regular basis. This is, however, internally proprietary information, which we are not able to release.

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3.6 INIT's Recent Fare Collection Wins

INIT's current fare collection project portfolio is included below:

3.6.1 Tri-County Metropolitan Transportation District of Oregon, (Tri-Met), Electronic Fare Collection Implementation Technical Services – HOP FastPass

Project dates: December 2014 – July 2017 (in service)

Revenue over length of time:

[redacted]

Financial capacity details: This project is 100% financed by INIT internal resources.

Project details:

The HOP FastPass contract comprises the delivery of an Account-Based fare management system which supports both Closed Loop Cards and Open Payments. It includes a comprehensive Central Processing module, more than 1,100 onboard and platform validators combined; 90 mobile inspection devices, and approximately 100 retail POS units. INIT will also provide customer web portals and an initial 1,300,000 contactless smart cards.

Additionally, the project was extended to incorporate transportation services offered by the Clark Country Public Transit Benefit Area Authority (C-Tran), located in the neighboring city of Vancouver, WA and Portland Streetcar.
INIT provides a state-of-the-art electronic fare collection solution for TriMet. The contract includes the provision and the implementation of an account based solution, including:

- MOBILEvario backoffice with account processing, payment gateway, data warehouse, ledger, revenue clearing/settling, reporting, statistics, etc.
- Approximately 1,100 validators, on board buses/light rail and on platforms
- Retail Sales Terminals
- Open Architecture with various APIs to internal/external systems
- Closed Loop Payment, including integration with retail network provider, Ready Credit Corporation
- Open Payment
- Fare Aggregation, Fare Capping
- IVR system integration from Enghouse
- Integration with Mobile Ticketing
- Web portal design and development

The HOP FastPass solution will greatly enhance the already progressive bus, light rail, and commuter rail network in Portland. Tri-Met's ridership will benefit from more convenience and pricing equity and the ability to utilize contactless bank cards and mobile phones.

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3.6.2 Honolulu Authority for Rapid Transportation (HART), Honolulu, Hawaii

Project dates: NTP April 1, 2016 completion estimated 2023

Revenue over length of time: [redacted]

Financial capacity details: This project is 100% financed by INIT internal resources.

Project details:
550 Fixed Route (includes PROXmobil3, Mobile Display Terminal & Digi WR44R Router)
110 Ticket Vending Machines (TVMs) & 139 Faregates at 21 Rail Stations
10 Year Software Maintenance Contract
Project Phases:

- Phase 1: Implementation on TheBus (Late 2017)
- Phase 2: Interim Rail (Late 2018)
- Phase 3: The Handi-Van (2019)
- Phase 4: Full Revenue Service (2021)

3.6.3 Hillsborough Area Regional Transit (HART), Tampa, Florida

Project dates: 2nd Quarter 2016 – 4th Quarter 2018

Revenue over length of time: [redacted]

Financial capacity details: This project is 100% financed by INIT internal resources.

Project details:
The Tampa Regional Working Group (RWG) is comprised of 8 local transit agencies, with Hillsborough Area Regional Transit (HART) as the lead procuring agency. These agencies have chosen INIT to provide an account-based, regionally inclusive electronic fare payment system, in which customers in all applicable regions can travel within the Tampa area and use the same electronic fare payment strategy.

INIT is providing more than 600 PROXmobil3 electronic readers for Fixed Route vehicles to the RWG. Additionally, INIT will provide its MOBILEvario back end system to integrate the fare strategies of all 6 agencies. Moreover, INIT will take on the installation, mobile application, web development and IVR with accomplished and qualified subcontractors.

As part of the procurement, INIT is interfacing with several CAD/AVL providers. Each of the regional agencies has their own CAD/AVL solution, to which INIT must interface. This abundantly demonstrates INIT's integration capabilities, for which INIT's open architecture APIs and dedicated engineering teams are responsible.

INIT is also providing the initial supply of agency-issued smart cards, retail sales terminals and various fixed fare processing equipment.

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3.6.4 The Rapid, Grand Rapids, MI

Project dates: February 2016 – Completion Date Expected April 2018

Revenue over length of time: [redacted]

Financial capacity details: This project is 100% financed by INIT internal resources.

Project details:
INIT is providing ITP with an interoperable, account-based, automated fare collection system that will process smart cards and mobile tickets onboard The Rapid's fleet of 150 fixed-route buses. The same system will serve ITP's Silver Line BRT via 34 platform-mounted validators in addition to equipping ITP personnel with a mobile inspection App and validation device.

This account-based system allows for secure storage of ITP customer information in INIT's backend system, MOBILEvario, which riders of The Rapid can access via website, mobile application, or in person at ITP service centers. MOBILEvario is INIT's central revenue management system which will allow ITP to track sales and revenue by media type, manage POS transactions, issue and monitor usage of fare media, and manage the relationship with Vantiv, a 3rd party payment gateway. Additionally, INIT is incorporating two hugely important educational and medical institutions into the system in the form of Grand Valley State University and Spectrum Health, two of the largest employers in Grand Rapids.

INIT is providing EMV compliant PROXmobil3 validators on 150 buses with real-time validation and integration to the existing (Genfare/SPX cash) farebox and (Avail Technologies) CAD/AVL system. Digi WR44 cellular routers are being integrated and installed by INIT as part of the vehicle configuration as well. In addition to the core project scope, INIT has replaced Scheidt & Bachmann as the supplier of BRT platform validators and POS terminals.

3.7 INIT's Experience in State-of-the-Art Automated Fare Collection Services, Features and Functionality

INIT's account-based MOBILE-EFM system is designed with Open Payments included in the base system. With Open Payments, customer can use their contactless credit cards or mobile wallets like Apple Pay, Android Pay and Samsung Pay to purchase their ticket right at the validator. No need to get a card, download an App or search for change. This lowers the entry barrier to use public transit tremendously and makes it especially easy for non-frequent riders like tourists.

They can simply use a preferred payment medium that they already possess, and they don't have to worry about potentially unused credit balances. The benefit to the ORCA agencies are savings of the administration costs of media inventory and the complex accounting management of remaining credit balances.

The AFC system proposed for the ngORCA project will include Open Payments functionality and we are proposing Open Payments be implemented in Phase One of the project.

INIT has successfully deployed Open Payment at TriMet in Portland with deployment scheduled for Birmingham, England soon.

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INIT's Knowledgeable and Experienced Team

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

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The Future of Mobility

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All Personal Information for Team Members and References

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4 INIT's Knowledgeable and Experienced Team

INIT's key personnel are an experienced and accomplished group, with diverse backgrounds coming together to provide an outstanding customer experience for ORCA. INIT truly believes that this is a dynamic team with fare collection experience that will go the extra mile to ensure that the Puget Sound Region's needs are not only met, but exceeded. Below, please see the narratives for all key personnel included in this proposal. A summary of their collective fare collection experience can also be found in this section.

Key Personnel's Full resumes can be found in the Appendix.

4.1 Résumés of INIT's Experienced Team

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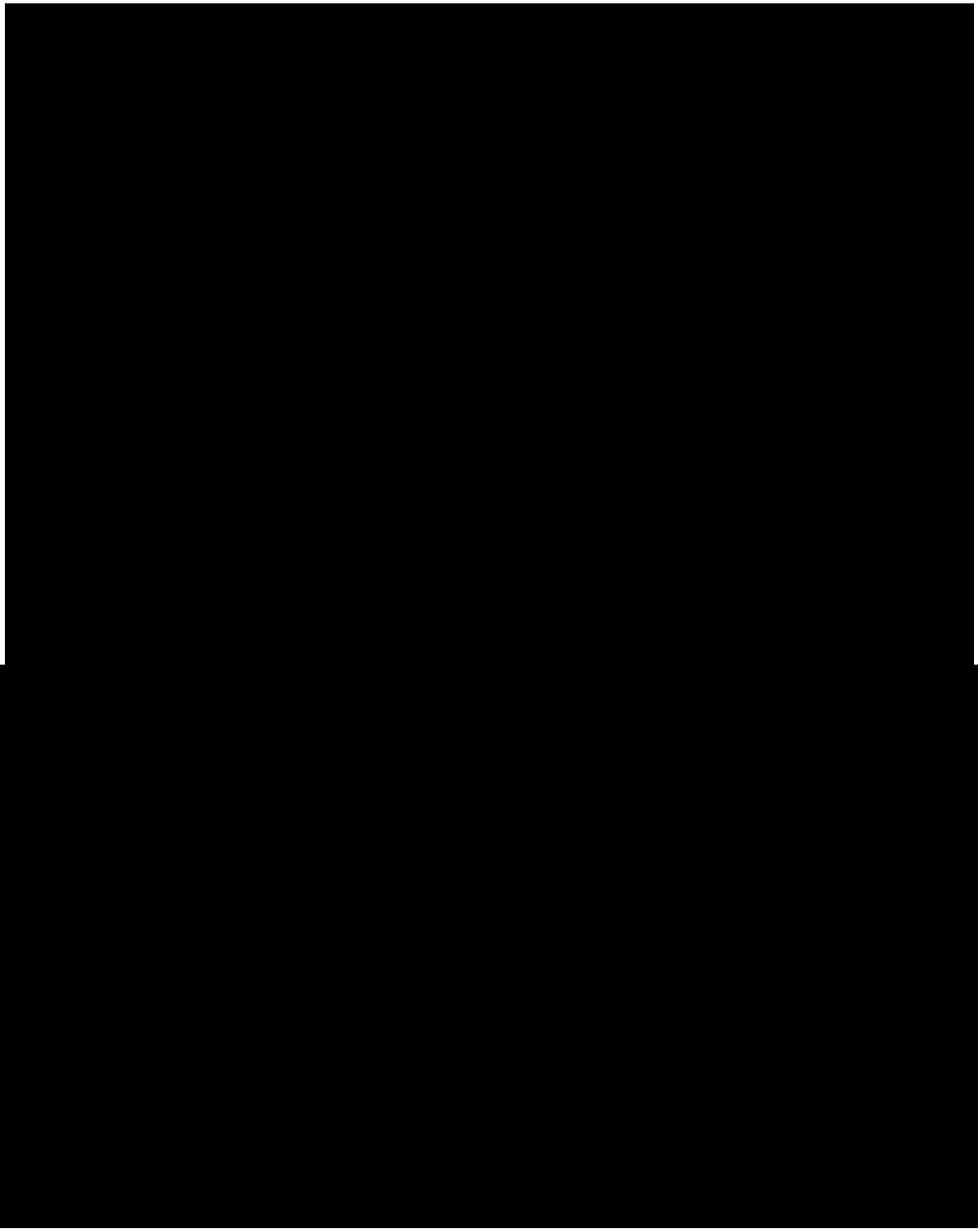

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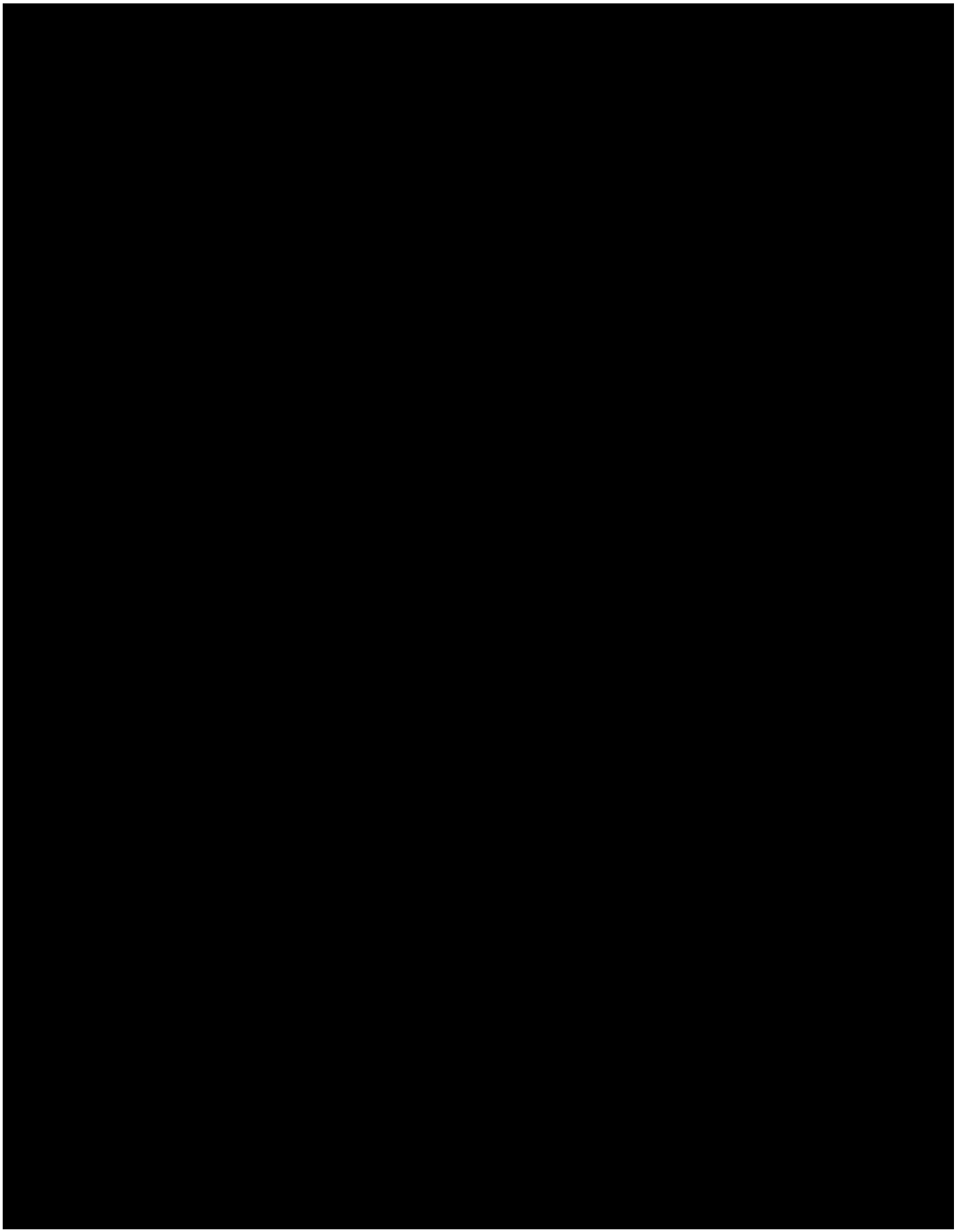

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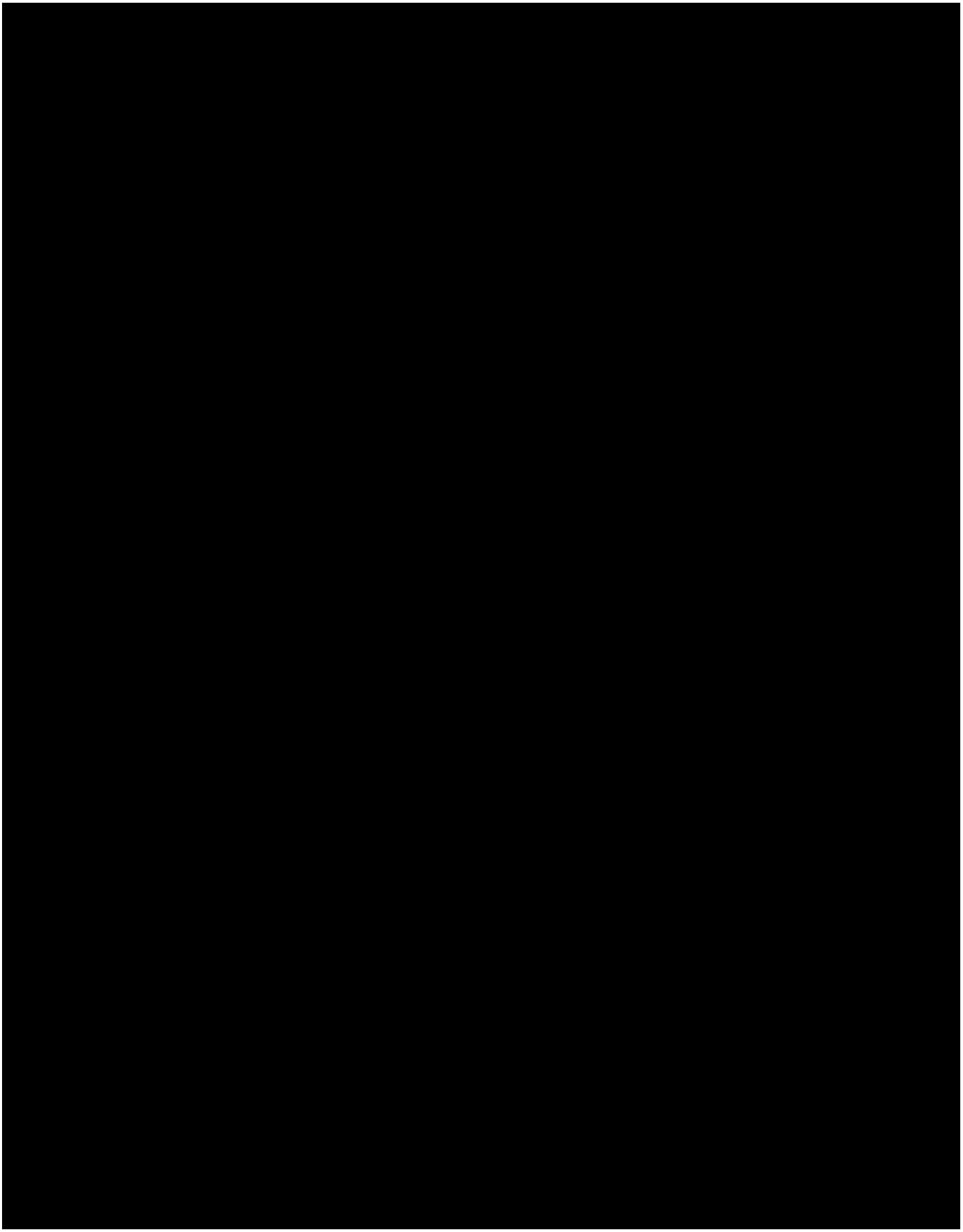

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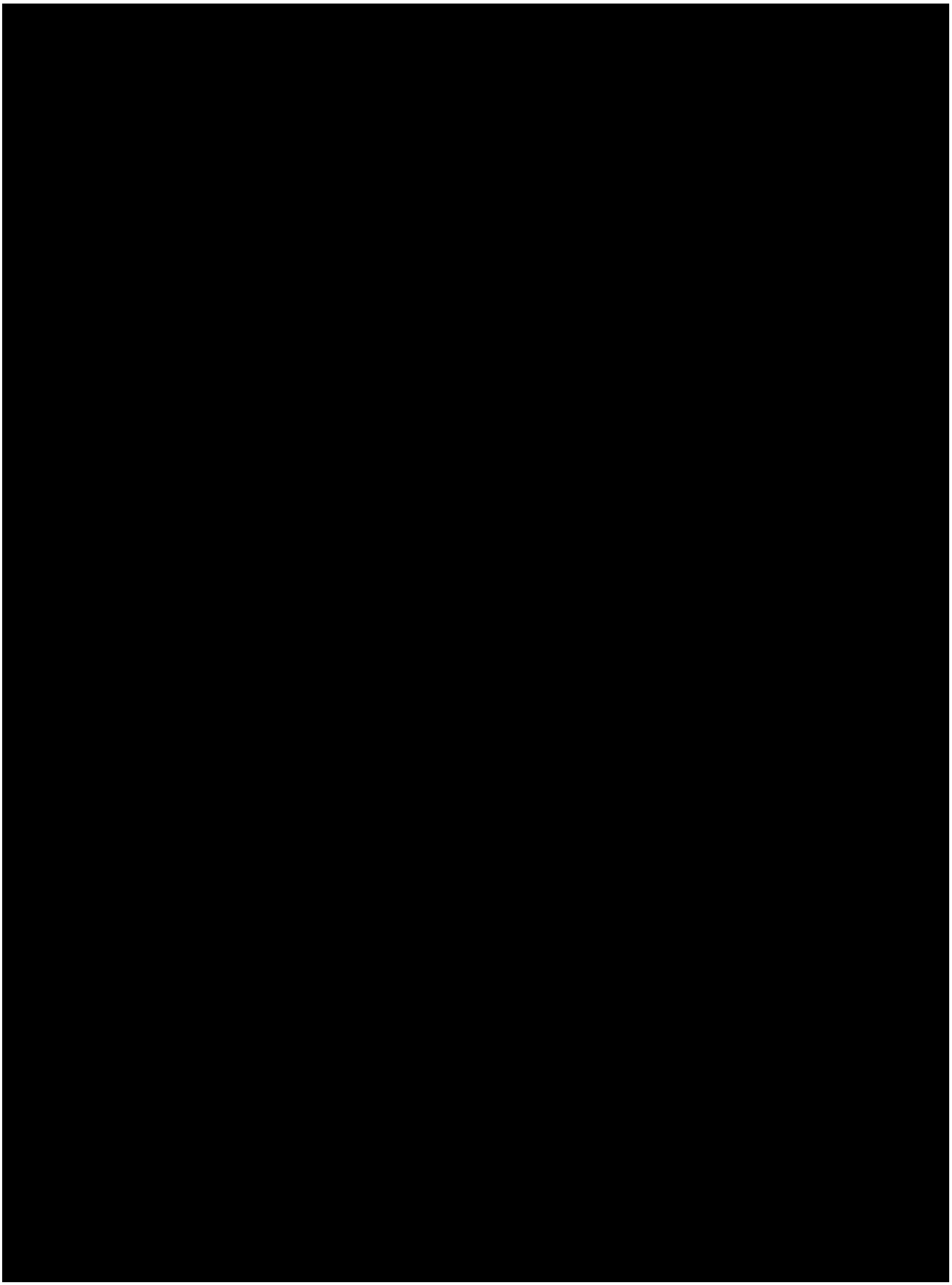

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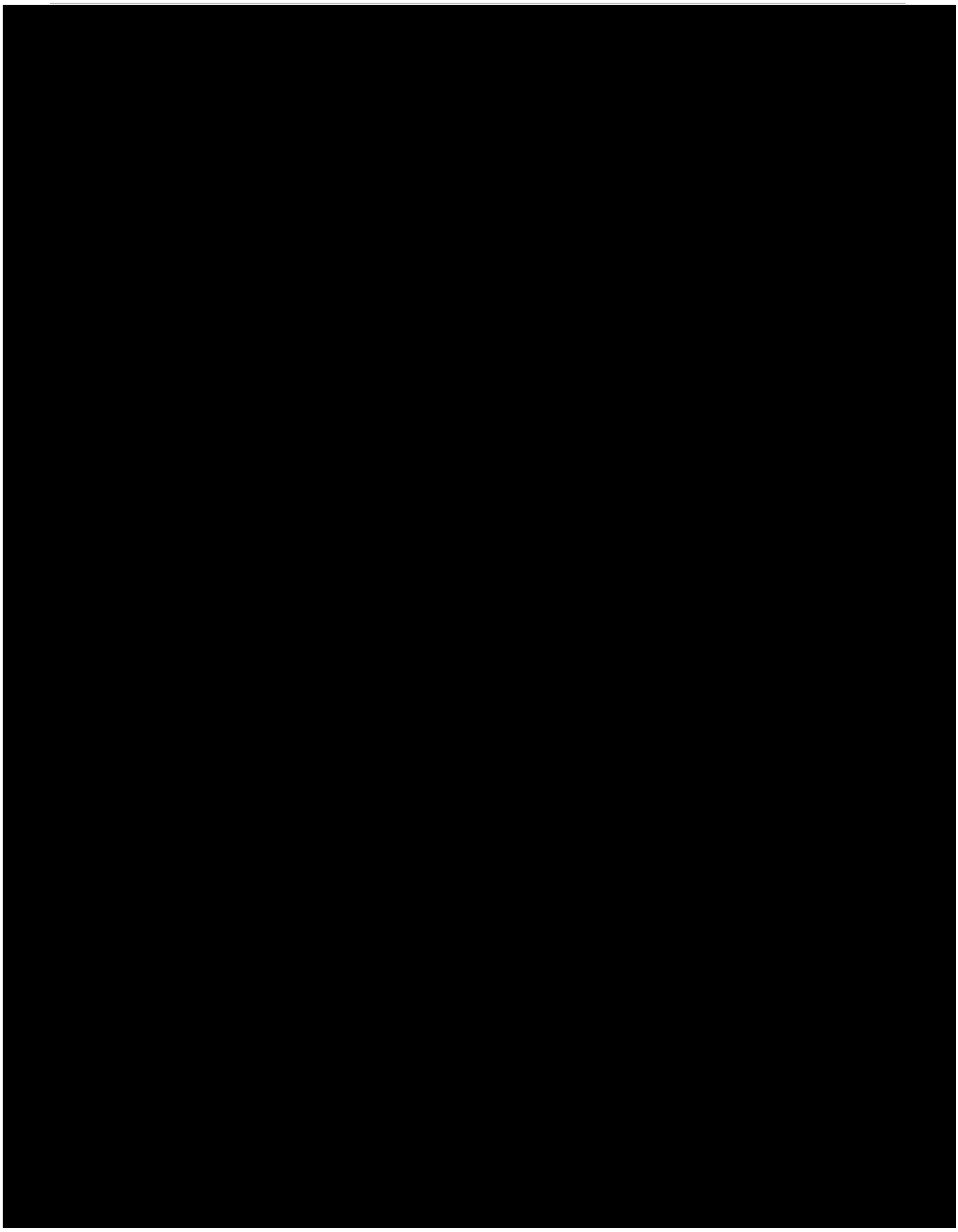

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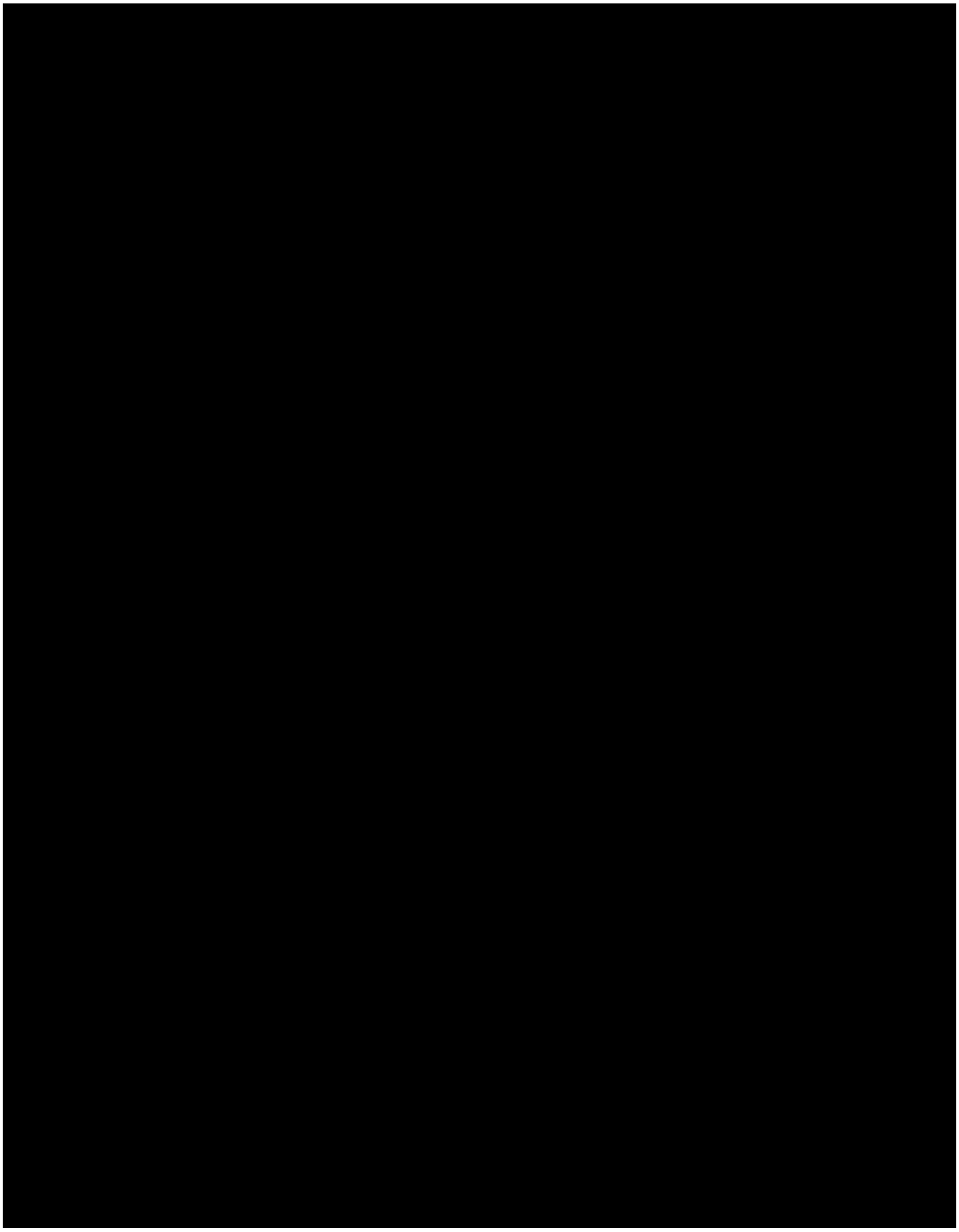

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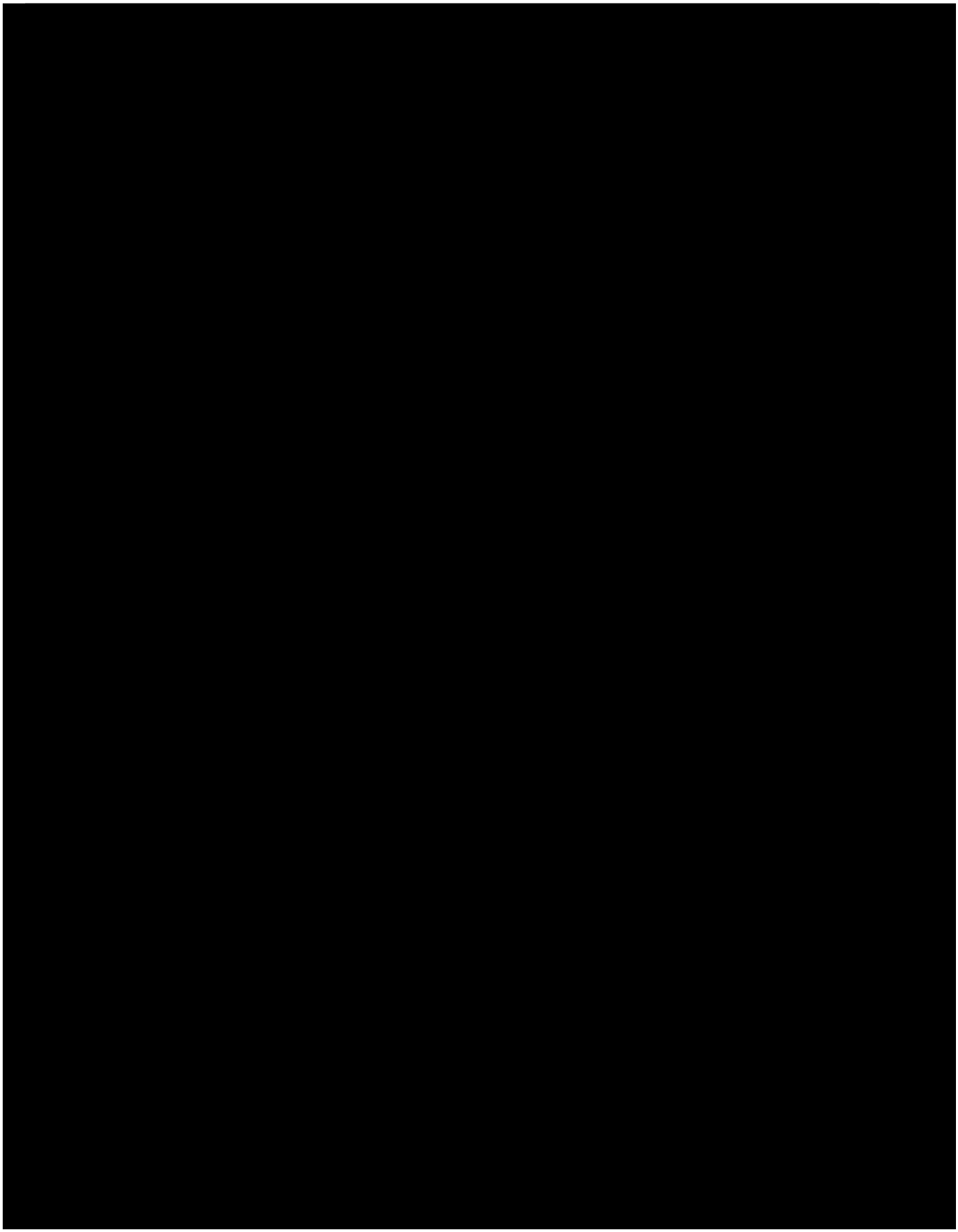

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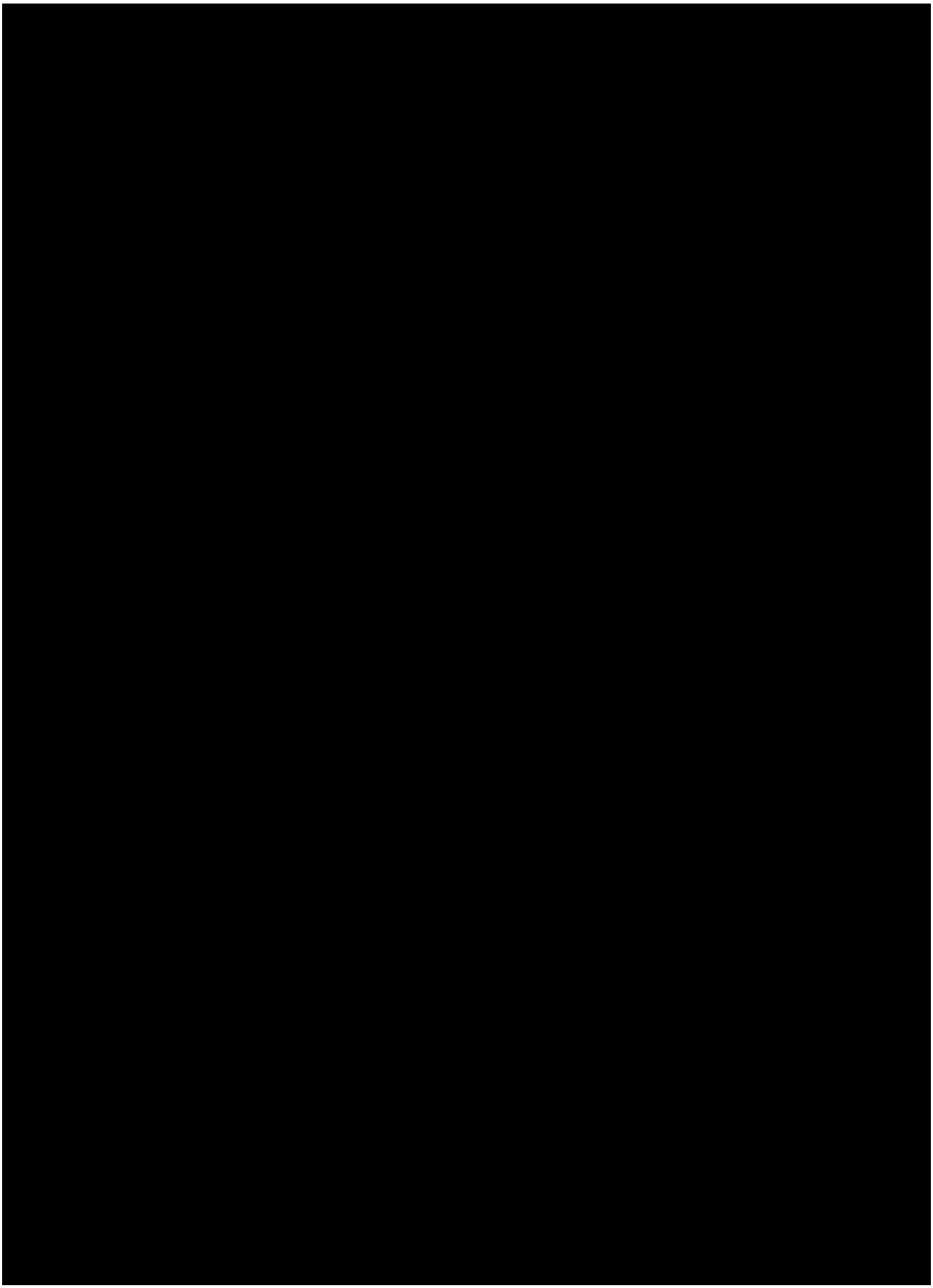

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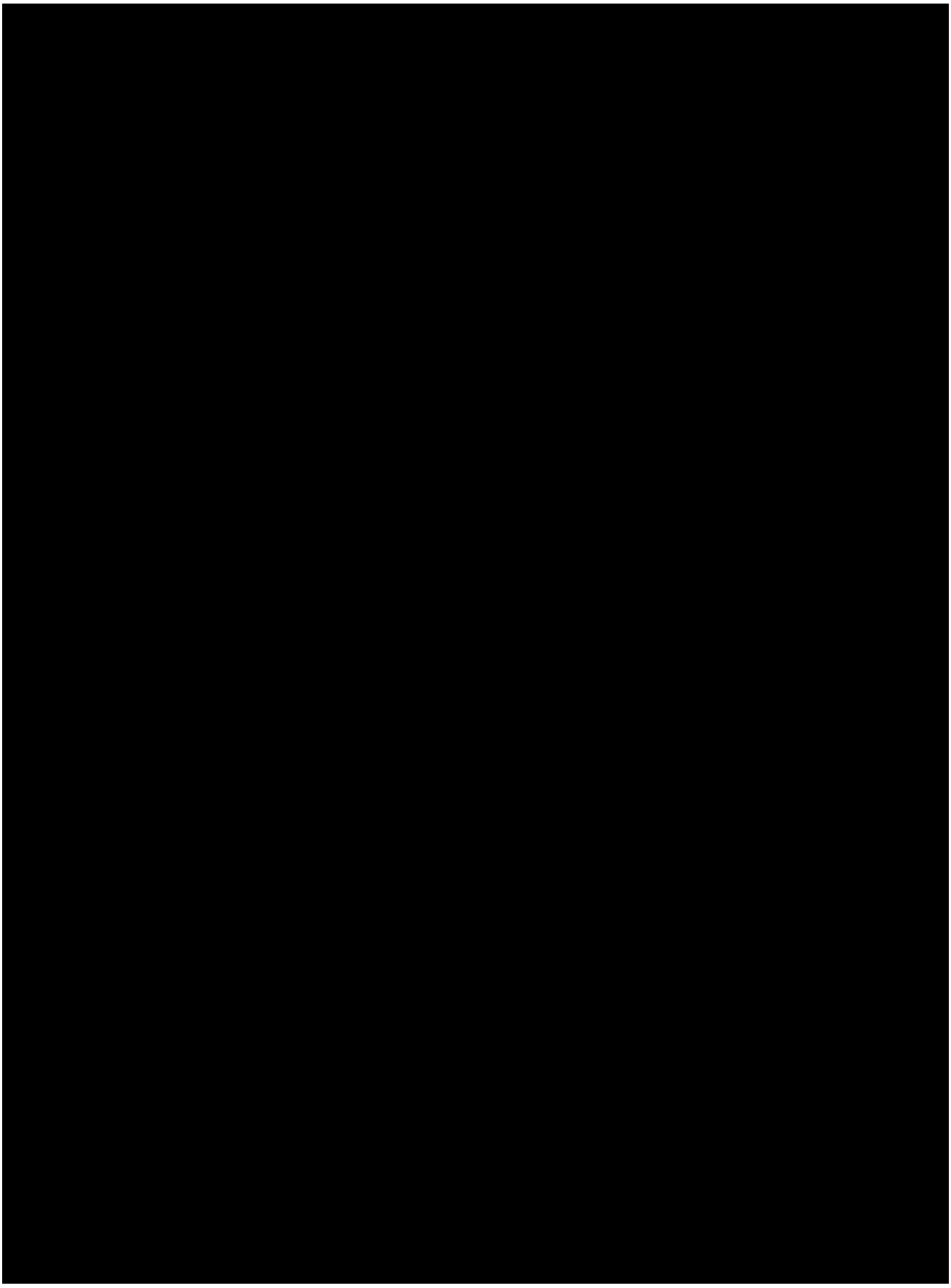

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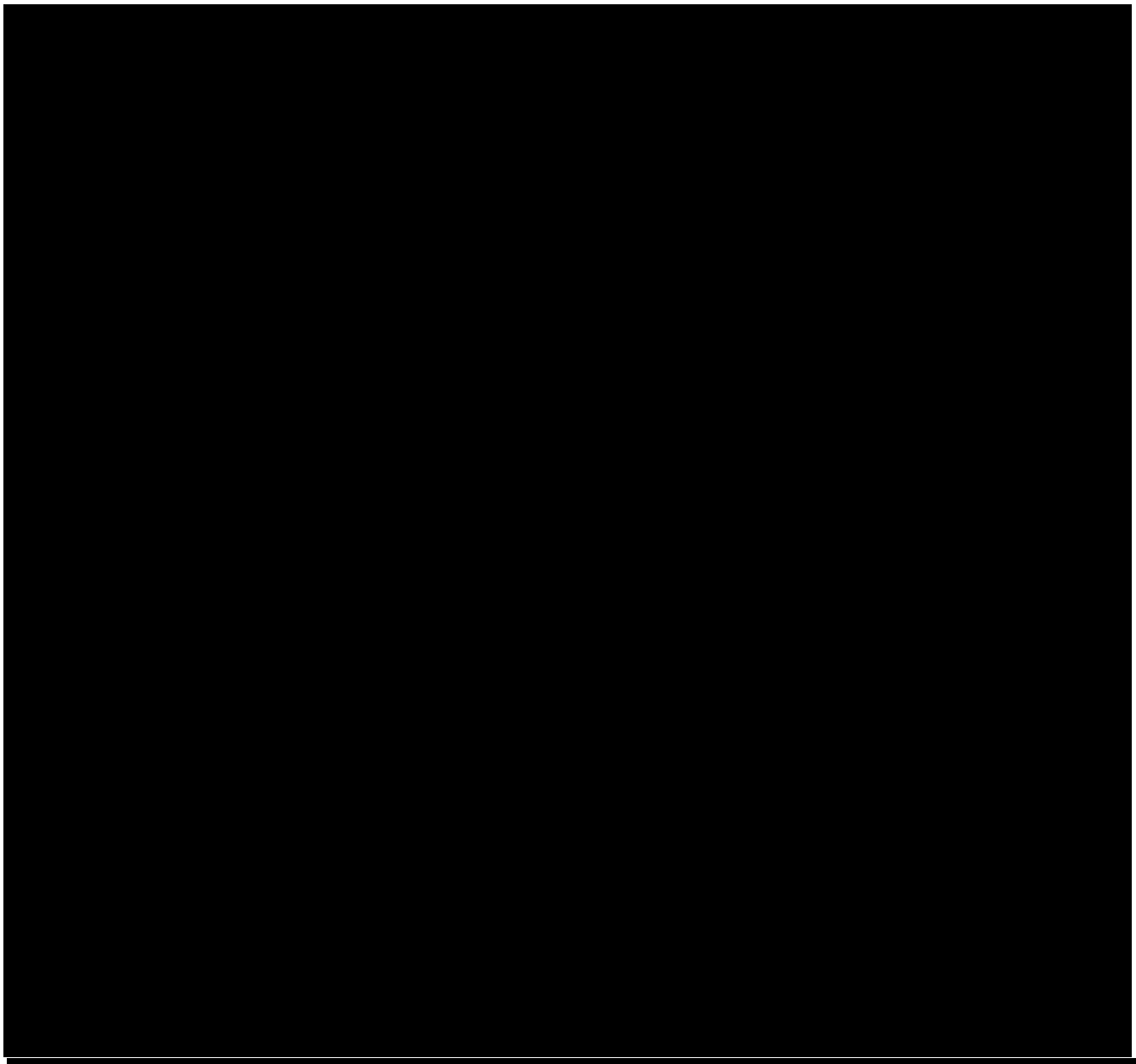

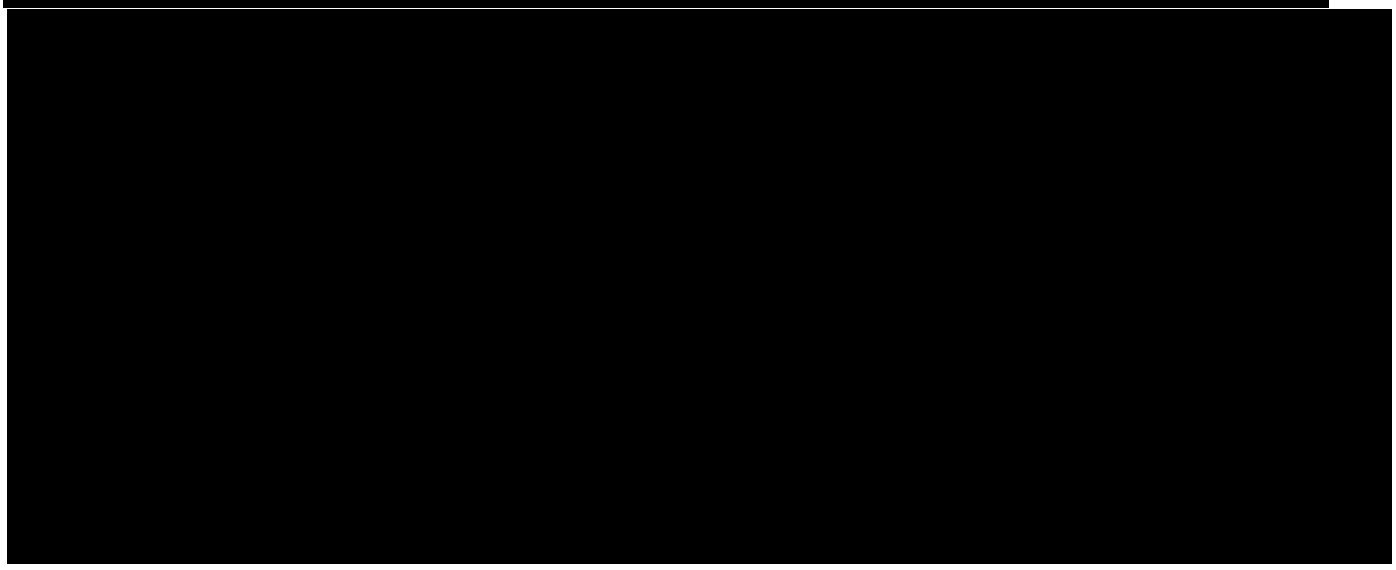

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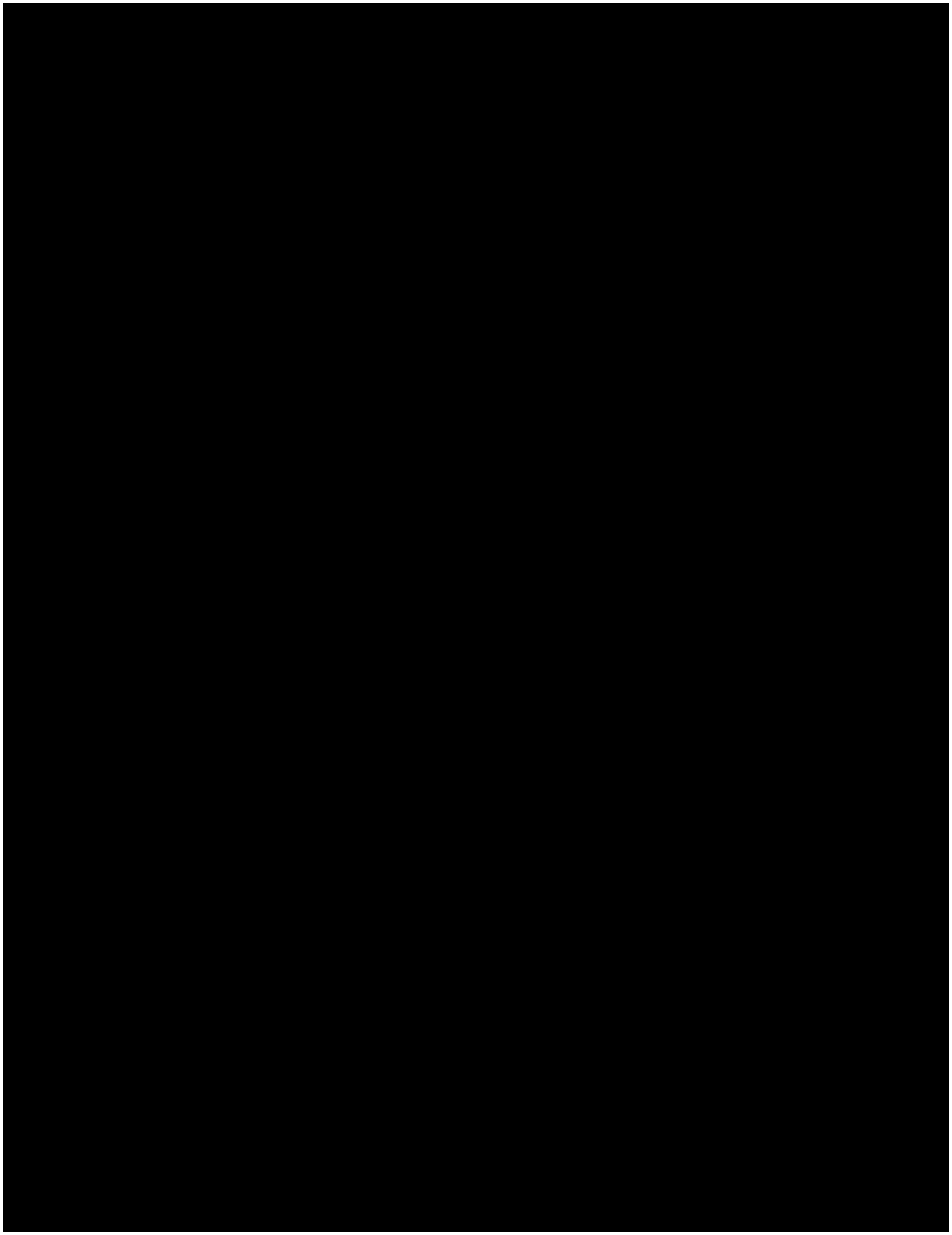

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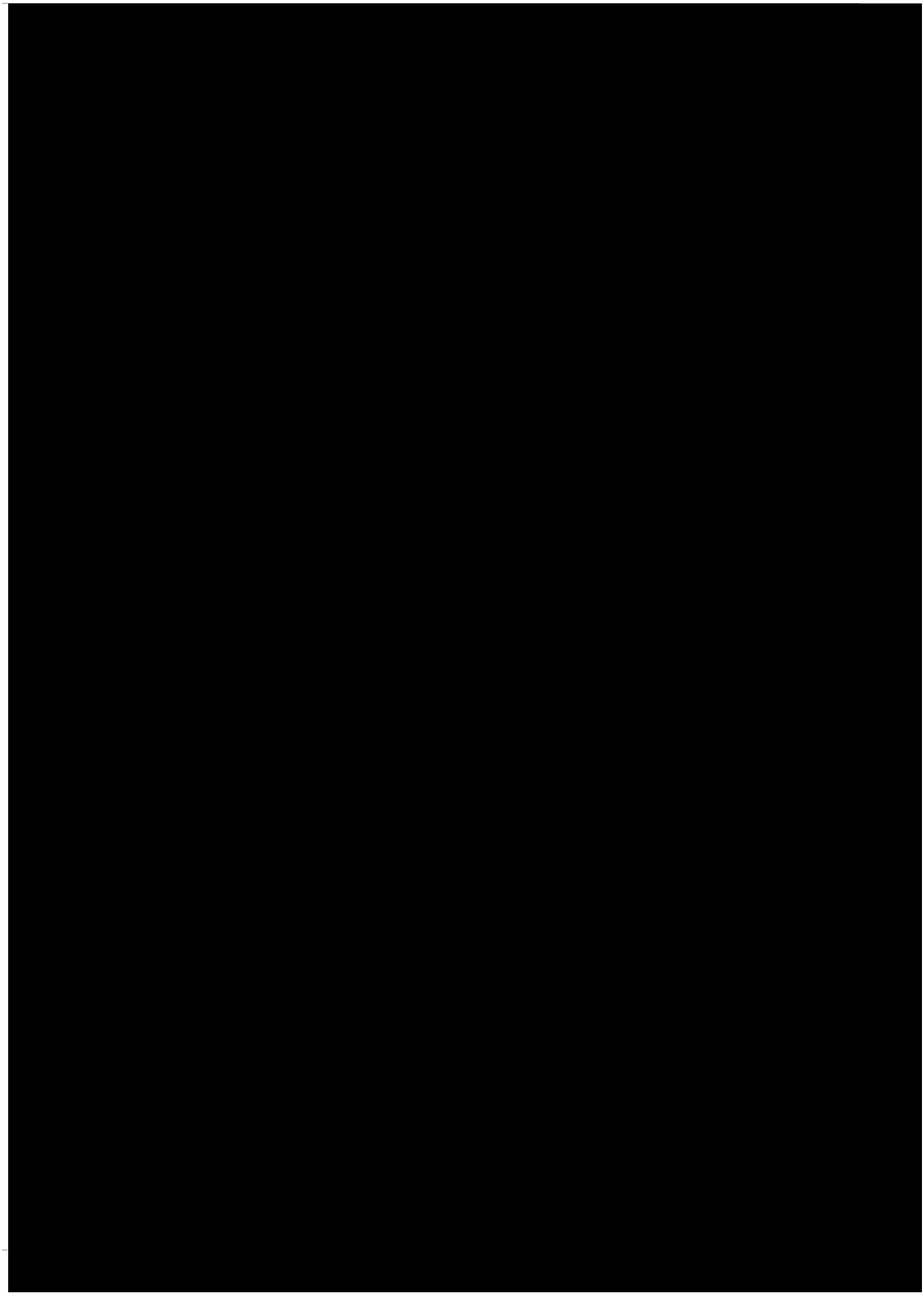

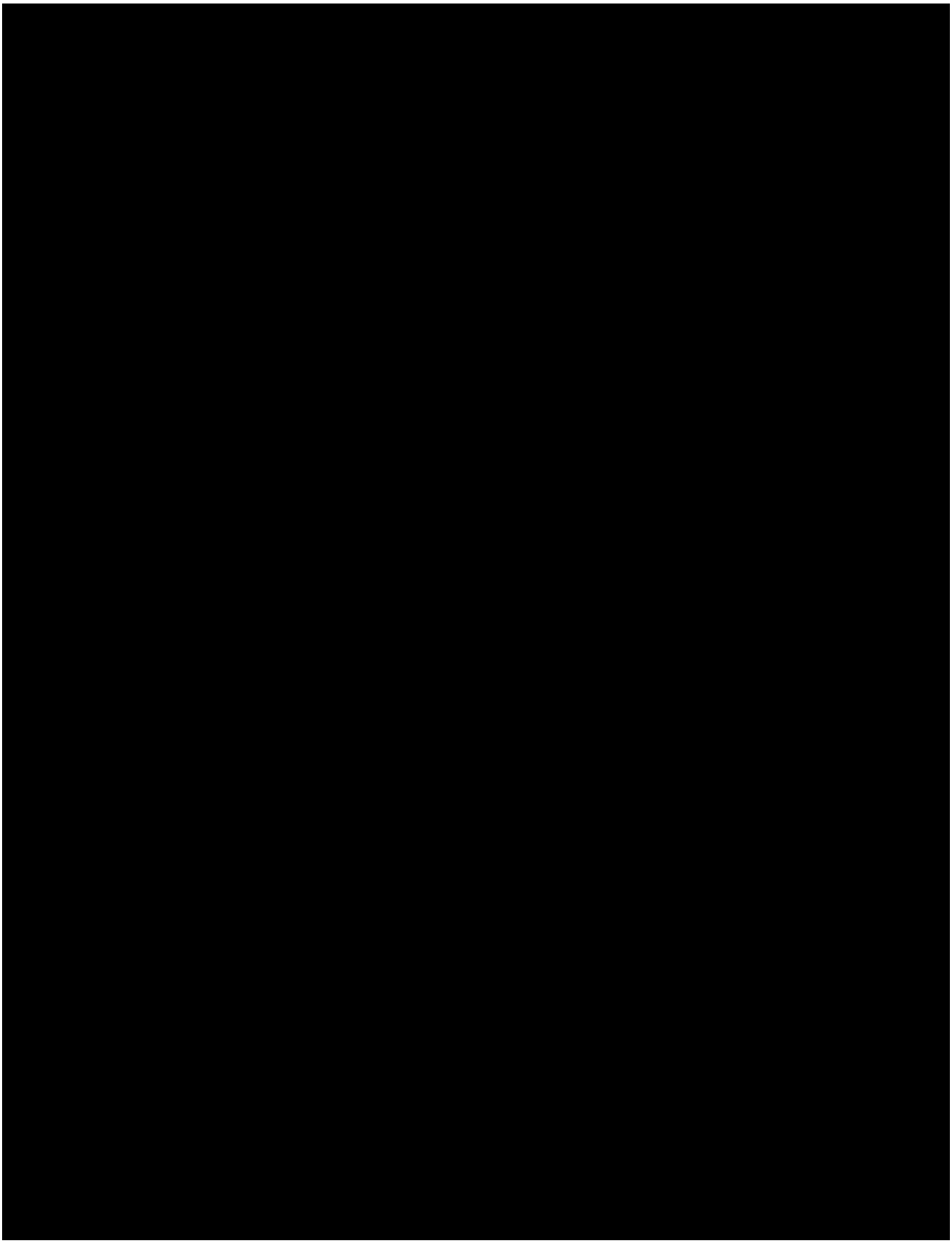

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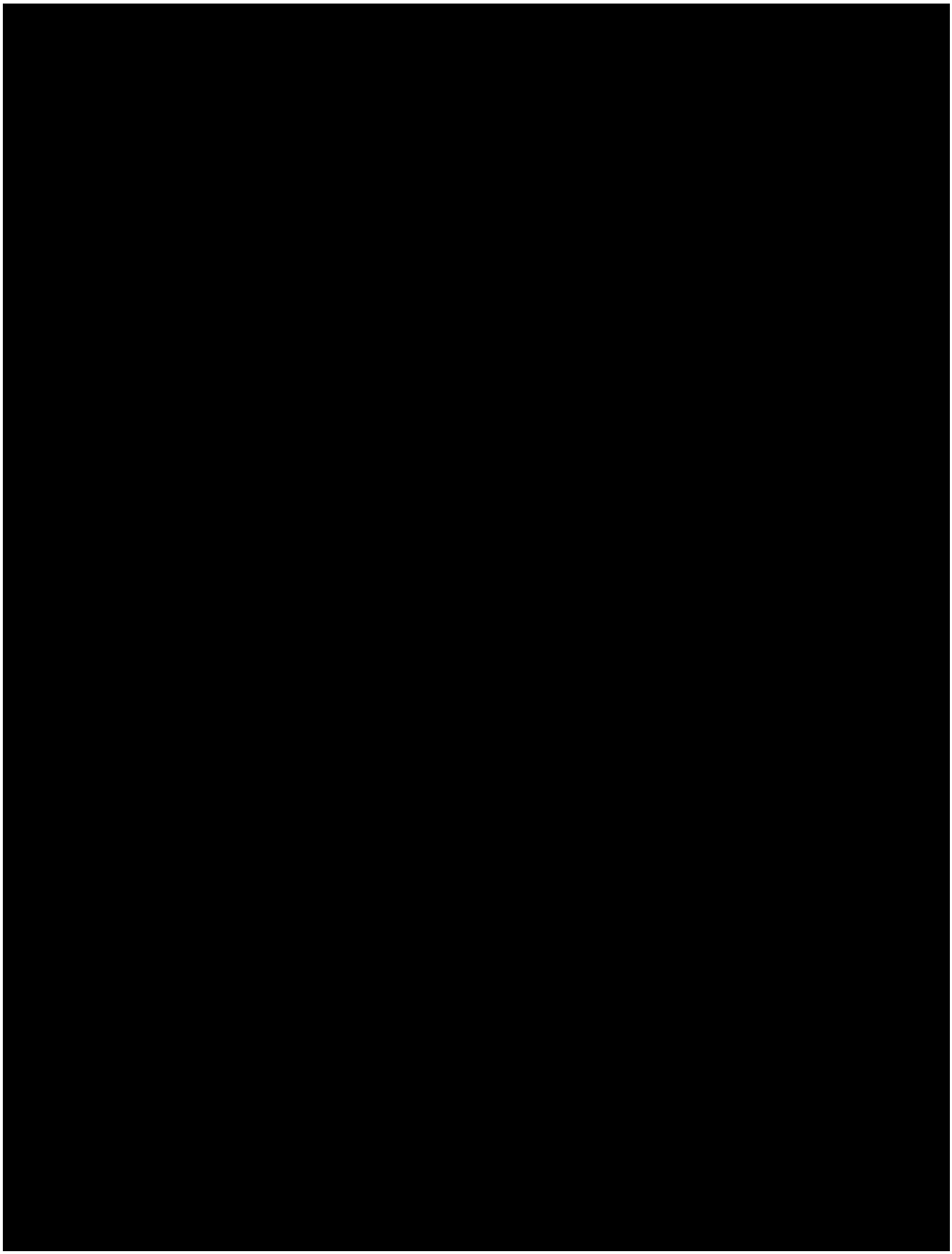

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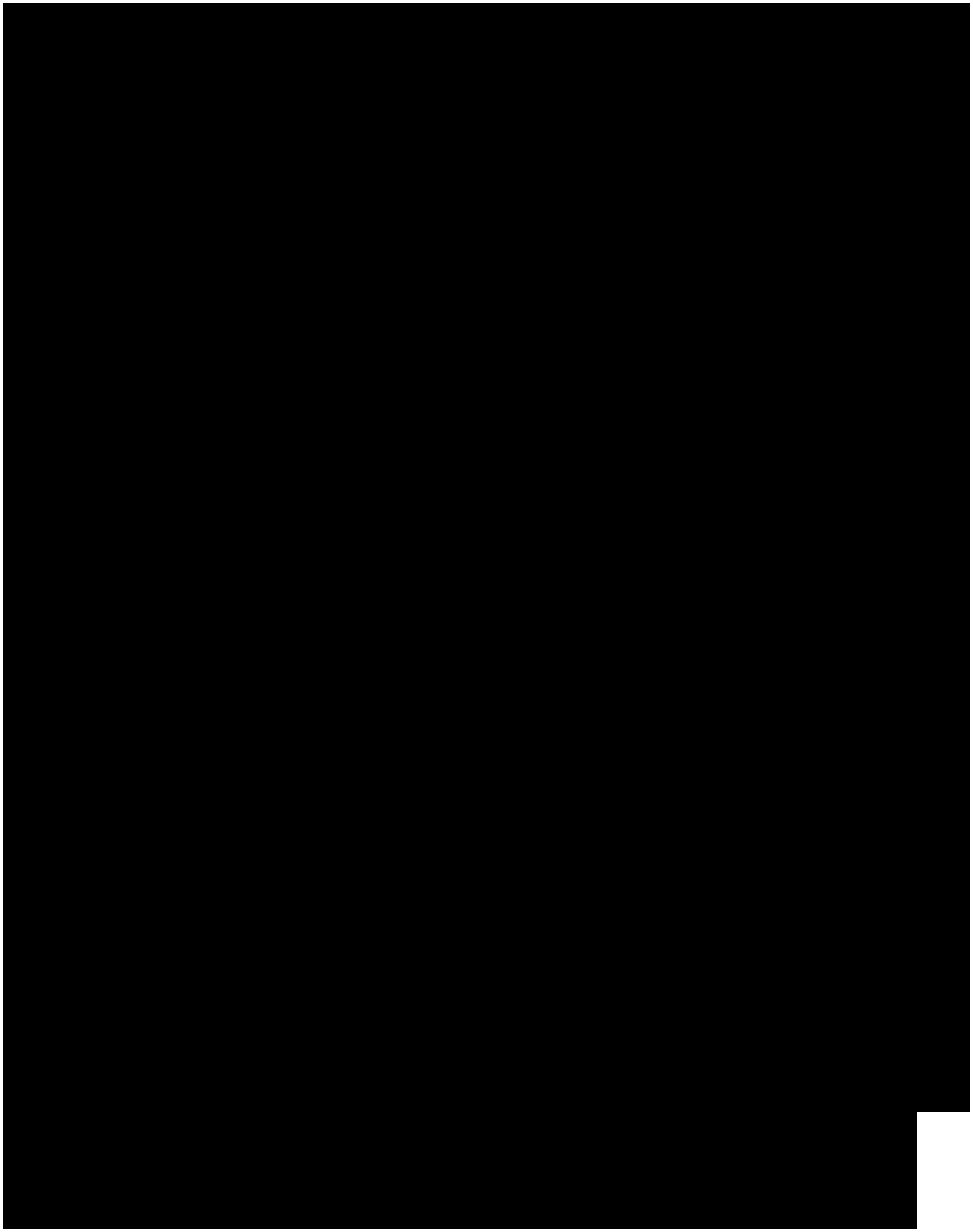

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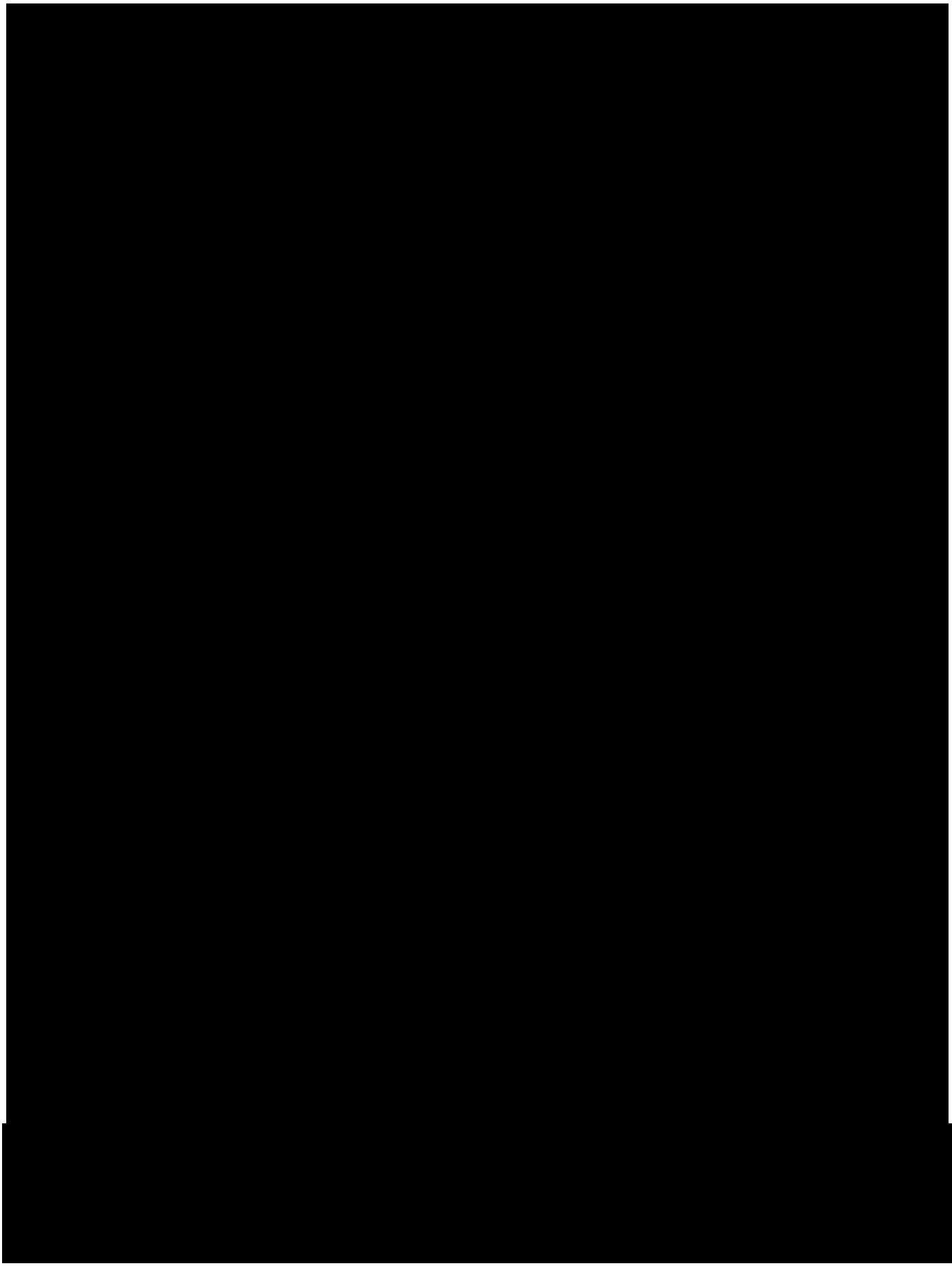

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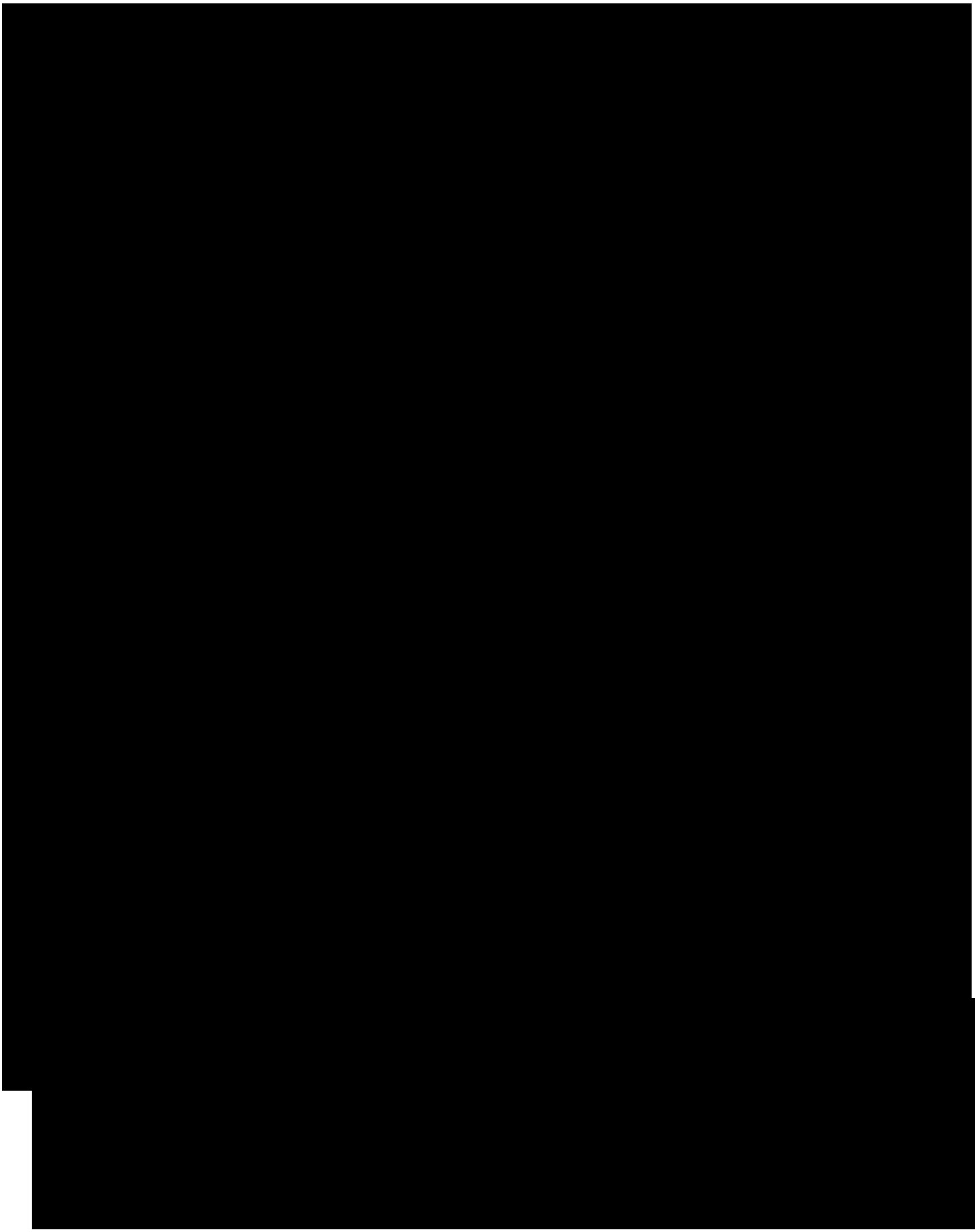

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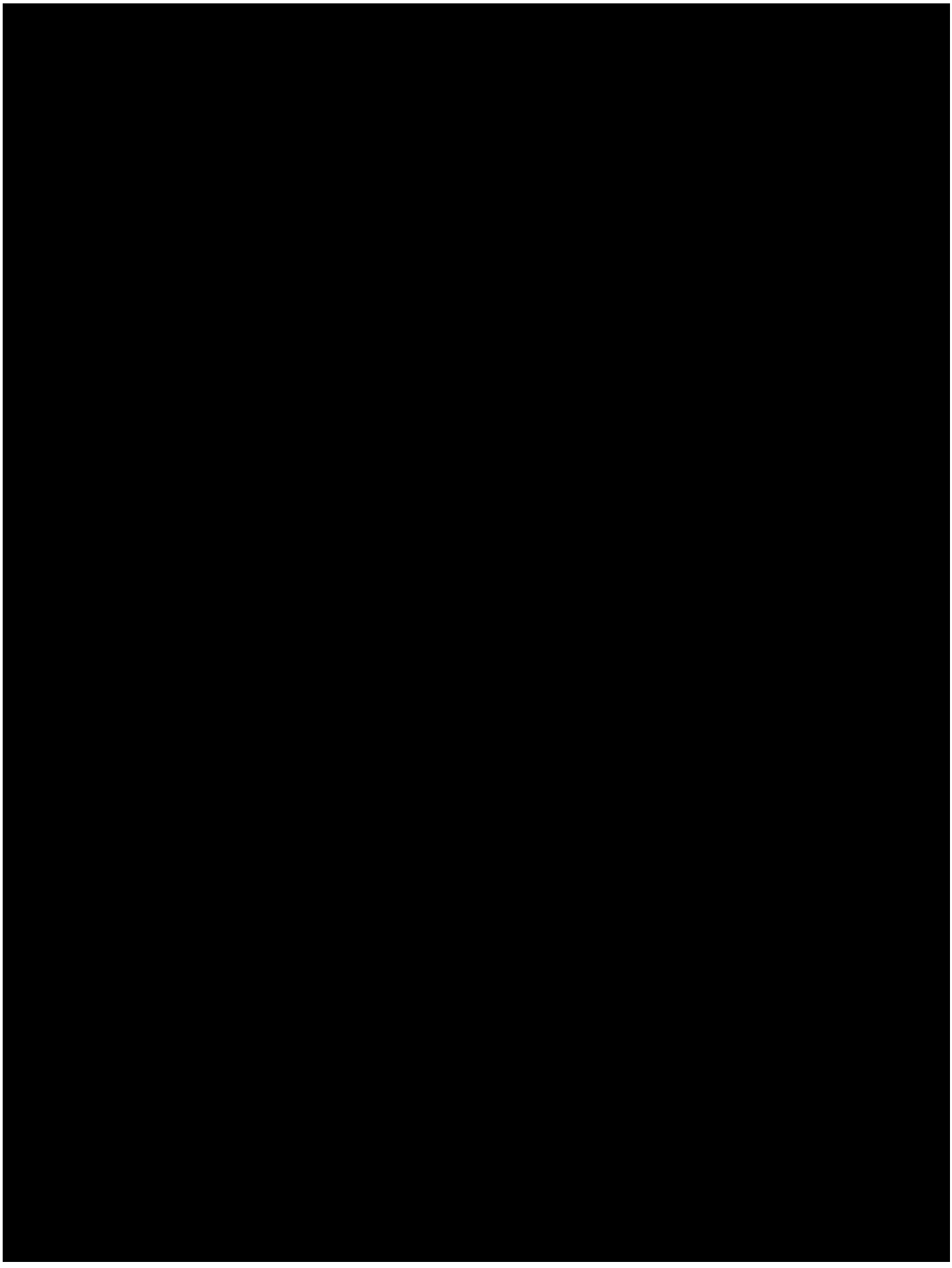

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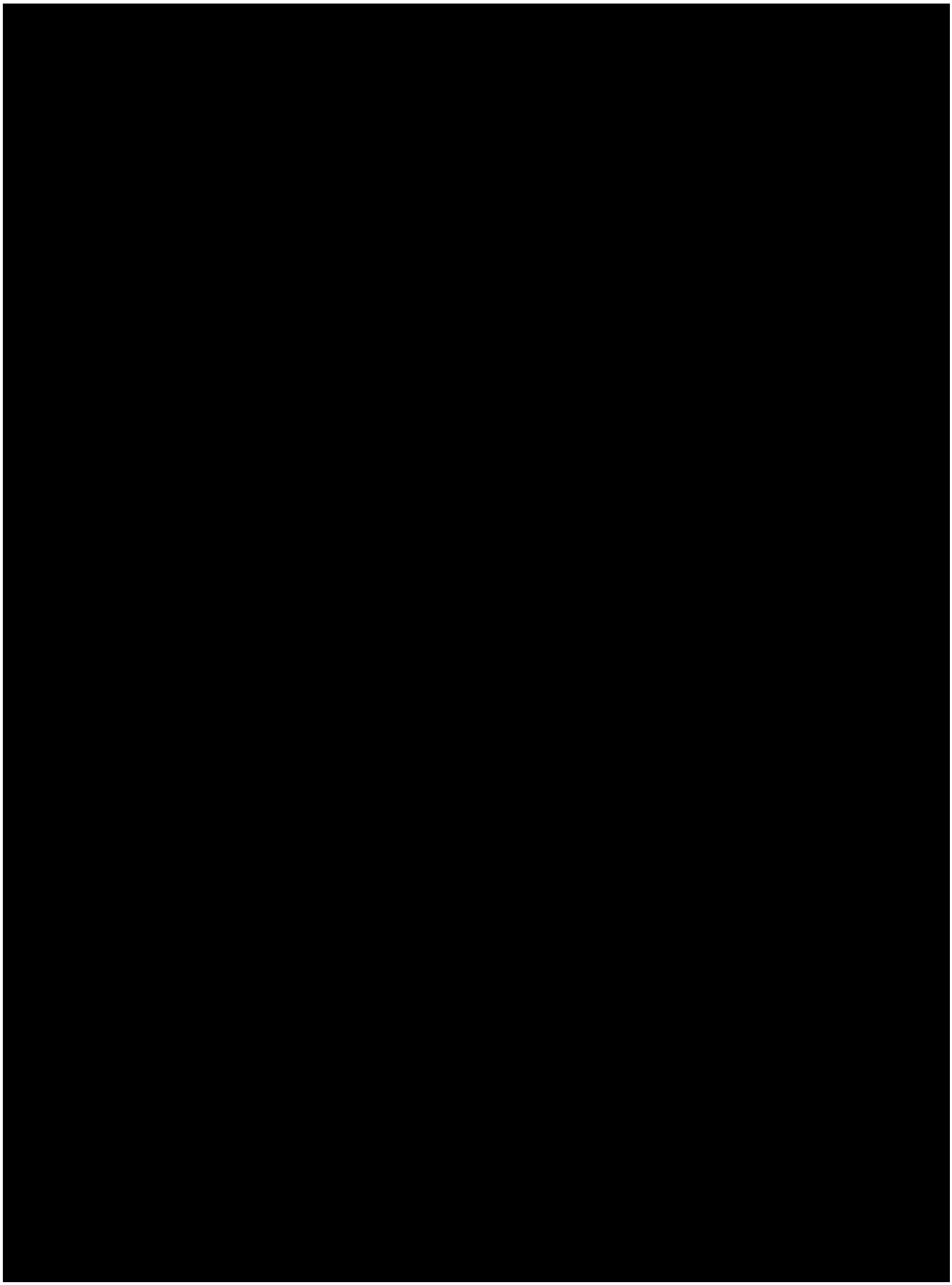

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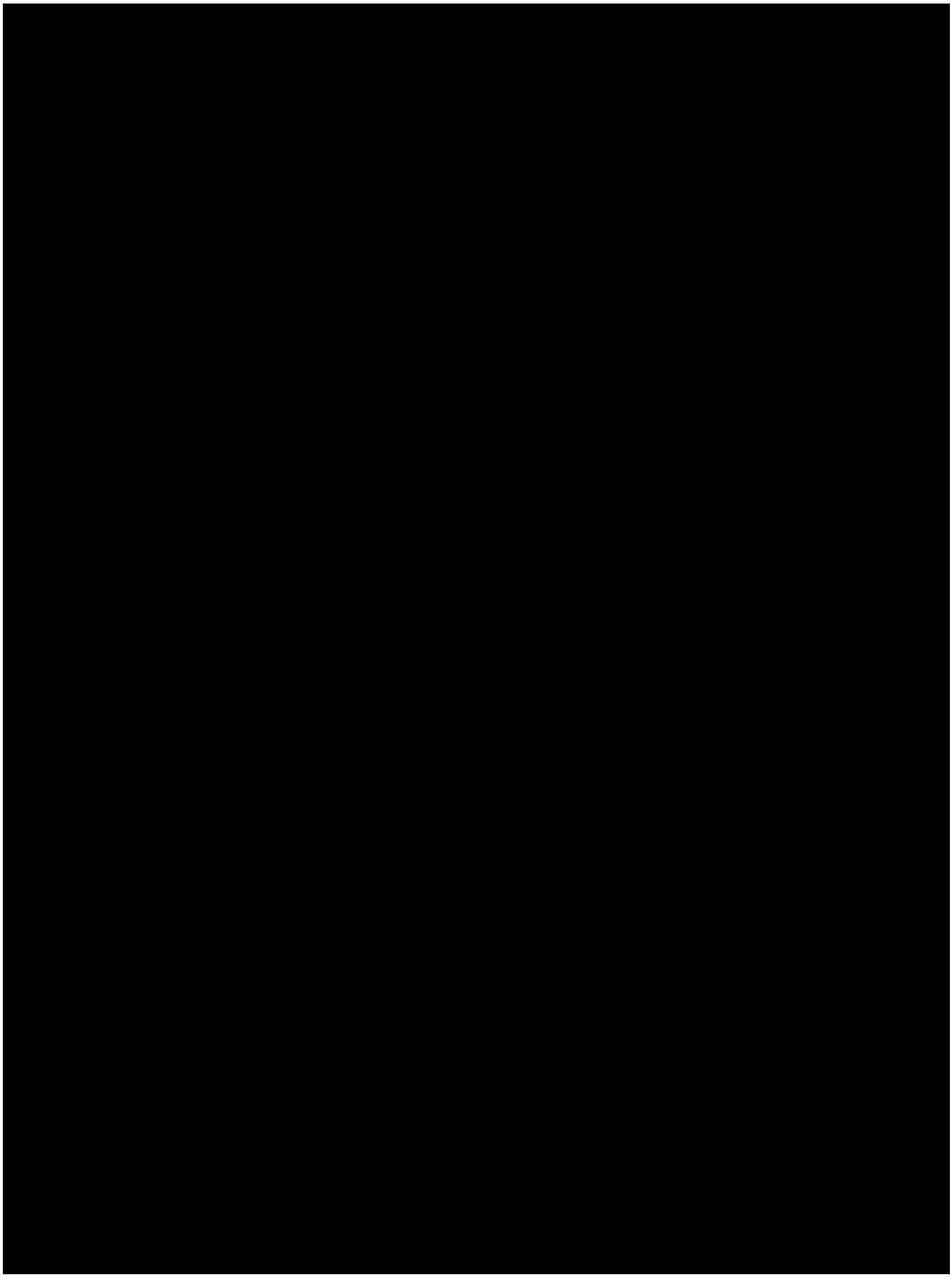

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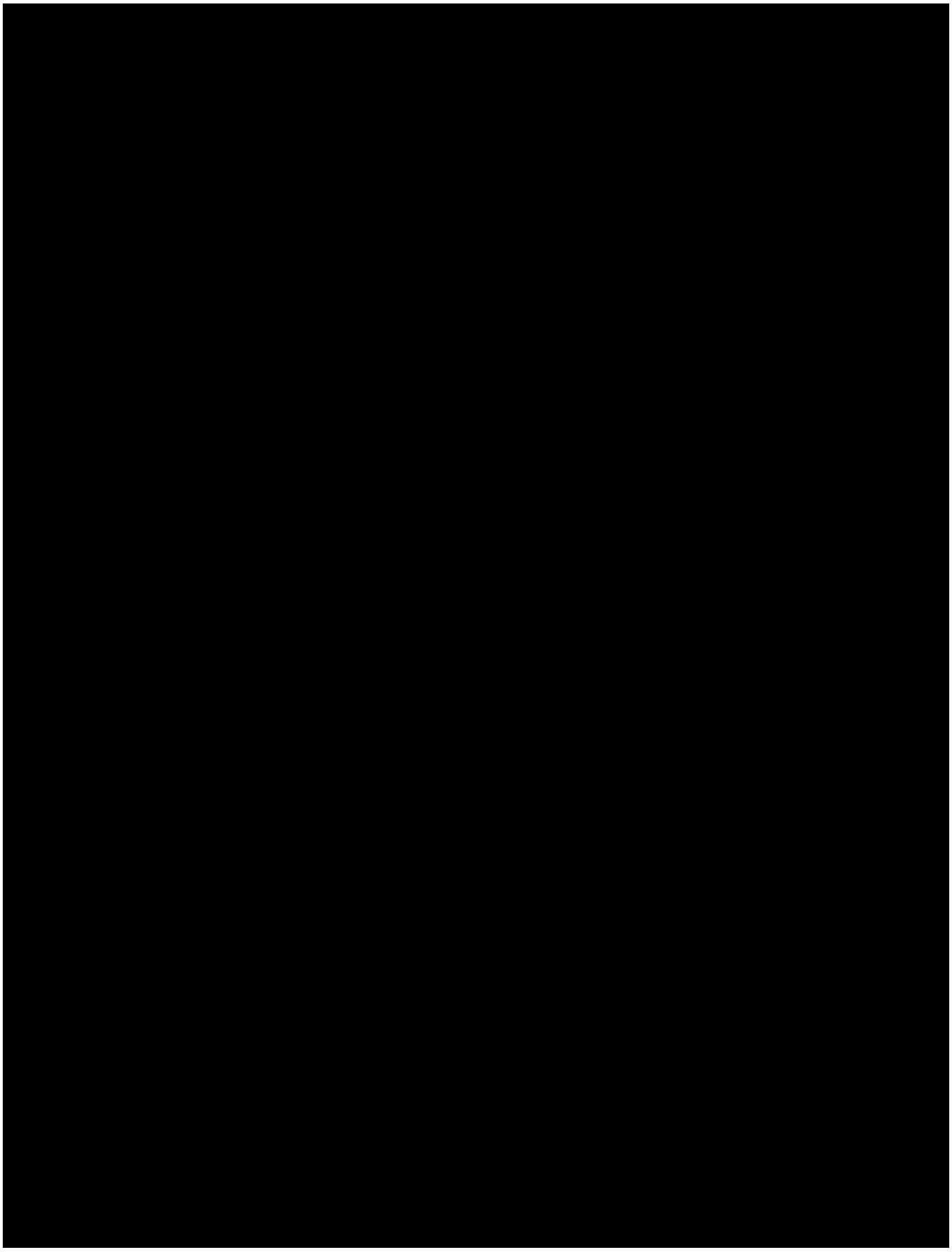

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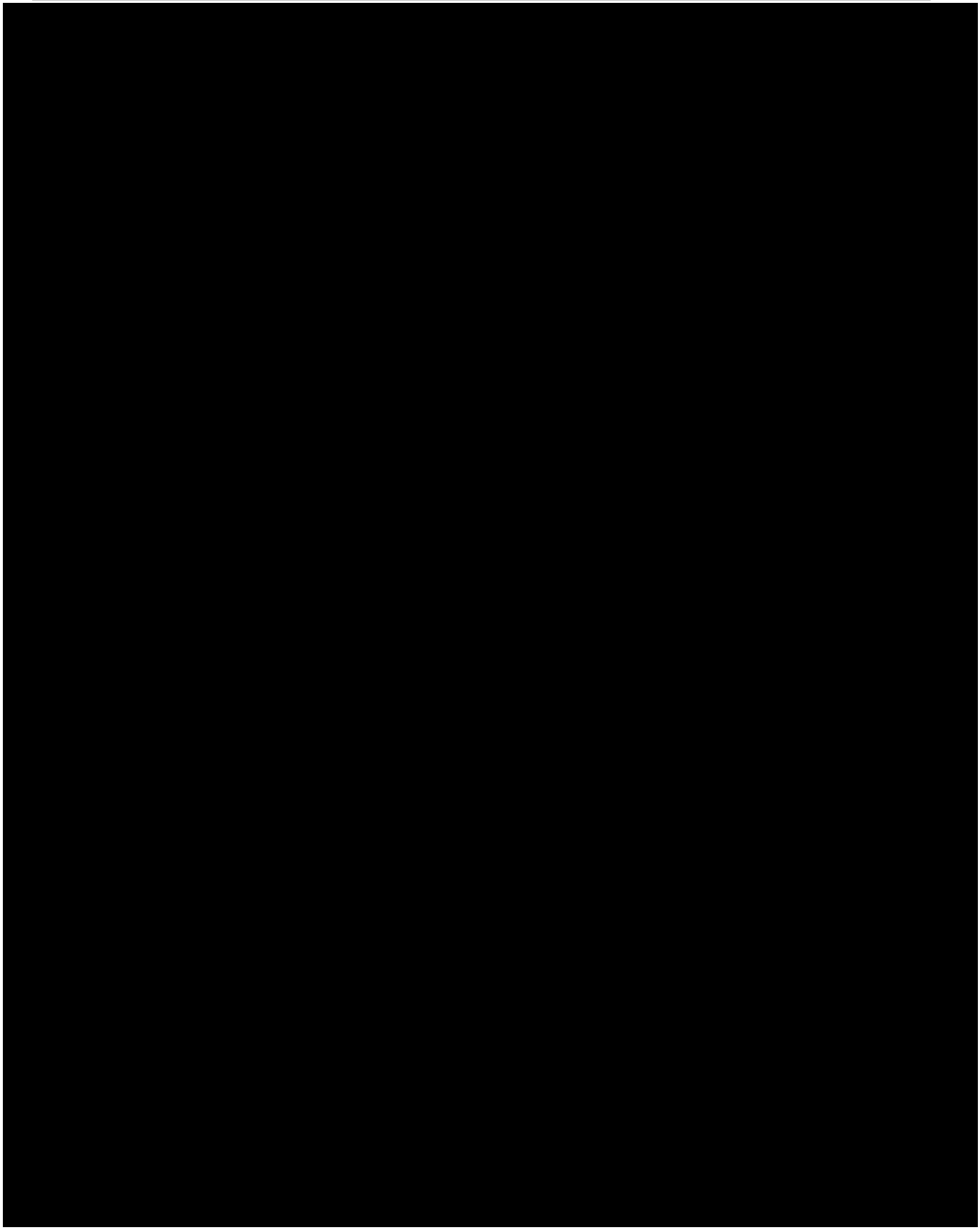

complex solutions to business and technology partners across the firm in accordance with all

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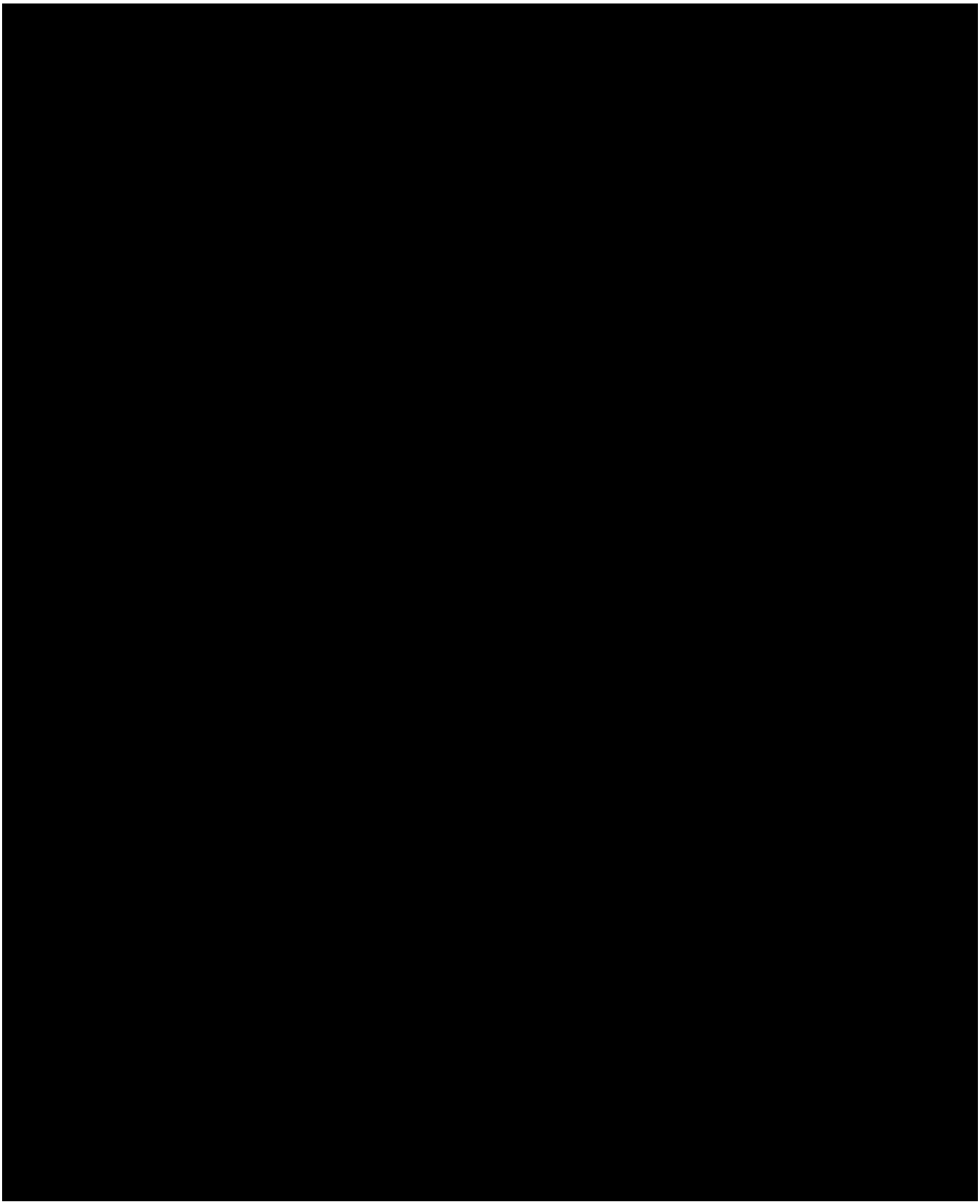

Main POC Name, Title Address and Phone#:

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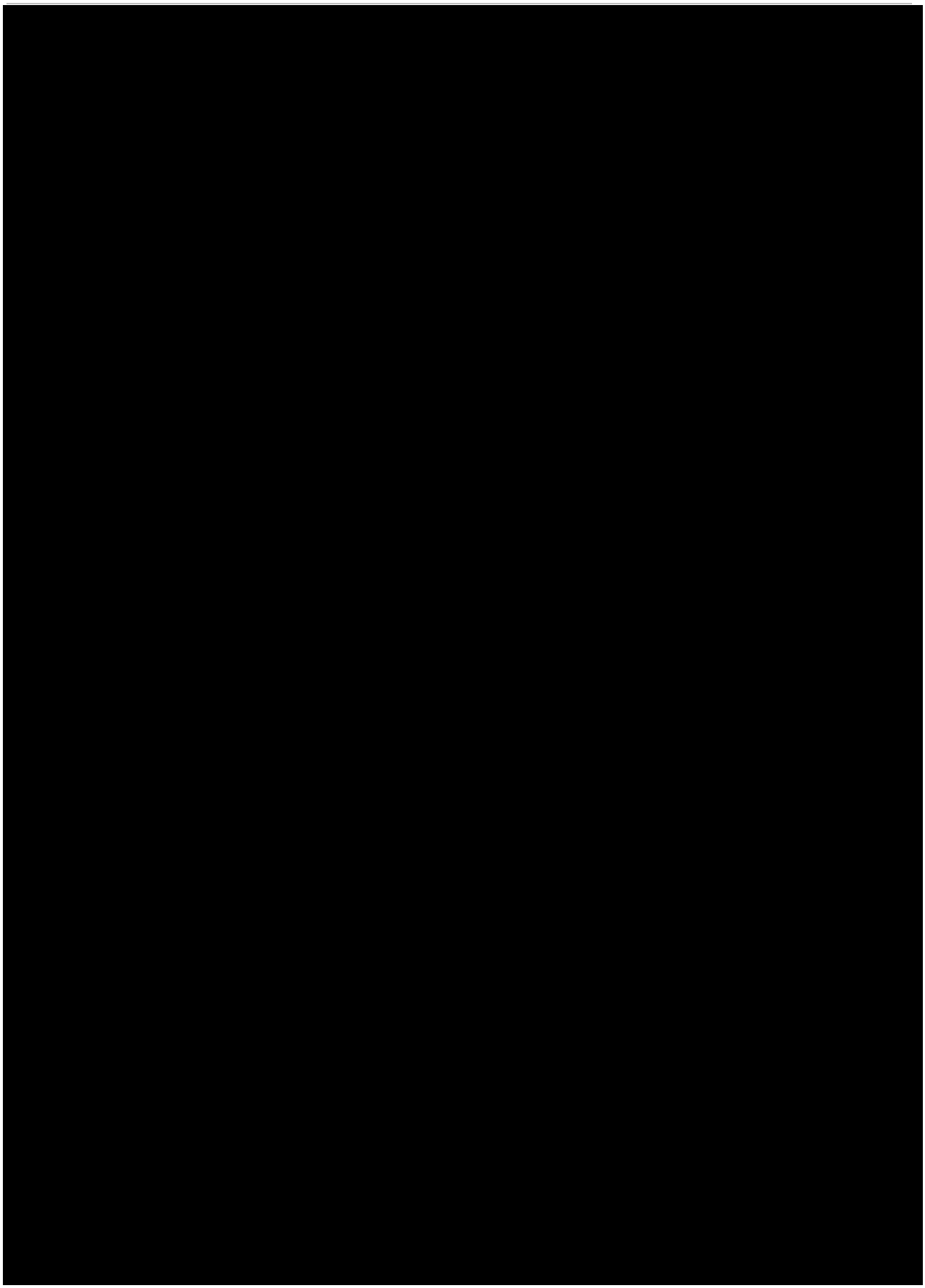

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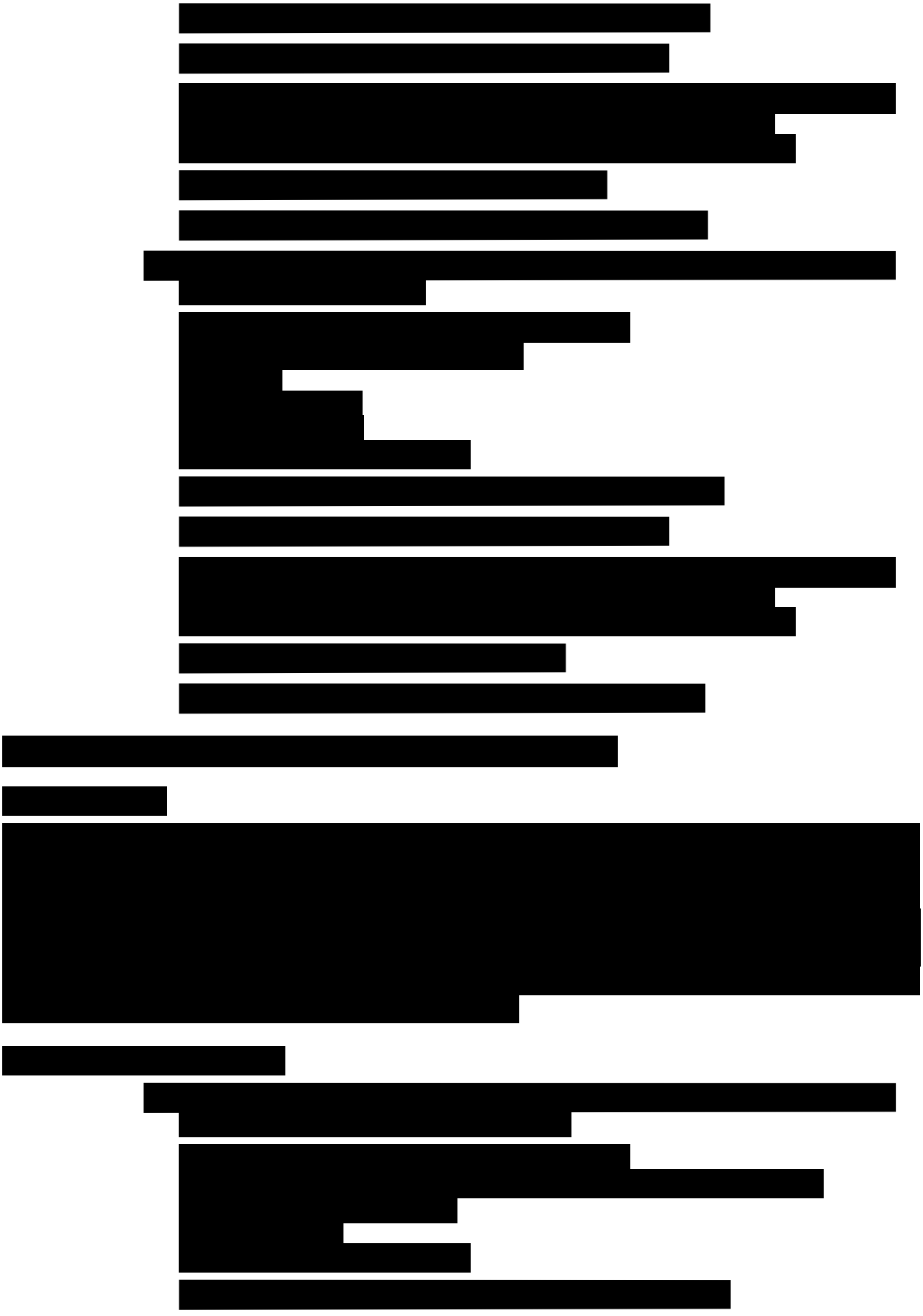

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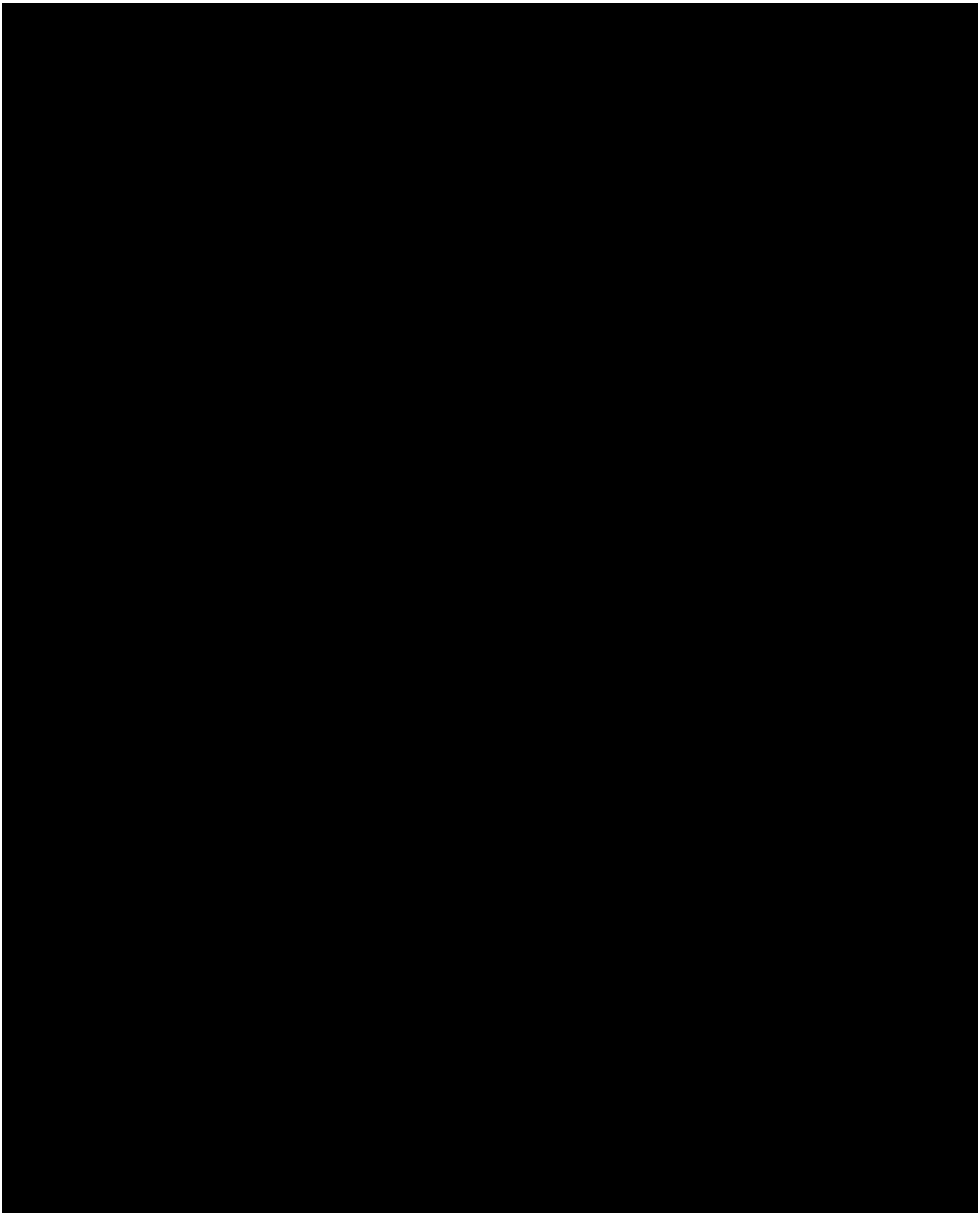

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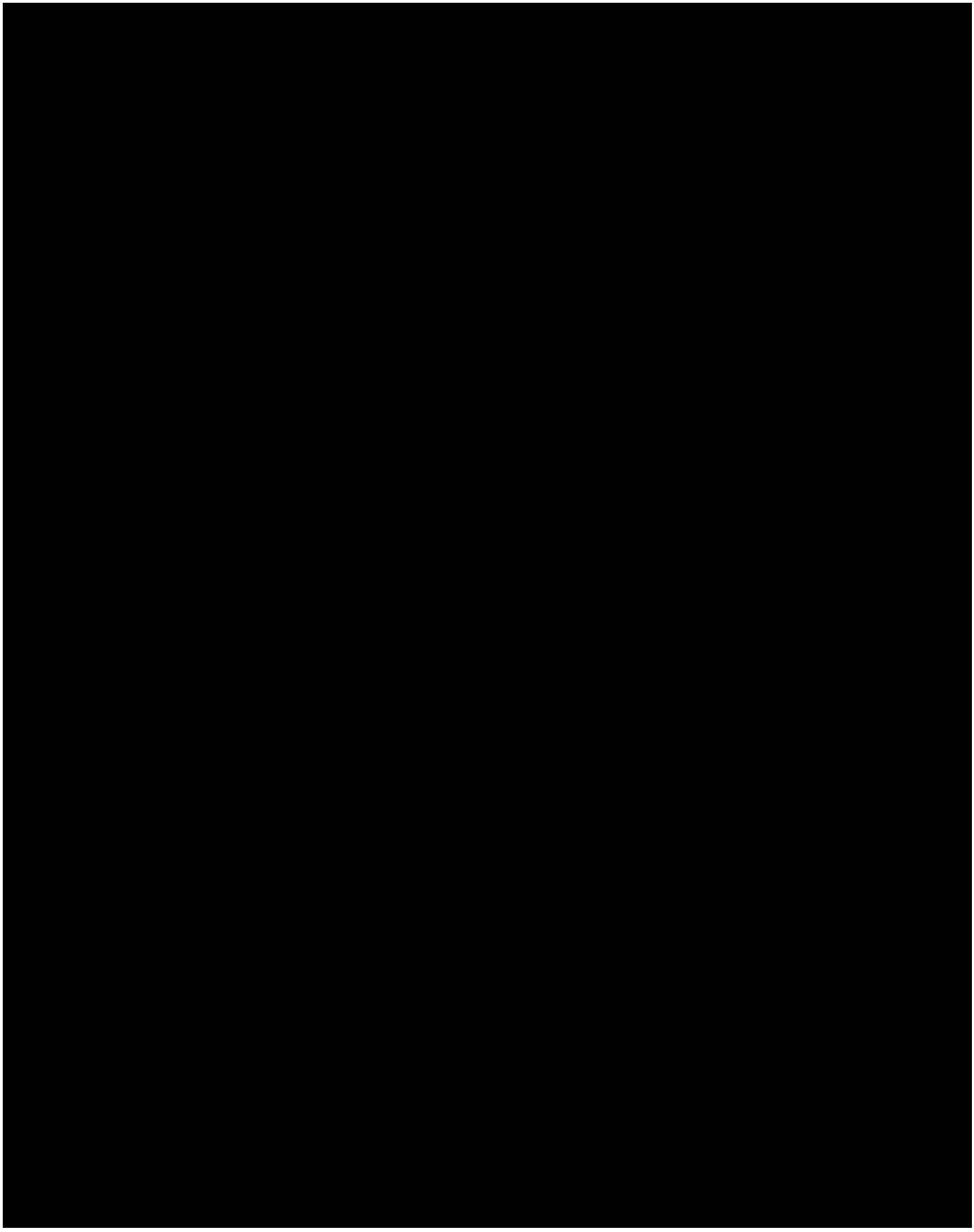

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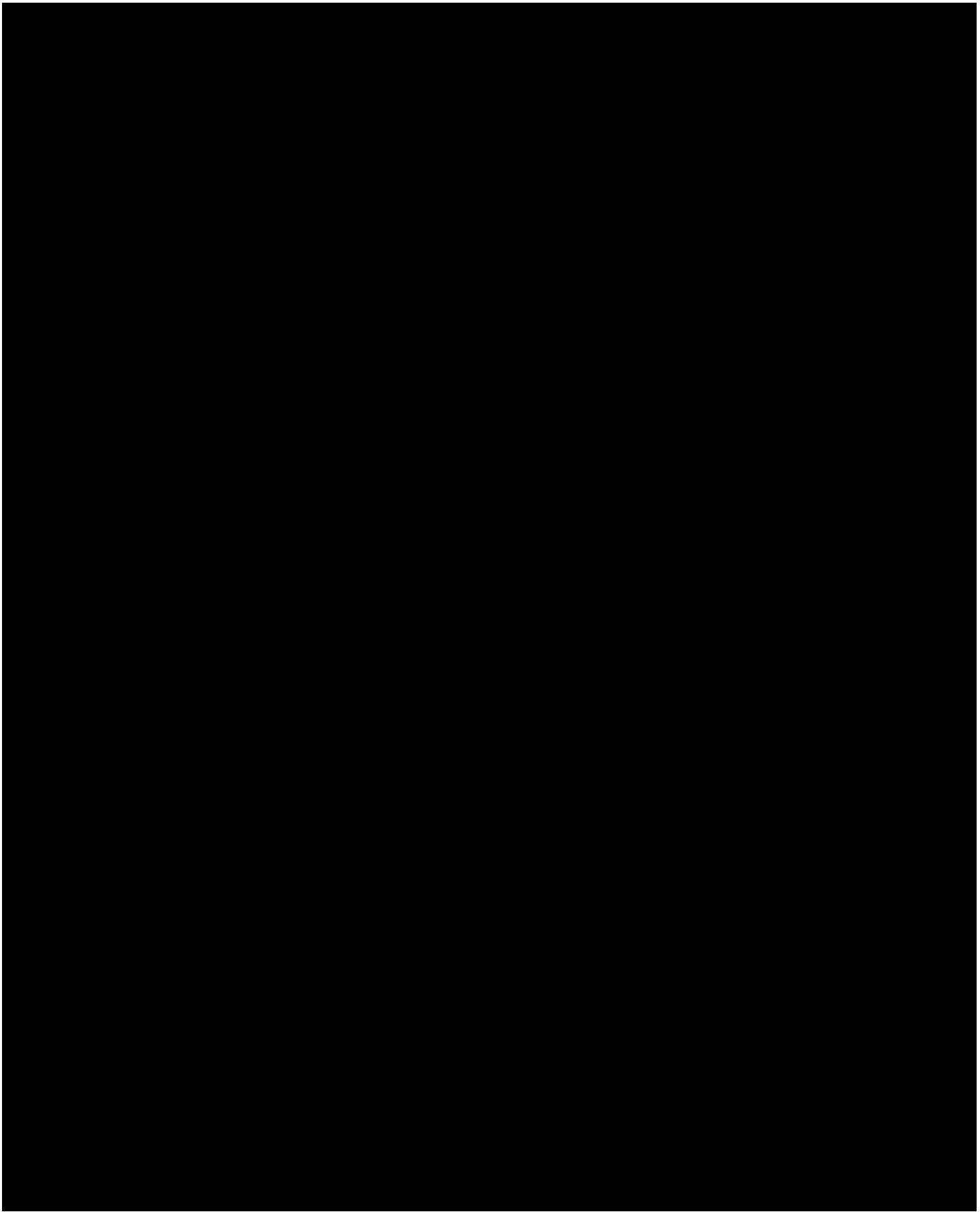

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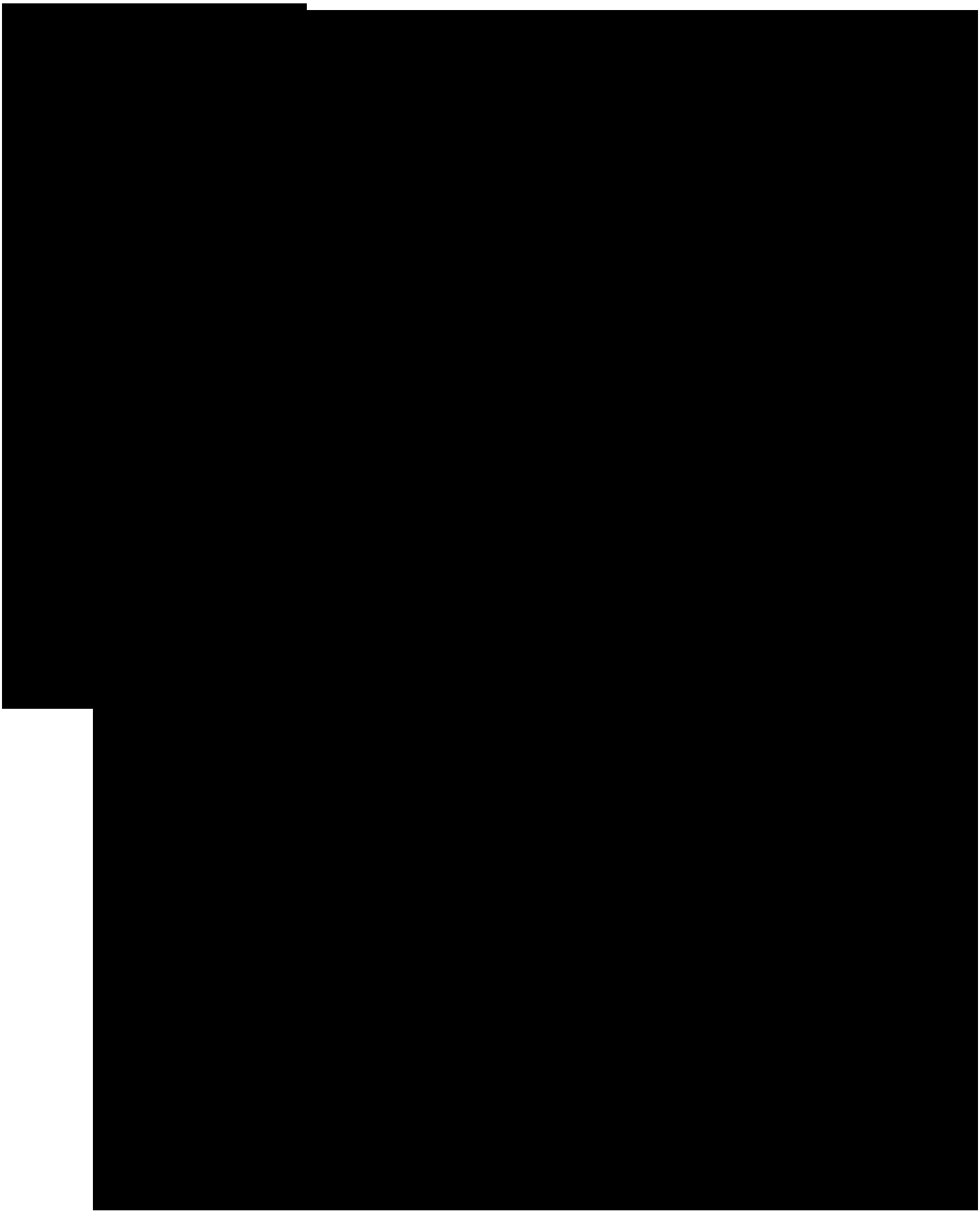

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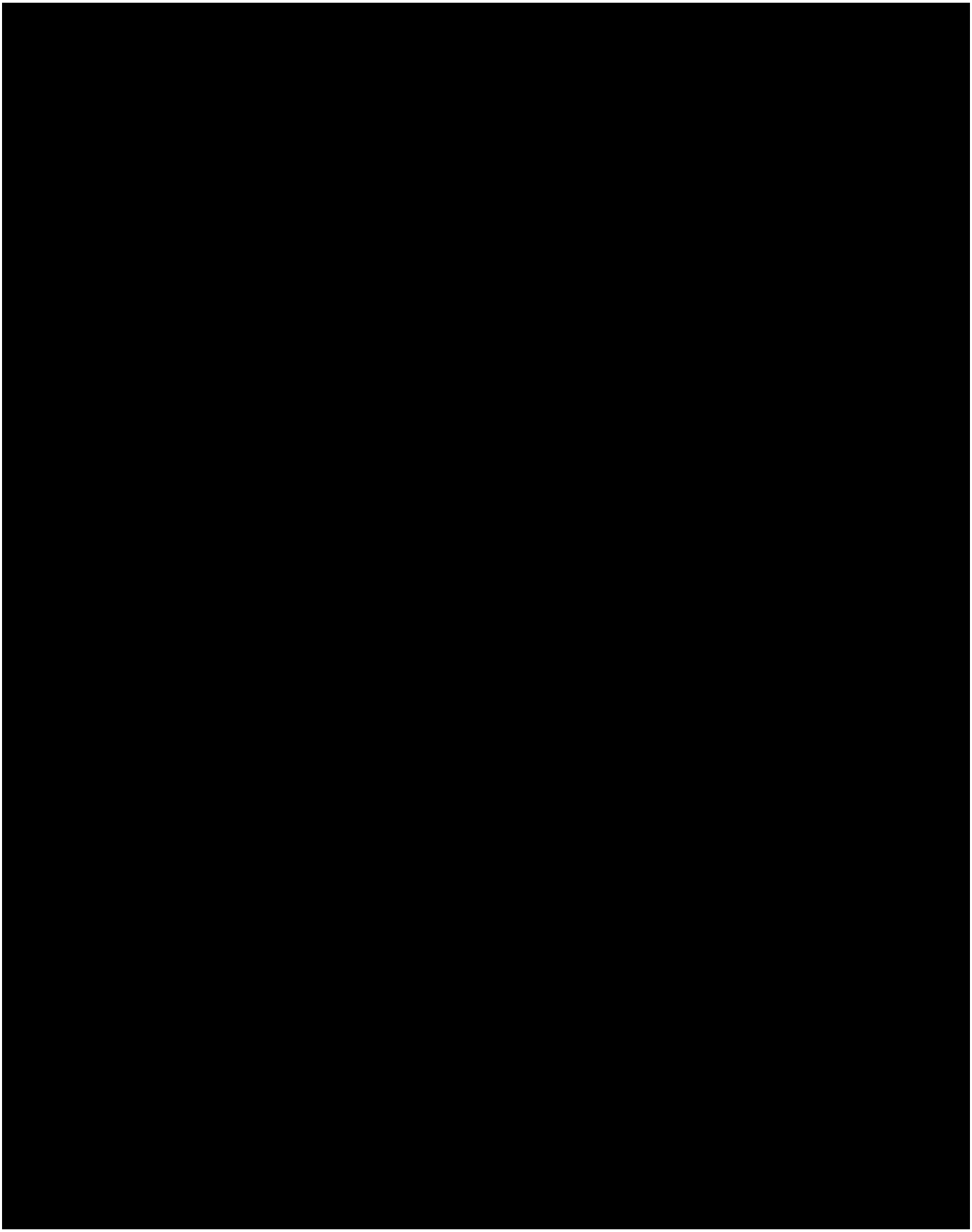

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Price

Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

The Future of Mobility

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5 INIT's High-Value, Cost-Effective Solution

5.1 Pricing Summary

Next Generation ORCA System Integrator RFP

Proposal Pricing Form

Item No.	Description	Total Price
1	Implementation Services	[redacted]
2	System Software and Design	
3	Equipment and Spares	
4	Fare Media	
5	Operations and Maintenance Support Services	
6	Software Licenses	
7	Value-added Features and Capabilities	
8	Management Discount	
	GRAND TOTAL	**$98,710,682.91**

Signed:

[redacted]

October 30, 2017

Date

Name & Title

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5.2 Pricing Form

Next Generation ORCA System Integrator RFP

Pricing Form

Item No.	SOW Ref.*	Description	Unit	Est. Qty.	Unit Price	Amount
1. IMPLEMENTATION SERVICES						
	Program and Contract Management					
1.01	2	Program & Contract Management (NTP to System Acceptance)	LS	1		
	3	UI/UX Consultant	LS	1		
		Performance Bond	LS	1		
Subtotal - Program and Contract Management						
	Installation and Transition Services					
1.02	2	Transition Strategy and Planning	LS	1		
1.03	2	Back-Office Installation and Configuration, Including Documentation	LS	1		
1.04	2	Field Device Site Surveys and Prototyping	LS	1		
1.05	2	Onboard Equipment (validator and DDU) Installation, Commissioning, and Documentation (Excluding KCM)	EA	1003		
1.06	2	Onboard Validator Equipment Installation, Commissioning, and Documentation (KCM Only)	EA	1495		
1.07	2	Wayside Validator Installation, Commissioning & Documentation	EA	1095		
1.08	2	VM Installation, Commissioning & Documentation	EA	291		
1.09	2	CST Installation, Commissioning & Documentation	EA	41		
Subtotal - Installation and Transition Services						
	Testing					
1.10	2	Agency Test Facility Implementation, Housing, and Documentation	LS	1		
1.11	2	Factory Testing and Documentation	LS	1		
1.12	2	Integration Testing and Documentation	LS	1		
1.13	2	Pilot Testing and Documentation	LS	1		
1.14	2	System Acceptance Testing and Documentation	LS	1		
Subtotal - Testing						

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	Training				
1.15	2	Training Course Development and Materials	LS	1	[redacted]
1.16	2	Training Course Delivery	EA	1	
Subtotal - Training					
	Manuals				
1.17	2	System Manuals	LS	1	
Subtotal - Manuals					
TOTAL PRICE - 1. IMPLEMENTATION SERVICES					[redacted]

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Item No.	SOW Ref.*	Description	Unit	Est. Qty	Unit Price	Amount
2. SYSTEM SOFTWARE DESIGN						
	Back Office Applications					
2.01	6	Account-based Transaction Processor	LS	1		
2.02	6	Customer Relationship Management	LS	1		
2.03	6	Asset Incident Management	LS	1		
2.04	6	System Manager	LS	1		
2.05	6	Fare Media Management	LS	1		
2.06	6	Financial Management	LS	1		
2.07	6	Central Payment	LS	1		
2.08	6	Configuration and Change Management	LS	1		
2.09	6	Tariff Management	LS	1		
2.10	6	API Management	LS	1		
Subtotal - Back Office Applications						
	Externally Sourced Applications					
2.11	5	Customer Mobile App	LS	1		
2.12	5	Agency Mobile Apps (Fare Inspection & Fare Payment)	LS	1		
2.13	5	Customer Website	LS	1		
Subtotal - Externally Sourced Applications						
	Field Device and Equipment Software					
2.14	4	Onboard and Wayside Validator Software	LS	1		
2.15	4	Driver Display Unit Software	LS	1		
2.16	4	Customer Service Terminal Software	LS	1		
2.17	4	Full Feature Vending Machine Software	LS	1		
Subtotal - Field Device and Equipment Software						
	API Development					
2.18	3	Application Programming Interface (API) Development	LS	1		
Subtotal - API Development						
	System Integration Services					
2.19	3	Onboard Integration (PT, CT, KT, ET)	LS	4		
2.20	3	Onboard Integration (KCM)	LS	1		
2.21	3	Washington State Ferries Integration	LS	1		
2.22	3	Data Access and Reporting Platform (DARe) Integration	LS	1		
2.23	3	Retail Network Integration	LS	1		

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2.24	3	Integration with Legacy ORCA Back Office	LS	1	[redacted]
2.25	3	ADA Paratransit Integration	LS	1	
2.26	6	Integration of Agency Provided CRM Application ($0 if SI-provided CRM application is proposed)	LS	1	
2.27	6	Integration of Agency Provided Financial Application ($0 if SI-provided financial application is proposed)	LS	1	
		Vanpool Integration	LS	1	
Subtotal - System Integration Services					
	Transit Payment Application				
2.28	7	Transit Payment Application	LS	1	
Subtotal - Transit Payment Application					
TOTAL PRICE - 2. SYSTEM SOFTWARE DESIGN					

Item No.	SOW Ref.*	Description	Unit	Est. Qty	Unit Price	Amount
3. EQUIPMENT AND SPARES						
	Production Equipment and Spares					
3.01	4	Back Office Hardware - Four Environments ($0.00 if cloud is proposed)	LS	1		
3.02	4	Onboard Validator (including spares)	EA	2,926		
3.03	4	Onboard Validator Mounting System and Installation Kit (including spares)	EA	2,926		
3.04	4	Driver Display Unit (including spares)	EA	1,086		
3.05	4	Driver Display Unit Mounting System and Installation Kit (including spares)	EA	1,086		
3.06	4	Wayside Validator (including spares)	EA	1,160		
3.07	4	Wayside Validator Mounting System and Installation Kit (including spares)	EA	1,160		
3.08	4	Customer Service Terminal (including spares)	EA	41		
3.09	4	CST Portable Printer	EA	12		
3.10	4	CST Mail Center Printer	EA	14		
3.11	4	Full Feature Vending Machine (including spares)	EA	146		
3.11a	4	Credit for omission of bill and coin acceptance	EA			
3.11b	4	Credit for omission of coin acceptance	EA			
3.11c	4	Credit for omission of change issuance	EA			
3.11d	4	Credit for omission of media issuance	EA			
		Light Vending Machine	EA	146		
Subtotal - Production Equipment and Spares						
	Test Equipment					
3.12	2	Agency Test Facility Hardware - Seven Agencies	LS	1		
Subtotal - Test Equipment						
	Training Equipment					
3.13	2	On-board Training Unit (BIB) - including validator, DDU and other SI equipment)	EA	12		
3.14	2	Wayside Training Unit - including wayside validator	EA	3		
3.15	2	CST Training Unit	EA	7		
Subtotal - Training Equipment						
TOTAL PRICE - 3. EQUIPMENT AND SPARES						

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Item No.	SOW Ref.*	Description	Unit	Est. Qty	Unit Price	Amount
4. FARE MEDIA						
	Fare Media					
4.01	7	Contactless Extended-use Smart Cards (including training and test cards)	EA	1 M		
TOTAL PRICE - 4. FARE MEDIA						

Item No.	SOW Ref.*	Description	Unit	Est. Qty
5. OPERATIONS AND MAINTENANCE SUPPORT SERVICES				
	Software Maintenance Agreement			
5.01	8	Year 1 – Software Maintenance Agreement	MO	12
5.02	8	Year 2 – Software Maintenance Agreement	MO	12
5.03	8	Year 3 – Software Maintenance Agreement	MO	12
5.04	8	Year 4 – Software Maintenance Agreement	MO	12
5.05	8	Year 5 – Software Maintenance Agreement	MO	12
5.06	8	Year 6 – Software Maintenance Agreement	MO	12
5.07	8	Year 7 – Software Maintenance Agreement	MO	12
5.08	8	Year 8 – Software Maintenance Agreement	MO	12
5.09	8	Year 9 – Software Maintenance Agreement	MO	12
5.10	8	Year 10 – Software Maintenance Agreement	MO	12
5.11	8	Year 11 – Software Maintenance Agreement	MO	12
Subtotal - Software Maintenance Agreement				
	System Operations and Maintenance			
5.12	8	Year 1 – System Operations & Maintenance	MO	12
5.13	8	Year 2 – System Operations & Maintenance	MO	12
5.14	8	Year 3 – System Operations & Maintenance	MO	12
5.15	8	Year 4 – System Operations & Maintenance	MO	12
5.16	8	Year 5 – System Operations & Maintenance	MO	12
5.17	8	Year 6 – System Operations & Maintenance	MO	12
5.18	8	Year 7 – System Operations & Maintenance	MO	12
5.19	8	Year 8 – System Operations & Maintenance	MO	12
5.20	8	Year 9 – System Operations & Maintenance	MO	12
5.21	8	Year 10 – System Operations & Maintenance	MO	12
5.22	8	Year 11 – System Operations & Maintenance	MO	12

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5.23	8	Year 12 – System Operations & Maintenance	MO	12	
Subtotal - System Operations and Maintenance					
	System Hosting				
5.24	3 & 8	Year 1 - Back Office, Test Facility, and Website Hosting	MO	12	
5.25	3 & 8	Year 2 - Back Office, Test Facility, and Website Hosting	MO	12	
5.26	3 & 8	Year 3 - Back Office, Test Facility, and Website Hosting	MO	12	
5.27	3 & 8	Year 4 - Back Office, Test Facility, and Website Hosting	MO	12	
5.28	3 & 8	Year 5 - Back Office, Test Facility, and Website Hosting	MO	12	
5.29	3 & 8	Year 6 - Back Office, Test Facility, and Website Hosting	MO	12	
5.30	3 & 8	Year 7 - Back Office, Test Facility, and Website Hosting	MO	12	
5.31	3 & 8	Year 8 - Back Office, Test Facility, and Website Hosting	MO	12	
5.32	3 & 8	Year 9 - Back Office, Test Facility, and Website Hosting	MO	12	
5.33	3 & 8	Year 10 - Back Office, Test Facility, and Website Hosting	MO	12	
5.34	3 & 8	Year 11 - Back Office, Test Facility, and Website Hosting	MO	12	
5.35	3 & 8	Year 12 - Back Office, Test Facility, and Website Hosting	MO	12	
5.36	3 & 8	Year 13 - Back Office, Test Facility, and Website Hosting	MO	12	
5.37	3 & 8	Year 14 - Back Office, Test Facility, and Website Hosting	MO	12	
Subtotal - System Hosting					
	Warranty				
5.38	8	System Warranty (from Beneficial Use until 12 months after Final Acceptance)	LS	1	
Subtotal - Warranty					
TOTAL PRICE - 5. OPERATIONS AND MAINTENANCE SUPPORT SERVICE					

[redacted]

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Item No.	SOW Ref.*	Description	Unit	Est. Qty	Unit Price	Amount
6. SOFTWARE LICENSES						
6.01	3	Software Licenses - All Environments	LS	1	[redacted]	
TOTAL PRICE - 6. SOFTWARE LICENSES						

Item No.	SOW Ref.*	Description	Unit	Est. Qty
7. Value-Added Features and Capabilities				
		Open Payments		
		Open APIs		
		Fare Capping/Loyalty Programs		
TOTAL PRICE - 7. VALUE-ADDED FEATURES AND CAPABILITIES				

***Refers to sections in the RFP SOW where capabilities associated with the pricing item are listed. Capabilities for any given pricing item may also be included in other sections of the SOW not listed on the pricing form.**

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5.3 Pricing Notes

Below are notes that correspond to the numbers in the Pricing Form above.

1.01 Program and Contract Management

INIT has added a line to represent our price for the 3rd Party UI/UX Consultant requested in Section 3.1.6 of the RFP.

A line for the Performance Bond required to secure the warranty of our work has been added.

1.07-1.08 Installations

Any civil works necessary to install vending machines and wayside validators including poles, control cabinets, etc. are not included unless otherwise stated in the proposal.

Light Vending Machine

This proposed machine does not offer change but will accept coins and bills and will issue one type of fare media.

2.05 Alternative Fare Media Management

The alternative fare media management solution described in Tab 1, Section 1.8.6 of the INIT proposal is priced below.

Item No.	SOW Ref.*	Description	Unit	Est. Qty	Unit Price	Amount
2.05	6	Alternative Fare Media Management Productive Solutions	LS	1	[redacted]	
	System Operations and Maintenance					
5.12	8	Year 1 – System Operations & Maintenance	MO	12		
5.13	8	Year 2 – System Operations & Maintenance	MO	12		
5.14	8	Year 3 – System Operations & Maintenance	MO	12		
5.15	8	Year 4 – System Operations & Maintenance	MO	12		
5.16	8	Year 5 – System Operations & Maintenance	MO	12		
5.17	8	Year 6 – System Operations & Maintenance	MO	12		
5.18	8	Year 7 – System Operations & Maintenance	MO	12		
5.19	8	Year 8 – System Operations & Maintenance	MO	12		
5.2	8	Year 9 – System Operations & Maintenance	MO	12		
5.21	8	Year 10 – System Operations & Maintenance	MO	12		
5.22	8	Year 11 – System Operations & Maintenance	MO	12		
5.23	8	Year 12 – System Operations & Maintenance	MO	12		
		Subtotal - System Operations and Maintenance				
TOTAL PRICE – ALTERNATIVE FARE MEDIA MANAGEMENT WITH PRODU SOLUTIONS						

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2.06 Alternative Financial Management

The alternative financial management solution described in Tab 1 Section 1.8.7 of the INIT proposal is priced below.

Item No.	SOW Ref.*	Description	Unit	Est. Qty	Unit Price	Amount
2.06	6	Alternative Financial Management Mythics - Oracle eBusiness	LS	1	[redacted]	[redacted]
	Software Maintenance Agreement					
5.01	8	Year 1 – Software Maintenance Agreement	MO	12		
5.02	8	Year 2 – Software Maintenance Agreement	MO	12		
5.03	8	Year 3 – Software Maintenance Agreement	MO	12		
5.04	8	Year 4 – Software Maintenance Agreement	MO	12		
5.05	8	Year 5 – Software Maintenance Agreement	MO	12		
5.06	8	Year 6 – Software Maintenance Agreement	MO	12		
5.07	8	Year 7 – Software Maintenance Agreement	MO	12		
5.08	8	Year 8 – Software Maintenance Agreement	MO	12		
5.09	8	Year 9 – Software Maintenance Agreement	MO	12		
5.1	8	Year 10 – Software Maintenance Agreement	MO	12		
5.11	8	Year 11 – Software Maintenance Agreement	MO	12		
		Subtotal - Software Maintenance Agreement				
TOTAL PRICE – ALTERNATIVE FINANCIAL MANAGEMENT WITH ORACL EBUSINESS						

2.07 Central Payment

As required in the RFP Section Two Scope of Work section 3.2.4.9, this price includes our Central Payment Processing API and does not include costs for the payment processor or payment gateway.

2.19-2.27 System Integration Services

If INIT is not appointed as the main contractor or system supplier, INIT can only accept technical responsibility for the creation and proper functioning of the components supplied by INIT for the interfaces to the third-party systems. Technical responsibility comprises the technical specifications and the test on the interfaces on the basis of the information and facilities made available. It does not include responsibility for third-party systems' interfaces functioning on schedule and perfectly.

Additional Agencies

INIT's robust system is capable of supporting the addition of the required five (5) additional agencies (Req. 3.3.11-4) however the costs for this are not included and could be determined in the future through a project change order.

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Onboard Integrations

Onboard Integrations for the Sound Transit, Pierce Transit, Kitsap Transit and Everett Transit are priced in this section. As the CAD/AVL Supplier for Community Transit and King County Metro, our proposal includes the integration of these 2 systems with no additional costs to the ORCA program.

Vanpool Integration Phase 1

Our proposal includes the price to integrate with the Vanpool system as required in RFP section 3.3.10. The full vanpool integration for Phase 2 is not included.

Section 5: Operations and Maintenance Support Services

The chart below describes INIT's assumptions for the number of years associated with each project phase.

	2018 Year 0	2019 Year 1	2020 Year 2	2021 Year 3	2022 Year 4	2023 Year 5	2024 Year 6	2025 Year 7	2026 Year 8	2027 Year 9	2028 Year 10	2029 Year 11	2030 Year 12	2031 Year 13	2032 Year 14	2033 Year 15
Project Awarded	x															
Project Design		x														
Implemen-tation			x	x												
System Warranty					x											
Hosting			x	x	x	x	x	x	x	x	x	x	x	x	x	x
Software Maintenance						x	x	x	x	x	x	x	x	x	x	x
System Operations & Maintenance					x	x	x	x	x	x	x	x	x	x	x	x

Section 7: Value Add Features and Capabilities

INIT is including Value-added Features such as Open Payments, Open APIs and Fare Capping in the base price of our proposal. For a detailed description of our potential value-added capabilities, please refer to Tab 6.

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5.4 Rates

System Integrator - As-Needed Services

Item No.	Description	Unit	Rate*
AS-NEEDED SUPPORT SERVICES			
AS.01	Senior Project Manager	HR	[redacted]
AS.01	Project Manager	HR	
AS.02	Systems Engineer (Sr)	HR	
AS.03	Systems Engineer (Mid)	HR	
AS.04	Systems Engineer (Jr)	HR	
AS.05	Software Engineer (Sr)	HR	
AS.06	Software Engineer (Mid)	HR	
AS.07	Software Engineer (Jr)	HR	
AS.08	Technician	HR	

* Agreed upon rates (applicable to CY 2017) may be subject to modification on an annual basis only, and may not exceed a percentage equivalent to the change in the BLS Consumer price index (CPI), from end of prior year, to the most recent available 6 month data period. Requests for rate adjustments must be submitted to the Contract Manager 45 days prior to the beginning of a new calendar year.

Signed:

[redacted] October 30, 2017

Date

[redacted]

Name & Title

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Value Added Features

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

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CONFIDENTIAL SECTIONS:

6.3 Ready for the future – With a fully Open Payments ready system included in the Base System!

6.4 Unique System Features – Only Available with INIT's Automatic Fare Collection System

6.4.a Maintain your own Fare Structure

6.4.b Increase Participation in Institutional Programs and Facilitate New Transit Partnerships

6.4.c Reduce Bus Dwell Time and Operator interaction

6.4.d EMV and Other Standards

6.4.e Seamless Operations through Easy Maintainable Devices

6.5 Real Flexibility in Technology – INIT provides Open API's

6.8 Minimizing Costs, Risks and Delivery Time

6.10 Future Oriented – Constant Refresh of Ideas

6.11 ORCA Next Phase and Potential Future Projects

6.11.1 Expansion to Other Agencies

6.11.2 Full Vanpool Integration

6.11.3 Paratransit Integration with Scheduling Systems

6.11.4 Acceptance of Open Payments

6.11.5 Limited-use fare media

6.11.6 Acceptance of Third-Party issued cards

6.11.7 Fare capping and other loyalty programs

6.11.8 Integration with Other Transportation Providers

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6 Value Added Features

6.1 Introduction

The next generation ORCA project team is seeking a strong and reliable partner that can deliver, fully integrate and operate a high quality regional fare collection system. INIT's product suite and our experience as a System Integrator is the perfect match providing exceptional Value Add and unique System Features.

Having implemented more than fifty Electronic Fare Collection Systems, our system has advanced and matured based on a strong cooperation with our worldwide community of Transit Agencies. With INIT being a leading vendor in Automated Fare Collection and Intelligent Transportation Systems (ITS), INIT is uniquely qualified to understand your needs.

The following sections of this document highlight unique Added Values and Benefits with INIT:

- **Swift and Dependable Implementation – INIT is the Preferred Provider of Account Based AFC Systems**
- **Unique System Features – With INITs most advanced Fare Collection System**
- **Ready for the Future – Open Payments developed and included in the Base System**
- **Real Flexibility in Technology – INIT provides open API's to Simplify Integration**
- **Environmental Value – Waste Management**
- **Knowledge Sharing – Engaged INIT Customers**
- **Minimizing Costs, Risks and Delivery Time – Engineered in Germany, Made in America**
- **Local to Seattle – INIT knows the Puget Sound region**
- **Future Oriented – Constant Refresh of Ideas**

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6.2 Swift and Dependable Implementation – Unique Knowledge in Account Based Systems

No other AFC vendor is implementing and integrating "state of the art" Account Based Automated Fare Collection Systems at the high level and expertise that INIT is currently providing. After a very thorough analysis of your RFP, we are pleased to state that your requirements are very similar to our on-going implementations of the Automated Fare Collection projects listed below. Due to the similarity in scope and design featuring Account Based Systems, Open APIs and more, INIT will be able to provide a fast and reliable implementation of the next generation ORCA system.

All components offered are based on proven technology. Building on the Portland HOP FastPass implementation, as well as recent fare system projects, INIT can significantly reduce the risk and accelerate the implementation process.

Account Based INIT Fare Collection Systems:

- **Portland OR (700 vehicles, 400 platform validators) – In revenue service**
- **Grand Rapids MI (150 vehicles and 35 platform validators)**
- **Honolulu HI (550 vehicles, 110 Ticket Vending Machines, 139 Faregates)**
- **Tampa FL (629 vehicles)**
- **Turku Finland (260 vehicles) – in revenue service**

6.3 Ready for the future – With a fully Open Payments ready system included in the Base System!

INIT's account-based AFC system is designed with Open Payments included in the base system. With Open Payments, customer can use their contactless credit cards or mobile wallets like Apple Pay, Android Pay and Samsung Pay to purchase their ticket right at the validator. No need to get a card, download an App or search for change. This lowers the entry barrier to use public transit tremendously and makes it especially easy for non-frequent riders like tourists.

They can simply use a preferred payment medium that they already possess, and they don't have to worry about potentially unused credit balances. The benefit to the ORCA agencies are the savings of media inventory administration costs and the complex accounting management of remaining credit balances.

The AFC system proposed for the next generation ORCA project will include Open Payments functionality and could be implemented in Phase One of the project.

See chapter 6.11.4 of this document for further details.

6.4 Unique System Features – Only Available with INIT's Automatic Fare Collection System

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[redacted]

[redacted]

6.4.4 EMV and Other Standards

INITs products adhere to well established international standards such as EMV, PCI and many more. INITs experience with these standards is an added value when it comes to reliability and conformity of the proposed products and systems.

[redacted]

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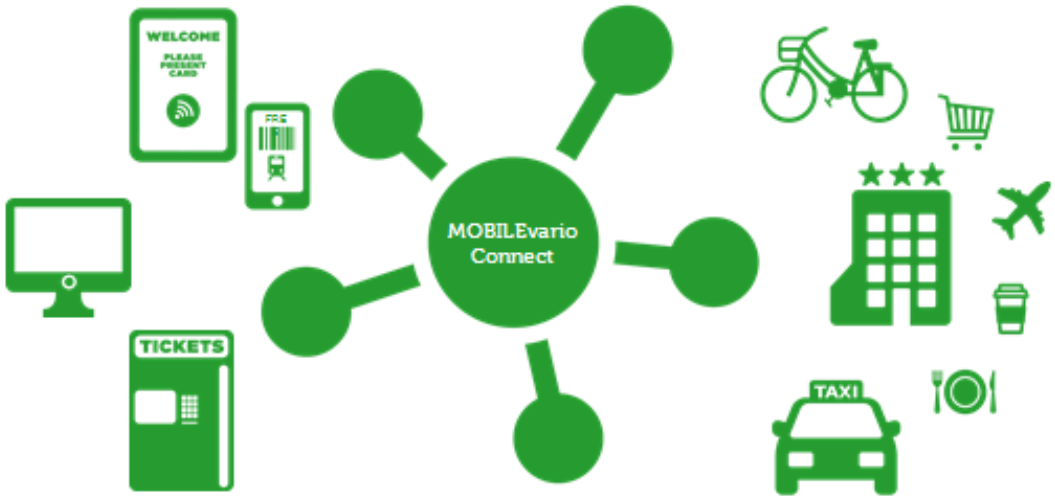
status of the components is monitored centrally and actions can therefore easily be dispatched.

INIT's Proximity Reader PROXmobil3

6.5 Real Flexibility in Technology – INIT provides Open API's

The INIT AFC solution offers a seamless experience for riders and the Transit Agency. We provide an integrated end-to-end system, which is tailored to your individual requirements. Our Open APIs (Application Programming Interfaces), used by multiple transit agency customers, give the Agency the freedom to easily grow your system and integrate new technologies or third party COTS solutions.



Integrating Multiple Parties through open API's

The open back-office system architecture combined with the flexible tariff solutions and the multi-client capability allows integration of different modes of transport into one system.
All modes of public transport as well as other transport modes such as car-sharing, bike-sharing, taxis, parking as well as road tolling can be integrated into INIT's account-based ticketing solution. This results in more convenience to customers since only one subscription is needed to use all modes of transportation. This enables users of the next generation ORCA

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system to use e.g. bike sharing options without any additional registration which reduces the entry barriers tremendously. Likewise other transportation services can be integrated into a multi-modal mobility account. All this is done via open Application Programming Interfaces (APIs), which enables the integration of 3rd party service providers and even hardware into the ticketing system and distribution network.

6.6 Environmental Value – Waste Management

INIT is a socially responsible business partner with a unique approach to fostering sustainability as a part of our company's corporate philosophy. We see transit as intrinsically "green," and have consequently aimed to make direct contributions to our community through an ongoing commitment to sustainability.

6.6.1 Zero Waste Initiative

What began as a simple recycling mission at INIT's corporate office located in Chesapeake, VA rapidly grew into a full-blown strategy to become a certified zero-waste-to-landfill company. Zero-waste-to-landfill means everything we use is reduced, reused, recycled or composted.

6.6.2 Partnership with TFC Recycling

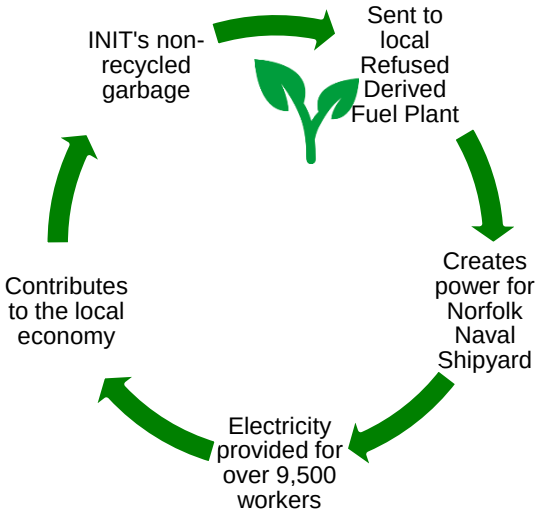
An important step for INIT was to partner with TFC Recycling, a leader in the collection, processing and marketing of recyclable materials and management of solid waste through innovative material recovery. TFC offers a single stream recycling process and provides an economically friendly solution for non-recyclable trash.

Non-recyclable, non-compostable garbage is sent to the Refuse Derived Fuel Plant, a local facility that treats and burns the waste for the creation of energy. This allows us to contribute to the local economy by providing the fuel for electricity to power the Norfolk Naval Shipyard which employs over 9,500 workers.

6.6.3 Community Impact

By the first year, 593 pounds of paper towel usage was eliminated through the use of hand dryers. The impact on the environment is calculated to be the equivalent of 11 trees with an estimated decrease in the company's carbon footprint of 69%.

The zero waste to Landfill Certification also compelled INIT to become a business member signatory on the APTA Sustainability Committee.



6.7 Knowledge Sharing with Engaged Customers

INIT hosts two types of user conferences annually; this is explained in more detail below. Conferences are typically hosted in cooperation with a local Transit Agency in order to facilitate technical tours. INIT varies the location around North America in an effort to make travel easier.

6.7.1 INIT Working Group

The Working Group conference is held annually and focuses on daily users of the system. The conference is very interactive. Agency End Users are able to discuss topics with their peers from other Agencies as well as INIT engineers and product managers.

6.7.2 INIT User Group

The INIT User Group Meeting is held annually; however, keep in mind that the location alternates between a North American location and a European location. The User Group conference focuses on managers and senior leadership. The topics relate more to strategy and effective application rather than daily usability.

6.7.3 Interactive Webinars

INIT host monthly webinars covering hot industry topics followed by a question and answer period where you can discuss any operational issues you may want to discuss with INIT engineers as well as your agency peers. Check out the webinar schedule and register to automatically receive an invite!

User Group Meeting

6.8 Minimizing Costs, Risks and Delivery Time

INIT's equipment is German designed and engineered and manufactured at INIT's state of the art manufacturing facility in Chesapeake VA. The equipment is of the highest quality, which

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significantly increases its reliability and reduces the cost of ownership. The INIT solution is based on existing and proven technology already deployed at multiple Transit Agencies around the world, which reduces project risk, the cost to design, implement and deploy the solution and ultimately allows INIT to deliver the next generation ORCA project **on time and on budget.**

6.9 Local to Seattle – INIT knows the Puget Sound region

INIT's Western Regional office is located in the heart of Seattle at Pioneer Square. The office was established here more than 10 years ago and serves as the main office for all INIT personnel working on projects at Seattle area Transit Agencies and in the western USA.

6.10 Future Oriented – Constant Refresh of Ideas

INIT works with local Universities and Research facilities to develop and implement the latest leading edge innovations. New technological trends such as "Be-In-Be-Out" technologies are constantly assessed and discussed in multiple working groups and forums. In combination with a constant dialogue with our customers, trade show participations and more the INIT system is in a process of constant improvement.

6.11 ORCA Next Phase and Potential Future Projects

6.11.1 Expansion to Other Agencies

The requirement to expand a fare collection system to other agencies is a very familiar request for INIT. Many of our existing AFC customers, such as the Transit Agencies in Sacramento CA and in Munich Germany have added additional Agencies to their system post installation.

All INIT applications are built to support multi-agency environments without the limitation of a maximum number of agencies. Since the Tariff is highly configurable by the Agency, there is most likely no system change required when adding an additional agency.

The schedule drivers for integrating the agency are:

- Number of vehicles / platforms to be installed
- Integration effort with existing CAD/AVL system or Fare Box (if applicable)
- Complexity of the transfer rules connected to the agency

6.11.2 Full Vanpool Integration

For the HART AFC project in Honolulu, INIT is installing mobile validators based on cellphone technology the Agency's paratransit vehicles. These low cost validators are portable and could easily be installed within the agencies' vanpool cars. The concept would be that the vanpool user taps his or her card whenever they board and leave the vehicle. The distance travelled could be calculated based on the GPS coordinates and the account could be charged the appropriate fare automatically.

6.11.3 Paratransit Integration with Scheduling Systems

In Portland, INIT and TriMet integrated TriMet's Paratransit scheduling system from Trapeze Pass into the HOP FastPass system. Paratransit users may register their HOP card with their Paratransit account and choose their HOP card as the standard payment method. As soon as

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the paratransit ride is successfully performed, the account will automatically be charged with the fare calculated by the background system. The integration was realized with the Open Architecture APIs and therefore would not require any system changes in the INIT background system.

Schedule drivers for the integration of Paratransit are:

- There are only minimal configuration changes needed in the background system (e.g. a new sales channel 'Paratransit' needs to be added). All changes required can be performed in a matter of days.
- Main driver: implementation effort on the Paratransit Scheduling software side

6.11.4 Acceptance of Open Payments

INIT offers to implement Open Payments functionality on the validators in Phase 1 of the next generation Orca project without any additional costs or impact to the schedule. Open Payments is currently in operation within the INIT HOP Fastpass system in the Portland region.

A requirement to realize the Open Payments without additional costs or schedule impact would be to use [redacted] as a payment gateway in combination with one of the [redacted] processors. INIT already has all certifications to achieve this solution.

All transaction costs connected to the Open Payment transactions are not part of this proposal.

6.11.5 Limited-use fare media

The HOP FastPass System in Portland uses paper based limited-use fare media cards with NXP Ultralight 'C' chips for their TVMs and sale at all ticket offices. If compatible technology is used (e.g. Ultralight 'C' cards), the INIT validators and the backend system are prepared to accept limited-use fare media without any system changes.

Schedule drivers for the integration:

- No changes needed on the INIT back-office side if a compatible technology with compatible encoding is used
- TVMs would need to be equipped with a limited-use ticket dispenser

6.11.6 Acceptance of Third-Party issued cards

There are multiple ways to accept third-party issued cards. Two examples of third-party issued card realization can be found in the HOP FastPass project in the Portland area:

- TriMet Employee passes: Every TriMet employee has a [redacted] card to ride transit and to access TriMet's door system
- Portland Public School (PPS): PPS issued their own cards with their customized printed logo. The cards are pre-encoded with the HOP FastPass card application before they are delivered to PPS for distribution to students and staff.

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Both implementations happened without any system changes needed on the INIT backend or validator side and would be available to the next generation ORCA system without any INIT system changes.

6.11.7 Fare capping and other loyalty programs

Fare capping is a standard feature of the INIT account based background system MOBILEvario and therefore can be included from day one.

6.11.8 Integration with Other Transportation Providers

Using INIT's Open Architecture APIs, integration with other transportation providers like bike share is possible. INIT and TriMet are currently working on the integration of bike lockers and bike share in the Portland region using the HOP card system. Bike locker integration was already successfully realized in INIT's fare collection project in Luxembourg. Since the integration complexity can vary tremendously, it is not possible to estimate any schedule drivers without further discussing the scope.

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CONFIDENTIAL SECTIONS:

7.2 Diversity Efforts and Commitment

7.2.1 Current Diversity Metrics

7.2.2 Linda Keith – Responsible for overseeing adherence to EEO laws

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7 INIT's Workforce: A Commitment to Inclusion and Diversity

The continued excellence of INIT is largely dependent upon our ability to attract, develop, and retain highly skilled, talented, and motivated employees. An essential element in maintaining this is the recognition of the value of a diverse workforce. Characteristics such as age, culture, ethnicity, gender, race, religious preference, sexual orientation, gender expression, and the expression of unique philosophies and ideas provide the opportunity to better understand each other. This understanding will strengthen the efficiency and productivity of the workforce, whose primary objective is to provide excellent service to the Company.

7.1 Commitment to Diversity

Below please find a table detailing the diversity of our ngORCA and local teams:

INIT's Commitment to Diversity				
	Proposal Team	**Project Team**	**INIT Seattle**	**INIT USA**
Minorities	3	3	21%	27%
Women	6	5	29%	23%
Staff with Disabilities	*	*	*	*

Note: Does not include subcontractors identified in this proposal

Regarding staff with disabilities, we don't maintain comprehensive statistics on individuals with disabilities, and may be undercounting those we accommodate for. However, as a firm, INIT values all individuals and provides them whatever resources and accommodations are required for them to have a productive and enjoyable career with our firm. These can be temporary for a short term requirement or long term if it's a permanent need.

7.2 Diversity Efforts and Commitment

Wherever INIT operates, we create a team that represents the current and future diversity of the area. We are proud to have our second largest North American office located in Seattle, Washington, to take advantage of the rich diversity available across the Puget Sound region. We've hired staff from many varied backgrounds, both professionally and personally to create a team that represents the overall area.

7.2.1 INIT, an Equal Opportunity Employer

Effort's INIT makes to ensure that we provide equal employment opportunities are accomplished by endeavoring to meet the following goals:

- Attract and retain qualified individuals from diverse backgrounds who are committed to the continued excellence of INIT
- Encourage an environment that fosters a diverse workforce in terms of age, culture, ethnicity, gender, race, religious preference, sexual orientation, gender expression, and the expression of unique philosophies and ideas

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- Provide all employees the opportunity for professional development and personal growth
- Expect that all employees will treat each other with dignity and respect
- Uphold all applicable federal, state, and local laws and regulations

Recently, we've started a new college hire program which takes advantage of regional higher education institutions and their ability to meet our growing needs. In 2018 we expect to expand this to an internship program that targets the regions youth who want to combine their skills and their passions into learning more about a career in transit technology. We have, and will continue to apply the same commitment to a diverse workforce and an inclusive culture to these programs.

With this experience and dedication to a team which brings out the best in all of our collective backgrounds, we feel that we can both be respectful of one's background but also leverage it for project successes.

7.2.2 Current Diversity Metrics

All of our fare collection projects (TriMet, Tampa, Grand Rapids, Honolulu), similar to this scope of work, require a mid to large size team, and in all instances we apply the same approaches.

INIT's Commitment to Diversity		
	INIT Seattle	**INIT USA**
Minorities	21%	27%
Women	29%	23%

7.2.3 Linda Keith – Responsible for overseeing adherence to EEO laws

Linda Keith, Vice President and Chief Financial Officer, is responsible for overseeing Human Resources and INIT's adherence to EEO laws and policies. As an executive of the company for over 15 years, Linda has lead INIT's commitment to diversity and growing our diverse workforce for over 15 years. Linda will ensure that employment actions regarding staffing and managing the work will be carried out in a nondiscriminatory manner.

Across our entire management team, each leader is expected to adhere not to the goals of diversity, but the culture of inclusion as well. Being an inclusive workforce makes for a richer organization serving our incredibly diverse clients across North America.

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Outreach Efforts and Commitment to Small Businesses and DBE's

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CONFIDENTIAL SECTIONS:

8.1 Small Businesses and DBE's Contacted

8.1.1 [redacted]- GO Systems and Solutions LLC, Business Analyst

8.1.2 Anthro-Tech – UI/UX Consultant

8.1.3 ESP Enterprises – Vehicle, Wayside Validators and VM Installation Services

8.1.4 West Sound Workforce – CST Installers and more

8.5 DBE/Small Business Participation

8 INIT's Contribution towards Progressive Business Practices

INIT has a history of working with DBE's to provide goods and services on many of our Automated Fare Collection and Computer Aided Dispatch projects. We typically search for DBE's for roles such as Assistant Project Managers, Electrical Contractors, Vehicle Installation Services and more.

For this ngORCA opportunity, we have reached out to local businesses as described below.

Firstly, we searched the http://www.omwbe.wa.gov/directory-of-certified-firms website looking for firms in the greater Seattle area that we could reach out to become part of the team. We identified three (3) firms representing Electrical Contractors, Fleet Maintenance services, Traffic signal and street lighting contractors. Detailed in Form 4 are the results of our contact with these firms.

Secondly we called contacted the SBA's Seattle District Office [redacted] for advise on contacting other DBE's in the greater Seattle area. We were lead to the Washington Procurement Technical Assistance Center.

Finally we contacted [redacted] a Government Contracting Specialist with the Washington Procurement Technical Assistance Center. Working with [redacted], we were able to post the following request to send with their next email newsletter blast.

"INIT Innovations in Transportation is looking for qualified DBE's and SBA's for a project that will commence 4th quarter 2018. This is a large opportunity in the Seattle area requiring many skills and talents. We realize that firms may not have specific experience in the areas listed below but we are willing to train, mentor and supervise firms with applicable experience. Services we have identified that may be useful include:

- Assistant Project Managers
- Server Test facility electrical build out
- Administration overhead such as receptionist and cleaning services
- Technical writers
- Oracle consulting
- Building lessee
- Technical documentation requiring CAD skills
- Software test automation (scripts with release reports)
- Network Architecture design
- Vending Machine Installation and Testing
- Installation of equipment and devices on vehicles
- Voice Talent
- Accounting services with Oracle experience

Please reply to [redacted]. In your reply, please provide contact information, DBE status, website, office location, number of full –time employees, certifications, specific area of expertise from the list above along with specific experience that are applicable. Failure to provide the above information will be considered unresponsive. We look forward to receiving your information no later than October 1st, 2017."

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We were contacted by 6 firms as a result of our ad. The results of our subsequent contact with these firms is detailed in Form No. 4.

In addition, we used personal contacts to look for DBE firms that could fill the requirement for a UI/UX consultant, Business Analyst and Installation Services.

8.1 Small Businesses and DBE's Contacted

8.1.1 [redacted] GO Systems and Solutions LLC, Business Analyst

[redacted] has a strong background in transit projects, and will bring her knowledge and experience with Puget Sound's transit evolution of [redacted] years' experience consulting in the region.

[redacted] will be a major contributor leading INIT's business analysis efforts and is responsible for ensuring clear and agreed to specifications for all elements of INIT's integration efforts.

8.1.2 Anthro-Tech – UI/UX Consultant

Anthro-Tech will support this effort in by ensuring a seamless and consistent experience across all user touchpoints including: websites, mobile app, vending machines and validators. Anthro-Tech will provide a User Experience Strategist to direct and manage the user-centered design activities, integrate the research and design work and manage stakeholder and customer input throughout the design and development process.

Anthro-Tech's Design Researcher will conduct quantitative and qualitative customer research to understand customer needs and evaluate the ease of use of interfaces. They will also design and conducts market and user research surveys, focus groups, stakeholder interviews, web analytics data, usability tests, field research and other activities to develop actionable design concepts and solutions based on customer research findings.

8.1.3 ESP Enterprises – Vehicle, Wayside Validators and VM Installation Services

As the company we have selected to aid in the installation of equipment, ESP Enterprises will be an integral part of the Transition Plan. ESP Enterprises is experienced in the installation and subsequent testing of INIT equipment on-board buses and streetcars as well as wayside installation of Vending Machines, validators, signs and more. Working in several 4 man crews at times when their installation services will minimally impact operations or the riding public, ESP will perform their services during an extended stay in the region. Included in section titled "Knowledge and Recent Experience of Key Individuals" and the Appendix are the resumes on ESP Enterprises key staff members.

8.1.4 West Sound Workforce – CST Installers and more

Although, ESP Enterprises could also perform this service, we wanted to contract with a local firm for installation of the Customer Service Terminals (CST). This will provide the ORCA

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agencies a resource for setup and teardown of CST's for special events and other occasions. We also envision their services for possible troubleshooting and repair services.

INIT also will be relying on West Sound Workforce for an administrative assistance to assist with the additional workload at our Seattle office during the deployment of the ngORCA system and possibly beyond. We have also discussed utilizing their services for custodial maintenance.

8.2 Experience and Approach to managing diverse teams

As leading providers of Intelligent Transit Systems, INIT's Project Managers and [redacted], our Western Regional Director, have extensive experience working with Small Businesses on projects of similar size. As the prime contractor, INIT frequently shares resources with our subcontractors. This includes office space, transportation, test equipment, and specialty tools while always providing the bulk of materials so that we can maintain quality.

8.3 Approach for Monitoring/Mentoring and Supporting

Quality from our subcontractors is paramount. INIT typically provides materials and parts provided in a kit with barcodes. We provide written work instructions as well as test procedures to check and verify the quality of their work.

8.4 Responsibility for overseeing success

[redacted], INIT's Western Regional Director based out of our Seattle office is responsible for engaging and overseeing our small business efforts as they relate to the ngORCA project. [redacted], our Implementation Lead will provide direct supervision for [redacted]

8.5 DBE/Small Business Participation

INIT efforts have resulted in a DBE/Small Business Participants Goal of [redacted].

[redacted].

Exclusivity: INIT has not established exclusivity with any of the DBE firms proposed.

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Appendix

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9.2 Appendix 2 - Required Forms

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9.2.2 CAPABILITY CONFORMANCE MATRIX Tab 2

9.2.3 Forms

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1 Appendices

Following this page please find the following.

1.1 Appendix 1 – Résumés

Please find full resumes on the following pages.

Also, please refer to tab 4 of our proposal binder titled Knowledge and Recent Experience of Key Individuals for narratives, relevant experience and references for each of our highly qualified key team members.

1.2 Appendix 2 - Required Forms

1.2.1 CAPABILITY CONFORMANCE MATRIX Tab 1

1.2.2 CAPABILITY CONFORMANCE MATRIX Tab 2

1.2.3 Forms

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PROPOSAL FORM NO. 1 CAPABILITY CONFORMANCE MATRIX Tab 1

On the pages below, please find INIT's completed Capability Conformance Matrix where INIT is 100% compliant.

INIT's Capability Conformance Matrix below contains trade secret information that provides a business advantage to INIT over competitors. The Capability Conformance Matrix is proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

Capability Subsection	Capability Type	Capability Number	Capability	Fully Conforming	Non Conforming	Comments
Section 2 Implementation Services						
Section 2.1 Project Management						
Project Management Plan	Mandatory	2.1.3-1	The project Management Plan (PMP) will include but is not limited to the following elements: • Organization chart identifying key project personnel and contact information • Master schedule, identifying key project milestones and activities • Schedule for all project design and manufacturing elements that require Agency approval • Project meeting schedule • Methodology to control project schedule, scope, cost, and risk • Risk management plan and risk register, including identified project risks and actions required to mitigate them • Transition and change management processes and procedures • Safety processes and procedures • Quality assurance processes and procedures to confirm that the requirements of the contract are being met • Subcontractor management and communications • Document and Master Issues List (MIL) control processes and procedures, including version and traceability controls • Change management plan and procedures for all deliverables and subsequent revisions • Cost management			
Section 2.4 Testing						
General Rqmts	Mandatory	2.4.1-1	All system components and subsystems will be tested individually and in integrated environments to make sure that they meet all technical and functional capabilities in the specifications.			

		2.4.1-2	All tests and inspections will be documented by the SI, and monitored and signed off by the Agencies or their representatives, as well as by the SI or its representatives.	[redacted]
Test Documentation	Mandatory	2.4.2.1-1	The inspection and test plan will include a detailed schedule indicating the sequence of each test, where and when each test will take place, and the number of SI-provided staff covering each test.	
		2.4.2.1-2	The inspection and test plan will detail the number and range of tests, as well as the criteria for acceptance of each phase of testing. All performance measurement procedures and acceptance criteria, including the number and type of failures allowed in each phase of testing, will be subject to Agency review and approval. The plan will include all capabilities as well as those identified during design review.	
Agency Test Facility	Mandatory	2.4.3-1	The test facility will be connected to the next generation ORCA back office test environment, including the account-based transaction processor and all specified support systems, which fully replicates the production environment. The test environment hardware will be identical to the production system hardware, but will not require system redundancy.	
		2.4.3-2	With the exception of factory testing, all specified formal testing will be conducted onsite, and all laboratory-based testing will be conducted in the test facility. The SI shall provide all labor and materials required for system testing, including but not limited to closed-loop fare media and bank cards.	
Factory Testing	Mandatory	2.4.4.1-1	First Article Configuration Inspection (FACI) will take place at the point of assembly, after manufacture or procurement of the first production units for each of the System components: onboard validators and mounting hardware, wayside validators and mounting hardware, driver display units and mounting hardware, vending machines, customer service terminals, and the back office, including all subsystems.	
		2.4.4.2-1	Factory Acceptance Test (FAT) will be conducted by the SI at the SI's facility or at a subcontractor’s facility designated by the SI. The SI shall provide all necessary supplies for FAT.	
		2.4.4.2-2	If at any time after any phase's test results have been approved, a design change is made, the performance of the modified system components will need to be demonstrated as conforming to this	

			specification and the test results will be resubmitted for Agency approval.	
Integration Testing	Mandatory	2.4.5.2-1	The SI shall conduct all System Integration Test (SIT) testing at the Agency test facility.	
		2.4.5.2-2	If the SI hosts the System, the automated failover process will be exercised in multiple failover scenarios during systems integration testing to demonstrate no data loss or significant degradation in system performance. The Disaster Recovery Plan will include regular failover testing after implementation.	
		2.4.5.3-1	The SI will conduct all Field Integration Test (FIT) testing in the production environment.	
System Acceptance Testing	Mandatory	2.4.6.1-1	SAT will be performed in the production environment with all components, subsystems, and networks completely operational, online, and in service.	
		2.4.6.2-1	The SI shall submit a request for Final System Acceptance upon successful completion of SAT and determination that all work has been completed in accordance with this Scope of Work and final design.	
Section 8 Operation & Maintenance Services				
Section 8.2 Operations & Maintenance Model				
Operations & Maintenance Model	Mandatory	8.2-1	The SI shall warrant that all of the equipment, computer systems, and software provided for the System, including those components warranted by third-party suppliers, will be free from defects in operation, material, and workmanship under normal operating use. Remedial work to correct deficiencies will include the repair or replacement of equipment, components, devices and/or materials.	
		8.2-2	The SI shall provide a one (1) year warranty that begins upon Final System Acceptance.	
		8.2-3	The SI shall follow proper Agency security procedures for gaining access to field equipment and facilities, and shall not engage in such procedures without having received Agency-provided training.	
		8.2-4	Prior to the start of the SMA, all software maintenance activities will be covered under warranty.	
	Desired	8.2-5	All software maintenance performed under the warranty will comply with the documented software maintenance capabilities	

		8.2-6	The warranty will include but is not necessarily limited to the following SI provided equipment and software, and back office systems and software: • Onboard validators and associated hardware • Wayside validators and associated hardware • DDUs and associated hardware • CSTs • VMs • Test facility • Production and test back office systems	[redacted]
		8.2-7	The warranty will cover the following: • Repair or replacement of all equipment or systems required as a result of an identified hardware defect • Software updates or re-writes required to repair all identified software defects or bugs, and apply all necessary patches or security updates released by the SI or third-party software providers throughout the term of the warranty • All labor associated with hardware and software testing and deployment, both in the lab and field environments, needed to support warranty activities	
		8.2-8	If during the warranty term, the rate of failure of any component or device exceeds 10% of the mean quantity installed, a “fleet defect” will be declared, and the entire quantity of such components or devices will be considered defective.	
		8.2-9	If a fleet defect is declared, the Program needs the SI to undertake and complete a corrective work program to replace all components of that type with new components. The repair schedule and procedures will be subject to Agency review and approval. All items replaced under these terms will be warranted for at least one (1) year after replacement.	
		8.2-10	A fleet defect will be considered resolved when the installed components are determined to meet or exceed all of the KPI capabilities, and upon Agency approval.	
		8.2-11	The Program needs the SI to be responsible for all personnel, labor, tools, materials, shipping charges, and other costs associated with the repair or replacement of components and/or subsystems throughout the warranty term.	

					[redacted]
		8.2-12	Following completion of the warranty term, should there be warranty work to complete, the warranty will be extended to provide equal coverage for each piece of equipment.		
		8.2-13	The warranty will not apply to any equipment that has been damaged by any person other than the SI or SI's assignee. Environmental conditions described in these technical specifications will be considered normal operating conditions for this System and will not qualify for exclusion.		
		8.2-14	The Agencies will operate and maintain the equipment and software in accordance with the SI's specific instructions in order to maintain this warranty. The Agencies will be held blameless if the SI has provided inadequate or inaccurate training, and/or incomplete operating manuals, maintenance manuals, electrical and electronic schematics, mechanical diagrams, or software documentation.		
		8.2-15	In the event the SI fails to comply promptly with warranty requirements, the Agencies will, upon written notice to the SI, have the right to deduct the cost of the Agencies' prevailing labor and material costs for repairing a defect from any compensation due, or coming due, to the SI. In the event the SI has been paid in full, the Program needs the SI to agree to compensate the Agencies for the costs incurred.		
		8.2-16	Spare modules used by the SI during the warranty term will be replaced by the SI at no cost to the Agencies. The Program needs the SI to maintain sufficient spare sub-assemblies, modules, and components to meet the System availability capabilities through the conclusion of the warranty.		
		8.2-17	During the entire warranty term, any and all repairs, adjustments, or replacements of equipment by the Program needs the SI to be documented by the SI within the AIM at the completion of every day.		
		8.2-18	The Program needs the SI to develop a warranty plan outlining processes and procedures to be implemented to meet all specified warranty requirements. A draft of the warranty plan will be submitted at FDR and a final version will be provided a minimum of 90 calendar days prior to the start of any warranty term.		

		8.2-19	The Program needs the SI to provide a new component or subsystem if a particular component or subsystem was repaired or replaced three (3) times for the same failure.	[redacted]
Section 8.3 Website Hosting				
	Mandatory	8.3-1	The SI shall provide the hosting services necessary to support website operations, and interfaces to internal and external systems needed to perform the required functions for the duration of the contract.	
Section 8.4 Back Office Hosting				
	Mandatory	8.4-1	If the SI hosts the System, they shall provide the hosting services necessary to support system operations and interfaces to internal and external systems needed to perform the required functions for the duration of the contract.	
Section 8.5 Back Office Operations				
Back Office Operations	Mandatory	8.5-1	The SI shall be responsible for all back office operations and maintenance under the back office operations agreement.	
		8.5-2	Throughout the term of the back office operations agreement, the SI will meet the associated system performance capabilities (e.g., back office accuracy, availability, and server authorization rate).	
		8.5-3	The SI shall develop a back office operations plan outlining the processes and procedures to be implemented in order to meet all specified back office operations capabilities. A draft of the back office operations plan will be submitted at FDR and a final version will be provided a minimum of 90 days prior to the start of the back office operations agreement term.	
	Desired	8.5-4	The SI's Lead Engineer will continue in a full-time onsite operations and maintenance services role throughout the term of the back office operations agreement. The SI may propose an alternate to fill the primary onsite operations management role, subject to Agency approval, and may elect to have additional onsite staff as needed to meet the capabilities of the back office operations agreement.	
		8.5-5	The Program needs the SI to allow Agency staff to shadow all back office operations and support activities throughout the back office operations agreement.	

		8.5-6	Under the back office operations agreement, the Program needs the SI to be responsible for the following activities: • Monitoring system performance and health • Providing timely and accurate processing of transactions • Overseeing operation of all back office support systems (e.g., CRM application and financial management systems) • Overseeing website operation • Overseeing operation and updates of mobile apps • Maintaining system configuration, and making configuration changes upon request from the Agencies • Testing and deployment of website and configuration changes • Supporting report updates and ad-hoc data requests			
		8.5-7	Failure to meet the specified performance capabilities will result in deductions from the monthly back office operations payments made to the SI. Deductions will be based on the level of performance, and impacts of persistent failures.			
		8.5-8	The Program needs the SI to be responsible for updates to the SI-provided reports no less than quarterly.			
		8.5-9	The SI will provide a monthly invoice (at end of month) for back office, online services and other components in an itemized fashion with any credits related to KPIs also listed.			
Section 8.6 ISMS Compliance						
ISMS Compliance	Mandatory	8.6-1	The SI shall be responsible for maintaining the System's compliance with all required security controls, and for facilitating the operation of the regional ISMS by providing all necessary evidence of proper control implementation and operation for the System for the duration of the contract.			
	Desired	8.6-2	The region's ISMS will continuously assess the risk profile of the System. If needed, the Program needs the SI to implement additional controls to address newly identified risks to the System, based on changing technological, business, or compliance needs.			
Section 8.7 Software Maintenance						
General Capabilities	Mandatory	8.7.1-1	The SI shall provide preventative and corrective software maintenance to support system operations while meeting the performance standards set forth in this SOW.			

		8.7.1-2	The SI shall submit a Software Maintenance Plan for review and approval identifying the approach to meeting the capabilities of the SMA.			[redacted]
		8.7.1-3	Throughout the term of the SMA, the SI will meet the associated system performance capabilities (e.g., device reliability and accuracy).			
	Desired	8.7.1-4	The Software Maintenance Plan will cover the following: • Software updates or re-writes required to fix all identified software defects or bugs throughout the term of the SMA • Application of all necessary patches or security updates released by the SI or third-party software providers • All software testing and deployment, both in the lab and field environments, needed to support these activities			
		8.7.1-5	Performance of software maintenance activities will be completed in a manner that does not disrupt or degrade system operations, to the fullest extent possible.			
		8.7.1-6	The Program needs the SI to make corrections and modifications to the System software in coordination with the Agency staff. Serious issues (i.e., any error which causes system reliability or availability to fall below stated capabilities) will be corrected immediately.			
		8.7.1-7	If the condition requiring correction affects the operation of other system components, then the Program needs the SI to provide repair or replacement of the System components that fail, regardless of whether the warranty term has expired for those components.			
		8.7.1-8	The Program needs the SI to make every attempt to fix software problems impacting revenue collection within two (2) hours of being reported.			
		8.7.1-9	The SI and the Agencies shall agree on an appropriate course of action if a third-party software provider goes out of business, or if maintenance updates for third-party software degrades performance of the SI's system.			
		8.7.1-10	Software to be maintained under the SMA will include all required updates to the APIs and associated specifications provided by the SI.			
		8.7.1-11	All third-party software will be maintained at the most current or previous version at no additional charge throughout the term of the SMA, so long as it does not involve a major rewrite of the SI's software.			

Communications, Response & Resolution	Mandatory	8.7.2-1	The SI shall provide technical support to the Agencies for the general use and operation of the software via telephone throughout the warranty and SMA terms. Telephone support will be provided by the SI during normal business hours (PST) Monday through Friday, excluding holidays.	[redacted]
		8.7.2-2	The SI shall provide phone number and email address for the reporting of software defects or malfunctions, and system outages, 24 hours a day, seven (7) days a week.	
	Desired	8.7.2-3	During the warranty and SMA terms, the Program needs the SI to respond to reports of system outages within 30 minutes of notification, 24 hours a day, seven (7) days a week. A fully-qualified service representative will be onsite as soon as possible, and no more than 24 hours after being contacted by Agency staff, if it is determined that a physical presence is needed to resolve the identified issue.	
		8.7.2-4	During the warranty and SMA terms, the Program needs the SI to respond to a report of any software defect or malfunction within one hour of notification during Agency business hours. A fully-qualified service representative will be onsite as soon as possible, and no more than 24 hours after being contacted by Agency staff, if it is determined that a physical presence is needed to resolve the identified issue.	
		8.7.2-5	Program needs the SI to maintain a change log of all changes that are performed, and provide this change log to the Agencies on a mutually agreed upon schedule. The change log must be sufficiently detailed to allow the Agencies to determine when any feature was added or modified, and the scope of the change. The change log will conform to the change management policies defined in the change management plan.	
		8.7.2-6	Advance notification will be provided, as defined by the change management policies outlined in the change management plan, for all software maintenance activities.	
		8.7.2-7	The Program needs the SI to submit to the Agencies no less than every two weeks a bulletin setting forth planned modifications and updates to the software, upgrade schedules, and a calendar of key dates for system changes for the coming three months and beyond. The bulletin will conform to the change management policies defined	

			in the change management plan.	[redacted]
		8.7.2-8	Throughout the SMA term, the Program needs the SI to document all equipment repairs, adjustments, or replacements within a maintenance management system, by the end of each day.	
		8.7.2-9	If a software problem impacts revenue collection, but repair will take longer than three (3) hours, the Program needs the SI to report the cause of the problem as soon as it becomes evident, and provide status reports at least every four (4) hours thereafter, until the problem is corrected or a workaround is established.	
Software Change Management	Mandatory	8.7.3-1	Without releasing the SI from its obligations under the warranty and SMA, the Agencies have the right to refuse to install any updates, at their sole discretion.	
		8.7.3-2	During the term where the SMA is in effect, the SI shall update training course materials and manuals as needed to reflect software changes performed under the agreement.	
		8.7.3-3	All changes to any delivered and installed part of the System must comply with the mutually agreed upon change request and software deployment procedures defined in the SI's Project Management Plan.	
	Desired	8.7.3-4	The Program needs the SI to track and maintain a list of software maintenance issues and open items. The Program needs the SI to distribute the list to the Agencies in advance of each monthly meeting.	
		8.7.3-5	Software and firmware updates will be clearly documented and submitted in advance of deployment for Agency review and approval.	
		8.7.3-6	During the warranty and SMA terms the Program needs the SI to provide updated course instruction and materials resulting from any significant system hardware or software changes.	
		8.7.3-7	The Program needs the SI to support software change management meetings no less than monthly throughout warranty and SMA terms, either in person or via phone.	
		8.7.3-8	The Program needs the SI to keep all software environments (training, test, development, staging, and production) at the same configuration and patch level as appropriate.	

		8.7.3-9	The Program needs the SI to notify the Agencies whenever corrections, modifications or revisions of system software are available.	[redacted]
		8.7.3-10	As standard practice when repairing deficiencies and releasing device or back office system fixes or upgrades, the Program needs the SI to prepare and run regression testing scripts to test that each build delivered to the test environment does not result in any issues with the devices and systems currently in operation, including those that are not being updated. Any regression issues will be documented as deficiencies and resolved accordingly.	
Software Enhancements	Mandatory	8.7.4-1	The SI shall provide to the Agencies all support required to develop and deploy such enhancements at the SI's labor rates specified in the price schedule.	
	Desired	8.7.4-2	The Program needs the SI to provide timely response to requests for software enhancements (customizations) by the Agencies that are not covered by the warranty or SMA. Enhancements include modifications to the software that add capabilities and improve or change software functions that are not modifiable using the System configuration parameters defined in this SOW.	
Section 8.8 Field Equipment Maintenance				
Field Equipment Maintenance	Mandatory	8.8-1	A detailed service operations document including service procedures and VM screen flows will be provided during design review for Agency review and approval.	
	Desired	8.8-2	Spare devices and modules used for all maintenance activities performed prior to Final System Acceptance will be replaced with functional equipment a maximum of 14 calendar days after use.	
		8.8-3	The SI will provide instructions and pricing for the purchase of replacement devices and modules for all SI-supplied equipment, including but not limited to: * Onboard validators * Wayside validators * Driver display units * CST (and all peripherals) The purchase of replacement equipment may be through the SI or OEM, and pricing may be provided for repaired or refurbished equipment, in addition to new equipment.	

		8.8-4	The Program needs the SI to provide a recommended list of spare modules and parts to support the installed fleet at completion of SAT. Recommended quantities will be provided based on expected usage.	[redacted]
		8.8-5	The Program needs the SI to provide a recommended list of consumables at completion of SAT to support system operations for one year. Consumables are items that have a limited life cycle due to constant use and are expected to be replaced on a frequent basis, such as bulbs, fuses, and receipt paper. Recommended quantities will be provided based on expected usage.	
		8.8-6	The Program needs the SI to provide a list of special tools needed to maintain the System at completion of SAT. Special tools are defined as special diagnostic tools and equipment that is not readily available from commercial sources. The Program needs the SI to provide sufficient documentation to allow the Agencies to manufacture these tools.	
		8.8-7	The Program needs the SI to not modify or repair any equipment in revenue service without the approval of the ROOT or an Agency-authorized representative.	
		8.8-8	During the warranty, the Program needs the SI to ship replacement modules within one business day of receipt of any field equipment returned for repair/replacement.	
Section 8.9 Agency Test Facility				
	Desired	8.9-1	The Program needs the SI to update the Agency test facility for the duration of the contract.	
Section 8.10 Fraud Controls				
	Mandatory	8.10-1	The SI shall be responsible for maintaining the System's fraud control capabilities for the duration of the contract.	
Section 8.11 Disaster Recovery				
Disaster Recovery	Mandatory	8.11-1	The SI shall maintain the Disaster Recovery Plan for the duration of the contract. The plan will conform to the required service level agreement and be consistent with the Business Continuity Plan and recovery time capabilities.	
		8.11-2	For SI-hosted solutions, the SI must have a current Disaster Recovery Plan in place for both IT and non-IT related disasters for the duration of the contract.	
Section 8.12 Performance Measurement				

General Capabilities	Mandatory	8.12.1-1	The SI shall submit a Performance Maintenance Plan for review and Agency approval during design review identifying the approach to measuring and reporting on performance against KPIs.	[redacted]
		8.12.1-2	The SI shall be responsible for measuring performance against all KPIs.	
		8.12.1-3	The SI shall automate the capture of all necessary data and KPI calculation wherever possible. For validation purposes, the Agencies will have full access to the source data and code used to perform the calculations.	
	Desired	8.12.1-4	System performance will be measured using the data generated and stored by the System. Data generated manually will be used when it is the only option for tracking an activity associated with a particular KPI (e.g., response time).	
		8.12.1-5	The Program needs the SI to commence performance measurement during the SAT and continue to perform this activity throughout the operations agreements.	
Failure Review Board	Mandatory	8.12.3-1	The FRB will be established prior to the start of acceptance testing to evaluate equipment and back office failures, as well as other system issues, throughout acceptance testing.	
		8.12.3-2	The acceptance test plan submitted by the SI will include a proposed FRB structure and system performance review process.	
		8.12.3-3	The Agencies' project manager will make the final and binding decision on any disputes that remain unsettled by the FRB after a period of 10 business days.	
	Desired	8.12.3-4	The members of the FRB will attempt to settle any disputes based on the requirements in this SOW, and will use best judgment in any scenarios where the requirements are silent or unclear.	
		8.12.3-5	At a minimum, the Failure Review Board (FRB) will be comprised of the Agencies' project manager, or a designated representative, and the SI's lead engineer.	
		8.12.3-6	The FRB will be responsible for the review and approval of the acceptance test plan, and shall agree to the criteria for the execution and approval of the acceptance test phases.	
		8.12.3-7	During acceptance testing, the FRB shall meet no less than weekly. The FRB will review all failures and other system issues that arise during acceptance testing to assess their severity and impact on completion of this test phase.	

		8.12.3-8	Following the prescribed SAT period, the FRB will make a recommendation on whether to approve or extend the test phase. Final discretion for the approval of acceptance testing and the granting of Final System Acceptance will reside with the Agencies.	[redacted]
		8.12.3-9	Following Final System Acceptance, the FRB will continue to meet monthly for the remainder of the operations agreements. During this time, the FRB will be responsible for reviewing system performance and settling any disputes around measurement of the KPIs.	
	Desired	8.12.3.1-1	Non-chargeable failures include, but are not limited to, the following: • Mishandling of equipment or back office system components • Any failures caused by externally applied stress conditions outside of normal operating conditions and in excess of the requirements in this SOW • Failures caused by incorrectly exercised operating, maintenance or repair procedures performed by the Agencies where correct procedures have been delivered by the SI (failures resulting from any maintenance or repair performed by the SI will be chargeable) • Failure caused by vandalism • Communications failures beyond the control of the SI • Downtime due to scheduled maintenance • Heater or battery adjustments • Dependent failures as a result of a non-chargeable failure	
		8.12.3.1-2	All other failures will be considered relevant and chargeable unless determined to be non-chargeable by the FRB.	
		8.12.3.1-3	Non-chargeable failures will not affect the reliability, accuracy, and availability KPI calculations.	
		8.12.3.1-4	Chargeable failures include, but are not limited to, the following: • A malfunction which prevents the System component from performing its designated function, or meeting the performance criteria, when used and operated under the environmental and operational conditions stated in this SOW • A malfunction that might cause a threat to customers, employees, or others • An occurrence that does not cause the System component to become entirely inoperable, but requires some form of maintenance attention to restore normal function • Any occurrence where data is not successfully transmitted between	

			elements of the System • Planned software updates or fixes that adversely affect the operation or performance of the System • Scheduled maintenance or repair activities that adversely affect the operation or performance of the System	[redacted]
		8.12.3.1-5	The following specific conditions, at minimum, will be considered chargeable failures in any components or Systems delivered: • Software anomalies and bugs (every incident of a software anomaly or bug causing a malfunction will be considered a failure) • Hardware failures that are not clearly a result of conditions outside the requirements of this specification • Failures of mounting hardware • Data storage failures, including those due to the disk space provided • Partial or complete failure of a passenger display • Failure to accurately read and/or process a card • Failure to properly register and report any transactions • Data download/upload failure • Event or alarm transmission failure • Unexpected shutdown of equipment or the System • All maintenance requiring module replacements	
		8.12.3.1-6	Under mutual agreement, the FRB will classify additional failures as chargeable or non-chargeable as required.	
		8.12.3.1-7	Chargeable failures will affect the reliability, accuracy, and availability KPI calculations.	
Performance Reporting	Mandatory	8.12.4-1	The SI shall be responsible for reporting on performance against all KPIs on a monthly basis.	
		8.12.4-2	The SI shall commence performance reporting during SAT and continue to perform this activity throughout the operations agreements.	

	Desired	8.12.4-3	The Program needs the SI to provide up to 100 hours of design for Agency-specific modification of provided canned reports.	[redacted]
		8.12.4-4	At a minimum, the following reports will be provided: • Device reliability • Device accuracy • Device availability • Back office accuracy • Back office availability • Server authorization rate • Maintenance response time	
		8.12.4-5	The reports will be generated without manual data entry by the SI wherever possible.	
		8.12.4-6	The reports will include tables and graphical charts showing the current and historical performance of each device of system under measurement.	
		8.12.4-7	The reports will include a calculation of any credits to be assessed in the current month based on current and prior performance.	
		8.12.4-8	The Program needs the SI to create canned reports that can be run, viewed, and downloaded by the Agencies using the reporting system. These reports will not count toward the custom reports to be defined by the Agencies.	
Credit Assessment	Desired	8.12.5-1	Credits will be granted for a failure to meet any KPIs identified as having an associated credit.	
		8.12.5-2	Credits will be determined as a percentage of the operations payments made to the SI. The credit percentage and operations payment associated with each KPI will be determined during negotiations.	
		8.12.5-3	The SI will have three opportunities to meet the KPI as measured. By the third assessment period (the third consecutive month) if the measurement is not meet, it will be deemed a failure and a credit granted.	
		8.12.5-4	The credit multiplier will increase by a factor of one for each month that a KPI is not met, up to the full value of the associated operations payment (e.g., if a KPI is not met two months in a row, the credit will be doubled in the second month; if a KPI is not met three (3) months in a row, the credit will be tripled in the third month)	

		8.12.5-5	Successfully meeting a KPI will end a persistent failure and reset the credit multiplier.		[redacted]
		8.12.5-6	The total credit applied to an operations payment will not exceed the full amount of the operations payment in that month. Credits will not be carried over from month to month.		
		8.12.5-7	The Program needs the SI to be responsible for reporting on credits in the System performance reports and will deduct credits directly from any invoices submitted to the Agencies.		

PROPOSAL FORM NO. 1 CAPABILITY CONFORMANCE MATRIX Tab 2

On the pages below, please find INIT's completed Capability Conformance Matrix.

INIT's Capability Conformance Matrix below contains trade secret information that provides a business advantage to INIT over competitors. The Capability Conformance Matrix is proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

Capability Subsection	Capability Type	Capability Number	Capability	Fully Conforming	Non Conforming	Comments
Section 3 System Design & Architecture						
Section 3.1 Common Design Capabilities						
Service-proven Design	Mandatory	3.1.1-1	Software and hardware provided under this contract will be designed to provide a minimum useful life of 12 years from commissioning date.	[redacted]		
		3.1.1-2	To establish a design as service-proven, the SI shall submit specific details of the design's application history, certified by current users of the equipment.			
	Desired	3.1.1-3	The SI may offer, for approval, a design which is largely unchanged from a service-proven design, but which varies slightly in design or manufacture to meet the capabilities of this SOW, including newer generations of service-proven equipment. The Program needs the SI to show, in detail, what has been changed and why such changes will not adversely affect operation or maintenance in the planned environment.			

		3.1.1-4	The System design will be service-proven. As service-proven, or derived from a service-proven design, the System design will meet all of the following criteria: • Has been deployed and met system acceptance requirements at a minimum of one (1) transit agency with bus and rail operations • Has been deployed and successfully integrated frontend equipment with a back office system at a minimum of one (1) transit agency • Has been deployed and achieved a level of reliability, accuracy, and availability consistent with the performance requirements in this SOW at a minimum of one (1) transit agency	[redacted]
		3.1.1-5	Proposed vending machines will be nearly identical in design and construction to a model deployed and in revenue service (i.e., in use and passed system acceptance) at a minimum of one (1) transit agency.	
		3.1.1-6	Proposed wayside and onboard validators and associated onboard equipment will be nearly identical in design and construction to a model deployed and in revenue service (i.e., in use and passed system acceptance) at a minimum of one (1) transit agency.	
Non-proprietary Technology	Mandatory	3.1.2-1	At the time of delivery, equipment, and all associated components and software will contain no prototype, obsolete, or discontinued products. Any hardware or software components that have an end-of-life prior to expiration of warranty must include replacement plans to be executed at the SI's cost.	
		3.1.2-2	The System will be designed using open standards for software design, communications protocols, fare media, and other relevant design components.	
	Desired	3.1.2-3	Software applications and devices will be built using Commercial off the Shelf Software (COTS) components where possible, and custom software and hardware modules only if necessary and approved by the Agencies.	
		3.1.2-4	Fare media will be available for competitive purchase from multiple U.S. sources. The Program needs the SI to provide the specifications and associated documentation necessary to support the future procurement of fare media from third parties.	

		3.1.2-5	The System will have a modular design for all relevant components. These modules will support field replacement to return a device to service in minimal time, as determined and approved during system design and testing, in the event of a failure. The System will also permit upgrades and configuration changes without requiring component replacement or redesign.	[redacted]
		3.1.2-6	In order to reduce the cost and complexity of device maintenance, all devices, components, parts, modules, assemblies, and subassemblies provided will be fully interchangeable among those of the same type without the need to make adjustment for proper compatibility.	
		3.1.2-7	The System will be designed so that technology upgrades may be done with no or minimal redesign of components, modules, and software, or other work.	
Supply & Availability	Desired	3.1.3-1	The Program needs the SI to furnish equipment and materials from the manufacturers identified in the SI's deliverables, unless otherwise approved.	
		3.1.3-2	The Program needs the SI to select and supply devices, components, parts, modules, assemblies, and subassemblies, as well as software and other essential elements of the System, based on projected availability and long-term original equipment manufacturer (OEM) support commensurate with the required useful life of the System.	
		3.1.3-3	If any vital device, component, part, module, assembly, or subassembly, or support for OEM software, is being discontinued or obsoleted by the SI or OEM, the Program needs the SI to notify the Agencies a minimum of six (6) months prior to last available date of purchase or support.	
		3.1.3-4	The Program needs the SI to work with the Agencies to find or develop a suitable replacement for any device, component, part, module, assembly, subassembly, or software that is obsoleted by the SI or OEM. If the SI chooses to obsolete any SI-provided equipment or software within 12 years from Final System Acceptance, all hardware and software development costs necessary to support a replacement will be borne by the SI.	

Materials & Workmanship	Mandatory	3.1.4-1	All components of the System will be constructed of the highest quality materials suitable for production-level use in the intended environment over the required useful life of the System. The SI shall use only new components conforming to the capabilities of this SOW and approved by the Agencies. This does not preclude use of recycled materials in the manufacture of new components.	[redacted]
		3.1.4-2	The SI shall be responsible for all materials and workmanship. It is the Systems Integrator's responsibility to design, select, and apply all materials necessary to meet the capabilities of this SOW. If alternate materials are offered following selection, it is the responsibility of the SI to demonstrate that the alternate materials are equivalent to the proposed materials, and to obtain Agency approval for the substitution prior to any implementation.	
		3.1.4-3	All SI provided equipment will be free from safety hazards and will be designed to comply with relevant Underwriter's Laboratory (UL) Standards. All interior and exterior surfaces will be free from sharp edges, protrusions, exposed wires, or other hazards.	
	Desired	3.1.4-4	If it is found that approved sources do not furnish a uniform product, or if the product from such source proves unacceptable per the requirements in this SOW, the Program needs the SI to, at no additional expense to the Agencies, take any and all steps necessary to furnish acceptable materials.	
Software Design Principles	Mandatory	3.1.5-1	The SI shall supply all necessary software applications and shall design and configure all device and back office software applications for optimal system performance. The SI shall install all software that is necessary for system operation and to successfully meet the operational and performance capabilities in this SOW.	
	Desired	3.1.5-2	System software will incorporate the following design elements at a minimum: • Be developed using a non-proprietary, hardware architecture-independent programming language • Compiled with a commercially available compiler and commented in English • Include provisions for setting and verifying date and time, with automatic adjustments for leap year • Be sufficiently integrated with the operating system to support all required functions of its applications in both a networked and a	

			stand-alone environment • Not utilize or employ hard coding of configuration parameter values, except where expressly permitted • Be debugged, documented, and include all approved revisions introduced up to the time of Final System Acceptance • Be portable to other software platforms or languages where possible • Utilize object-oriented programming or equivalent programming methodology that encourages software reuse and minimizes development time • Be designed using service-oriented principles and architectures	[redacted]
		3.1.5-3	System software will incorporate the following controls at a minimum: • Allow for the distribution of software modifications to all system devices from the back office without field intervention or component replacement • Be fully version-controlled, with the ability to revert to a previous software configuration, version, or fork • Support audit of activity to show when and what changes were made from version to version • Be designed using best practices that allow for OS and database patches and upgrades to be applied with minimal labor intensive and time consuming testing	
		3.1.5-4	System software will incorporate the following diagnostic capabilities at a minimum: • Continuously sample all input conditions at rates sufficient to detect and remedy all unsafe or damaging conditions in the shortest possible time • Perform self-diagnostic routines and respond promptly and predictably to detected faults • Respond predictably when powering up or recovering from power interruptions • Permit thorough interrogation of all input, output, and internal conditions by external diagnostic equipment • Provide errors that contain easily understood explanatory text and include the manner in which the error can be corrected	
		3.1.5-5	Software upgrades will be centrally managed and fully tested prior to installation. The System shall be able to roll-back to previous	

			software versions without adversely impacting operations.	[redacted]
		3.1.5-6	All third-party software will be at the latest commercial release at the time of FDR. If a release candidate is pending, the Agencies and SI will review and approve the version that will be deployed.	
User Interface & User Experience	Desired	3.1.6-1	The System interfaces will be user-friendly and provide easily-configurable dashboards and graphics as determined during design review.	
		3.1.6-2	The SI will work closely with the Agencies' IT and web services teams to develop an approved user interface design. The Agencies will play a critical role in the website design and testing throughout the implementation.	
		3.1.6-3	System equipment will provide customers and Agency users with displays, graphics and signage, controls and mechanisms that are simple to use, easy to understand, and conveniently located as determined during system design and testing. By following instructions given on and by the equipment, an inexperienced user will be able to understand all transaction processes and results. All such user interfaces will be user-friendly; that is, safe, predictable, simple to use, accessible for persons with disabilities, and in accordance with other applicable human engineering principles.	
Maintainability & Serviceability	Mandatory	3.1.7-1	The System equipment will provide reliable operation over its useful life, and will be designed to require minimal scheduled and unscheduled maintenance.	
		3.1.7-2	Automatic diagnostic test routines (and equipment if necessary) will be included to aid in troubleshooting malfunctions. These test routines will provide the capability to isolate defects down to the Lowest Level Replaceable Unit (LLRU).	
		3.1.7-3	The SI shall provide documentation and a Maintenance Plan during PDR that defines at a minimum: • Preventative Maintenance frequency for all system devices based upon time and transactions • A list of all Preventative Maintenance tasks to be performed, including a brief description of the work, and any parts, materials, or other components required • Time required to complete each defined Preventative Maintenance task • Which Preventative Maintenance tasks require tools to complete,	

			and which can be performed as “fingertip maintenance”	[redacted]
	Desired	3.1.7-4	The interior of the System equipment will be designed to allow easy and safe access. Adequate space will be available to insert keys; grasp, lift, and turn internal components; and remove and replace components, connections, and consumables. As appropriate, guides, rails, tracks, handles, and captive fasteners will be provided to facilitate module installation and removal.	
		3.1.7-5	Any component or module that must be lifted (except for cash containers when full) will not weigh more than 20 pounds. Any exceptions to this weight limitation will be subject to Agency approval.	
		3.1.7-6	For ease of service and replacement, all electrical connections between components and subassemblies will be established by means of connectors that allow rapid removal of a component or subassembly. Plug-in connectors will be equipped with strain relief to prevent damage to cables and connectors.	
		3.1.7-7	Components requiring frequent adjustment or maintenance will be conveniently located as determined during design and testing, and designed to facilitate access and adjustment utilizing tool-free techniques wherever possible.	
		3.1.7-8	All devices will have clear labels and symbols that at a minimum indicate safety warnings, servicing steps, and wiring connections.	
		3.1.7-9	No more than one person will be required to perform corrective maintenance, with the exception of vandalism, on an individual piece of equipment.	
		3.1.7-10	The System will have a modular design for all relevant components. These modules will support field replacement to return a device to service in minimal time in the event of a failure. The System will also permit upgrades and configuration changes without requiring component replacement or redesign.	

		3.1.7-11	The replacement of field devices or components will be quick and secure as determined during design review.	[redacted]
System Sizing and Scalability	Desired	3.1.8-1	The System will be sized such that the total number of possible transactions, and total concurrent use of transit accounts, will at a minimum support 200% of the projected regional ridership totals and peak usages supplied by the region.	
		3.1.8-2	Scaling the System will in no way impact the overall performance of the System, the KPIs to which the System must meet, and any of the requirements contained in the SOW.	
Operating Environment	Mandatory	3.1.9.1-1	All system components and mounts will be sufficiently constructed to comply with local codes regarding stability of structures and contents in earthquakes, high velocity wind (up to 60 miles per hour), and other natural phenomena.	
	Desired	3.1.9.1-2	All system components will be designed to withstand structure-borne stresses and vibrations caused by the motion of transit vehicles, daily customer use, passing of trains or other vehicles, and emergency braking of fully-loaded trains.	
		3.1.9.1-3	All system components, including all interior-mounted components and assemblies, will resist horizontal shocks of up to 6 g (where “g” is the acceleration of gravity at sea level, or 9.81 meters per second squared) and up to 1.2 g in the vertical axis for a duration of up to 12 milliseconds (ms) without permanent deformation or failure.	
		3.1.9.1-4	There will be no failure of mounts or decrease in operational performance of any system components under conditions simulated by a sinusoidal sweep vibration test at a sweep rate of one-half octave per minute, from 5 Hz to 200 Hz to 5 Hz, at a peak vibratory acceleration of 0.25 g for a minimum of 50 cycles when applied to each of the three axes and repeated continuously for five (5) complete cycles. If any assembly or component is a source of vibration, measures will be taken to dampen the vibration. Resonant frequencies that may exist in the mounted structures will be critically dampened. All corrective measures must be approved by the Agencies.	

		3.1.9.1-5	Onboard equipment, including onboard validators and driver display units, will pass the following shock and vibration tests: • IEC 60068-2-27 • IEC 60068-2-64	[redacted]
		3.1.9.1-6	Rail equipment, including vending machines and wayside validators, will pass the shock and vibration tests specified in the ERTMS/ETCS Environmental Requirements (e.g., EEIG 97s0655).	
	Mandatory	3.1.9.2-1	Onboard equipment, including onboard validators and driver display units will be protected to prevent degradation in performance from exposure to moisture or dust raised by inclement weather or interior cleaning. Operation of the fare collection equipment in this environment will not in any way impair equipment performance throughout the required useful life of the System.	
		3.1.9.2-2	Onboard equipment, including onboard validators and driver display units, will be designed, built, and installed for the harsh, high shock and vibration operating environment in which the System components will be installed. Operation of the fare collection equipment in this environment will not in any way impair equipment performance throughout the required useful life of the System.	
	Desired	3.1.9.2-3	The onboard equipment provided by the SI will be able to operate and not suffer any degradation in performance under the following environmental conditions: • Storage temperature: -22° to +150°F • Operating temperature: -15°F to 140°F ambient • Thermal shock: Up to 50 degrees F in 1 hour, non-condensing • Relative humidity: 5-100%, non-condensing • Airborne dust: up to 180 micrograms per cubic meter, with iron and salt particles • Sunlight: direct sunlight, radiation loading of up to 789J/sec/m2 • Inclination: 0° to 20° off vertical • Rainfall: 10 inches over 12 hours • Water/solvents: IEC529 to level IP54 or equivalent • Pollution: Vog (e.g. sulfur dioxide-laden air) and other forms of native air pollution • Other operational conditions: water spray, industrial cleaning solvents, and mud on system components from cleaning vehicle	

			floors and walls	[redacted]
		3.1.9.2-4	The onboard equipment will be either immune to or protected from the damaging effects of visible spectrum and ultraviolet radiation.	
		3.1.9.2-5	The onboard equipment will be designed to be resistant to liquid ingress caused by driving rain, or by splashed water or cleaning chemicals, such as would occur during routine equipment and vehicle cleaning.	
		3.1.9.2-6	Means will be provided to detect failure of any cooling device and provide for a controlled shutdown of the System components and generation of a maintenance event.	
		3.1.9.2-7	The onboard equipment will be tested and certified to operate under the environmental conditions specified in Society of Automotive Engineers (SAE) J1455 and all standards contained therein.	

	Desired	3.1.9.3-1	The wayside equipment provided by the SI will tolerate the environment in which it is installed and stored. The equipment will be able to operate and not suffer any degradation in performance under the following environmental conditions: • Storage temperature: 0° to +140°F • Operating temperature: -15°F to 140°F ambient • Thermal shock: Up to 30°F in 1 hour, non-condensing • Relative humidity: 5-100%, non-condensing • Airborne dust: up to 180 micrograms per cubic meter, with iron and salt particles • Sunlight: direct sunlight, radiation loading of up to 3MJ/hr/m2 • Platform Inclination: 0° to 10° off vertical • Rainfall: 10 inches over 12 hours • Water/solvents: IEC529 to level IP65 or equivalent • Pollution: VOG and other forms of native air pollution • Other operational conditions: water spray, industrial cleaning solvents, and mud on system components from cleaning station floors and walls	[redacted]
		3.1.9.3-2	VMs will be subject to incidental moisture from customers and cleaning through coin, bill, and ticket slots, and other openings and enclosure joints, and will be designed for proper operation under such conditions. All exposed surfaces, including push buttons, the display screen, and coin and bill components will be unaffected by detergents and cleaning solvents. Means will be provided to expel moisture from the VMs to support continued, reliable operation.	
		3.1.9.3-3	Means will be provided to detect failure of any cooling device and provide for a controlled shutdown of the System components and generation of a maintenance event.	
		3.1.9.3-4	The wayside equipment will be either immune to or protected from the damaging effects of visible spectrum and ultraviolet radiation. Internal components that may be either damaged or affected operationally when exposed to direct sunlight will be protected from exposure during maintenance activities without requiring specific action by maintenance personnel.	
		3.1.9.3-5	The wayside equipment will be designed to be resistant to liquid ingress caused by rain, or by splashed water or cleaning chemicals, such as would occur during routine equipment and platform	

			cleaning.	
		3.1.9.3-6	Wayside equipment, including wayside validators and VMs will be protected to prevent degradation in performance from exposure to moisture or dust raised by inclement weather or cleaning. Operation of the fare collection equipment in this environment will not in any way impair equipment performance throughout the required useful life of the System.	
	Desired	3.1.9.4-1	CSTs will be designed and configurable to be installed in Agency facilities. Operation of the equipment in this environment will not in any way impair equipment performance throughout the required useful life of the System.	
		3.1.9.4-2	Means will be provided to detect failure of any cooling device and provide for a controlled shutdown of the System components and generation of a maintenance event.	
Electrical	Mandatory	3.1.10.1-1	The SI shall design, supply, install, test, and commission all internal system components necessary to provide the required electrical power to the SI-supplied equipment.	
		3.1.10.1-2	Electrical power will be obtained from existing power sources and will be filtered, transformed, converted, battery-stored, and distributed by the SI as required, including all necessary connections and terminations.	
		3.1.10.1-3	Onboard equipment, including onboard validators and driver display units, will be designed to operate reliably from a vehicle's direct current power source, which will be either 12 volts or 24 volts of direct current (VDC).	
	Desired	3.1.10.1-4	Primary power will be provided by the Agencies at equipment installation locations, and may not be clean or isolated at the voltage levels required by the SI-supplied equipment. Any necessary conditioning of the primary power, or addition of line interface filters or power supplies, will be the responsibility of the SI, and to the greatest extent possible, will be performed within the equipment enclosures.	
		3.1.10.1-5	All system components operating off of line voltage will be designed to operate with a plus or minus 10% fluctuation in voltage without any damage or interruption.	

		3.1.10.1-6	In the event of a loss of electrical power, field equipment will complete any transaction in process, retain all data, and shutdown in an orderly manner. The equipment will return to full operational status after a power failure without manual intervention or adversely affecting the integrity of stored data.	[redacted]
		3.1.10.1-7	All equipment will be protected against damage or data loss under the following conditions: • Voltage fluctuations • Reverse polarity of the input voltage • Temporary voltage variations (0 to 50 V) • Over-current draw • Stray currents	
		3.1.10.1-8	The onboard equipment power supply will include adequate filters and components to regulate the bus-supplied voltage and render it devoid of power spikes and noise. Provisions will include elimination of power fluctuations caused by fluorescent lights, coach alternators, coach startup (cranking), air conditioning units, radio communication units, and other systems characteristic of a bus environment.	
		3.1.10.1-9	Adequate protection against onboard transient power surges, as determined during system design and testing, will be incorporated to the extent necessary to prevent damage to the electronic components of the onboard equipment.	
		3.1.10.1-10	Power sensing will be incorporated into onboard equipment power supplies to cause the devices to switch off automatically if the supply voltage increases or decreases to levels beyond the voltage tolerance.	
		3.1.10.1-11	All system components will retain any information stored in non-volatile memory under any conditions of the supplied power.	
	Mandatory	3.1.10.2-1	The SI shall certify the electromagnetic compatibility of system components to be furnished. The SI shall provide the results of interaction analysis and testing of each system component with regard to frequency distribution, amplitude, and harmonic content for review and approval during design review.	
	Desired	3.1.10.2-2	The Program needs the SI to confirm system equipment will operate without being adversely affected by or causing electromagnetic interference (EMI).	

		3.1.10.2-3	All system components will include protection against external EMI and radio frequency interference (RFI) emissions, as well as internal conductive or inductive emissions.
		3.1.10.2-4	All system components will conform to the following capabilities: • FCC Part 15, Subpart B Class A (Conducted emissions), pertaining to conducted susceptibility • FCC Part 15, Subpart B Class A (Radiated emissions), pertaining to radiated susceptibility
		3.1.10.2-5	Equipment will not emit measureable EMI or RFI that produces harmful interference with any other onboard or station devices or systems, including Global Positioning System (GPS) and magnetic compass readings, and will comply with the following standards: • IEC 1000-4-6 (EN61000-4-6) pertaining to conducted susceptibility • IEC 6100-4-3 (EN61000-4-3) pertaining to radiated susceptibility • IEC 6100-4-2 (EN 6100-4-2) pertaining to electrostatic discharge
		3.1.10.2-6	Operation of the equipment will not be affected by the electromagnetic fields generated by traction power (overhead catenary or third rail) or by local high voltage power distribution lines.
		3.1.10.2-7	Operation of the wayside equipment, including VMs and wayside validators, will not be adversely affected by the operation of other station equipment, such as lighting and communications equipment, within close proximity.
		3.1.10.2-8	Onboard equipment, including onboard validators, and driver display units will be unaffected by interference from fluorescent lights, coach alternators, air conditioning units, radio communication units, and other systems characteristic of a bus environment.
		3.1.10.2-9	Equipment communications will not interfere or be impacted by the use of established frequencies, including but not limited to: • Audio frequencies for overlay track circuits, highway crossing approach and island circuits, and electrical lock circuits • Audio frequency code overlay for Automatic Train Control (ATC) systems • Signal power • Cab signals

[redacted]

	Mandatory	3.1.10.3-1	All equipment enclosures, chassis, assemblies, panels, switch boxes, and terminal boxes will be grounded. Protective grounding will be provided to make sure that exposed metal on all system components is connected to a common ground point.
		3.1.10.3-2	The Program needs the SI to meet safety capabilities for the grounding that conforms to the National Electric Code (NEC) and UL, SAE and local codes where applicable.
		3.1.10.3-3	The Program needs the SI to provide certification that all system components furnished have been tested to meet applicable UL criteria. Documentation citing UL certification or acceptable test results will be provided for review and approval during design review.
	Desired	3.1.10.3-4	System equipment will be equipped with Ground Fault Circuit Interrupter (GFCI) circuit breakers, which include a “push to test” button, visible indication of a tripped condition, and ability to detect an earth leakage current of approximately 5 milliamperes in accordance with UL 1053 and California Energy Commission (CEC) standards.
Licensing & Ownership	Mandatory	3.1.11-1	The Agencies will own all data generated by the equipment, systems, and software delivered under this Contract. The Agencies will be able to freely access and distribute all data free of charge. The Agencies will retain ownership of all data in perpetuity with no restrictions or additional cost.
		3.1.11-2	All documentation described in this SOW will become the property of the Agencies, or provided under a perpetual license to enable internal use, editing, and distribution to third-parties at no additional cost.
		3.1.11-3	Any reports generated by the System are the sole property of the Agencies and will not be shared or distributed without Agency express written permission.
		3.1.11-4	The Program needs the SI to develop a Software Licensing and Documentation Plan for Agency approval. The Plan will identify all system software and interfaces and any applicable terms that apply to the use and distribution of the covered components.
	Desired	3.1.11-5	All system and software interfaces will be defined and documented, and will be provided to the Agencies under a perpetual license to enable internal use and distribution to third-parties at no additional

			cost.
		3.1.11-6	All open architecture API, libraries, and Intellectual Property (IP), including data exchange formats and algorithms, will be provided to the Agencies under a perpetual license to enable internal use and distribution to third-parties at no additional cost.
Accessibility & ADA Compliance	Mandatory	3.1.12-1	All equipment, software, employee and customer interfaces will meet or exceed ADA standards to maximize ease of use. The System equipment will comply with the most recent version of the ADA Accessibility Guidelines (ADAAG) at the time of Final System Acceptance.
		3.1.12-2	All devices and systems will meet or exceed ADA and accessibility standards, which will include compliance with all current industry and government standards governing accessibility. The SI shall be fully responsible for tracking all required certifications, for the interfaces to the payment devices and the System as a whole, including any required certifications.
		3.1.12-3	Accessibility guidelines and regulations will be incorporated in the design of the entire system from the onset. Usability will be tested in the design process and implementation.
		3.1.12-4	All system and user interfaces will comply with section 508 of the Rehabilitation Act of 1973, which includes the Web Content Accessibility Guidelines (WCAG) 2.0, meet or exceed the WA State Accessibility Policy – Standard 188.1 (https://ocio.wa.gov/policy/accessibility) and meet or exceed all ADA requirements.
		3.1.12-5	The customer website and mobile app will be designed to be user friendly and accessible to current and potential riders and Agency employees. The System will comply with the most recent version of the ADAAG at the time of Final System Acceptance and will meet or exceed the WA State Accessibility Policy – Standard 188.1.
		3.1.12-6	The SI will provide an Accessibility Compliance Plan during design review that articulates how the required ADA and accessibility standards will be met for the entire system during each phase of the project. This plan will be subject to approval by the Agencies.

		3.1.12-7	The SI will provide an Accessibility Compliance Plan that articulates how the required ADA and accessibility standards will be maintained following implementation. This plan will include ongoing operations, change management, and a plan for updates when regulations change. This plan will be subject to approval by the Agencies.	[redacted]
		3.1.12-8	The SI shall create an ADA compliance framework as part of the Accessibility Compliance Plan that will track compliance with all appropriate local, state and federal accessibility standards.	
		3.1.12-9	All equipment provided or purchased by the SI that will provide fare media or fare validation will be certified by the Original Equipment Manufacturer (OEM) or SI, as compliant with all applicable accessibility standards at the time of Final System Acceptance.	
		3.1.12-10	VM instruction text will include raised lettering and braille instructions that will meet or exceed all applicable accessibility and ADA requirements.	
		3.1.12-11	The VM display screen will display characters and symbols compliant with all accessibility and ADA requirements.	
		3.1.12-12	The onboard and wayside validator design and mounting will be in compliance with or exceed all applicable ADA requirements and will be approved by Agencies.	
		3.1.12-13	The onboard and wayside validator will have ADA-compliant visual and audible indicators that provide distinctive messages for approval or denial of all fare media validations and validator status. All validator visual and audio output will be fully configurable and subject to Agency review and approval during design review.	
		3.1.12-14	All customer-facing payment processing hardware and software will meet or exceed all applicable accessibility and ADA requirements. The design will be reviewed and approved during design review.	
		3.1.12-15	The SI shall be responsible for conducting all testing required to meet or exceed the current Accessibility and ADA regulations prior to Final System Acceptance.	
		3.1.12-16	All mobile app screens will use colors to enhance legibility and be in compliance with or exceed all applicable ADA requirements.	
		3.1.12-17	All mobile apps will utilize and be fully compatible with the native accessibility features of the mobile operating system.	

Code & Regulation Compliance	Mandatory	3.1.13-1	All equipment that reads fare media for the purpose of fare distribution or validation will include a contactless validator that supports all common ISO-14443 (Type A and B), ISO-18092 (NFC), and closed-loop (e.g., the entire MIFARE product line) media formats, in addition to all open payment contactless standards, including but not limited to: • Apple Pay • Android Pay • Samsung Pay • VISA payWave® • MasterCard PayPass® • American Express ExpressPay® • Discover Zip® • Contactless EMV	[redacted]
Information Security	Mandatory	3.1.14.1-1	The System will be designed to include the appropriate elements and processes to manage, monitor, and quickly address security issues, consistent with the expectations outlined in above, to support the operation of the region's Information Security Management System (ISMS).	
		3.1.14.1-2	All devices and elements accepting bank cards for payment will be designed to facilitate compliance with (and potentially certification) all applicable industry and government standards and best practices governing payment processing systems. This will include, but not be limited to PCI-DSS and EMV. The SI shall be fully responsible for acquiring all required certifications, including PCI and EMV certifications, for the interfaces to the payment processor and the System as a whole. The region's ISMS requires that all standards of mandatory compliance are observed and all respective controls implemented to minimize the System's risk profile, and the potential impact to the Agencies.	
		3.1.14.1-3	The connection between the frontend devices and back office will be over a routable IP network. Where required, the connections will be secured using Transport Layer Security (TLS) and strong encryption, such as TDEA or AES. All data sent via the internet will be TLS-encrypted using the HTTPS protocol. Any IP communications must not preclude components of the System utilizing IPv6.	

	Desired	3.1.14.1-4	Security-sensitive information will be submitted separately, outside of the normal document deliverables process, and in accordance with procedures to be jointly developed between the SI and the Agencies. Security-sensitive information will include: • Information that would allow an individual to create, duplicate, skim or counterfeit fare media • Information that would allow an individual to overcome security features or interlocks intended to prevent access to sensitive information • Information that would allow an individual to divert revenue, whether electronic or cash, from the System	[redacted]
		3.1.14.1-5	System security features will be maintained and security issues will be addressed as they arise throughout the terms of the warranty and SMA. Operating system updates, software patches, bug fixes, and system enhancements to address identified security issues will be provided.	
		3.1.14.1-6	All fare payment data will be secured and private from the point when it is captured to when it is received by the processor. When communications are over public networks, approved secure methods will be used.	
		3.1.14.1-7	A regional ISMS will be deployed to manage security and monitor the status and version of all security standards applicable to the next gen ORCA System. The Program needs the SI to ensure that the necessary information to establish compliance with the controls identified by the ISMS is provided to facilitate its operation. The Program needs the SI to also ensure that all applicable standards, regulations, and best practices identified by it are accounted for in the region's ISMS.	
		3.1.14.1-8	The Program needs the SI to provide cryptographic key management services and tools. Key management in this context includes but is not limited to: • Key generation: Derived key generation for each manufactured fare media, including card manager key sets, as well as multiple application-related key sets (may include both encryption and authentication keys) • Key storage: Secure storage and retention of card and application key sets	

			• Key updates: Capability to update, or roll, all cryptographic keys used within system • Key sharing: Secure sharing of application key sets with third-parties for use in multi-application environments		[redacted]
	Mandatory	3.1.14.2-1	System must provide for configurable, role-based user access, so that users will only be able to access data and functionality pertaining to their respective job functions.		
	Desired	3.1.14.2-2	There will be a single common login across all SI built components of the System (users will not need a separate login to perform administrative functions).		
		3.1.14.2-3	The System will have the capability to establish an unlimited number of security roles.		
		3.1.14.2-4	The System administrator will have the ability to see all activity by user including at least last log in, reports opened, and other non-data submission activities.		
		3.1.14.2-5	The System will have the ability to set up access types (e.g., edit & read only) on an individual, role or group basis.		
		3.1.14.2-6	Some access types will have access to maintain and update customer accounts.		
		3.1.14.2-7	The Agencies will have read-only access to transactional databases with no data usage or ownership restrictions.		
		3.1.14.2-8	Access to the back office applications will be controlled through the individual applications where Commercial off the Shelf (COTS) applications are concerned. For custom built application access will be controlled through the System using passwords and strict access privileges.		
		3.1.14.2-9	The System will manage and monitor all user accounts and access privileges. The System will have records of access rights to COTS software applications but not control. The System will control access to all custom applications.		
		3.1.14.2-10	Logical access to all supplied systems will require multi-factor authentication and be centrally managed using an Agency-provided, managed user authentication and access control platform based on		

			an approved vendor-neutral, industry standard protocol, such as Lightweight Directory Access Protocol (LDAP) or equivalent.	[redacted]
		3.1.14.2-11	Physical and logical access to components that contain Personally Identifiable Information (PII) and/or financial data will be restricted. Physical and logical security will be sufficient for compliance with the PCI standards in effect at the time of Final System Acceptance.	
		3.1.14.2-12	The System will allow new security roles to be immediately reassigned upon role change of employees.	
	Mandatory	3.1.14.3-1	The SI shall use approved security in generating, storing, deploying, and transmitting cryptographic keys. The SI shall submit a cryptographic key management plan for agency review and approval during design review.	
	Desired	3.1.14.3-2	Solution must provide adequate controls for user access and encryption for sensitive information stored in and exported to and from the System.	
		3.1.14.3-3	The fare media format will support strong cryptography standards, such as Transparent Data Encryption (TDEA), Advanced Encryption Standard (AES) and RSA encryption to protect access to and modification of all data encoded to the media.	
		3.1.14.3-4	All data in the CRM will be encrypted using strong cryptography. Ciphers in use must meet or exceed the set defined for use in the United States National Institute of Standards and Technology (NIST) publication FIPS 140 2, or any superseding documents according to the date of implementation. The use of the AES is strongly recommended for symmetric encryption. Algorithms in use must meet the standards defined for use in NIST publication FIPS 140-2 or any superseding document, according to date of implementation. The use of the RSA and Elliptic Curve Cryptography (ECC) algorithms is strongly recommended for asymmetric encryption. Encryption ciphers and algorithms to be used will be approved by the ORCA Chief Information Security Officer. Additionally, all payment data must be stored in a tokenized form, whenever storage is required to support the functionality of the System.	

		3.1.14.3-5	If the System design requires the card manufacturer to encode the cryptographic keys to the fare media, the cryptographic key management plan will identify trusted card manufacturers with appropriate security mechanisms in place to certify that the cryptographic keys remain safe and secure.	[redacted]
		3.1.14.3-6	The Program needs the SI to provide detailed specifications for the generation and management of all cryptographic keys used within the System. The key generation algorithms will be fully owned by or licensed to the Agencies, including the right to distribute specifications to third-parties for media production and to support multi-application smart card implementations without further approval, license, or payment.	
	Mandatory	3.1.14.4-1	The System and its applications must be in compliance with all applicable regulatory standards such as PCI-DSS, and recognized best industry practices for the protection of PII at the time of deployment.	
	Desired	3.1.14.4-2	All equipment provided or purchased by the SI that will capture, store, transmit, or process bank card data will be certified, by the OEM or SI, as compliant with all applicable provisions of the PCI DSS standard at the start of revenue service.	
		3.1.14.4-3	The Program needs the SI to be responsible for providing a PCI compliance plan during design review, and for obtaining certification for the entire system. The Program needs the SI to employ a certified Qualified Security Assessor (QSA), and be responsible for conducting all testing required to achieve certification prior to Final System Acceptance.	
		3.1.14.4-4	The approach to system security will include avoiding the storage of bank card data and PII on field devices whenever possible, and only storing and transmitting such data in a tokenized or encrypted form.	
		3.1.14.4-5	The Program needs the SI to be responsible for providing that the System as delivered is compliant with all applicable PCI standards at the time of Final System Acceptance, and with all Agency, state, and local policies for the handling of PII.	
Fraud Prevention	Mandatory	3.1.15-1	The System will support fraud prevention policies, including the ability to automatically identify suspect usage patterns based on sales and ridership data, and block the use of fare media, transit accounts, and fare products based on configurable fraud rules.	

	Desired	3.1.15-2	The System will support Agency-configurable velocity checks, and other fraud prevention measures, that identify excessive or potentially fraudulent use of stolen or compromised fare media.	[redacted]
		3.1.15-3	The System will support the setting of a configurable upper limit of rides for unlimited ride products (e.g., 50 rides for a one-day pass) that will generate an automated alert within the System, and optionally block the fare media or product, when the limit is reached.	
		3.1.15-4	The System will detect, and generate an automated alert for potential fraudulent duplication of fare media, if the same fare media or transit account is used for payment in two geographically separated locations within a configurable period of time.	
		3.1.15-5	For transit accounts with, the System will support the configuration of a "floor limit," or value below which the balance is not allowed to fall (so long as the device generating a fare payment is online). The floor limit may be configured to be a zero or negative balance. Transit accounts with balances at or below the floor limit will be able to be automatically blocked by the System.	
		3.1.15-6	The System will support configurable rules to prevent the sharing of fare media and accidental payments through "passback protection," or a configurable time period in which fare media will not be accepted for payment at a device after an initial tap. Passback protection will be configurable by fare media type, fare product, Agency, mode, and passenger type, and will be enforceable at the bus, rail station, and individual device level.	
		3.1.15-7	The System will support the placing of credentials and transit accounts into "observation mode", which will generate an automated alert when the credential or transit account is used. This may be used by fare enforcement staff to monitor known stolen or compromised credentials or transit accounts.	
		3.1.15-8	The blocking of credentials, transit accounts, and individual fare products will be able to be performed automatically and manually, and on an individual and bulk basis (i.e., if a known batch of cards was lost, the entire batch may be blocked).	
		3.1.15-9	Additional fraud prevention policies may be defined during design review.	
Section 3.2 System Architecture				

Account-based System	Mandatory	3.2.1-1	The SI shall design, develop, and implement an account-based electronic fare collection system. The account-based back office will be the system of record for fare calculations and enforcement and take priority over any media that may hold account information.	[redacted]
		3.2.1-2	An account-based back office supporting the System will manage transit accounts that store fare value loaded by customers, and enable use of that value for the payment of transit fares and transit-related services.	
	Desired	3.2.1-3	The account-based back office will process all transactions generated by the System devices, including loading transit accounts upon request from fare distribution devices, and performing fare calculation and balance updates at the time of fare payment based on established business rules. All fare processing and updating of transit accounts will be performed in real-time.	
		3.2.1-4	The fare media including but not limited to smart cards and NFC enabled smartphones will serve as a credential for accessing transit accounts, and data will only be written to the media when loading or using fare value to support risk mitigation techniques.	
		3.2.1-5	The Account-based Transaction Processor (ATP) will have a module to configure and maintain apportionment rules based on fare products purchased and used, number and value of trips taken, and Agency associations.	
		3.2.1-6	The ATP apportionment module will have a user friendly interface to allow the rules to be securely maintained and updated, including the ability to change current rules and add new rules based upon new fare products, trip types, or Agencies being added to the next gen ORCA program.	
Real-time Communications	Mandatory	3.2.2-1	Each fare validation and distribution device will be equipped to support real-time communications with the back office.	
		3.2.2-2	The communication interfaces will support real-time loading of fare value through all distribution channels.	
	Desired	3.2.2-3	All network connections will be supported by a high speed communication network provided by the Agencies. The Program needs the SI to provide a system that will function within each Agency provided network.	
		3.2.2-4	The communication interfaces will support real-time processing of closed-loop fare payments onboard vehicles.	

		3.2.2-5	The communication interfaces will support processing of closed-loop fare payments at ferry terminals.	[redacted]
		3.2.2-6	The System will support the offline operation of field devices according to defined business rules and transmit stored transaction information as soon as communications are reestablished.	
		3.2.2-7	The communication interfaces will support real-time processing of closed-loop fare payments at rail stations.	
		3.2.2-8	The Program needs the SI to accommodate potential improvements provided by the Agencies over time.	
Offline Provisions	Mandatory	3.2.3-1	The System will support the limited writing of data to closed-loop fare media for the purposes of fraud mitigation, displaying accurate and timely account information, and risk management. The information written to the fare media may include: • Recent transaction information (e.g., transaction timestamps) • Transit account balance information (e.g., low balance/load indicators) • Transit account status information (e.g., passenger type, organizational program, or blocking indicators) Data to be written to the media will be determined during design review and subject to Agency approval.	
		3.2.3-2	When network communications are reestablished, the communications interface will support the capability for each field device to transmit stored transaction information and receive messages from the back office based on configurable prioritization business rules.	
		3.2.3-3	The SI shall provide a non-proprietary method to recover the data on each validator in the event of a device failure. The method will not require a network wired or wireless connection, i.e., a separate port or other mechanism for data transfer.	
	Desired	3.2.3-4	Data will be able to be written to the closed-loop fare media at time of manufacture, loading, and use. All data will be secured for both reading and writing using approved cryptography.	
		3.2.3-5	The System will support the distribution of lists to be maintained locally at the field devices and used for fare validation and inspection. The lists will be managed within the back office and distributed to the devices via the System Management API.	

		3.2.3-6	Any data written to the closed-loop fare media will be used to supplement back office account data, and will be limited in nature. The data will be able to be interpreted by the devices with minimal or no business rules logic (i.e., no knowledge of fare policies and products will be required).	[redacted]
		3.2.3-7	List updates will be distributed to field devices at a frequency of no less than every five (5) minutes and include version control to confirm timely and accurate synchronization.	
Application Programming Interfaces	Mandatory	3.2.4.1-1	The SI shall implement strong security controls to prevent fraudulent use of the APIs and authenticate all users, meeting the baseline outlined by the frameworks described in section 3.1.14.	
	Desired	3.2.4.1-2	The System will be designed using open standards for software design, communications protocols, fare media, and other relevant design components.	
		3.2.4.1-3	The full range of APIs provided by the SI will support all interfaces within the fare collection system, and is not limited to the specific APIs described in this section. Any additional APIs that are required will be identified during design review. The Program needs the SI to provide Interface Control Documentation (ICD) for each system interface that describes the interface and APIs used to support it.	
		3.2.4.1-4	Each API will be developed using modern architecture and formats (e.g., REST/JSON). The specific architecture and format to be used will be identified and agreed upon during design review.	
		3.2.4.1-5	The Program needs the SI to develop Hypertext Transfer Protocol Secure (HTTPS), or Agency approved modern alternative, based functional (e.g., not device- or system-specific) API that support core system functions and enable access to those functions for any device or system that requires use of them. Devices and systems may make use of more than one API to support required functionality.	

		3.2.4.1-6	The Program needs the SI to publish full API specifications that document all API calls and the process for making those calls, may include: • Detailed call descriptions • Use cases • Call structure • Data elements and format • Error handling • Timing capabilities • Use of required security protocols • Sample code		[redacted]
		3.2.4.1-7	The Program needs the SI to demonstrate use of the API as part of system implementation and testing. The Program needs the SI to perform API-specific testing, which will be witnessed and validated by Agency representatives prior to Final System Acceptance. Any changes to the APIs as a result of testing will result in the API specifications being updated by the SI.		
		3.2.4.1-8	The Program needs the SI to be responsible for providing the following APIs at a minimum: • Fare Distribution API • Fare Payment API • Fare Inspection API • Transit Account Management API • Customer Account Management API • System Management API • Onboard Integration API • Central Payment Processing API Alternative categorization of APIs may be permitted, as long as the functional capabilities are met and demonstrated.		
		3.2.4.1-9	The API and Interface Control Documentations (ICD) will be fully owned by or licensed to the Agencies with the right to use and distribute the specifications without further approval, license, or payment.		
		3.2.4.1-10	The Program needs the SI to update the API and Interface Control Documentation (ICD) specifications as necessary throughout the warranty and Software Maintenance Agreement terms.		

		3.2.4.1-11	The SI will provide and publish for Agency use the detailed specifications for all fare media and transaction formats used within the System.	[redacted]
		3.2.4.1-12	The System will support the distribution of multiple lists to be maintained locally at the devices and used for fare validation and inspection. The lists will be managed within the back office and distributed to the devices via the System Management API.	
		3.2.4.1-13	The open architecture will encompass all media and devices deployed within the System, and include all fare media formats, security protocols, authentication requirements, and communications necessary to support critical system functions.	
		3.2.4.1-14	Media list updates will be generated at a configurable interval and include version control. At a minimum the list will be updated every 5 minutes.	
		3.2.4.1-15	The program needs all APIs that facilitate communication with field devices to be able to accept transactions in an offline mode, and accommodate scenarios where a full communication cannot be received within the configured timeframe. In these scenarios, risk mitigation strategies will be employed to limit exposure for declined payments and an asynchronous response needs to be gracefully handled.	
	Desired	3.2.4.2-1	The Customer Account Management API will support the querying and management of data maintained within the CRM, and will be utilized by all devices and systems that require access to those functions, including but not limited to: • Customer service terminals • CRM • Customer website • Customer mobile app Not all devices/systems will require or be granted access to all Customer Account Management API functions.	

		3.2.4.2-2	The Customer Account Management API will support the following functionality at a minimum: • Create new customer account • Query customer account status and data • Modify customer account data • Register (e.g., associate) a transit account to a customer account • Unregister (e.g., disassociate) a transit account from a customer account • Add, update, or remove a funding source associated with a customer account • Close a customer account	[redacted]
		3.2.4.2-3	The Customer Account Management API will include API calls for the passing of data between the devices/systems and the back office to perform all functions.	
		3.2.4.2-4	The Customer Account Management API will allow devices/systems to create customer accounts within the CRM, and associate or disassociate existing transit accounts with those customer accounts.	
		3.2.4.2-5	The Customer Account Management API will allow devices/systems to query and modify all customer account data, including but not limited to name, address, date of birth, phone number, email address, organization and administrator contact information, username, password, security questions/answers, funding sources, and program registration details (such as RRFP, ADA Paratransit and low income fare programs).	
		3.2.4.2-6	The Customer Account Management API will allow authorized personnel to close customer accounts. Closing of a customer account will not affect the associated transit accounts. Other business rules such as impact on registered media, re-opening conditions, and data retention will be finalized during design review.	

		3.2.4.2-7	The Customer Account Management API will capture all required information to generate a detailed transaction within the back office for all functions performed, including at a minimum: • Date/time • Agency • Sales/customer service channel ID • Device/system ID • Device/system location • Operator/administrator ID • Fare Media identifier (if associated with a customer account) • Transit account number (if associated with a customer account) • Customer account number • Customer account data • Details of action performed	[redacted]
		3.2.4.2-8	The Customer Account Management API will return a confirmation of the actions taken by the back office. If any action was unsuccessful, a denial and associated reason code will be provided. All response types and error handling will be described in detail in the Customer Account Management API specification.	
		3.2.4.2-9	The Customer Account Management API will support the querying and management of customer account data maintained within the CRM.	
	Desired	3.2.4.3-1	The Transit Account Management API will support the querying and management of data maintained within back office transit accounts, and will be utilized by all devices and systems that require access to those functions, including but not limited to: • VMs • Customer service terminals • CRM • Customer website • Customer mobile app (as appropriate for customer account type) • Agency mobile apps Not all devices/systems will require or be granted access to all transit account management API functions.	

		3.2.4.3-2	The Transit Account Management API will support the following functionality at a minimum: • Query transit account status (e.g., associated passenger type, active/inactive, blocked/unblocked) • Query fare payment transaction history • Query sales transaction history • Query adjustment transaction history • Enable fare product for autoload (requires funding source in customer account) • Generation of fare payment reversal (e.g., cancellation) • Generation of sales reversal (e.g., refund) • Generation of an account adjustment (i.e., add or remove E-purse value or product) • Transfer of balance between two transit accounts • Block/unblock fare media, account, or individual fare product • Lost, stolen, or damaged fare media replacement (i.e., associate new card with existing transit account) • Generation of an opt-out refund (i.e., close account and issue refund)	[redacted]
		3.2.4.3-3	The Transit Account Management API will include API calls for the passing of data between the devices/systems and the back office to perform all functions.	
		3.2.4.3-4	The Transit Account Management API will allow devices/systems to query a transit account status and return the sales, fare payment, and adjustment transactions that were conducted over a specified timeframe, or a specified number of past transactions.	
		3.2.4.3-5	The Transit Account Management API will allow devices/systems to setup autoload for an existing fare product. Enabling autoload will require a valid funding source to be stored in an associated customer account, and may be performed using the Customer Account Management API instead.	
		3.2.4.3-6	The Transit Account Management API will allow authorized personnel to perform adjustment, reversal, transfer, and refund transactions to modify transit account balances.	
		3.2.4.3-7	The Transit Account Management API will allow authorized personnel to generate blocking (and unblocking) and replacement transactions to close or prevent use of transit accounts, fare media,	

			and fare products.		[redacted]
		3.2.4.3-8	The Transit Account Management API will capture all required information to generate a detailed transaction within the back office for all functions performed, including at a minimum: • Date/time • Agency • Sales/customer service channel ID • Device/system ID • Device/system location • Operator/administrator ID • Fare media identifier • Transit account number • Details of action performed		
		3.2.4.3-9	The Transit Account Management API will return a confirmation of the actions taken by the back office. If any action was unsuccessful, a denial and associated reason code will be provided. All response types and error handling will be described in detail in the transit account management API specification.		
		3.2.4.3-10	Using the Transit Account Management API an external system will be able to charge a stored value E-purse for purchase of a product.		
		3.2.4.3-11	Using the Transit Account Management API an external system will be able to determine the balance of stored value in a transit account.		
		3.2.4.3-12	Using the Transit Account Management API an external system will be able to query purchase of a product including the location where the product was purchased.		
	Desired	3.2.4.4-1	The Fare Distribution API will support the sale of all available fare media and fare products, and will be utilized by all fare distribution devices and systems, including but not limited to: • VMs • Customer service terminals • CRM • Customer website • Customer mobile app (as appropriate for customer account type)		

		3.2.4.4-2	The Fare Distribution API will support the following functionality at a minimum: • Retrieval of available fare media and associated pricing and expiration dates • Retrieval of available fare products, and associated pricing • Sale of all fare media types, and creation or activation of an associated transit account • Sale of all available fare products (e.g., stored value, passes and multi-ride products), and update of an associated transit account	[redacted]
		3.2.4.4-3	The fare media and products available for sale, and the associated pricing, will be configured and maintained in the back office. The Fare Distribution API will return this information upon request from a fare distribution device/system. The results provided will be configurable to be specific to the sales channel, device/system location, or individual device/system making the API call.	
		3.2.4.4-4	Fare distribution devices such as VMs and CSTs will be able to communicate with the back office using the Fare Distribution API to enable the creation, activation, and updating of a transit account.	
		3.2.4.4-5	Unique fare media and/or transit account identifiers will be used securely by the distribution devices/systems and passed to the back office to create or activate a new transit account (e.g., in support of new media issuance), or initiate the loading of value to an existing transit account. All fare media and product sales will be processed by the back office in real-time to enable immediate use by the customer.	

		3.2.4.4-6	The Fare Distribution API will support the generation of sale and payment transactions within the back office by capturing all information required to appropriately record the sale, including at a minimum: • Date/time • Agency • Sales channel ID • Device/system ID • Device/system location • Fare media identifier • Transit account number • Product(s) sold • Payment amount(s) • Payment type(s) The Fare Payment API will support the sale of multiple products (e.g., fare media and value) in a single transaction with a single payment, and the use of multiple payments (e.g., split payments) in a single sales transaction.	[redacted]
		3.2.4.4-7	The Fare Distribution API will return a confirmation of the actions taken by the back office to complete a sale. If the sale was unsuccessful, a denial and associated reason code will be provided. All response types and error handling will be described in detail in the fare distribution API specification.	
	Desired	3.2.4.5-1	The Fare Payment API will support the processing of closed-loop fare payments across all Agencies and modes using all supported fare media and fare products, and will be utilized by all fare payment devices, including but not limited to: • Onboard validators • Wayside validators • Customer mobile app – payment presentation • Agency mobile app – fare validation	
		3.2.4.5-2	The Fare Payment API will include API calls for the passing of data between the fare payment devices and back office to initiate a fare payment transaction, which will result in a fare calculation being performed and processing of a payment against a transit account.	

		3.2.4.5-3	The Fare Payment API will support the generation of fare payment transactions within the back office by capturing all information required to calculate and appropriately record the payment, including at a minimum: • Date/time • Agency • Vehicle/station ID • Operator ID (bus and mobile only) • Device ID • Stop ID • Geolocation information (bus and mobile only) • Pattern (bus and mobile only) • Block (bus and mobile only) • Route (bus and mobile only) • Run (bus and mobile only) • Direction/platform • Fare media identifier • Transit account number • Other data encoded to the media (e.g., passenger type) • Authorization mode (e.g., online or offline)		[redacted]
		3.2.4.5-4	The Fare Payment API will return a confirmation of the actions taken by the back office to complete a payment and account status information, including at a minimum: • Payment status (e.g., success or failure) • Transit account passenger type • Fare product used • Fare charged • Remaining balance • Transfer time remaining If the payment was unsuccessful, an associated reason code will be provided. All response types and error handling will be described in detail in the fare payment API specification.		
		3.2.4.5-5	The Fare Payment API will support the passing of a pre-calculated fare to support programs such as Washington State Ferries, where third-party devices or systems may calculate the amount due. The back office will process pre-calculated fare transactions based on the fare structure configured for the associated mode or customer. The request passed will include location.		

		3.2.4.5-6	Using the Fare Payment API an external system will be able to query the use of a product (such as a transportation connection) including location.	
	Desired	3.2.4.6-1	The Fare Inspection API will query closed-loop transit accounts to support the inspection of fares paid across all Agencies and modes using all supported fare media and fare products, and will be utilized by the mobile fare inspection devices.	
		3.2.4.6-2	The Fare Inspection API will include API calls for passing data between the Mobile Fare Inspection application and back office to initiate a fare inspection transaction, which will result in confirmation or denial of payment made using a closed-loop transit account and open payments using all supported payment network branded cards and NFC-enabled devices.	
		3.2.4.6-3	Unique fare media and/or transit account credential identifiers will be securely captured by the mobile fare inspection devices and passed to the back office to perform a fare inspection. The back office will query transit account ride history and use Agency-defined business rules to determine fare payment status in real-time.	
		3.2.4.6-4	All fare inspections will result in a recorded transaction. The Fare Inspection API will support the generation of transactions by capturing all information required to determine the status of a fare payment and appropriately record the inspection, including at a minimum: • Date/time • Agency • Vehicle/station ID • Device ID • Stop ID • Geolocation information • Pattern (bus inspection only) • Block (bus inspection only) • Route (bus inspection only) • Run (bus inspection only) • Direction/platform • Fare media Identifier • Transit account number Other data encoded to the media (e.g., passenger type)	

		3.2.4.6-5	The Fare Inspection API will return fare payment status information, including at a minimum: • Payment status (e.g., valid or invalid) • Account passenger type • Fare product used (if valid tap is found) • Fare charged (if valid tap is found) • Transfer time remaining (if valid tap is found) • Account balance • Fare payment transaction history If the payment is determined to be invalid, an associated reason code will be provided (e.g., no tap, blocked card). All response types and error handling will be described in detail in the Fare Inspection API specification.	[redacted]
	Desired	3.2.4.7-1	The System Management API will be utilized by all devices deployed within the System, including but not limited to: • Onboard validators • Wayside validators • Driver display units • Vending machines • Customer service terminals • Mobile fare inspection devices • Mobile fare validation devices	
		3.2.4.7-2	The System Management API will support the passing of data between the devices, the Asset Incident Management application (AIM), and the System Manager to enable the monitoring of system performance during operations. The device events and alarms reported via the System Management API will provide enough detail to support proactive device maintenance at the module-level, and support accurate reporting on all system performance capabilities. The System Management API will not preclude being interfaced with a decision support system in the future.	
		3.2.4.7-3	The System Management API will support the passing of data between the System Manager and devices to enable remote control and issuance all commands supported for each device type. All commands will be able to be issued and executed in real-time.	

		3.2.4.7-4	The System Management API will support the real-time distribution of device software and configuration parameter updates. Device configuration will include real-time updates to any positive and negative lists maintained locally at the devices. Updates will be distributed on an increment-basis so that only updates since that last time stamp/version received by an individual device are transmitted.	[redacted]
		3.2.4.7-5	A universal System Management API will be created and used wherever possible; however, the SI may create device-specific System Management APIs or calls as necessary.	
		3.2.4.7-6	All configuration parameters distributed to the devices, including positive and negative list updates, will be distributed using the SI-provided System Management API.	
	Desired	3.2.4.8-1	The Onboard Integration API will be utilized by the onboard validators to exchange information with the CAD/AVL system to support single sign-on.	
		3.2.4.8-2	The Onboard Integration API will support the capture of operator login and route data from CAD/AVL system, including but not limited to: • Operator ID • Pattern • Block • Route • Run • Direction The onboard validator will append this information to all fare payment transactions generated by the device.	
		3.2.4.8-3	The Onboard Integration API will support the capture of geolocation data from CAD/AVL system geolocation data, including but not limited to: • GPS coordinates • Stop ID The onboard validator will append this information to all fare payment transactions generated by the device.	
		3.2.4.8-4	The Onboard Integration API will be designed such that it is vendor agnostic; however, the SI will partner with each Agency's existing CAD/AVL supplier and meet all system-specific capabilities.	

	Desired	3.2.4.9-1	The program needs provide a Central Payment Processing API, including all required security protocols, to connect the back office to the payment processor so that gateway and processor can be switched without reprogramming.	[redacted]
		3.2.4.9-2	The SI supplied and maintained interface to the payment processor will be designed to support the addition of open payments in the future. In particular, the architecture will support a real time connection from field validators to the processor through the Fare Payment API.	
	Mandatory	3.2.4.10-1	The program needs to publish specifications for all transactions generated and used within the System but not already covered by the required API.	
	Desired	3.2.4.10-2	Transaction specifications will include detailed descriptions of the transaction structure, data elements, and data formats, and identify all devices and system that generate and consume the described transactions.	
		3.2.4.10-3	Transaction formats will be based on published standards wherever possible, including those used to interface with commercial software packages, such as the SI-provided CRM, financial management, and reporting systems.	
		3.2.4.10-4	The transaction formats will be fully owned by or licensed to the Agencies, including the right to distribute the specifications to third-parties without further approval, license, or payment.	
Network Architecture	Mandatory	3.2.5.2-1	The onboard validator and DDU will connect to the mobile access router via Ethernet.	
		3.2.5.2-2	Onboard validators will connect with onboard mobile network to access the back office system.	
System Hosting	Desired	3.2.6-1	If cloud based, or hosted, transferring data between systems will be by a secure protocol.	
		3.2.6-2	If the back office is to be hosted through a cloud-based hosting service (AWS, Rackspace, etc.) it will be subject to approval by the Agency. All hosted data will be owned and accessible by the Agencies.	
		3.2.6-3	If the SI hosts the System, the Program needs the SI to provide two (2) separate, identical, and fully functional production back office installations, each able to handle 200% of the anticipated peak	

			processing load, and scalable to support up to 400% of the anticipated peak processing load.	[redacted]
		3.2.6-4	If the SI hosts the System, the two sites will process transactions in parallel in an active-active, load balanced configuration in order to optimize performance and safeguard that if one (1) system fails, or goes into a degraded mode, the second system will automatically take over all processing with no downtime. The System will be designed such that a failure at one (1) site will not result in a significant degradation of system performance. This architecture will also support the execution of rolling upgrades across the two (2) sites with no downtime.	
		3.2.6-5	If a hosted model is chosen the Program needs the SI to install, configure, and test the two fully redundant back office systems in the production environment. These systems will be installed at two designated, geographically separated locations identified and hosted by SI.	
		3.2.6-6	For hosted or cloud-based solutions (i.e., software components reside and execute on SI's infrastructure), mechanisms must be in place to keep ORCA data segregated from other non-ORCA data.	
		3.2.6-7	If the SI hosts the System, the mirrored installations will include all customer-facing and operation-critical systems, including but not limited to: • ATP • CRM • System Manager • FMM • Financial Management • Central Payment • Configuration and Change Management • Asset Incident Management • Tariff Management • Web Servers (e.g., supporting customer website) Each installation will include all application servers and databases necessary to independently support each back office system.	

		3.2.6-8	All transaction data will be protected against loss whether hosted or cloud based. If the SI hosts the System, each identical and independent installation will be equipped with the appropriate hardware, software, and procedures to mirror data between the two sites in real-time (e.g., simultaneous writes).			
		3.2.6-9	If the SI hosts the System, load balancing, automated failover, and data mirroring between the two sites will be provided using COTS hardware and software solutions.			
Business Continuity & Disaster Recovery	Mandatory	3.2.7-1	The SI shall provide a system that offers sufficient availability to protect against data loss and system failure.			
		3.2.7-2	The SI shall develop and submit for approval a disaster recovery plan that will take effect in the event of a catastrophic event or system failure that impacts one or both hosting sites. The Disaster Recovery (DR) plan will conform to the required service level agreement and be consistent with the Business Continuity Plan and recovery time capabilities that will be provided by the Agencies.			
		3.2.7-3	In the DR Plan, the SI shall fully document all procedures to restore system operations.			
	Desired	3.2.7-4	The Program needs the SI to propose a physical and logical architecture (e.g., virtualized servers, spare load balancers, etc.) that meets all redundancy capabilities for Agency review and approval at design review.			
		3.2.7-5	The disaster recovery plan will contain detailed procedures to be followed to restore the System to full operation following a disaster or failover event, including the complete resynchronization of data between the two sites. Agency KPIs including recovery time objectives and recovery point objectives will be part of the disaster recovery plan.			
		3.2.7-6	Means will be provided in the System design to support complete recovery from the loss of any system components at any point during operation.			
		3.2.7-7	Program needs the SI to identify the resources (e.g., people, systems, communications, etc.) that must be committed to implement the disaster recovery plan.			
		3.2.7-8	The Disaster Recovery Plan will provide recovery procedures from disasters that have varying levels of impact to system operations and detail the steps to be taken to recover from such disasters.			

Section 3.3 System Integration Services				
General Capabilities	Desired	3.3.1-1	The integration of Transportation Connections (additional modes) through API will allow for discounted or free transfers between additional modes reported by external systems and primary modes such as fixed route services.	[redacted]
		3.3.1-2	The Program needs the SI to take the lead role in working collaboratively with third-parties to integrate legacy systems as necessary to support the capabilities in this SOW and ultimately be responsible for system performance.	
API Management	Mandatory	3.3.2-1	The SI will provide an API Management Plan for approval during design review.	
		3.3.2-2	The API Management Plan will be compliant with the control baseline required by the ISMS.	
		3.3.2-3	The API Management Plan will include a process for onboarding before connecting an external device or system to the next gen ORCA back office and methods for approving all new versions of devices, firmware, or software prior to their connection to the System.	
	Desired	3.3.2-4	The API Management application will include consumer certification and key management.	
		3.3.2-5	The API Management application will include a service registry with details of the API consumers and contact information for the developers of the consumers.	
Onboard Integration	mandatory	3.3.3-1	The SI shall be responsible for integration of the validator with each Agency's existing CAD/AVL or similar onboard system to support transfer of work status information (route/run/trip) and geolocation data.	
		3.3.3-2	The onboard modules will be able to communicate over open communication standards, including: • SAE Vehicle communications standards (such as J1708/1939) • Ethernet/Wi-Fi and routable IP • Bluetooth • USB The communication interface to be used will be determined during design review and must provide adequate support for all system capabilities and integrations.	

		3.3.3-3	The SI shall be responsible, in collaboration with INIT, the KCM CAD/AVL vendor, for all development, testing, and deployment of the module for exchange of data with the KCM CAD/AVL system.	[redacted]
	Desired	3.3.3-4	A detailed Interface Control Document (ICD) detailing message formats and contents, procedures, interfaces, and transport protocols will be provided for the onboard systems integration.	
		3.3.3-5	The onboard validator will capture location data generated by the CAD/AVL system, including: • Raw Global Positioning System (GPS) coordinates • Stop ID The geolocation data will be included in every fare transaction generated by the validator.	
		3.3.3-6	The design for the exchange system for data with the KCM CAD/AVL system will be a subject of the design review process.	
Data Access & Reporting Platform (DARe)	Mandatory	3.3.6-1	All functional and long term data will be duplicated in an external system, the Data Access and Reporting platform (DARe) which will be initially deployed prior to the main system by a separate vendor. The design and deployment of the DARe is not a part of this contract.	
		3.3.6-2	The SI shall be responsible for building and testing a module to transmit data to the DARe, in collaboration with the DARe vendor and the Agencies.	
	Desired	3.3.6-3	The Program needs the SI to work with the DARe vendor to design a transmission module which is secure and reliable. The transmission system will be subject to the System reliability and recovery metrics for the SI.	
		3.3.6-4	The Program needs the SI to work with the DARe vendor to design, build and test the link from the next gen ORCA back office to the DARe.	
		3.3.6-5	Customer and transit account identifiers will be obfuscated with a one way hash or other accepted approach for transmission to the DARe.	
		3.3.6-6	The data transmitted to the DARe will be a subset of all the data, focused on the data required for long term reporting. The data to be transmitted will be selected as part of the design review process.	
		3.3.6-7	The data transmitted to the DARe will not include any PII or any data that would put the DARe in PCI scope. The DARe will be compliant	

			with the control baseline required by the ISMS.	[redacted]		
		3.3.6-8	The data transmission to the DARe will occur at least once a day.			
		3.3.6-9	The Program needs the SI to be responsible, in collaboration with the DARe vendor, for all development, testing, and deployment of the module for transmission of data to the DARe.			
		3.3.6-10	The design for the transmission module for data to the DARe will be a subject of the design review process.			
Retail Network	Mandatory	3.3.7-1	Using the Fare Distribution API an external retail system will be able to create a transit account and add value to the E-purse in a transit account.			
		3.3.7-2	The SI shall work collaboratively with the retail contractor to provide the necessary equipment, documentation, and services to support the successful completion of System Integration Testing.			
	Desired	3.3.7-3	The sale of a next gen ORCA card by a retail merchant will initiate the automatic creation of a transit account within the next gen ORCA back office.			
		3.3.7-4	The transaction data will be fully compliant with the control baseline required by the ISMS for the handling of customer PII.			
		3.3.7-5	Transaction data elements will be defined by the SI during design review. Transaction data elements will include at a minimum: • Card type • Unique card identifier • Transit account number • Date and time of transaction • Transaction type • Transaction value • Beginning transit account balance • Ending transit account balance • Merchant ID • Merchant name • Merchant location			
		3.3.7-6	Retail network provisioning and testing will be completed in coordination with the SI to support operation of a fully functional retail network no later than the commencement of next gen ORCA			

			revenue service.	[redacted]
		3.3.7-7	Program needs the SI to work collaboratively with the retail contractor to develop test scripts that together accurately and completely confirm all features and functionality of contractor's retail network system.	
		3.3.7-8	Program needs the SI to work with retail contractor to incorporate retail network functionality into the Agency test facility.	
		3.3.7-9	The retail network will allow a merchant to reverse a transaction prior to authorization of the transaction with the next gen ORCA System. Authorization and provision of next gen ORCA refunds will be the responsibility of the Agencies and the next gen ORCA System. Retail network transaction reversals will result in no charge to the customer or the Agencies.	
		3.3.7-10	Agency test facility will be connected directly to a contractor-specified payment processor to fully test the processing of next gen ORCA purchases using credit/debit as a form of payment.	
		3.3.7-11	Program needs the SI to work closely with the retail contractor throughout the Field Integration Test to help resolve issues and implement fixes on the retail network identified during testing.	
Back Office Integration with Existing Solution	Mandatory	3.3.8-1	The SI shall be responsible for all development, testing, and deployment of the module for exchange of data between the back offices	
	Desired	3.3.8-2	The Program needs the SI to design, build, and test the link from the next gen ORCA back office to the Legacy ORCA back office	
		3.3.8-3	The design for the exchange of data with the Legacy ORCA System will be a subject of the design review process.	
ADA Paratransit	Mandatory	3.3.9-1	The System will include a King County Metro Access pass for ADA Paratransit which can only be purchased by customers marked in the System as eligible.	
	Desired	3.3.9-2	The list of Access eligible customers will be imported into the System on a regular basis from a .csv file.	
		3.3.9-3	The System will provide pass sales information for paratransit customers that can be uploaded to Agency paratransit databases.	
		3.3.9-4	The System will include the ability to create an Agency-specific pass product that can only be purchased by customers marked in the System as eligible.	

Vanpool	Mandatory	3.3.10-1	When next gen ORCA customers pay vanpool fares via the customer website and/or mobile app, the CRM application will capture relevant transaction information for tracking and reporting. This will include such elements as: payment date, operating Agency, customer account name, customer name, transit account number, vanpool or group ID number, fare amount paid, fare period, and receipt number. This information can be reported on through the back office.		[redacted]
		3.3.10-2	The System will allow next gen ORCA account holders to pay vanpool fares via the customer website, CRM, or mobile app. The amount of the fare is entered by the customer and will vary by customer. There will be configurable minimum and maximum amounts.		
	Desired	3.3.10-3	When a next gen ORCA account holder pays their vanpool fares via the customer website and/or mobile app and CRM a receipt will be generated and optionally emailed or texted to the customer.		
		3.3.10-4	Revenue from the vanpool fare payment and purchase of the joint transit and vanpool pass will be segregated and reported separately by Agency.		
		3.3.10-5	The System will allow the creation of Agency-specific and regional joint Transit and Vanpool Pass Products available for addition to any transit account.		
		3.3.10-6	The available periods for payment of vanpool fares will be configurable.		
Additional Integrations	Mandatory	3.3.11-1	The System will support the addition of new agencies, including fare rules that are part of the existing design.		
		3.3.11-2	The Agencies will be able to add new transportation connections, modes and products (e.g., parking) with unique fare pricing and all the configurability of existing modes and products without additional development.		
		3.3.11-3	Transportation Connections (additional modes) will be supported in the System through APIs that allow third party developers of external applications to communicate with the System in order to manage fare products, transit accounts, and report transactions.		
		3.3.11-4	The System will support the addition of a minimum of five (5) additional agencies.		
		3.3.11-5	The System will provide scalable framework to support the growth in users and data inherent in adding agencies.		

		3.3.11-6	The System will be capable of integrating with Kitsap Fast Ferries reservation system in Phase II.	
	Desired	3.3.11-7	All agencies added after the initial implementation will use the System's user interfaces, process flows, and business rules as designed during the initial implementation.	
		3.3.11-8	Additional agencies will be able to have revenue sharing and apportionment turned on or off according to the existing apportionment rules.	
Section 4 Field Devices & Equipment				
Section 4.1 Common Capabilities				
General Capabilities	Mandatory	4.1.1-1	All equipment design, including dimensions, mounting options, and installation placement will be subject to review and approval by the Agencies.	
		4.1.1-2	All customer-facing equipment and applications including website will provide a coherent customer experience, with similar look and feel across all modes' validators and VMs. Agency and designated representatives will participate in a design review with the SI to define the customer experience for both hardware and software.	
	Desired	4.1.1-3	All customer-facing equipment will be designed to adhere to the aesthetic standards of the Agencies, with consistent cross-platform branding. The Program needs the SI to submit designs for review and approval during design review. Final equipment design, including interface display, lettering, lights, colors, tactile feedback, brightness, graphics, animation, screen savers, surface texture, component size and height, and hardware will be subject to Agency approval.	
		4.1.1-4	System equipment displays (including the entire surface of the display for the VM), graphics, signage, and all other instructions, labels, and information contained on the equipment will be visually readable within all common positions from a customer point of view.	
		4.1.1-5	The Program needs the SI to deliver the latest generation device manufactured by the OEM. If a newer generation device is released following design review, but prior to device procurement, the Agencies shall have the option to upgrade to the newer device.	
Hard ware	Mandatory	4.1.2-1	All equipment will meet the applicable hardware security capabilities.	

		4.1.2-2	The SI shall provide PCI compliant hardware and software for payment processing. The PCI architecture will be designed to limit increases in PCI scope, and will be reviewed and approved during design review.
	Desired	4.1.2-3	All fare equipment will satisfy all applicable common hardware design capabilities including: • Service-proven design • Nonproprietary technology • Supply and availability • Materials and workmanship • Maintainability and serviceability • Operating environment • Meet or exceed ADA compliance capabilities Code and regulation compliance
		4.1.2-4	Equipment components will be designed, built, and installed to withstand the harsh operating environment.
Software	Mandatory	4.1.3-1	All equipment will meet the applicable software security capabilities described in this SOW.
	Desired	4.1.3-2	Equipment software and firmware will satisfy the common design capabilities in Section 3.1 including: • Service-proven design • Nonproprietary technology • Software design principles • Licensing and ownership • Accessibility and ADA compliance • Code and regulation compliance • Information security Fraud prevention
		4.1.3-3	All equipment will employ the most current version of a COTS operating system at the time of production. The operating system will be capable of performing all tasks necessary to support the equipment and its applications, including the capability to multitask, manage memory, maintain performance without degradation, and communicate with the back office in real-time.

		4.1.3-4	All equipment will maintain local transaction and data records in non-volatile memory in the event that communications to the back office is unavailable. Local records will not be deleted until they have been confirmed as received and recorded by the back office.	[redacted]
		4.1.3-5	The design of the System will provide a mechanism to recover transactions or other data stored on faulty equipment that has not been transmitted to the back office.	
		4.1.3-6	All customer-facing system equipment will incorporate a test mode. In this mode, the equipment will have full functionality and process only test media. Test transactions will be segregated in reporting from revenue transactions.	
Configuration	Mandatory	4.1.4-1	The System Manager will publish fare media positive and negative lists generated and used by the account-based transaction processor, and distribute to devices to support fraud avoidance and risk mitigation. Positive and negative list updates will be published no less than every five (5) minutes and include version control to confirm timely and accurate synchronization. The frequency will be configurable.	
		4.1.4-2	All equipment will receive date/time, configuration, and list updates (as applicable) from the back office automatically at startup and as necessary.	
	Desired	4.1.4-3	Equipment software and configuration updates, including all valid and invalid card lists, will be managed through the Configuration & Change Management application.	
		4.1.4-4	The equipment software and applications will accommodate next gen ORCA's existing fare structure and potential fare policies described in the Fare Policy section (6.2.5) and Appendix 3 of this SOW.	
		4.1.4-5	Equipment will receive configuration and software updates when available from the back office. The equipment will not commence updating software until it has received and verified the complete update. If any updates require a reboot, they will occur during non-operating hours, unless specifically approved by authorized service staff.	
		4.1.4-6	Each software update will have a unique version number and include an activation date and time if applicable. Updates will be able to be downloaded and applied at that activation time, or activated	

			immediately after download and verification is confirmed.	[redacted]
		4.1.4-7	The software update download process will not interrupt normal equipment operations, or cause data or file corruption if communication is lost. The process will recover from such loss and complete the download without issue.	
		Section 4.2	**Onboard & Wayside Validators**	
General Capabilities	Mandatory	4.2.1-1	The validators will support validation of ISO 14443 compliant contactless smart cards.	
		4.2.1-2	Validators will accept all fare media included in the System design, including the following fare media at a minimum: • Agency-issued Extended Use (EU) fare media including Legacy ORCA fare media • Credentials presented by the customer mobile app using NFC technology	
		4.2.1-3	Validators will be PCI- and EMV-certified for the acceptance of bank-issued contactless credit and debit cards using all common formats based on the latest version of the standard at the time of Final System Acceptance. Validator will be capable of re-certification with newer versions of the PCI and EMV standards via software upgrades as necessary.	
	Desired	4.2.1-4	If the onboard or wayside validator is purchased from a third-party, the Program needs the SI to deliver the latest generation device manufactured by the OEM. If a newer generation device is released following design review, but prior to device procurement, the Agencies shall have the option to upgrade to the newer device.	
		4.2.1-5	An alternate means of downloading data from the validator will be provided for instances where there is a failure of the wired or wireless communication.	
		4.2.1-6	Validators will support a minimum of two (2) Secure Access Modules (SAMs) to facilitate acceptance of multiple fare media formats and the replacement of security keys, should compromise occur.	
		4.2.1-7	Validators will have at least three (3) spare universal serial bus (USB), or Agency approved equivalent, ports to support removable memory, SAMs, or future connection of ancillary devices, such as a barcode validator.	

		4.2.1-8	Validators will include sufficient embedded storage to hold at least 30 days of fare payment transactions, and all risk mitigation lists as determined necessary during design review.	[redacted]
		4.2.1-9	Validators will support expandable storage in a common, commercially available format (e.g., USB drive, compact flash, secure digital, etc.) that can be quickly and easily swapped or expanded without modification to the rest of the device components.	
		4.2.1-10	Onboard and wayside validator equipment will comply with all applicable hardware and software security requirements contained in this scope of work.	
		4.2.1-11	All onboard and wayside validator equipment will comply with the applicable accessibility and ADA requirements contained in this SOW.	
		4.2.1-12	The validator will be compliant with and support all open payment contactless standards, including but not limited to: • Apple Pay • Android Pay • Samsung Pay • VISA payWave® • MasterCard PayPass® • American Express ExpressPay® • Discover Zip® • Contactless EMV	
		4.2.1-13	Validator software design will allow for accepted media formats, including Agency defined formats, to be enabled and disabled via configurable parameters.	
Hardware	Mandatory	4.2.2.1-1	The validator will be simple and compact, as determined during system design and testing, while providing the functionality in this section.	
		4.2.2.1-2	Validators will be rugged and function under extended severe environmental conditions including: direct sunlight, moisture, dust/grit/sand, humidity, electrical storms, exposure to urban environment, and the range of elevations and altitudes in the operating region.	

	Desired	4.2.2.1-3	The validator housing will be resistant to corrosion, abrasion, scratching, impacts, and vandalism, and withstand standard bus cleaning materials. Validator housing color and finish will be such that it minimizes reflection and is highly resistant to fading, cracking, and peeling.		
		4.2.2.1-4	All validator corners will be rounded, and there will be no exposed bolt heads, nuts, sharp edges, or cracks on outside surfaces. The validator display will be flush-mounted in the housing.		
		4.2.2.1-5	Covers on the validator housing for accessing modules and subassemblies will be secured with mechanical locks and keys that are not readily duplicated nor readily available to the public, and uniquely serialized.		
	Desired	4.2.2.2-1	The Program needs the SI to work with Agency staff to install all mounting brackets, special hardware, electrical and communication wiring and service loops, and terminations/connections required for the installation of SI-provided onboard equipment. To the extent possible existing wiring and hardware will be reused as approved by the Agencies.		
		4.2.2.2-2	The Program needs the SI to work with Agency staff to install and perform commissioning testing on all SI-provided onboard equipment on Agency vehicles.		
		4.2.2.2-3	Onboard validators will be installed on each bus such that the validator will be in proximity to the vehicle door(s) and will be positioned so that a customer may easily present fare media for payment upon boarding the bus.		
		4.2.2.2-4	When installed, the onboard validator will not obstruct the operator's view out the vehicle windows, and will not cause glare on the windshield during bright sun conditions or at night with the vehicle interior lights off.		
		4.2.2.2-5	The onboard and wayside validator and components will be securely mounted using stainless steel hardware in a location and manner that is safe for customers and operators.		
		4.2.2.2-6	Onboard validator mounting will not interfere with maintenance of other onboard bus systems and components.		
		4.2.2.2-7	All required mounting hardware and brackets for each bus type and wayside installation will be provided by the SI.		

		4.2.2.2-8	All validator components, cabling, installation methods, and mounting will be prototyped on each bus/fleet type and subject to written approval by the Agencies before installation.		[redacted]
		4.2.2.2-9	The mounting design will enable the quick and simple removal of the validator by authorized maintenance personnel as determined during system design and testing.		
		4.2.2.2-10	The Program needs the SI to work with Agency staff to install and perform commission testing on all wayside validators and mounting systems at Agency transit locations. The Program needs the SI to work with Agency staff to provide and install all cabling (from stub up), connectors, and hardware necessary to properly install and secure the equipment in its planned location.		
		4.2.2.2-11	The Program needs the SI to provide all wayside validator support structures, such as pedestals, mounting poles, and mounting brackets, as needed. Use of existing mounting pedestals or stanchions to support wayside validators will be subject to Agency review and approval.		
	Desired	4.2.2.3-1	The onboard validators will receive 12 or 24 VDC power through a circuit breaker assigned specifically to the onboard validator. External converters or power conditioners may be used with Agency approval.		
		4.2.2.3-2	The onboard and wayside validators will be designed to operate using Power over Ethernet (PoE). PoE usage will be confirmed during design review.		
		4.2.2.3-3	When bus power is turned off, the onboard validator will remain powered for a configurable time to allow completion of transmission of any and all data files, transaction records, and fare tables.		
	Mandatory	4.2.2.4-1	Onboard validators will contain an Ethernet port that enables connection to existing cellular/Wi-Fi-enabled mobile access routers installed on buses. The mobile access routers will serve as primary means of real-time off-board communication with the back office.		
		4.2.2.4-2	Wayside validators will be designed with an Ethernet port that enables real-time connection to the back office.		
	Desired	4.2.2.4-3	Onboard validators will include Wi-Fi (802.11a/b/g/n/ac/i/r) communications to enable integration with other systems, exchange of non-critical data at designated locations, and sharing of data connections onboard.		

		4.2.2.4-4	If additional communications components are required, all such components will be mounted in a secure and sturdy enclosure, with the location and function approved by the Agencies.	[redacted]
	Desired	4.2.2.5-1	A customer-facing contactless smart card validator will be installed in the onboard and wayside validators to read, write to, and validate contactless media presented by customers. The validator will have write capabilities as per risk mitigation strategies defined in Section 3.2.3.	
		4.2.2.5-2	Validators will include full color displays that support adjustable brightness, contrast, and refresh rate that can be easily read, as determined during system design and testing, under any combination of ambient lighting, including direct sunlight and night-time operation.	
		4.2.2.5-3	Validator color displays may be adjacent to or directly in front of the contactless validator. In either case, the tap area will be easily identified and reachable by customers.	
		4.2.2.5-4	The validator display will be clearly visible, as determined during system design and testing, in all forms of ambient light on the bus and viewable at a minimum angle of 45 degrees from the display.	
		4.2.2.5-5	The validator display will be capable of partial or full video or animation. The animations may be used to indicate fare feedback, relevant customer action, or other general information. Video or animation files will be able to be updated remotely, or installed via removable memory by maintenance staff.	
		4.2.2.5-6	Validators will include an audio interface and speakers for customizable audio feedback, including varying tones and full speech. Audio feedback types will be able to be configured and updated remotely. It will be in compliance with or exceed all applicable accessibility and ADA requirements.	
		4.2.2.5-7	The decibel levels of the tones on the validators will be programmable locally and remotely, and the emitted tones will be capable of being distinguished up to eight (8) feet away in its operating environment.	
		4.2.2.5-8	Onboard and wayside validators will include at least three (3) colors (green, yellow, red) of visual annunciation that can be configured to provide feedback, especially for reduced fare payments, on payment and device status.	

Software	Mandatory	4.2.3.1-1	Onboard and wayside validators will generate, store, and transmit a discrete data record for each transaction and/or validation performed.	[redacted]
	Desired	4.2.3.1-2	Each onboard validator transaction record will be unique and will include the following information, at a minimum: • Date and time • Device ID • Vehicle ID • Operator ID • Bus Stop ID • Geolocation information (GPS data) • Route number • Run number • Block number • Media type • Card number • Transit account number • Passenger type (e.g., adult full fare, youth, senior, disabled) • Action performed • Fare instrument or product used (where applicable) • Transaction value (where applicable) • Transaction result (e.g., success, failure) • Transaction ID Transaction records details will be finalized during design review.	

		4.2.3.1-3	Each wayside validator transaction record will be unique and will include the following information, at a minimum: • Date and time • Device ID • Location ID • Route number (where applicable) • Media type • Fare media number • Transit account • Passenger type (e.g., adult full fare, youth, senior, disabled) • Action performed • Fare instrument or product used (where applicable) • Transaction value (where applicable) • Transaction result (e.g., success, failure) • Transaction ID Transaction records details will be finalized during design review.		[redacted]
		4.2.3.1-4	Any offline payment validation will be recorded as such in the transaction data, so that offline transactions can be easily identified and tracked.		
	Mandatory	4.2.3.2-1	All validators will provide audit register counts for purposes of data tracking and analysis. The audit registers will store counts of specific events in non-volatile memory and will not be able to be modified or erased.		
	Desired	4.2.3.2-2	The audit registers will maintain counts of the following events as applicable: • Total validation counts • Passenger type counts • Count of approved transactions • Count of denied transactions • Count of read failures • Fare products validated (where applicable) • Fare value deducted (where applicable) Final audit register events will be determined during design reviews.		

	Mandatory	4.2.3.3-1	Onboard and wayside validators will provide real-time status of device events and alerts reported though the System Manager. The onboard and wayside validators will also maintain local event and alert logs in the event that communications to the back office are unavailable.	[redacted]
	Desired	4.2.3.3-2	In addition to transmitting real-time events and alerts, the validator will transmit periodic "heartbeat" messages that confirm communication with the back office and basic status. The "heartbeat" frequency will be adjustable.	
		4.2.3.3-3	At a minimum, onboard and wayside validators will generate, store, and forward to the back office an event record for each of the following events with their corresponding date/time: • Power on • Power off • Operator login and logout • Route changed • Back office communications failed/restored • Maintenance parameter changed • New fare table received/activated • New software received/activated • New configuration data received/activated • New list received/activated • Anti-virus definitions and security updates downloaded • Internal clock reset • Validator clock error • Data memory near full/full • Validator "heartbeat" check Final event records will be determined during design review.	
		4.2.3.3-4	The onboard and wayside validator will have capacity to store a minimum of three (3) months of local event and alert data.	
Operations	Desired	4.2.4-1	Onboard and wayside validators will be able to accept fare payments in an offline mode, and accommodate scenarios where a full authorization cannot be received within the required configured timeframe. In these scenarios, risk mitigation strategies will be employed to limit exposure for declined payments.	

		4.2.4-2	Upon power up, the onboard validator will be operational and ready for revenue service within three (3) minutes. It will remain operational until a configurable time after power off, subject to normal operating conditions.		[redacted]
		4.2.4-3	The onboard validator will require a valid logon to function. The bus operator will be able to present an employee ID card to the validator to initiate a default login.		
		4.2.4-4	The bus operator will be able to present a properly configured employee ID card to the validator to initiate a login.		
		4.2.4-5	The onboard validator will interface with the MAR to perform real-time communication with the ATP for the processing of fare payments using the SI-provided Fare Payment API.		
		4.2.4-6	After successful logon, the onboard validator will automatically and continuously poll for all supported media formats.		
		4.2.4-7	The onboard and wayside validator will support an anti-collision algorithm to support that payment is only accepted from a single piece of media when multiple valid pieces of media are presented.		
		4.2.4-8	Prior to transmitting a fare payment transaction to the ATP, the onboard and wayside validator will perform local fare media validity checks, including checks against any locally maintained positive/negative lists, as deemed necessary for security and the efficient processing of transactions.		
		4.2.4-9	The wayside validator will be equipped with a real-time communications interface to the ATP for the processing of fare payments using the SI-provided Fare Payment API.		

		4.2.4-10	The transaction response from the ATP will include: • Validation result • Fare product used • Fare amount charged • Balance remaining • Fare product expiration date • Fare product remaining rides or days • Passenger type • Transfer time remaining • Low balance warning (threshold to be configurable) • Time-based pass expiration warning (threshold to be configurable) The final list of data elements to be included in the ATP response will be established during system design. Results to be displayed on the validator full color display will be determined during design review. Results will be configurable, set by downloadable configuration parameters from the back office.		
		4.2.4-11	Fare validation results will be displayed to the operator through the integrated driver display unit. The driver may be shown additional fare payment details that are not shown to the customer as determined and approved during system design.		
		4.2.4-12	Onboard and wayside validators will provide a payment result, including writing required data to the fare media, within 500 milliseconds of valid fare media being presented for all fare payment types.		
		4.2.4-13	Onboard and wayside validators will not explicitly indicate to the customer when they are operating in offline mode.		
		4.2.4-14	All transactions generated in an offline mode will be sent to the ATP immediately upon restoration of communications.		
		4.2.4-15	Onboard and wayside validators will display maintenance screens for troubleshooting and configuration purposes by authorized staff. The method and interface used to perform maintenance functions will be determined during design review.		
		4.2.4-16	If a failure is detected that causes the validator to cease functioning or cause transactions to fail, the validator will go out of service and provide visual indication of the device status. The detected failure will be recorded as an event record.		

		4.2.4-17	Prior to powering down, the validator will transmit all recorded event records and perform all necessary steps to retain integrity of all stored data.	
		4.2.4-18	Replaced validator devices will automatically be programmed with their new location (e.g. vehicle ID or station location) upon installation and their assigned location information updated in the next gen ORCA System Manager.	
Section 4.3 Driver Display Unit				
General Capabilities	Mandatory	4.3.1-1	A Driver Display Unit (DDU) will be provided which will interface with the onboard validators and display fare validation results to the bus operator. The DDU will be connected to the onboard validators, but will not be required for the validator to function.	
	Desired	4.3.1-2	The DDU will be as simple and compact as possible, as determined during system design and testing, while providing the functionality in this section.	
		4.3.1-3	Communications utilized in the exchange of data between the DDU, the onboard validator, and other onboard systems will be fully documented and the property of the Agencies.	
		4.3.1-4	The DDU electrical capabilities will conform to the common design requirements presented in Section 3.1.	
		4.3.1-5	Final DDU specifications and performance capabilities will presented for Agency review and approval during design reviews.	
		4.3.1-6	The Program needs the SI to work with Agency staff to install all mounting brackets, special hardware, electrical and communication wiring and service loops, and terminations/connections required for the installation of the DDU equipment.	
Enclosure & Mounting	Desired	4.3.2-1	The DDU enclosure and components will be made of material suitable to the service under the full range of the specified bus environmental and operating conditions.	
		4.3.2-2	DDU housing will be resistant to corrosion, abrasion, scratching, impacts, and vandalism, and withstand standard bus cleaning materials. DDU housing color and finish will be such that it minimizes reflection and is highly resistant to fading, cracking, and peeling. The device will follow all common design capabilities.	
		4.3.2-3	The DDU will include a physical or virtual keypad that supports driver login using a numeric ID and password as well as work assignment. The bus operator will be able to present an employee ID card to the	

			onboard validator to initiate a login.	[redacted]
		4.3.2-4	The DDU will include at least four (4) physical buttons to perform functions in the future, if needed and as determined during system design. These buttons will be in addition to the DDU keypad.	
		4.3.2-5	There will be a "failure" operator key on the DDU to tally events when the onboard validator does not function.	
		4.3.2-6	All required DDU mounting hardware and brackets for each bus type will be provided by the SI.	
		4.3.2-7	The DDU will be installed in a position to allow bus operators to observe fare transactions without interfering with other bus controls or indicators. The DDU will in no way obstruct the bus operator's view.	
		4.3.2-8	The DDU will be designed and mounted so that it can be quickly adjusted by the bus operator for optimal viewing angle. After adjusting, the mounting hardware will not allow the DDU to shake or become loose as a result of shock and vibration encountered during normal bus operation.	
Power	Desired	4.3.3-1	The DDU will receive 12 or 24 VDC power through a circuit breaker assigned specifically to the DDU. External converters or power conditioners may be used with Agency approval.	
		4.3.3-2	The DDU will not be adversely affected by other onboard systems being turned on and turned off, including the starting of the transit vehicles engine.	
		4.3.3-3	When bus power is turned off, the DDU will remain powered for a configurable time to allow completion of transmission of any and all data files, transaction records, and fare tables.	

Operations	Mandatory	4.3.4-1	The DDU will be the primary visual interface for the driver and will display information such as route and direction and fare payment results transmitted from the onboard validator(s), including but not limited to: • Validation results • Fare amount charged • Fare balance remaining • Fare product used • Passenger type • Transfer time remaining • Low balance warning (threshold to be Agency configurable) • Time-based pass expiration warning (threshold to be configurable) • Card/account status (e.g., blocked and reason) The operator may be shown additional fare payment details that are not shown to the customer.	[redacted]
		4.3.4-2	The DDU will serve as an input device for the bus operator to perform system login and set parameters such as route number and direction, if that data is not automatically received from other onboard systems.	
		4.3.4-3	The DDU will allow the driver to tally operational data such as customers with bicycles or wheelchairs, and when a cash fare or fare upgrade is paid.	
	Desired	4.3.4-4	The DDU will control the onboard validators including volume control, display brightness, and placing units out-of-service, using the SI-provided System Management API.	
		4.3.4-5	The information displayed on the DDU will be Agency-configurable and may be different from the information displayed on the onboard validator.	
		4.3.4-6	When the DDU is replaced the newly installed DDU will automatically be programmed with its new location and have their assigned location automatically updated in the next gen ORCA System Manager.	
Section 4.4 Customer Service Terminals				
General Capabilities	Mandatory	4.4.1-1	The CST will be modular devices, and will support multiple configurations, depending on Agency use and purpose. The hardware will be optimized for its intended use and configuration.	
		4.4.1-2	All CST configurations and peripheral modules will be subject to	

			Agency review and approval.	[redacted]
		4.4.1-3	To accommodate the required variety of installation locations, the CST will be compact and easily positioned for user comfort as demonstrated during system design and testing.	
	Desired	4.4.1-4	CST will be designed to permit rapid exchange of the device and peripheral modules to restore service in minimal time as demonstrated during system design and testing. Repairs will be performed in the field and no special tools or instruments will be required for exchange of modules.	
		4.4.1-5	CST peripherals will communicate over a wireless interface wherever possible.	
		4.4.1-6	For any of the SI supplied CST configuration(s) the same SI-supplied application and OEM software will be utilized.	
		4.4.1-7	The CSTs installed in Customer Service Offices (CSOs) will provide all functions available. Device modules and key functions may include: • Computer • Keyboard and pointing device • Closed-loop media processing • Secure cash storage • Bank card processing • Customer display • Receipt printing • Image capture • Document scanning • EU fare media printing/encoding • Uninterruptible power supply • Communications interfaces as necessary	

		4.4.1-8	The CST used for customer outreach and special events will support remote sales and card personalization programs at senior centers, social service organizations, special events and other locations where remote fare media issuance and customer account support services are needed. Device modules and key functions may include: • Computer • Closed-loop media processing • Bank card processing • Receipt printing • Image capture • Document capture • EU fare media printer/encoder (does not need to support bulk printing) • Uninterruptible power supply • Communications interfaces as necessary The CST will rely on local power and will connect to the next gen ORCA back office via Agency-supplied network connection.	[redacted]

		4.4.1-9	The CST will conduct a variety of functions. At a minimum, these functions include: • Sell all supported fare media, including Legacy ORCA media (and create new transit accounts) • Sell all supported fare products (e.g., stored value and passes) and load fare products to transit accounts • Sell products such as belt buckles and other non-next gen ORCA fare media and properly record these sales as non-next gen ORCA • Sell serialized taxi scrip to qualified customers • Sell serialized Human Services fare products to authorized Human Services representatives • Sell serialized paper tickets individually or in bulk • Query transit account status (e.g., passenger type, active/inactive, blocked/unblocked) • Query fare payment transaction history • Query sales transaction history • Query adjustment transaction history • Enable fare product for autoload (requires funding source in customer account) • Generation of fare payment reversal (e.g., cancellation) • Generation of sales reversal (e.g., refund) • Generation of an transit account adjustment (e.g., credit or debit) • Transfer of balance between two transit accounts • Block/unblock card, transit account, or individual fare product • Lost, stolen, or damaged card replacement (e.g., associate new card with existing transit account) • Make comments on customer accounts and transit accounts • Generation of an opt-out refund (e.g., close transit account and issue refund) • Create new customer account • Query customer account status/data • Modify customer account data • Register (e.g., associate) a transit account to a customer account • Unregister (e.g., disassociate) a transit account from a customer account • Add, update or remove a funding source to/from a customer account • Close or suspend a customer account	[redacted]		

			• Encoding, printing, and issuance of personalized EU fare media (when configured to do so), including the addition of a photo		[redacted]
		4.4.1-10	The CST will support manual entry and validation of ADA paratransit customer data using a simple graphical user interface.		
		4.4.1-11	The CST will enable the CSR to print packing slips and mailing labels.		
		4.4.1-12	The CST will allow for every non-next gen ORCA item to be configured with applicable sales taxes. The tax rates will be Agency		

			configurable and be established by sales location.			
		4.4.1-13	The CST will support blind reconciliation whereby the user enters at the end-of-shift enters the amount in sales by payment method into the CST. The CST will indicate if the totals entered reconcile with the System information and allow the user to correct the amount up to an Agency configurable amount of times. Supervisory role logon will allow for override of the blind reconciliation feature.			
		4.4.1-14	All CST equipment will comply with the applicable hardware and software capabilities contained in this scope of work.			
		4.4.1-15	The CST will be able to read and endorse checks. The check read/endorse feature may be accomplished through the printer or other Agency approved solution.			
		4.4.1-16	All CST equipment will comply with the applicable accessibility and ADA requirements contained in this scope of work.			
Hardware	Desired	4.4.2.1-1	The CST will include an integrated flat panel touchscreen display with no less than 1080p resolution.			
		4.4.2.1-2	The touchscreen will provide suitable touch sensitivity and resolution to satisfy operator selection and input capabilities.			
		4.4.2.1-3	The CST will support the use of an external display.			
		4.4.2.1-4	The CST will include integrated Ethernet and Wi-Fi (802.11a/b/g/n) to satisfy the capabilities of the configuration.			
		4.4.2.1-5	The CST will access the CRM application through a web-based application.			
		4.4.2.1-6	Any required peripheral modules will be able to be attached to any CST.			
	Desired	4.4.2.2-1	The CST will allow for a separate, Agency supplied, full-sized keyboard and a mouse with scrolling wheel to be used if deemed necessary by the Agencies.			

		4.4.2.2-2	The CST will include an integrated keyboard and pointing device.	
	Desired	4.4.2.3-1	The closed-loop media processing module will be a separate module cabled to the CST. In addition to the separate module there may also me an integrated module.	
		4.4.2.3-2	The CST will support the capability to interface with two (2) separate closed-loop media processing modules, one (1) each for the customer and the clerk.	
	Mandatory	4.4.2.4-1	The cash storage facility will open only under command of the CST, which will monitor the status of the drawer at all times. Cash storage facility installations will be subject to each Agency's approval.	
	Desired	4.4.2.5-1	The CST will be PCI- and EMV-certified and compliant with other required banking standards for the acceptance of bank-issued credit and debit cards using all common formats based on the latest version of the standard at the time of Final System Acceptance.	
		4.4.2.5-2	The bank card processing module will be an integrated or mobile friendly module.	
		4.4.2.5-3	The merchant acquirer approved bank card processing module will include: • Magnetic stripe reading • Contactless bank card reading • Contact (or chip) bank card reading • Personal Identification Number (PIN) pad. The Personal Identification Number (PIN) pad must meet or exceed all applicable accessibility and ADA requirements, as well as meet applicable PCI DSS (version 3.2 or current at the time of deployment) and any other relevant security controls included in the ISMS control baseline referenced in Section 3.1.14.	

		4.4.2.5-4	The contactless bank card validator will read and support all open payment contactless standards, including but not limited to: • Apple Pay • Android Pay • Samsung Pay • VISA payWave® • MasterCard PayPass® • American Express ExpressPay® • Discover Zip® • Contactless EMV	[redacted]
		4.4.2.5-5	The bank card processing module will employ merchant acquirer approved software and PIN encryption as required in accordance with banking capabilities. The Program needs the SI to supply bank card processing modules with production encryption keys injected in a secure, PCI-compliant manner.	
	Desired	4.4.2.6-1	The CST will be able to print on a single roll of continuous thermal paper or Agency approved alternative.	
		4.4.2.6-2	The receipt printer will provide for easy loading of a new receipt stock as demonstrated during system design and testing.	
		4.4.2.6-3	The receipt printer will have a cutting edge to enable the operator to manually separate the receipt from the receipt stock.	
	Desired	4.4.2.7-1	The CST will have the capability to convey information to customers such as transaction price, status, PII, and other pertinent information. What and how the information gets displayed to the customer will be finalized during design review.	
	Desired	4.4.2.8-1	When configured to issue personalized fare media, the CST will support the capturing of customer photos.	
		4.4.2.8-2	The image capture device will include both a separate camera and an integrated camera.	
		4.4.2.8-3	The image capture device will include a built-in flash and an image sensor of no less than 10 megapixels. The image capture device will produce images of suitable resolution, clarity, and contrast to satisfy the capabilities of photo ID cards.	
		4.4.2.8-4	If a separate image capture module is required the SI will provide a means for securing the module for optimized image capture.	

	Desired	4.4.2.9-1	When configured to issue personalized fare media, the CST will include a means for digitizing customer eligibility documents.	[redacted]
		4.4.2.9-2	Digitizing will support the capture of black & white and color images at a resolution of at least 1200 x 1200 dpi.	
		4.4.2.9-3	Digitizing will support the auto-feeding of documents and support double-side digitizing at no less than 10 pages per minute.	
	Desired	4.4.2.10-1	The Extended Use (EU) fare media printer/encoder module will utilize re-transfer, or modern equivalent, printing technology, and will encode EU fare media with requisite data in coordination with the printing process.	
		4.4.2.10-2	The EU fare media printer/encoder module will print edge-to-edge (e.g., “full bleed”) in at least four (4) colors (YMCK), and will apply the printed images to a laminate film and then apply the laminate to both sides of the card.	
		4.4.2.10-3	The EU fare media printer/encoder module will employ easily replaceable consumables for printing and lamination films as demonstrated during system design and testing.	
		4.4.2.10-4	The EU fare media printer/encoder module will provide print resolution no less than 300 dots per inch.	
		4.4.2.10-5	The EU fare media printer/encoder module will produce at least 75 cards per hour as approved in design.	
		4.4.2.10-6	The EU fare media printer/encoder module for use in the CSO and mail center will include input and output card hoppers with a capacity of no less than 250 cards each, which will be lockable for security.	
		4.4.2.10-7	Upon successful printing and encoding, the EU fare media printer/encoder module will inform the CST of the successful issuance of each card, and the identification number of each issued card.	
	Desired	4.4.2.11-1	The CST will communicate with the next gen ORCA back office via secure, Agency-provided, network connection to send and receive transaction information, event and status information, clock synchronization information, positive/negative lists, and configuration parameters.	
		4.4.2.11-2	The CST will be connected to the secure network via an Ethernet port or wireless (Wi-Fi) connection.	

		4.4.2.11-3	For all transactions requiring back office access to a transit account, or establishing a new transit account, the CST will communicate wit the back office in real-time using the SI-provided API.	[redacted]
		4.4.2.11-4	If the CST has missed scheduled communications with the back office, upon restoration of communications, the CST will automatically initiate communications without interrupting operations.	
	Desired	4.4.2.12-1	Each CST will receive power from a dedicated Uninterruptible Powe Supply (UPS) with sufficient battery capacity to operate the CST and all peripherals for a minimum of 10 minutes.	
		4.4.2.12-2	The UPS will allow the CST to perform a controlled shut down without any loss of data whenever the UPS determines that there has been a loss of primary power.	
		4.4.2.12-3	The UPS will provide no less than 500 joules of overvoltage (surge) protection for all connected devices.	
Software	Desired	4.4.3.1-1	Once installed, the CST will not enter service until it has communicated with the back office to receive application software, administrative and maintenance logins, risk mitigation lists, and other configuration data.	
		4.4.3.1-2	Authorized users will be able to remotely monitor and manage the CST using the System Manager. Remote management functions will include: • Changing configuration parameters • Enabling and disabling payment methods • Synchronizing date and time	
		4.4.3.1-3	On each CST the Program needs the SI to supply, install, and configure client versions of anti-virus and anti-malware software.	

		4.4.3.1-4	The Program needs the SI to submit descriptions of the CST software design for Agency review and approval. CST software design deliverables will include: • Data registers • Transaction, event, login, etc. records • Operator interface • Configuration parameters and their value range • Risk mitigation list storage, update, and processing (if applicable) • Transaction limitation procedures • Setup and administration procedures • Login types and permitted functions • Anti-virus and anti-malware software and procedures	[redacted]
	Mandatory	4.4.3.2-1	The CST will generate transactions and events, including operator login and logout and diagnostics. Each data record will incorporate a unique identification number for that CST and day, and will be date/time stamped.	
	Desired	4.4.3.2-2	Each CST customer transaction record will consist of the following, at minimum: • Date and time • Device ID • Location ID • Operator (e.g., clerk) ID • Card number • Transit account • Transaction type (e.g., card sale, value load, account inquiry, refunds) • Cards sold (where applicable) • Stored value or fare products loaded (where applicable) • Passenger type (e.g., adult full fare, youth, senior, disabled) • Transaction value (where applicable) • Payment type and amount • Transaction result (e.g., success, failure) • Transaction ID Transaction records details will be finalized during design review.	

		4.4.3.2-3	When a user signs on to the CST, the following data will be stored in a data record: • Date and time • Device ID • Location ID • Operator ID • Login attempts When the user logs off the CST, the device will store a similar record.		[redacted]
		4.4.3.2-4	The CST will be capable of detecting basic internal malfunctions and will display failures directly on the operator display and alert the System Manager. The malfunction detection will cover at least failure of power or control circuitry, and any failure of the closed-loop media processing module that could result in a false, incomplete, or corrupted encoding of a smart card.		
		4.4.3.2-5	The CST will be capable of recording data locally representing no less than 1,000 events, including changes in status, communication problems, and problems detected during the automatic diagnostic testing. At a minimum, each event record will include: • Date and time • Device ID • Event code • Any associated event data • Identifier of the failed test • Iteration number of test • Reason for test failure (unique code) • Additional information to define the nature of the failure		
		4.4.3.2-6	Each CST will contain audit registers that track the following information at a minimum: • The total count and value of all transactions completed by the CST since data was last uploaded to the back office. • The date and time of the last successful data upload to the back office. These registers will be modified only by the CST itself and will not be manually alterable.		
		4.4.3.2-7	CST audit register records will be transmitted to the back office at the end of service day for reconciliation, or upon a configurable time period.		

	desired	4.4.3.3-1	When required, modification of the CST application software and any OEM application or operating system software will be performed by downloading new software from the back office. The back office database will record and track the version number of all such software in each CST, and the date that the software versions were downloaded and installed.		[redacted]
		4.4.3.3-2	Each time the CST communicates with the back office, the back office will transmit any updates to the CST application software. The CST will not commence updating its software until it has received and verified the complete software delivery.		
		4.4.3.3-3	Upon receipt and verification of the software update, the CST will apply the update (rebooting if necessary) at a time configurable by the Agencies for each CST.		
	Desired	4.4.3.4-1	Operating parameters will be downloadable to the CST from the back office via the wide area network provided by Agency, as appropriate for each installation or CST configuration.		
		4.4.3.4-2	The CST design will support Agency configurability through numerous adjustable parameters. The CST application software will at minimum support Agency configuration for: • Value of deposit to be collected for new or replaced fare media • Fare products and non-next gen ORCA products available for sale and upgrade • Payment method selection • Receipt content • All text and touchscreen labels • Authorized users and passwords (if stored locally at the CST)		
	Desired	4.4.3.5-1	Upon issuance and/or initialization of a smart card, the CST will record in the back office an issue record, including the date, time, fare category, card identification number, and other pertinent information of the smart card and any associated transit account.		
		4.4.3.5-2	The Fare Media Management application (FMM) will track the smart cards distributed to each Agency sales location. Using the list of fare media issued to each sales location and the issuance and/or initialization records previously transmitted to the back office, it will be possible for authorized users to query the FMM for the identification numbers and total quantity of smart media that remain in each sales location's inventory.		

Operations	Desired	4.4.4.1-1	The CST will remain inactive and unable to perform any functions unless a proper login has been completed.	[redacted]
		4.4.4.1-2	When configured with a cash storage facility the CST will require the operator to identify the cash balance at the start of each shift. The starting balance will be Agency configurable.	
		4.4.4.1-3	The CST will support relief shifts, with the replacement of the cash storage facility. The CST will also maintain statistics for the relief shift separately and will not affect the main shift information.	
		4.4.4.1-4	If the CST has not been used in a number of minutes configurable by Agency, the user will be automatically logged out.	
		4.4.4.1-5	Upon end-of-shift condition, the CST will produce an end of shift report and receipt depicting at a minimum the ending balance of the cash storage facility, summary of transactions, payment methods used, quantity of products sold, reversals, refunds. The report will be approved during design.	
		4.4.4.1-6	The CST will store a data record for each successful login, each unsuccessful login, and each logout.	
		4.4.4.1-7	The CST will be configurable to use a multi-factor login authentication mechanism that observes the guidelines provided in NIST 800-63, and approved by the ORCA CISO. The CST will support more than one method for additional factors of the authentication process and those methods will be approved during design, always observing applicable industry best practices (such NIST 800-63).	
		4.4.4.1-8	The CST will allow the CSR to login using a properly configured smart card. Smart card login will be one factor of multi-factor login authentication.	
	Desired	4.4.4.2-1	The CST will function as an intelligent cash register, allowing customers and CSRs to interact in a manner as similar as possible to normal retail sales transactions. Sales transactions will include, but are not limited to: • Purchase of new fare media • Adding of value and products to existing transit accounts • Purchase of non-next gen ORCA products	
		4.4.4.2-2	When issuing a new EU fare media, the CST will permit the clerk to override the default, Agency-configurable card fee.	
		4.4.4.2-3	The purchase of multiple cards and multiple products, including products that are other than next gen ORCA fare products, will be	

			able to be performed in a single transaction, with payment collected once.	[redacted]
		4.4.4.2-4	When configured to conduct sales, the CST will support a variety of funding methods, including: • Cash • Checks • Agency and third-party issued vouchers • Bank cards (credit and debit) • Mobile wallets • Any combination of the above The CST will also support the payment, or partial payment, for the purchase of a pass or multi-ride product using stored value in same transit account where the pass or multi-ride product is being loaded.	
		4.4.4.2-5	The CST will support split payments where up to three (3) funding methods can be used, including multiple bank cards, to complete payment for a single sale.	
		4.4.4.2-6	For each sales transaction, the CST will enable the clerk to select the payment method. If the clerk selects more than one (1) payment method, the CST will prompt the clerk to enter the amount to be paid using each payment method.	
		4.4.4.2-7	Cash transactions will provide the total amount due, allow the clerk to enter amount tendered, and display the change due.	
		4.4.4.2-8	The CST will control and monitor the cash storage facility, and open the cash storage facility upon calculation and display of the amount of change due.	
		4.4.4.2-9	The CST will provide an option to either print, text, or email a customer receipt for every completed sales transaction. Receipts will include the resulting status and value of the customer's transit account, where applicable.	
		4.4.4.2-10	For each completed transaction, a sales transaction will be stored and transmitted to the System back office using SI-provided Fare Distribution API.	
		4.4.4.2-11	The CST will enable a clerk to display and print totals of all completed transactions by that clerk for the current day.	
		4.4.4.2-12	The CST will enable an administrative user to display and print totals of all conducted transactions for the current and each of the prior seven (7) days. These totals will indicate daily totals by clerk and	

			payment type.				
	Mandatory	4.4.4.3-1	When configured to do so, the CST will include the necessary software and peripherals to enable Agencies to issue personalized fare media.				
	Desired	4.4.4.3-2	Personalized fare media may include the customer's name and photograph printed on one side of the card, accompanied by other Agency-defined graphics and information.				
		4.4.4.3-3	Using the appropriate customized printing template, the CST will print and issue personalized fare media.				
		4.4.4.3-4	The SI shall supply printing templates (also known as "masks") using Agency-supplied graphic designs for all personalized fare media. The CST will support no fewer than 25 pre-loaded templates from which the user will select. Where possible, template selection will be automatic based on fare media.				
		4.4.4.3-5	The CST will support the ability for a participating customer account to add a company logo to the card template(s).				
		4.4.4.3-6	When printing a personalized fare media, the CST will scale and crop the photo image to fit within the area defined by the printing template without distorting the image or changing its native aspect ratio.				
		4.4.4.3-7	The CST will support issuance of personalized fare media in individual and bulk production modes.				
		4.4.4.3-8	For fare media personalization, a digital camera controlled by the CST will capture the customer images as necessary.				
		4.4.4.3-9	All CSTs will support production runs (using data imported from the CRM or an external source) for bulk fare media personalization in quantities of one (1) to at least 250 cards per batch				
		4.4.4.3-10	For bulk fare media personalization production runs, the CST will use data files imported in a SI-specified format. The data files will include the customer name, digital photograph, and other information as required.				
		4.4.4.3-11	The CST will support the capture of all data needed to validate, register, and issue personalized fare media for reduced fare and paratransit customers.				
		4.4.4.3-12	The CST will support manual entry of reduced fare transit account registration data using a simple graphical user interface.				

		4.4.4.3-13	The CST will capture reduced fare applications and supporting documentation using the SI-provided document scanner.	[redacted]
		4.4.4.3-14	The CST will capture reduced fare customer photographs using the SI-provided camera.	
		4.4.4.3-15	All customer data captured and used by the CST will be securely stored within the CRM using the SI-provided API and will not be permanently stored locally on the CST.	
		4.4.4.3-16	The CST will allow the CSR to override the card printing process. Card printing override functionality will be further defined during design review.	
	Desired	4.4.4.4-1	Whenever fare media is presented to the CST closed-loop media processing module, the CST will read the fare media and query the back office using the Systems Integrator-provided Transit Account Management API to display the current status and value of the associated transit account on the operator display and customer display if one exists in current CST configuration.	
		4.4.4.4-2	If the customer's smart card is not functioning, the CST will permit the clerk to manually enter the card identification number.	
		4.4.4.4-3	Upon request, the CST will query the back office for details of the most recent transactions posted to the transit account. Upon receipt of the transaction history, the CST will display the results on the operator display.	
		4.4.4.4-4	The number of prior transactions to display when viewing a transit account in the CRM application will be Agency-configurable.	
		4.4.4.4-5	For each prior transaction displayed by the CRM, history details will include, at minimum: • Date and time of transaction • Generating device/system (e.g., VM, retail location, autoload) • Transaction type (e.g., sales transaction, stored value usage, pass usage, adjustment) • Transaction value • Payment method • Transaction location (e.g., station name, bus route)	
		4.4.4.4-6	Upon request, the CST will print a receipt of the current status, transit account value, transaction history, and current and past transaction receipts.	

	desired	4.4.4.5-1	The CST will enable operators to setup and modify customer accounts using the Systems Integrator-provided Customer Account Management API.	[redacted]		
		4.4.4.5-2	The CST will enable the operator to, at a minimum: • Create a new customer account • Register an anonymous transit account • Associate a transit account with multiple customer accounts • Disassociate a transit account from a customer account • Query and edit program registration details			
		4.4.4.5-3	The CST will enable the operator to modify any fields in the existing customer accounts that are deemed user-alterable.			
		4.4.4.5-4	The CST will enable operators to establish, modify, and cancel customer subscriptions for autoload, including the addition and modification of funding sources.			
		4.4.4.5-5	Some reduced fare privileges are subject to expiration. The CST will include a function to re-authorize reduced fare privileges and update the customer's transit account information with a new reduced fare privilege expiration date.			
	Desired	4.4.4.6-1	The CST will support replacing registered EU fare media by disassociating/ deactivating the lost or stolen fare media from the transit account and associating/activating new fare media in its place. Disassociating the lost or stolen fare media will not prohibit the customer or designated Agency personnel from accessing transaction history associated with that card.			
		4.4.4.6-2	Prior to replacing registered EU fare media, customer identity will be verified using information accessible via the CST and in accordance with the applicable security controls established in the ISMS control baseline.			
		4.4.4.6-3	If the replacement fare media requires no personalization, the CST will prompt the operator to present the new fare media to the closed-loop media processing module.			
		4.4.4.6-4	When replacing a previously issued personalized fare media, the CST will support use of the digital photograph, printing template, and other data from the original issue record to facilitate replacement without requiring the customer's presence, or the use of the digital camera to create and store a new digital image.			

		4.4.4.6-5	Upon reading or issuing the replacement fare media, the CST will transmit to the back office an issue record containing the card's identification number, and a corresponding record to block use of the lost card.		[redacted]
		4.4.4.6-6	Replacing a malfunctioning smart card will be possible. Procedures to replace a defective smart card will be similar to those used to replace lost registered fare media, but replacement of a defective card will not require the fare media to be registered. The replacement process will support manual entry of the defective smart card's identification number as the means to initiate replacement.		
	Desired	4.4.4.7-1	CST operators with appropriate access rights will be able to initiate transit account adjustments by reversing prior sales or fare payment transactions, or directly adding or removing stored value or products.		
		4.4.4.7-2	CST operators with appropriate access rights will be able to initiate an opt-out refund that results in the closing of a transit account associated with a customer account and issuance of a cash or check refund to the customer. The System will support the charging of a refund fee that is Agency configurable.		
		4.4.4.7-3	CST operators with appropriate access rights will be able to add fare products to a transit account on a goodwill basis resulting in no cost to the customer.		
		4.4.4.7-4	The CST will fully record and immediately transmit to the back office all adjustment and reversal transactions.		
Section 4.5 Vending Machines					
General Capabilities	Mandatory	4.5.1-1	The vending machine (VM) will be designed as a simple, low-maintenance, and low-complexity machine in a cost-saving design that provides the functionality specified herein and the common design capabilities.		

	Desired	4.5.1-2	The VM will be designed to accommodate first-time or occasional users, as well as regular customers who need to reload their transit accounts. At a minimum, these functions will be supported: • Purchase one or more new smart cards (associated with a new transit account) with and without value • Load stored value or fare product(s) to an existing transit account • Review transit account balance and history • Accept U.S. coins and bills (Agency configurable should some Agencies choose to not accept cash) • Accept authorized magnetic strip, contact, and contactless bank cards • Inserted cash will be held in escrow and returned to the customer should the transaction not be completed for any reason • Display instructions and notices • Provide audio output of messages and instructions • Contain required security and alarm system • Communicate over a network to send and receive transaction data in real-time • A full list of transactions and detailed process flows will be determined during design reviews.			[redacted]
		4.5.1-3	The VM will be modular and have the capability to replace, activate, or deactivate the hardware components individually. The modules and components will be easily serviced.			
		4.5.1-4	If a component or function is enabled/disabled, the VM will automatically adjust its display, operation, and maintenance status according to the active components.			
		4.5.1-5	The VM will be able to accept credit and debit cards and cash/coin for payment.			
		4.5.1-6	The VM will detect when the bill vault is near-full (%) and full (%), and record and transmit an event record. The determination of a nearly full condition will be adjustable by the Agencies for each VM.			
		4.5.1-7	The VM will detect when the coin vault is near-full (%) and full (%), and record and transmit an event record. The determination of a nearly full condition will be adjustable by the Agencies for each VM.			

		4.5.1-8	The Light Feature Vending Machine (LFVM) will be a simple, low-cost, low-complexity machine that allows first-time and regular customers to purchase and reload EU fare media. The LFVM is expected to reduce the capital costs, maintenance activities, and customer complexity associated with traditional full feature transit VMs. To this end, the LFVM will not issue change. The device will provide Agencies with the flexibility to enable and disable features or components of the LFVM.		[redacted]
		4.5.1-9	The LFVM will not issue change. Any change due to a customer for fare product loads to Extended Use (EU) fare media at an LFVM will be returned (e.g., loaded) as stored value to the same transit account within the same transaction.		
		4.5.1-10	All VM equipment will comply the applicable hardware and software security capabilities contained in this scope of work.		
		4.5.1-11	All VM equipment will comply with the applicable accessibility and ADA requirements contained in this scope of work.		
		4.5.1-12	All VM equipment will comply applicable PCI/PII requirements contained in this scope of work.		
Hardware	Mandatory	4.5.2.1-1	The VM enclosures will be rugged and function under harsh environmental conditions including: direct sunlight, moisture, dust/grit/sand, humidity, electrical storms, exposure to urban and marine environment, and the range of elevations and altitudes in the operating region.		
	Desired	4.5.2.1-2	The design of the VM mounting system will be vandal-resistant and will include robust anchoring that prevents the VM from being dislodged.		
		4.5.2.1-3	The VM cabinets will be constructed from stainless steel without any visible fasteners. The enclosure finish and corners will be rounded to avoid sharp edges, corners, or protrusions that may cause injury to customers.		
		4.5.2.1-4	The VM enclosures will be resistant to corrosion, abrasion, scratching, impacts, and vandalism, and withstand standard cleaning materials. Color and finish will be such that it minimizes reflection and is highly resistant to fading, cracking, and peeling.		
		4.5.2.1-5	The design of the VM enclosure will permit installation as stand-alone units, side-by-side units, back-to-back units, and in recessed areas.		

		4.5.2.1-6	The VM cabinets will be constructed to provide the highest protection against vandalism and burglary. Reinforcement will be provided at the locations (screen, doors, access ports, etc.) where there is a higher possibility of vandalism. All doors and other access points will be designed to inhibit the use of prying tools to gain access to the interior of the machine.	[redacted]
		4.5.2.1-7	The VM mounting pedestal and any external features (such as button panels, rain shields, and light fixtures) will be weatherized, robust, and vandal-resistant.	
		4.5.2.1-8	While all outer doors are secured, the VM will remain operational and undamaged after experiencing any impact resulting in a concentrated load of 400 pounds per one (1) square inch on any part of the enclosure.	
		4.5.2.1-9	The VM cabinet and mounting hardware will accommodate variations in station and sidewalk construction. Mounting pedestals will be sized according to need, and specifics will be provided by the Agencies during design review.	
		4.5.2.1-10	The VM cabinet will provide controlled levels of access to the interior of the equipment for maintenance personnel, revenue servicing personnel, and cash processing personnel, as defined by the Agencies. Locks must be secured locks, programmable to more than one key.	
		4.5.2.1-11	As necessary, blanking plates will be provided for installation over any outer door openings of the VMs resulting from the removal of an external component or module. All such blanking plates will be easily secured, and will provide security against intrusion and vandalism.	
		4.5.2.1-12	The VM enclosure and pedestal design will be submitted to the Agencies for review and approval.	
		4.5.2.1-13	The LFVM will have a footprint that is approximately half the size of a full-feature VM.	
		4.5.2.1-14	The VM cabinets or pedestal will be capable of housing a network switch to enable all devices in one area to be connected through a single connection to the station communications room, and limit the number of Ethernet runs required to each installation location.	
	Desired	4.5.2.2-1	The VM display screen will consist of a color, transflective backlit flat panel capacitive touchscreen display that is clearly viewable in	

			daytime and night-time conditions.		[redacted]
		4.5.2.2-2	The VM customer display screen will measure at least 10 inches diagonally.		
		4.5.2.2-3	The display screen will provide resolution of no less than 1024 by 768 pixels, and at least 65,000 colors (RGB 16 bit) per pixel.		
		4.5.2.2-4	The VM display will produce a minimum of 1,000 nits brightness with at least a 750:1 contrast ratio, and provide a level of visibility sufficient to allow all displayed instructions to be read easily by the customer under all ambient light conditions and without the need for any additional peripheral light source or shading device.		
		4.5.2.2-5	The visibility and usability of the VM display will be unaffected by precipitation, temperature, sunlight, and other environmental conditions typical of the operating region.		
		4.5.2.2-6	The VM display will be protected to be resistant to scratches and other normal wear. Coatings or other materials applied to the outer surface of the display's protective shield will withstand normal customer use, industry standard station cleaning materials, and be easily replaced if necessary.		
		4.5.2.2-7	The display screen will be easily replaceable from within the VM interior, and require minimal maintenance effort.		
		4.5.2.2-8	All portions of the display screen will be visible and not obstructed by any portion of the VM door, mounting bezels, or other external elements.		
		4.5.2.2-9	The display screen will be installed close enough to the VM surface to avoid any parallax effect, or the apparent shift of screen objects relative to customer touches or button placement.		
		4.5.2.2-10	The visibility and usability of the VM display will be unaffected by precipitation, temperature, sunlight, and other environmental conditions typical of Puget Sound operating region.		
	Mandatory	4.5.2.3-1	The VM Bill Handling Unit (BHU) will accept paper currency, and include a bill validator, escrow module, and bill vault.		
	Mandatory	4.5.2.3-2	The bill validator will be capable of accepting all U.S. Treasury variations of $1, $2, $5, $10, $20, $50, and $100 bills in circulation at the time of Final System Acceptance.		
	Mandatory	4.5.2.3-3	As the U.S. Treasury releases new designs of bills, the bill validator will be capable of being programmed to accept the new designs		

			while continuing to accept the current designs.			[redacted]
	Desired	4.5.2.3-4	The bill validator will be equipped with a protective shutter to guard against foreign matter so that it does not enter the BHU while the machine is not accepting bills.			
		4.5.2.3-5	The bill validator will remain closed until a transaction is selected for which cash payments are available. The shutter will automatically open once the payment due has been displayed.			
		4.5.2.3-6	The bill validator will be able to accept bills inserted in any of the four possible length-wise orientations.			
		4.5.2.3-7	The bill validator will accept one bill at a time and will determine the denomination and validity of the currency.			
		4.5.2.3-8	The bill validator will determine the denomination and validity of both sides of a document by dimension checks and pattern and color recognition.			
		4.5.2.3-9	The bill validator will meet the following acceptance rates: • At least 98% of valid bills are accepted upon initial insertion. • At least 99% of valid bills are accepted in no more than two insertion attempts.			
		4.5.2.3-10	The bill validator will identify valid acceptable bills with at least 99.999% accuracy.			
		4.5.2.3-11	The bill acceptor may reject bills with excessive physical defects.			
		4.5.2.3-12	The bill validator will be able to detect counterfeit bills, including copies made in either single or double-sided printing on an electronic copier and those made with color printers.			
		4.5.2.3-13	If the bill validator deems the inserted document to be invalid, the document will be returned and gripped so that the VM retains a hold on the item.			
		4.5.2.3-14	The bill validator will be designed to reject or expel pieces of paper or other foreign material that can be introduced into the bill insertion slot.			
		4.5.2.3-15	The bill validator will be secured via a high-security lock and will be separately removable for servicing.			
		4.5.2.3-16	Upon acceptance of each inserted bill, the bill validator will forward the bill to an escrow to be stored temporarily until completion or cancellation of the transaction.			

		4.5.2.3-17	The bill escrow module will have the capacity to store a minimum of 10 bills.		[redacted]
		4.5.2.3-18	When the bill escrow is full, or a configurable limit of inserted bills per transaction is reached, the bill validator will cease accepting bills.		
		4.5.2.3-19	If the customer cancels the transaction or the VM aborts the transaction, the BHU will return from escrow the bills inserted for the transaction.		
		4.5.2.3-20	When a transaction is completed, all bills in the bill escrow module will be transported to the bill vault for retention. Using sensors or other means, the machine will confirm the passage of all bills to the bill vault; failure to detect a bill being deposited into the bill vault will be considered a jam and the machine will cease accepting bills and display an appropriate message to customers.		
		4.5.2.3-21	The BHU will be equipped with a removable bill vault. The bill vault will have a capacity of no less than 500 stacked bills in street condition and weigh no more than 50 pounds when full.		
		4.5.2.3-22	The bill vault will be constructed of sturdy and tamper-proof material, and will withstand normal handling and regular removal and replacement without deformation that would in any way interfere with the insertion and removal process.		
		4.5.2.3-23	It will not be possible to open the bill vault while installed in the BHU, nor will it be possible to install an open or unlocked bill vault into the BHU. When properly installed in the BHU, it will not be possible to access bills in the bill vault without damaging the vault in an obvious manner.		
		4.5.2.3-24	The bill vault will remain secure when removed from the VM. Access to the bill vault will be granted only with keys available to revenue staff.		
		4.5.2.3-25	The bill vault will have handles placed to avoid injury and provide adequate hand clearance for easy insertion, removal, and carrying.		
		4.5.2.3-26	Each bill vault will include a printed and electronically encoded serial number. The serial number will be read by the VM for reporting upon bill vault insertion and removal.		
	Mandatory	4.5.2.4-1	VMs will be equipped with a Coin Handling Unit (CHU) including, but not limited to, a coin acceptor/verifier, a coin escrow module, and a coin vault.		

		4.5.2.4-2	The coin acceptor/verifier will accept all variations of U.S. 5-, 10-, and 25-cent and dollar coins in circulation at the time of Final System Acceptance.		[redacted]
		4.5.2.4-3	As the U.S. Treasury releases new designs of coins, the coin acceptor/verifier will be capable of being programmed to accept the new designs while continuing to accept the current designs.		
	Desired	4.5.2.4-4	The coin acceptor will contain a coin insertion slot that will be sized to limit the dimensions of inserted material to the largest coin accepted. To minimize jams, the coin slot will also be sized to prevent the simultaneous insertion of two coins.		
		4.5.2.4-5	The coin insertion slot will be equipped with a protective shutter to guard against foreign matter so that it does not enter the CHU while the machine is not accepting coins.		
		4.5.2.4-6	The coin insertion slot will remain closed until a transaction is selected for which cash payments are available. The shutter will automatically open once the payment due has been displayed.		
		4.5.2.4-7	The geometry of the coin path and other provisions of the coin acceptor will prevent the retrieval of coins by fishing such as with wire or attached thread.		
		4.5.2.4-8	The coin acceptor/verifier will determine the denomination and validity of coin types, and identify invalid or counterfeit objects (“slugs”).		
		4.5.2.4-9	The coin acceptor/verifier will meet the following acceptance rates: • At least 98% of valid coins are accepted upon initial insertion. • At least 99% of valid coins are accepted in no more than two insertion attempts. All known counterfeit coins, common slugs, foreign coins, and coins of denominations not accepted by the machine are rejected upon every insertion.		
		4.5.2.4-10	The coin acceptor/verifier will identify valid acceptable coins with at least 99.99% accuracy.		
		4.5.2.4-11	The coin acceptor/verifier will reject and return to a coin return bin unverified, counterfeit, excessively bent, and foreign coins, as well as slugs and other foreign objects.		
		4.5.2.4-12	The coin acceptor/verifier will be key-locked into the machine and will be removable for service and replacement.		

		4.5.2.4-13	Upon acceptance of each inserted coin, the CHU will forward the coin to an escrow to be stored temporarily until completion or cancellation of the transaction.		[redacted]
		4.5.2.4-14	The coin escrow module will have the capacity to store a minimum of 35 coins.		
		4.5.2.4-15	When the coin escrow is full, or a configurable limit of inserted coins per transaction is reached, the CHU will cease accepting coins.		
		4.5.2.4-16	If the customer cancels the transaction or the VM aborts the transaction, and the CHU will return from escrow coins inserted for the transaction.		
		4.5.2.4-17	When a transaction is completed, all coins in the coin escrow module will be transported to the coin vault or coin recirculation module, if present. Using sensors or other means, the machine will confirm the passage of all coins to the coin vault; failure to detect a coin being deposited into the coin vault will be considered a jam and the machine will cease accepting coins and display an appropriate message to customers.		
		4.5.2.4-18	Each VM will be equipped with a removable coin vault that has a capacity of at least 300 cubic inches and weighs no more than 50 pounds when full.		
		4.5.2.4-19	The coin vault will withstand regular removal, replacement and normal handling without deformation or in any way interfering with the insertion and removal process.		
		4.5.2.4-20	It will not be possible to open the coin vault while installed in the machine, nor will it be possible to install an open or unlocked coin vault into the machine. When properly installed in the machine, it will not be possible to access coins in the coin vault without damaging the vault in an obvious manner.		
		4.5.2.4-21	The coin vault will be self-locking and self-closing, so that when removed from the machine, it cannot be opened other than through an authorized process. Any coin vault will remain secure when removed from the VM. Access to the coin vault will be granted only by keys available to revenue staff.		
		4.5.2.4-22	The coin vault will have a handle or handles placed to avoid injury, which provides adequate hand clearance for easy insertion, removal, and carrying.		

		4.5.2.4-23	Each coin vault will include a printed and electronically encoded serial number. The serial number will be read by the VM for reporting upon coin vault insertion and removal.	[redacted]
		4.5.2.4-24	The FFVM will be equipped with a coin issuance system to accommodate cash transactions where over payment occurs. The coin issuance system will be designed to minimize the need to perform revenue servicing of the machines.	
		4.5.2.4-25	The FFVM coin issuance system will issue U.S. 5-, 10-, and 25-cent and dollar coins.	
		4.5.2.4-26	The maximum amount of change available from the FFVM per transaction will be Agency configurable.	
	Mandatory	4.5.2.5-1	The VM will include a Bank Card Processing Unit (BCPU) to process bank cards (credit and debit) for the funding of fare products and media.	
		4.5.2.5-2	The VM will be PCI- and EMV-certified for the acceptance of bank-issued credit and debit cards using all common formats based on the latest version of the standard at the time of Final System Acceptance. VMs will be capable of re-certification with newer versions of the PCI and EMV standards via software upgrades as necessary.	
	Desired	4.5.2.5-3	The magnetic stripe and contact bank card reader will be combined to accept and process standard size cards with ISO/IEC 7811 magnetic data stripes and all EMV-compliant contact (chip and PIN) cards.	
		4.5.2.5-4	The magnetic stripe/contact bank card reader will consist of a push/pull (insert/remove) card reader such that the bank card is not captured completely by the reader. Sensors will detect the insertion and removal of cards from the reader unit.	

		4.5.2.5-5	The contactless bank card reader will read and support all open payment contactless standards, including but not limited to: • Apple Pay • Android Pay • Samsung Pay • VISA payWave® • MasterCard PayPass® • American Express ExpressPay® • Discover Zip® • Contactless EMV	[redacted]
		4.5.2.5-6	The BCPU will include a secure bank card PIN keypad. The PIN pad will be vandal resistant, weather resistant and not be removable from outside and be easily replaceable. It will have a life expectancy of 5 million cycles.	
		4.5.2.5-7	The contactless bank card reader will be separate and apart from the customer facing smart card validator used to process load transactions. Both will be clearly identified to avoid confusion.	
		4.5.2.5-8	The PIN keypad will employ encryption as required in accordance with banking capabilities. The Program needs the SI to supply all PIN keypads with production encryption keys injected in a secure, PCI-compliant manner.	
		4.5.2.5-9	The PIN keypad will be capable of operating in both an encrypting and non-encrypting or “clear” mode so that it can be used for data entry and customer selection by the visually impaired.	
		4.5.2.5-10	The magnetic stripe/contact bank card reader card slot will be sealed so that no liquids introduced into the slot enter the interior of the machine.	
	Mandatory	4.5.2.6-1	The VM will incorporate an internal ISO/IEC 14443 contactless smart card validator/encoder that will be used to encode and issue contactless media stored in the VM. This is in addition to the external contactless smart card validator/encoder used by customers to process load transactions.	
	Desired	4.5.2.6-2	The EU fare media validator/encoder will be integrated with a media dispensing unit that will issue the EU fare media and together	

			comprise a smart card Encoder/Dispenser (SED).			[redacted]
		4.5.2.6-3	The SED will utilize removable cassettes to store the contactless media stock. The cassettes will securely hold cards and enable service staff to replenish or exchanging cassettes quickly and securely.			
		4.5.2.6-4	In total the installed cassettes will have a capacity of no less than 500 cards.			
		4.5.2.6-5	The SED will dispense cards into a media dispense tray or slot no more than three (3) seconds after commencing the encode/dispense process.			
		4.5.2.6-6	Prior to dispensing a new card, the SED will confirm that the card is functioning properly. If the SED cannot read the Unique Identification Number (UID) or verify the data is encoded correctly, the module will capture the card in a card reject bin and attempt to encode/dispense another card.			
		4.5.2.6-7	The VM card reject bin will have a capacity of no less than 10 cards.			
		4.5.2.6-8	If the SED fails to issue the media after a configurable number of attempts (initially set to three [3]), the machine will disable the SED module and send a maintenance alert.			
	Mandatory	4.5.2.7-1	The VM will be equipped to print and issue receipts for fare transactions and audit tickets for maintenance activities. Receipts will be printed on separate receipt stock using a thermal receipt printer or Agency approved alternative.			
	Desired	4.5.2.7-2	The receipt printer will issue receipts and audit tickets from paper-based roll stock that is commercially available in the U.S. Receipt stock will follow applicable standards for service and replacement.			
		4.5.2.7-3	The receipt printer will be able to print all alphanumeric characters in both upper and lower case and all ASCII characters. Printed characters will be produced with a minimum height of 0.12 inches and a maximum height up to 1 inch.			
		4.5.2.7-4	The receipt printer will utilize a thermal print head that provide no less than 100 dots per inch of resolution.			
		4.5.2.7-5	Thermal print heads will produce no fewer than 250,000 receipts without misprinted pixels due to wear or electronic failure.			

		4.5.2.7-6	The receipt printer will be equipped with a cutting mechanism to cut individual receipts from the roll supply. Each cutter will perform at least 1 million cuts without requiring replacement or sharpening. The cutter will be designed such that no adjustment of the cutting edges will be required.	[redacted]
	Desired	4.5.2.8-1	In addition to the display and other modules described in this section, several elements on the front of the VM will comprise the customer interface including, but not limited to: • Contactless smart card validator • Physical push buttons • Audio interface • Headphone jack • Media dispense tray/slot • Instructional graphics and text • Information sign Final VM configurations will be determined during design review.	
		4.5.2.8-2	A customer-facing contactless smart card validator compliant with both Type A and B variants of the ISO/IEC 14443 standard will be installed in the VM to perform the following functions at minimum: • Read contactless media to bring VM out of idle state • Load fare products or value • Check account balance and history The validator will also have write capabilities as per risk mitigation strategies.	
		4.5.2.8-3	The validator will be in “read mode” while the VM is in the idle state (to allow initiation of the interface via a contactless read), and during portions of transactions where reading a contactless fare media is necessary.	
		4.5.2.8-4	The contactless validator will be separate and apart from the contactless bank card reader that is part of the BCPU. Both will be clearly identified to avoid confusion.	

		4.5.2.8-5	Any push buttons that are provided for customer selection functionality will conform to the following characteristics: • Made of stainless steel, hardened aluminum, or other Agency-approved hardened and weather-resistant material • Have tactile movement when pressed • Be accompanied by an audible tone when pressed • Provide appropriate (ADA compliant) resistance when pressed • Be protected against vandalism, including impact from customers • Be liquid-proof and sealed from outside moisture • Not be removable from the outside • Meet or exceed all applicable ADA guidelines		[redacted]
		4.5.2.8-6	VM instructional graphics and text will be modular and able to be changed to match different VM configurations, if applicable.		
		4.5.2.8-7	The design of instructions and graphics will minimize glare and other effects of sunlight and ambient lighting.		
		4.5.2.8-8	The VM front panel will include an optional convex “fish eye” mirror, which will enable a customer using the VM to see behind them.		
		4.5.2.8-9	Instructional graphics will include diagrams that clearly depict proper insertion orientation of bills and bank cards into their respective slots.		
		4.5.2.8-10	Conceptual designs of VM instructions and related graphics will be submitted during design review for Agency review and approval.		
		4.5.2.8-11	The VM will incorporate a removable information signage holder in a prominent position to display printed information, such as: • Fare pricing and information • Agency contact information • Service announcements		
		4.5.2.8-12	The VM will include an audio interface and internally mounted vandal-resistant speaker to provide configurable audio tones and voice annunciation.		
		4.5.2.8-13	VM audio volume will be able to be adjusted remotely and by the customer for each machine, and will be audible in all station environments.		
		4.5.2.8-14	The VM will include a media dispense tray or bin that will safely hold		

			dispensed media and receipts.		[redacted]
		4.5.2.8-15	The media dispense tray will be recessed and may be covered with a clear polycarbonate spring-loaded or weighted door. The dispense tray and its door will be robust, scratch-resistant, visually prominent, and resistant to intrusion from the outside.		
		4.5.2.8-16	The media dispense tray will be designed to drain any liquids that enter.		
		4.5.2.8-17	The layout of the keys on the VM PIN keypad will be in compliance with or exceed all applicable accessibility and ADA requirements.		
		4.5.2.8-18	The information signage holder will be suitable for use in an outdoor environment, securely mounted, and may supplement information on the customer display.		
	Desired	4.5.2.9-1	The VM outer door lock will utilize an electronic high-security lock such as Cyber Lock® or Agency-approved equivalent.		
		4.5.2.9-2	The keyways for all high security keys will be registered to the Agencies, and replacements will be available only to authorized personnel, or their authorized representative.		
		4.5.2.9-3	Sensors will detect the status of the outer door lock. The VM door will be considered open and unsecure if the outer door lock is not in the fully locked position.		
		4.5.2.9-4	All security locks will be designed in such a way that the door cannot remain in a closed and unlocked position.		
	Mandatory	4.5.2.10-1	Each VM will be equipped with an alarm unit that will have the ability to monitor machine security conditions and provide alerts to the back office in real-time. If the VM does not have power or is disabled for any reason, the alarm unit will continue to operate independently and monitor the machine for security breaches and impacts.		
	Desired	4.5.2.10-2	The alarm unit will be disarmed through an authorized entry, and will be triggered by an unauthorized entry. Each time an alarm event is detected, the event record with date and time will be stored and transmitted to the back office.		
		4.5.2.10-3	Adjustable sensors will detect direct physical impacts to the VM enclosure, breakage of the customer display, and attempts at unauthorized or forced entry. The alarm unit will activate a local siren as soon as the impact sensor is triggered. The siren will shut off and re-arm after a configurable time period unless continued		

			impacts or attempts at intrusion are detected.		[redacted]
		4.5.2.10-4	Access to the interior of the VM for maintenance and servicing using an authorized key will disable the alarm while service is being performed. If authorized VM access is not followed, the intrusion alarm will be activated and the VM will record and transmit a security event.		
		4.5.2.10-5	A security and alarm process for VM access will be submitted for review and approval by the Agencies.		
	Mandatory	4.5.2.11-1	The VM will communicate with the back office through a secure communications interface to send and receive and data including but not limited to: • Transaction information • Event (alarm and maintenance) status alerts • Time synchronization information • Positive/negative lists • Configuration parameters • Remote commands or status inquiries The list of communications information will be finalized during design reviews.		
	Desired	4.5.2.11-2	All communications between the VM and the next gen ORCA and VM back offices will be via the Ethernet interface.		
		4.5.2.11-3	If required for PCI certification, a second Ethernet port will be provided to transmit payment data separate from other transaction data.		
	Desired	4.5.2.12-1	The VM will be equipped with a modular, filtered power supply which will be connected to the incoming grounded electrical service. The power supply will be connected to the incoming electrical service (120 V) and deliver all of the necessary operating voltages for the machine. Voltages internal to the VM will not exceed 125 V.		
		4.5.2.12-2	A power switch will turn the power supply on or off, and will be separate from the main circuit breaker that removes all power to the VM. There will be no safety risks to maintenance personnel with the machine power turned off.		

		4.5.2.12-3	A GFCI duplex convenience outlet will be installed within the interior of each cabinet. This outlet will be protected by a separate circuit breaker internal to the machine enclosure and will be grounded. Current rating of GFCI will be defined at design review.			[redacted]
		4.5.2.12-4	Appropriate warning labels will be provided on or near any components or cables that may have hazardous voltages present.			
		4.5.2.12-5	If the VM shuts down due to loss of power, upon restoration of power the machine will automatically resume operations.			
		4.5.2.12-6	The VM will be equipped with a supplemental battery power supply. This battery power supply will be used to allow a controlled shut down, including a transaction in process to be completed, in the event the incoming voltage falls below the reliable machine operating voltage or in the event of loss of alternating current (AC) power to the machine. Once primary power is restored, the backup battery will be recharged.			
		4.5.2.12-7	The supplemental battery will be rated at four (4) years or 500 discharge and charge cycles.			
Software	Mandatory	4.5.3.1-1	VMs will generate, store, and transmit a discrete data record for each transaction performed.			
	Desired	4.5.3.1-2	Each sales transaction record will be unique and will include the following information, at a minimum: • Date and time • Device ID • Station/Location ID • Card/account number • Transaction type (e.g., card sale, value load, account inquiry) • Cards sold (where applicable) • Stored value or fare products loaded (where applicable) • Passenger type (e.g., adult full fare, youth, senior, disabled) • Transaction value (where applicable) • Payment type and amount • Transaction result (e.g., success, failure) • Transaction ID Transaction records details will be finalized during design review.			

		4.5.3.1-3	VMs will maintain local data records in non-volatile memory in the event that communications to the back office system is unavailable. The local records will only be removed when verification of database storage of each record is received from the back office.	[redacted]
		4.5.3.1-4	Each VM transaction record will be unique and will include the following information, at a minimum: • Date and time • Device ID • Station/location ID • Fare media number • Transit account • Transaction type (e.g., card sale, value load, account inquiry) • Cards sold (where applicable) • Stored value or fare products loaded (where applicable) • Passenger type (e.g., adult full fare, youth, senior, disabled) • Transaction value (where applicable) • Payment type and amount • Transaction result (e.g., success, failure) • Transaction ID Transaction records details will be finalized during design review.	
	Mandatory	4.5.3.2-1	The VMs will provide audit register counts for purposes of data tracking and analysis. The audit registers will store counts of specific events in non-volatile memory and will not be able to be modified or erased.	
	Desired	4.5.3.2-2	The audit registers will maintain counts and value of the following events as applicable: • New fare media issued • Fare product sold • Stored value loaded • Transit account inquiries • Cash transaction, by amount and denomination • Credit card transactions, by amount • Debit card transactions, by amount • Count of approved and denied transactions • Count of read failures Final audit register events will be determined during design reviews.	

		4.5.3.2-3	Audit register records will be transmitted to the back office at the end of service day for reconciliation, or based on a configurable time period.		[redacted]
		4.5.3.2-4	VM audit register records will be transmitted to the back office at the end of service day for reconciliation, or based on a configurable time period.		
	Mandatory	4.5.3.3-1	The VMs will provide real-time status of device and module level events and alarms through the System Manager. The VM will also maintain local event and alarm logs in the event that communications to the back office is unavailable.		
	Desired	4.5.3.3-2	In addition to transmitting real-time events and alarms, the VM will transmit periodic “heartbeat” messages that confirm communication with back office and basic status. The “heartbeat” frequency will be adjustable by VM.		

		4.5.3.3-3	The VM will generate, store, and transmit alert information for relevant events, including but not limited to: • Power on • Power off • Reboot • Back office communications failed/restored • Maintenance parameter changed • New fare table received/activated • New software received/activated • New configuration data received/activated • New list received/activated • Anti-virus definitions and security updates downloaded • Internal clock reset • VM clock error • Data memory near full/full • Low battery • Failed bank card authorization request • Defective media captured in reject bin • Maintenance technician login and logout • Maintenance parameter changed • Revenue service technician login and logout • Bill vault removed/installed • Coin vault removed/installed • VM “heartbeat” check • Software update from removable media initiated • Software update failure • Machine hardware configuration change • Module faults (coin/bill/card jams, low stock and change) • Security events • Vibration alert Final events and alerts will be determined during design reviews.	[redacted]
		4.5.3.3-4	The VM will monitor the contents of the media stock and transmit an event to the back office when the inventory is below a configurable threshold, and when the inventory is empty.	
		4.5.3.3-5	The BHU will cease to accept bills and indicate a “no bills accepted” message on the display when the bill vault becomes full.	

		4.5.3.3-6	The BHU will automatically reset all appropriate counters when the bill vault is removed and/or replaced.	[redacted]
		4.5.3.3-7	The coin acceptor will not accept coins once the vault has reached 90% capacity, or configurable amount.	
		4.5.3.3-8	The smart card encoder/dispenser/SED will monitor the contents of the card stock and transmit an event to the back office when the inventory is below a configurable threshold, and when the inventory is empty.	
		4.5.3.3-9	Whenever the local alarm siren is active, the VM will go out of service. When the alarm condition ends, the VM will perform self-diagnostics, and resume normal operations. Events that are linked to the local siren and other alarms that result in the VM going out of service will be defined during design review.	
		4.5.3.3-10	The VM will have capacity to locally store a minimum of one (1) year of event and alarm data.	
Operations	Desired	4.5.4.1-1	Each voice annunciation message will occur as close as possible to the event or change in transaction status as possible, and be as brief as possible to convey the necessary information.	
		4.5.4.1-2	The voice annunciation will support multiple languages including at least Simplified Chinese, Spanish, and English. Required languages will be finalized by the Agencies during design review.	
		4.5.4.1-3	When the headphone jack is used, a voice annunciation system with adjustable volume will provide context-sensitive voice messages, in audio form, conveying information shown on the device display to meet or exceed all applicable accessibility and ADA requirements.	
	Mandatory	4.5.4.2-1	The SI shall hire a third-party to provide audio and text translations. The audio/text translations will be submitted for Agency review and approval.	
		4.5.4.2-2	English will be the default language while the VM is in idle mode and the VM will return to English after a transaction is completed or cancelled.	
		4.5.4.2-3	Supported languages will be provided by the Agencies during design review.	
	Desired	4.5.4.2-4	The VM will include a selection button to change the display and the voice annunciation language between English and up to six (6) other available languages.	

		4.5.4.2-5	The alternate language button will be active at all times and available on all screens while the VM is in service. Pressing an alternate language button at any time will cause the display and audio messages to the selected language.	[redacted]
	Mandatory	4.5.4.3-1	For all transactions, the VM will display a progression of screens to the customer that will be easy to understand and intuitive.	
		4.5.4.3-2	All information presented by the VM will be capable of being modified by authorized Agency staff. Modifications will be able to be made remotely or by removable storage media.	
	Desired	4.5.4.3-3	The VM will provide the following core functions to support customer operations: • Sell one or more new fare media in a single transaction where the associated transit accounts are initialized only (no value) or are loaded with value • Load stored value and all available fare products to previously issued fare media (e.g., transit accounts) • Query the back office to retrieve the balance and transaction history for existing transit accounts	
		4.5.4.3-4	The operating status and configuration for each VM will determine the available options. Only options that are enabled will be shown to the customer.	
		4.5.4.3-5	A detailed customer operations document, including screen flows depicting “snapshots” of each screen layout arranged as a logical flow chart will be provided during FDR for Agency review and approval.	
		4.5.4.3-6	Each VM will be ready to respond to a customer input when in the idle condition. Input may be a physical button push, touch screen input, or touching fare media to the contactless validator.	
		4.5.4.3-7	The VM “home” or starting screen, will include the following options at a minimum: • Purchase a new fare product • Reload an existing account • Check account/product balance • Language preference • Help button • “Express” purchase of a card/ticket with one (1) ride (configurable)	

		4.5.4.3-8	The VMs will have clear instructions to indicate the steps a customer must follow to perform any transaction. The sequence of steps will be clearly indicated by the use of graphics and text. Wherever possible, universal graphics and symbols will be used that can be understood without having to read the displayed text.			[redacted]
		4.5.4.3-9	The VMs will have Agency-configurable distinctive audio tones to provide feedback each time a button is pressed.			
		4.5.4.3-10	English-speaking customers will be able to purchase new fare media (with stored value or a pass) or load value to an existing card in a maximum of three (3) screens.			
		4.5.4.3-11	For new fare media purchase transactions, the VMs will read and/or encode media as necessary to capture account numbers and initialize the media. The VMs will send the media data to the back office, along with all relevant fare purchase and payment information, to create and load the associated transit accounts, and generate sales transactions.			
		4.5.4.3-12	For fare media reload transactions, the external contactless validator will read (and, if necessary for risk mitigation, encode data to) the customer's card. The VMs will send the fare media data to the back office, along with all relevant fare purchase and payment information, to load the associated transit account, and generate a sales transaction.			
		4.5.4.3-13	For balance check transactions, the external contactless validator will read the customer's fare media. The VMs will send the fare media/ticket data to the back office to retrieve the associated balance and transaction history information.			
		4.5.4.3-14	All transactions will be individually recorded, stored, and transmitted to the back office by the VMs using the SI-provided API.			
		4.5.4.3-15	All transactions will initiate communication with the account-based transaction processor (ATP) to query or modify transit accounts associated with the fare media in real-time.			
		4.5.4.3-16	In offline mode, the VMs will be able take cash payments to sell single rides or other limited fare products, in order to provide a means for customers to access transit services. The details of which products will be sold in offline mode, and the risk mitigations strategies to be employed (such as writing to the media), will be determined during design review.			

		4.5.4.3-17	When payment is required, the VM will automatically detect what form of funds the customer has inserted. Customers will not have to choose whether the transaction will be by cash or bank card.		[redacted]
		4.5.4.3-18	If the VM loses communications with the back office, upon restoration, the VM will automatically initiate communications and send any data generated in offline mode.		
		4.5.4.3-19	When paying by cash, the VM will permit the customer to deposit coins and bills in any sequence.		
		4.5.4.3-20	Prior to authorizing a bank card transaction, the VM will prompt the customer to choose whether the purchase is a credit or debit transaction. For debit transactions, the VM will prompt for PIN entry.		
		4.5.4.3-21	The VM will support Address Verification System (AVS) for bank cards in a configurable manner that allows the AVS feature to be turned on or off by the Agencies and accommodates acceptance of both U.S. and non-U.S. issued cards. When a U.S. bank card is used for payment, the VM will prompt the customer to enter the billing address ZIP code.		
		4.5.4.3-22	All bank card transactions will be authorized prior to dispensing media or loading fare products. If a bank card is declined for any reason the VM will display related information to the customer and cancel the current transaction.		
		4.5.4.3-23	If bank communications are unavailable, bank card transactions will be disabled, and the VM will enter “cash only” mode.		
		4.5.4.3-24	The customer will have the capability to cancel a transaction at any point before full payment has been inserted in cash or a bank card authorization has been received.		
		4.5.4.3-25	If any failure occurs during a transaction, the VM will automatically cancel the current transaction and indicate the cancellation on the screen.		
		4.5.4.3-26	If a transaction is canceled automatically or by the customer, all inserted cash will be returned and credit/debit card transactions will be reversed as necessary.		

		4.5.4.3-27	The VM will be configurable to provide receipts: • Upon customer request • Automatically for transactions above a configurable dollar value, or optionally for transactions below the configurable value • For every transaction • Never (when receipt stock is empty)	[redacted]
		4.5.4.3-28	All receipts will have a printed indication that the receipt is not a valid ticket, and will contain at least the following information: • Machine number – up to eight (8) alphanumeric characters • Date – month, day, and the last two (2) digits of the year, totaling nine (9) characters • Time – four (4) digits separated by a colon and followed by two (2) letters "AM" or "PM," using a 12-hour clock • Station name or location where purchased – up to 16 characters • Card/account number • Last four (4) digits of credit/debit card number (PAN), if used as the form of payment • Value purchased and remaining balance (if applicable) • Transaction amount • Machine-unique transaction sequence number Final receipt information will be determined during design review.	
		4.5.4.3-29	Receipts for bank card transactions will also include information as identified in Federal Regulations E and Z, and other information necessary to comply with banking and Federal regulations.	
		4.5.4.3-30	The VM will employ an adjustable time-out period to return the VM to the idle state if no input is received between transaction steps. The time-out period will be adjustable by authorized staff.	
		4.5.4.3-31	A screen saver may be activated after a programmable idle period has passed, and will support the following at minimum: • Static image in any common graphics format, e.g., JPG, TIFF, BMP, GIF • A repeating "slide show" of static images • Text messages and imported text-based files • Webpages and other dynamic markup language files • Pre-recorded video in any common format, including MPEG, WMV, MOV, AVI, H.264	

			• Any combination of the above				[redacted]
		4.5.4.3-32	The screen saver will automatically terminate and the VM will display the home screen as soon as any button is pressed or a credential is presented to the contactless validator.				
		4.5.4.3-33	For all new ORCA card purchase transactions, the time from acceptance of the cash payment or credit/debit card approval to media issuance will not exceed three (3) seconds.				
		4.5.4.3-34	Where transactions produce multiple media, the time between successive media being deposited in the return tray will not exceed two (2) seconds each.				
		4.5.4.3-35	When applicable, the receipt printer will deposit receipts in the return tray within three (3) seconds of the completion of a transaction.				
		4.5.4.3-36	For completed or canceled transactions, VM readiness to begin another transaction will not exceed three (3) seconds.				
		4.5.4.3-37	The FFVM will inform cash paying customers when an insufficient amount of change is available and provide an option to cancel the transaction resulting in a return of the customer's cash from escrow.				
		4.5.4.3-38	The VM will include a customer display screen bearing simple and easy to read instructions which sequentially instruct the customer how to perform available functions.				

	Desired	4.5.4.4-1	Each VM will automatically perform self-diagnostic tests upon startup, and at adjustable regular intervals (once per day by default). Self-diagnostic tests will at minimum: • Confirm communications with back office • Check status of all major electronic modules • Exercise all electro-mechanical devices • Confirm all software and configuration files are up to date Any failures or exceptions identified during self-diagnostics will be recorded in the VM's internal audit registers and transmitted to the back office.	[redacted]
		4.5.4.4-2	Each VM will be capable of performing diagnostic tests that are manually initiated by service staff while the VM is out of service and the front door is open.	
		4.5.4.4-3	Inside the VM will be a keypad and optional display for use by maintenance and revenue service personnel while the outer door is open. The customer display may be used for maintenance purposes if viewable while using the service keypad.	
		4.5.4.4-4	The service keypad will be used to enter access (login) codes and maintenance and diagnostic commands. All routine service interaction with the VM will be via this keypad.	
		4.5.4.4-5	A failure to login using the keypad after opening the VM door will generate an intrusion alarm.	
		4.5.4.4-6	The service display will be used to indicate VM error codes, and will have the capability of displaying multiple error codes, such that one error code will not need to be cleared to display other error codes.	
		4.5.4.4-7	The VM will not commence in-service operation until the outer door is closed and the outer door lock is returned to its fully secured position.	
		4.5.4.4-8	All access will be traceable through the System Manager and all access transactions will be individually recorded and transmitted to the System Manager at time of occurrence.	

		4.5.4.4-9	To support revenue servicing and maintenance authorized technicians, the VM will produce audit tickets, including but not limited to: • Coin vault removal/insertion • Bill vault removal/insertion • Software versions and VM configuration • VM revenue status • VM maintenance alert status Final audit ticket information will be determined during design review.	
		4.5.4.4-10	Each audit ticket will indicate at minimum: date, time, VM number, technician name or number, and activity information.	
		4.5.4.4-11	Automatic diagnostic test routines (and equipment if necessary) will be included to aid in troubleshooting malfunctions. These test routines will provide the ability to isolate defects down to the LLRU.	
Section 5 Externally Sourced Applications				
Section 5.1 General Capabilities				
General Capabilities	Mandatory	5.1-1	The customer website and mobile app will be compliant with all Title VI provisions.	
		5.1-2	The System will allow registered and unregistered customers to load stored value and products via the customer website and mobile app using at a minimum credit card, debit card, or bank account (ACH) transfer. The customer website and mobile app will support the entry of transit account information and the selection of fare products and pre-defined or custom stored value amounts, subject to configurable minimum and maximum limits.	
		5.1-3	During autoload setup, the customer will be able to select a primary and backup funding source. If payment authorization of the primary funding source fails, authorization against the backup funding source will be attempted. If payment authorization is not received, the autoload will be automatically disabled.	
		5.1-4	Registered customers shall be able to enable, disable, and modify the autoload of stored value and products. As part of the autoload setup process, the customer will select the stored value amount or product to be loaded and the type of autoload (e.g., threshold or periodic). Autoload setup will require a funding source to be added or selected and validated.	

		5.1-5	The SI shall provide a modern COTS content management system (CMS) for Agencies so that the Agencies can maintain and update the website.	
		5.1-6	The website will be built using modern web design and e-commerce best practices.	
		5.1-7	The customer website and customer mobile app will integrate with the ATP using the SI-provided Transit Account Management API.	
		5.1-8	Customer account creation and transit account registration will be able to be performed using the customer website and mobile app.	
		5.1-9	Users will access the customer website and mobile app using the same user login.	
		5.1-10	The SI will deliver a customer website and mobile app and provide all back office third-party hosting access and software necessary to support website and mobile app operations, and integrations to internal and external applications needed to perform the required functions.	
		5.1-11	Registered customers will have the capability to view and modify customer account data.	
		5.1-12	The customer website and mobile app will support the association of multiple transit accounts to a single customer account.	
	Desired	5.1-13	The customer website and mobile app will be easy to use with simple processes for all transactions as demonstrated in user testing.	
		5.1-14	The website and mobile app will have functionality for self-service password resets.	
		5.1-15	The website and mobile app vendor will supply metrics that will allow the Agencies to evaluate success of web and mobile app customer interactions.	

[redacted]

		5.1-16	The customer website and mobile app will allow customers to perform the following functions, at a minimum: • Purchase new fare media • Create a new customer account • View and manage account settings and customer profile • Register EU fare media (e.g., transit account) • Purchase fare products (e.g., stored value and passes) • Add, modify, or delete a funding source • Set up, modify, and cancel autoload of stored value and products • Transfer transit account balances consistent with adopted business rules • View transit account balance and status information • View and download sales, usage, and adjustment transaction history • Initiate a customer service request (e.g., refund request) • Report fare media lost or stolen • Request an opt-out refund (e.g., close transit account) Final customer mobile app and customer website functions will be determined during design review.		[redacted]
		5.1-17	Registered and unregistered customers will be able to use the customer website and mobile app to view transit account balance (e.g., stored value and pass) and status (e.g., passenger type, active or blocked) information by entering a fare media identifier.		
		5.1-18	The customer website and mobile app will be provided in multiple languages, including English and up to six (6) other languages to be identified by the Agencies during design review.		
		5.1-19	Registered customers will be able to add new credentials for the transit accounts when logged into the customer website or mobile app.		
		5.1-20	Password will be masked when presented on the website and mobile apps.		
		5.1-21	The website and mobile app password will have configurable security capabilities, including but not limited to minimum password length, required use of letters/numbers/symbols, and forced password reset after a configurable time period or on demand.		

		5.1-22	The customer website will be designed and tested for cross platform compatibility, including popular platforms and browsers. Supported browser versions will include at minimum the most current and 2 previous major versions. Final version support will be determined during design review.				[redacted]
		5.1-23	The website and mobile app will prompt users when a payment is declined and allow entry of an alternate funding source. Failed payments will be recorded in a separate payment exception file (with denial code).				
		5.1-24	During creation of a new customer account, the customer website and mobile app will provide the ability to link transit accounts associated with previously issued EU fare media. Fare media (e.g., transit account) linking will not be required to create a customer account.				
		5.1-25	Customers will be able to assign each credential a nickname, which will be stored in the transit account and used to differentiate credentials registered to the same customer account.				
		5.1-26	The customer website and mobile app will support the payment, or partial payment, for the purchase of a pass or multi-ride product using stored value in same transit account where the product is being loaded.				
		5.1-27	The customer website and mobile app will allow registered customers to close a transit account and request a refund or transfe the E-purse balance to another transit account. This action will immediately result in the associated fare media being blocked from further use. The operational policies governing the issuance of a refund or transfer of products will be defined during design review.				
		5.1-28	The customer website and mobile app will allow ordering of Agency-issued EU fare media to be delivered by mail. The customer website and mobile app will support the ordering of registered and unregistered fare media.				
		5.1-29	The customer website and mobile app will include general information on use of the System, including an FAQ section, information on where to purchase fare media and value, customer agreements, and general program information and updates.				
		5.1-30	The customer website and mobile app will allow a customer to move a transit account from one customer account to another. The				

			process will be defined during design review.	[redacted]
		5.1-31	Registered customers will have an Agency configurable option of initiating a customer service request via the customer website and mobile app. This action will automatically generate a request within the CRM application and assign the request to the appropriate customer service staff.	
		5.1-32	The customer website and mobile app will include links to the Agencies' websites with schedules, fares, and other general transit information.	
		5.1-33	The System will display a notification for account activity, such as successfully completed sales, fulfillment of autoload or low balance alerts. Users will have the option of additionally receiving the notification via push, email, or text.	
Section 5.2 Customer Mobile App				
Customer Mobile App	Mandatory	5.2-1	The SI will retain a qualified mobile app developer to develop and maintain the customer mobile app for Android and iOS.	
		5.2-2	The look and feel of the mobile app will be streamlined, modern, and have a clean, simple design.	
	Desired	5.2-3	The customer mobile app will follow the current design and accessibility guidelines for each operating system.	
		5.2-4	The customer mobile app will be tested and support the two most recent major versions of operating systems on the Android and iOS platforms on the day that the OS is released to the general public.	
		5.2-5	The display, instructions, and selection keys of the customer mobile app will be easy to read, understand, and use as demonstrated through user testing.	
		5.2-6	The customer mobile app will be available in the app stores, offered and maintained by the SI.	
		5.2-7	The customer mobile app will process payments through the System's Central Payment application.	
		5.2-8	The customer mobile app will support the sale of all retail ORCA fare products in a similar manner to the customer website.	
		5.2-9	The customer mobile app will make it easy for customers to purchase fare products as demonstrated through user testing.	
		5.2-10	The customer mobile app will accept payment via mobile wallet.	

		5.2-11	The customer mobile app will allow for multiple types of fare products from multiple Agencies to be purchased in one transaction.	[redacted]
		5.2-12	The customer mobile app will support the display of transaction history and other transit and customer account attributes in a similar manner to the customer website.	
		5.2-13	The customer mobile app will have the ability to act as a fare payment credential at onboard, wayside, or mobile validators. This will be done using a next gen ORCA closed-loop credential stored on an NFC-enabled device.	
		5.2-14	The customer mobile app will allow a customer to procure a mobile closed-loop credential through in-app provisioning without the need for a physical card. The customer mobile app will also enable conversion of a physical credential to a mobile credential if a card has already been procured by the customer.	
		5.2-15	The customer mobile app will communicate with the validators via ISO/IEC 14443 and the back-end system to recognize, log, and report on the usage.	
		5.2-16	System must be able to validate fare products presented via the customer mobile app with no interaction from operators. It must not require that Agency personnel touch customer devices.	
		5.2-17	Fare presentation and validation must be able to occur when the customer mobile device is not internet-connected.	
		5.2-18	The customer mobile app will generate and transmit additional data that enables and supports comprehensive reporting and analytics including mobile platform information and geocoding.	
		5.2-19	The System will be able to report on anonymized usage patterns of the customer mobile app by authorized users.	
		5.2-20	The customer mobile app will enable the addition of marketing and advertising on mobile platform for increased revenue opportunities for the Agencies.	
		5.2-21	The customer mobile app will include functionality to offer promotions to customers from local retail partners.	
		5.2-22	The customer mobile app will include functionality to manage promotions based on geofences.	
		5.2-23	The customer mobile app will include surveys that will facilitate the gathering of customer service metrics and ease of use.	

		5.2-24	The customer mobile app will include functionality to send Agency messaging outside of the alert functions on mobile phones, e.g. via email or SMS.	
		5.2-25	The customer mobile app will include links to trip planning applications (e.g., Google Maps, Apple Maps, Transit App, and Puget Sound Trip Planner). The links will be configurable centrally and by the customer on their device.	
		5.2-26	The customer mobile app will include links to transportation network company applications (e.g., Lyft and Uber). The links will be configurable centrally and by the customer on their device.	
		5.2-27	The customer mobile app will enable integration with social media functions, including marketing, promotions, discounts, route information, etc.	
Section 5.3 Agency Mobile Apps				
Agency Mobile Apps	Mandatory	5.3-1	The SI will retain a qualified mobile app developer to develop and maintain the Agency mobile app(s) to be used by Agency personnel to perform next gen ORCA activities.	
		5.3-2	The Fare Validation mobile app will be able to collect closed-loop fares using a NFC-equipped handset.	
		5.3-3	The Fare Inspection mobile app will enable the inspection of closed-loop electronic fare media.	
	Desired	5.3-4	Download and use of the Agency mobile apps will be controlled so access is limited to authorized Agency personnel/devices.	
		5.3-5	The Program needs the SI to provide a means of updating the Agency mobile apps that is fully consistent with the next gen ORCA change management process. The updates will be delivered electronically over network connections and will not require user intervention unless called for in the change management process.	
		5.3-6	The Fare Inspection and Fare Validation mobile apps can be combined. If they are combined user access will allow for users with full access (both applications) and users with access to only inspection or validation.	
		5.3-7	The Fare Inspection mobile app and the Fare Validation mobile app will be in native Android version only.	
		5.3-8	The Agency mobile apps will be designed to be used on any device meeting the to-be specified capabilities, and will work on a variety of devices (both phones and more traditional fare inspection devices)	

			of the Agency's choosing.	[redacted]
		5.3-9	The Agency mobile apps running on Agency-provided devices will require remote management. The Agencies will approve the specific method during design. Management could be through the System Manager, an SI-provided Mobile Device Management (MDM) solution or an MDM already in place at the Agencies.	
		5.3-10	The Program needs the SI to provide a System Manager and/or MDM solution which will include remote management and Over The Air (OTA) capability to lock or disable the Fare Validation and Fare Inspection mobile apps. Agencies will maintain MDMs to locate, lock, disable, or erase mobile devices.	
		5.3-11	The Fare Inspection and Validation mobile apps will support user login and identify service type and location.	
		5.3-12	The Fare Validation mobile app will operate in a similar fashion to the onboard and wayside validators. All interactions with fare media will be identical to interactions driven by onboard and wayside validators. All data returned to the back office will use the same APIs and be as similar as possible to that returned by wayside and onboard validators.	

					[redacted]
		5.3-13	Fare validation and inspection mobile apps must be capable of operating when the mobile device is not internet connected.		
		5.3-14	The Fare Validation mobile app will utilize the mobile device's GPS source.		
		5.3-15	The Fare Inspection mobile app will use a real-time connection via the SI provided Fare Inspection API to process fare inspections.		
		5.3-16	The Fare Validation mobile app will use a real-time connection to the ATP through the SI provided Fare Payment API for processing payments.		
		5.3-17	The Fare Validation and Inspection mobile apps will provide a visual and audio indication for validation results as approved during system design and demonstrated during user testing.		
		5.3-18	The Fare Validation mobile app will keep a transaction history for offline recording of fare payments.		
		5.3-19	Enforcement rules for fare inspection will be received from the ATP through the System Management API. The rules will be clearly presented on the inspection device.		
		5.3-20	All mobile inspections will generate transactions for reporting, analysis, and traceability.		
Section 5.4 Customer Website					
Customer Website	Mandatory	5.4-1	The SI will contract with a web design firm or developer with extensive experience developing e-commerce, retail, and social media websites to develop the customer website.		

		5.4-2	The System will provide, at a minimum, the capability for customer account management business rules to be different for different types of customer accounts for the purposes of: • Payment for services as defined by mode, including precedence of fund usage (for example, you cannot use pre-tax funds to pay for an auto on ferries). • Refunds and fund transfers to customers. • Employer and employee contributions of both tax-free/pre-tax funds and non-tax benefit funds. Any pre-tax funds will be added to the account by the employer.	[redacted]			
		5.4-3	The functionality will comply with the Commuter Tax Benefits legislation requirements as defined in Section 132(f) of the Internal Revenue Code for pre-tax funds.				
		5.4-4	The look and feel of the customer website will be streamlined, modern and have a clean, simple design.				
		5.4-5	Access to customer website functions, features, and data by customers will be controlled by user roles. The roles will vary from administrative roles to roles with very limited rights.				
	Desired	5.4-6	Registered customers will be able to view no less than 18 months of prior transaction history, showing all sales, usage, and adjustment transactions. The transaction history will be viewable and sortable on the customer website, and able to be downloaded in PDF and Excel formats.				
		5.4-7	Customer accounts will be created using the customer website. Customers wanting to purchase products that require documents or forms will go through an approval process prior to products being added to the transit accounts.				
		5.4-8	The customer account sign-up process will capture all necessary customer account data (e.g., username, password, contract, address, payment methods) as required for the customer account type.				
		5.4-9	The customer website will support the administration of transit benefit programs by customer administrators and third-party administrators.				
		5.4-10	The customer website will allow employers, schools, social service agencies, and other organizations to order fare media and load transit accounts.	x			

		5.4-11	The customer website will have the ability to support pre-tax transit programs.	
		5.4-12	The customer website will provide the following functions at a minimum. Availability of some of these functions will be configured by customer account type and user role. Design activities will determine the functions that will be configurable: • Register a new account (e.g., create a new individual or business customer) • Associate transit accounts with a customer account • Disassociate transit accounts from a customer account • Load value (e.g., stored value E-purse and products) to transit accounts • Block transit accounts (e.g., fare media) and/or use of loaded value • Bulk order EU fare media • Make a payment • View order history, invoices, and payment status	
		5.4-13	The System will provide a process for ordering and tracking bulk media purchases. Customer account administrators will be able to manage bulk sales through the website (if bulk sales have been configured for the customer account type).	
		5.4-14	The customer website will allow customer account administrators to manage the association and disassociation of transit accounts individually or in bulk.	
		5.4-15	The System will assign a unique account ID to each customer account.	
		5.4-16	The customer website will have the ability to manage organization-provided parking benefits.	
		5.4-17	If configured for their customer account type, the customer website will enable customers to add value to transit accounts and subsidize part or all of a stored value E-purse, multi-ride product, or pass purchase made by their employees or members through any customer interface within the next gen ORCA system.	
		5.4-18	The customer website will provide customer account administrators the ability to place orders for any approved next gen ORCA fare product, and manage the transit accounts associated with their customer account.	

		5.4-19	The System will support employer programs directly administered by customers as well as those administered by third parties contracted to customers to provide commuter tax benefits.	[redacted]
		5.4-20	The System will have the ability to add new products through a configurable interface.	
		5.4-21	The customer website will allow a customer account administrator to add additional users or third-party administrators to manage the customer account, transit accounts and programs.	
		5.4-22	The effective date of Passport Products will be updated when the end date of the customer's contract changes.	
		5.4-23	The customer website will allow customer account administrators to manage product validity duration and the expiration of Business Passport fare products.	
		5.4-24	The customer website will integrate with the CRM application using the SI provided APIs.	
		5.4-25	The customer website will use the following APIs for integration: • Transit Account Management API to integrate with the ATP • Customer Account Management API to integrate with CRM application and Accounts Receivable (AR) and Billing	
		5.4-26	The System will allow rules related to dollar limits and qualified services to be configurable by the Agencies for both Business Choice and Business Passport programs.	
		5.4-27	The customer website will provide administrators the capability to view summary level reports on their organization's activities including usage. However, customer account administrators will not be able to see individuals' transactions.	
		5.4-28	The System will have the ability to provide reports on customer account product usage.	
		5.4-29	The customer website will have the ability to track the status of orders.	
		5.4-30	The customer website will support the import of data, such as employee lists, for customers applying for a reduced fare classification. Imports include basic data, scans of applications and supporting documentation, eligibility parameters, and fare media personalization information, such as a customer photograph. Access to this ability will be controlled by customer account configuration.	

		5.4-31	Customer account administrators will be able to view current payment status (e.g., balance due, accrued interest, and due date) and at least 25 months of invoices, and order and payment history, via the customer website. The invoices, orders, and payment history will be viewable and sortable on the website, and able to be downloaded in PDF and Excel formats.	[redacted]
		5.4-32	The System will provide the capability for the creation of a hierarchy of customer accounts with parent child relationships.	
Section 6 Back Office Applications				
Section 6.1 General Capabilities				
General Capabilities	Mandatory	6.1-1	The SI shall develop and submit for Agency approval during design review a back office hardware design specification that provides a detailed description of all hardware components that will comprise the back office, and the purpose, functions, interdependencies, configuration, and communication capabilities of each component.	
		6.1-2	Back office applications and data structures will all be able to expand to support additional agencies without reprogramming.	
	Desired	6.1-3	The back office system will provide access to no less than seven (7) years of historical data. Deletion and archiving of data will be supported as agreed by the Agencies.	
		6.1-4	The back office will retain detailed active transactions for at least 25 months.	
Section 6.2 Account-based Transaction Processor				
General Capabilities	Mandatory	6.2.1-1	The ATP will enable core system functions, including but not limited to: • Fare media sales and issuance, and the creation of new transit accounts • Fare product sales and the loading of fare products (e.g., stored value, multi-rides, and passes) to transit accounts • Maintenance of transit account status, balance, and transaction history • Real-time fare calculation and payment processing (e.g., validation) for closed-loop fare payments • Real-time fare payment inspection for closed-loop fare payments • Automatic reloading of value to transit accounts (e.g., autoload) • Modification of transit account balances based on adjustments,	

			refunds, reversals, and balance transfers • Blocking/unblocking and closing of transit accounts • Setting of all specified transit account management configuration parameters (e.g., fraud detection parameters, negative balance limits, etc.)				[redacted]
		6.2.1-2	The fare distribution, payment, and inspection devices, and supporting back office applications, will access the ATP functions using the SI-provided API and a direct, real-time connection to the ATP.				
	Desired	6.2.1-3	The ATP will maintain transit accounts that store all stored value, multi-rides, and passes loaded by customers, and deduct value in real-time as accounts are used for payment.				
		6.2.1-4	The ATP will support all customer service functions impacting transit account status and balance that are available through all customer service channels using SI-provided devices and systems, including the CST, CRM application, customer website, and customer mobile app.				
		6.2.1-5	Transit account balance information will include the current stored value balance and the state (e.g., active/inactive) and remaining validity (e.g., expiration date or rides remaining) of all products.				
		6.2.1-6	Minimal transit account personalization information (e.g., customer/card name, passenger type, and DOB) may also be stored securely in the transit account to support fare processing and allow for the individual tracking of fare media associated to the same customer.				
		6.2.1-7	The sale of specific types of fare products and the issuance of transit accounts by passenger type may be optionally restricted to transit accounts that are associated with customer accounts only. Restrictions will also be configurable according to customer account				

			type.	[redacted]
		6.2.1-8	All equipment will be able to receive multiple lists from the back office including, but not limited to, positive and negative lists. These lists will help improve passenger dwell time and mitigate risks from offline operation. All local lists will be updated based on changes since the last update at a configurable interval of no less than every five (5) minutes.	
Fare Distribution	Mandatory	6.2.2-1	All payment will be accepted or authorized prior to the loading of any fare value or products. Following payment confirmation, the ATP will update the transit account balance in real-time to allow for immediate use by the customer.	
	Desired	6.2.2-2	The ATP will support the real-time loading of fare products through all fare distribution channels. No loading of fare value to a transit account will be permitted without an active connection to the ATP.	
		6.2.2-3	The ATP will manage the automatic reloading of value or fare products that are configured for autoload. Autoload will be based on configuration parameters, and will require the transit account to be registered with a valid funding source, such as a credit or debit card or bank account (ACH) stored in the associated customer account	
		6.2.2-4	The account-based nature of the System will allow for autoload payment authorization to occur prior to the loading of any value, and immediate use of the value by the customer once the load occurs. If payment authorization fails, appropriate action will be taken as approved during design review.	
		6.2.2-5	A customer account will be able to have two (2) funding sources associated with a transit account autoload, a primary funding source and a secondary funding source. The customer may split payment between them or use the secondary funding source as a backup in the event that the primary fails.	
		6.2.2-6	The autoload feature will support both threshold-based triggers (i.e., reloading when the stored value balance, remaining trip balance, or remaining validity period falls below a configurable threshold), and calendar-based triggers (i.e., reloading on a configurable date every month).	

		6.2.2-7	The System will have the ability to segregate any value loaded using pre-tax dollars, including the segregation of value purchased using pre-tax transit funds and pre-tax parking funds.	[redacted]
		6.2.2-8	The System will have the ability to restrict the use of pre-tax and tax-free funds to qualified services (for example, transit/vanpool and commuter parking).	
		6.2.2-9	The System will allow after-tax E-purse to be used on all services, including transportation connections that have payment integration.	
Fare Payment	Mandatory	6.2.3-1	The real-time fare calculation performed by the ATP will be based on the fare tables. The calculation will incorporate all attributes of the ride being taken, such as transit account passenger type, transit account balance, available fare products and order of precedence rules, transfer status, and all other factors that influence the fare to be charged. The fare payment calculation algorithm will be presented for Agency review and approval at design review.	
	Desired	6.2.3-2	The Program needs the SI to design, develop, and implement the ATP to include a fare calculation engine, and the configurable fare sets, business rules, and transaction processing necessary to support the current fare structure and all of the fare structure configuration capabilities.	
		6.2.3-3	The System will support refunds of unused or partially used products. An Agency may at their discretion close a transit account and block the stored value E-purse or product in the transit account and refund the money to the customer.	
		6.2.3-4	When processing a fare payment, the ATP will provide an online server authorization in less than 500 milliseconds, and will query the transit account, perform fare calculation, and update the account balance, prior to providing an approval or denial response to the fare payment device.	

		6.2.3-5	The online-mode fare payment response generated by the ATP will include at minimum: • Payment status (e.g., success or failure) • Transit account passenger type • Fare product used • Fare charged • Remaining balance • Transfer time remaining • Product expiration date Other relevant transaction data may be included and identified during design review.			[redacted]
		6.2.3-6	When real-time communications are not available, device-level fare payment authorization may occur using the risk mitigation techniques. Transaction data will be sent to the ATP, and processed to update the transit account status and balance, as soon as communications are reestablished. Any device-authorized transactions will be recorded as such, so that offline transactions can be easily identified and tracked. The offline fare payment authorization algorithm will be presented for Agency review and approval at design review.			
		6.2.3-7	The fare calculation process will check the transit account's passenger type. If passenger type is not applicable to an Agency or is expired, the System will apply the configurable default passenger type to the fare calculation.			
		6.2.3-8	The ATP will accommodate late arriving transactions through the recalculation of individual fare payments, or the total fare due for a prior accounting period. Transactions occurring within an accounting period may remain in a pending state until that account period (e.g., service day) is closed. Transit account transaction history and balance information will be updated in real-time as transactions are received, and reflect any recalculation performed as a result of late arriving transactions.			
		6.2.3-9	The ATP will support the tracking of negative stored value balances that occur as a result of offline fare payment acceptance or Agency configured fare policies.			

		6.2.3-10	Pass products will be able to be configured to grant a full, partial credit or no credit towards a fare for a premium service. In this scenario the remainder of the fare, or "upgrade fare," will be deducted from stored value. If the customer does not have enough stored value E-purse in their transit account to cover the upgrade fare, the upgrade fare may be paid with cash or transaction could be declined, depending on configurable business rules.	[redacted]
		6.2.3-11	The System will calculate whether an upgrade for a pass product is required (i.e., if the fare is higher than the face value of the pass) and deduct it automatically from stored value E-purse. If there is insufficient stored value, then pass holders will also have the option to pay upgrades using cash.	
		6.2.3-12	For trips paid with stored value E-purse, the System will support the granting of transfer fare credits for all boardings that occur within a specified time of the initial tap at a validator for fare payment. The transfer period (i.e., time during which a boarding is eligible for a transfer) and Agency participation will be configurable.	
		6.2.3-13	The System will support inter-agency transfers for free or with an upgrade. For Agencies participating in regional transfers, inter-agency transfers will be free for customers transferring to routes or services with the same or lower fares. For customers transferring to routes or services with higher fares, an upgrade fare will be charged equal to the difference between the applicable fares. Upgrade fares may be paid from stored value or with cash. If cash not paid or accepted for upgrade, transaction would be declined.	
		6.2.3-14	The System will limit inter-agency transfer credits to the Agencies participating in regional transfers. Agency participation in regional transfers will be configurable. Transfer rules regarding allowable connecting trips will be configurable by the region.	
		6.2.3-15	The System will restart the transfer window time anytime that stored value E-purse is used (i.e., when a customer pays an upcharge when transferring to a more expensive service, the transfer window is reset).	

		6.2.3-16	The System will support intra-agency transfers for free or with an upgrade. For Agencies with intra-agency transfers, the intra-agency transfers will be free for customers transferring to routes or services with the same or lower fares. For customers transferring to routes or services with higher fares, an upgrade fare will be charged equal to the difference between the applicable fares. Upgrade fares may be paid from stored value or with cash. If cash is not paid or accepted for an upgrade, the transaction would be declined. For Agencies not participating in regional transfers, intra-agency transfer policies will be configurable by Agency.	[redacted]
		6.2.3-17	The System will support intermodal transfers between transit services and transportation connection services. Transfers will be configurable to grant full or partial credit towards a fare. Transfer policies will be configurable for each transportation connection service and by Agency.	
		6.2.3-18	For fare payment, the System will have defined business rules related to conditions under which each product can be used. Agency products will be configurable by each Agency.	
		6.2.3-19	Transfer credits will be applied to transit accounts.	
		6.2.3-20	Order of precedence rules will be configurable to identify the order in which valid fare products will be used (i.e., first check for business pass, then for local Agency pass, then for regional pass before using stored value E-purse). The order of precedence rules, to be defined during design review, will determine which fare products are used first and under which scenarios.	
Fare Inspection	Mandatory	6.2.4-1	Real-time fare inspection determination by the ATP will be based on the fare structure configuration. The determination will incorporate fare payment transactions (e.g., approved and denied) recorded by the ATP, transit account passenger type, available fare products, transfer status, and all other factors that influence possible payment by the customer. The online fare inspection algorithm will be presented for Agency review and approval at design review.	
	Desired	6.2.4-2	When processing a fare inspection, the ATP will provide an online server response in less than 500 milliseconds and will query the transit account to determine the inspection result prior to providing a confirmation of fare payment. Server authorization rate capabilities are specified in the Performance Measurement section.	

		6.2.4-3	The online fare inspection response generated by the ATP will include at minimum: • Payment status (e.g., valid or invalid) • Transit account passenger type • Fare product used (if valid tap is found) • Fare charged (if valid tap is found) • Transfer time remaining (if valid tap is found) • Transit account balance • Fare payment transaction history If the payment is determined to be invalid, an associated reason code will be provided (e.g., no tap, blocked card). Other relevant transaction data may be included and identified during design review.			
		6.2.4-4	When real-time communications are not available, device-level fare inspection may occur using the risk mitigation techniques. Local positive and negative fare media lists will be refreshed frequently from the ATP. Transaction data will be sent to the ATP as soon as communications are reestablished.			
Fare Policy	Mandatory	6.2.5.1-1	The Regional Reduced Fare Permit is an identification card issued on an ORCA card for use as proof of eligibility to pay a reduced fare. An RRFP card is required for senior or disabled passengers paying a reduced fare. Medicare customers are also eligible for the permit. The permit holder must pay the amount of the reduced fare on each Agency used, and use of the permit is subject to any time restrictions in effect for each system. The System will support the use of the RRFP by individuals who are age 65 or older or meet the disability eligibility criteria.			
		6.2.5.1-2	The System will support stored value, which will serve as an electronic cash-equivalent, and will be accepted for payment across all modes and services. When stored value is used for payment, the System will deduct the correct fare at each boarding or entry in real-time from the transit account, based on the fare pricing configuration.			
		6.2.5.1-3	A transit account may only have one passenger type associated with it.			

		6.2.5.1-4	The System will support rolling products that are valid for unlimited rides on services costing at or below the face value of the product for a pre-defined period starting at product activation, which may occur upon sale or first use. Rolling products will be configurable to be valid for a continuous duration from 30 minutes to two (2) years (e.g., valid for 24 hours from first use), or bounded by a service period (e.g., valid from first use through the end of the service day).	[redacted]
	Desired	6.2.5.1-5	A passenger type must be defined for each transit account. The default passenger type that will be associated with a transit account will be the Adult full fare passenger type. Passenger types include but are not limited to: • Adult full fare • Senior • Disabled • Youth • Low-Income Additional passenger types will be able to be defined.	
		6.2.5.1-6	Adult full fare customers will have the option of associating a transit account with a customer account or remaining anonymous.	
		6.2.5.1-7	Passenger types will be able to be modified and configured manually, or automatically based on customer date of birth or the granting of a temporary classification with a configurable end date.	
		6.2.5.1-8	Not all Agencies offer a separate fare for all passenger types. The System will determine the applicable fare associated with each passenger type for each transit Agency.	
		6.2.5.1-9	Each transit account will be designated by passenger type (e.g., adult full fare, youth, senior, disabled, low income) and the transit account will be charged when fare is paid.	
		6.2.5.1-10	For age-based passenger types, the date of birth will be stored in the transit account only.	
		6.2.5.1-11	For passenger types that are issued on a temporary basis (e.g., temporary disabilities, low income, youth), the System will generate automatic notification (via email and/or text) to the account holder that the fare discount will be expiring and renewal is required. Content of the notification will be configurable. Notification will be reviewed and approved during system design.	
		6.2.5.1-12	When a youth turns 19, the System will convert the passenger type	

			from youth to adult full fare automatically.	[redacted]
		6.2.5.1-13	All customers will each be required to have and present their own fare medium.	
		6.2.5.1-14	The System will be able to support a variety of fare structure configurations at system launch and in the future. Fare structure includes the supported fare policies, fare media, fare products, and distribution channels through which customers purchase fare media and products. The fare structure will be configurable by the Agencies, and designed to create a simple, unified system that enables interoperability across current and future transit modes without additional development. The fare policies will be supported, along with the detailed fare structure configuration capabilities.	
		6.2.5.1-15	The System will support single-tap or "flat" fare pricing that is fully configurable based on the following parameters at a minimum: • Agency • Passenger type • Mode • Service type • Route • Trip • Location • Day and time • Discounts These fare pricing parameters will also govern the acceptance or denial of fare products being used for payment and the granting of transfers.	
		6.2.5.1-16	The System will support zone-based fares.	
		6.2.5.1-17	The System will support route-based and service-based fares for premium pricing for certain types of service (e.g., express service). Fare pricing will be able to be configured for a single route or groups of routes.	
		6.2.5.1-18	The System will support location-based fares, or the capability to price fares based on the location of payment (e.g., boarding at specific stop locations). Location-based fare pricing will be able to be configured based on the stop location associated with wayside validators.	

		6.2.5.1-19	The System will support fare pricing based on the time of day and day of week (e.g., peak and off-peak fares). Peak/off-peak fare pricing will be able to be configured for specific fare products, passenger types, modes, and service types, and put into effect at all times or on a scheduled basis (e.g., every weekday). In addition to time of day, the System will support peak/off-peak pricing for specific trips.	[redacted]
		6.2.5.1-20	For distance-based fares, the maximum fare from boarding location will be deducted from stored value E-purse at tap on. Upon tap off, final fare would be calculated and customer will receive credit back to their stored value E-purse, if applicable.	
		6.2.5.1-21	The System will support station-to-station fares and the ability to price fares based on the location of boarding and alighting. This distance-based fare pricing will be able to be configured based on the station location associated with wayside validators.	
		6.2.5.1-22	Each Agency will be able to configure fare structure and pricing for each mode and service type.	
		6.2.5.1-23	The service day will be configurable by each Agency.	
		6.2.5.1-24	The System will have the flexibility to support Agency fare changes without software modifications. All fare changes will be through fare table and other configuration changes.	
		6.2.5.1-25	The bus operator will be able to override the default fare via the DDU in order to support zone-based fares.	
		6.2.5.1-26	The System will support both Agency-specific and regional fare policies and products, including stored value E-purse, transfers, reduced fares for eligible customers, regional daily and monthly pass products, multi-ride products, programs that require riders to pre-qualify (e.g., RRFP, youth fares, low-income program), regional programs by customer account type, and Agency-specific programs.	
		6.2.5.1-27	The capability to load a particular fare product to a transit account will be configurable based on the fare product type and passenger type associated with the account.	

		6.2.5.1-28	The System will support regional products such as the following for all participating Agencies: • Regional Monthly Pass: regional ORCA calendar monthly passes available in face values that correspond to transit Agencies' fares, accepted by participating Agencies for payment of trip fares up to the face value of the pass. • Regional Day Pass: regional ORCA rolling day passes accepted by participating Agencies for fares up to specified face values. Additional fares are required for one-way fares higher than the specified face values.	[redacted]
		6.2.5.1-29	The System will support date-based and promotional pricing that offers discounted fares on a temporary and permanent basis, up to and including the offering of free fares. Discounted fare pricing will be able to be configured for specific fare media types, passenger types, modes, service types, and routes, and put into effect indefinitely or for a defined period.	
		6.2.5.1-30	The System will provide the ability to manage value for multiple transit accounts in a single customer account. The customer account will permit the payment of multiple fares by associating transit accounts to the customer account.	
		6.2.5.1-31	The System will enable customers to use stored value E-purse to purchase fare products.	
		6.2.5.1-32	Customers will be able to define threshold and calendar-based autoloads for transit accounts based on parameters set by Agency staff.	
		6.2.5.1-33	The System will enable a customer to set up autoload to reload stored value E-purse and/or fare products.	
		6.2.5.1-34	The loading of stored value will be restricted based on configurable parameters, including the minimum and maximum amount that can be loaded in a single transaction.	
		6.2.5.1-35	Customers will be able to load value to their stored value E-purse (including via autoload) as long as the E-purse value does not exceed the regional maximum allowable value.	
		6.2.5.1-36	Customers will be able to load value to their stored value E-purse via autoload as long as a regionally-determined configurable minimum number of days have elapsed since the last autoload of the E-purse.	

		6.2.5.1-37	Customers will be able to load value to their stored value E-purse via autoload as long as the number of E-purse autoloads does not exceed the regional configurable maximum allowable number of autoloads for the month.	[redacted]
		6.2.5.1-38	All parameters governing threshold and calendar-based autoloads will be fully configurable by Agency staff, including the enabling or disabling of an autoload, threshold value (e.g., trigger), funding source, and fare product and/or amount to be loaded. Final configuration parameters will be defined during design review.	
		6.2.5.1-39	The System will support calendar products that are valid for unlimited rides during a pre-defined calendar period for rides on services costing at or below the face value of the pass. Calendar products will be configurable to be valid for any calendar period from one (1) day to two (2) years, including periods that are bounded by specific dates (e.g., valid from Aug. 16 through May 14).	
		6.2.5.1-40	Monthly passes and fixed period products expire at the end of the validity period.	
		6.2.5.1-41	The System will enable the configuration of vending windows for monthly passes and fixed period products (e.g., summer youth pass). Vending windows may vary for Agency-specific and regional fare products. No discounts on prices for partial months will be offered.	
		6.2.5.1-42	Monthly products will be configurable to extend the validity to the end of the last service day. This validity period will be configurable by Agency.	
		6.2.5.1-43	Certain reduced fare passenger types will require association to a customer account.	
		6.2.5.1-44	Unused rolling period pass products (e.g. short-term Passport products, day passes) can expire. Expiration will be configurable. Validated rolling period pass products expire at the end of the validity period.	
		6.2.5.1-45	Day products will be able to be configured to extend the validity to the end of the service day. This validity period will be configurable.	
		6.2.5.1-46	Day passes and short-term Passport products (e.g., convention passes) will activate upon first tap and the validity period will be configurable to accommodate specified transit days.	

		6.2.5.1-47	The System will support trip-based multi-ride products that are valid for a pre-defined number of trips. Multi-ride products will be configurable to be valid for anywhere from one (1) to 100 trips, and to include transfer privileges or not.		[redacted]
		6.2.5.1-48	Unused multi-ride products will expire a number of days from date of purchase, configurable by product.		
		6.2.5.1-49	The System will allow special products for a group of customers (e.g., school field trips) represented on a single closed-loop EU card.		
		6.2.5.1-50	The System will support the sale of fare products sold in bulk at both face value and at special discounted prices to approved users, configurable by fare product.		
		6.2.5.1-51	Transit accounts will be able to contain multiple fare products simultaneously (e.g., stored value and a pass product).		
		6.2.5.1-52	A transit account may contain multiple rolling period pass products (e.g., day passes). However, only one product of the same type will be able to be active at a time.		
		6.2.5.1-53	A transit account may not contain two fixed period pass products of the same type that are valid for the same or overlapping periods (e.g., fare media may contain May and June PugetPasses, but not $2.75 and $3.50 PugetPasses for May).		
		6.2.5.1-54	Stored value E-purse and fare products will be subject to a passback delay period at the point of fare payment, configurable by Agency, device type, and mode.		
		6.2.5.1-55	The System will accept Agency-issued next gen contactless ISO-14443 compliant smart cards, as well as existing smart cards, that are associated to next gen transit accounts and may be used to pay fares using stored value or fare products.		
		6.2.5.1-56	The System will support replacement card fees, which will be able to be configured based on passenger type and replacement thresholds (e.g., the first replacement is free and each successive replacement associated with the same transit account is $5).		
		6.2.5.1-57	Business Passport is a program that will provide transit passes for all transit services under a Business Passport agreement, with the ability to configure products to be valid only on specified transit Agencies and for a specific period of time.		

		6.2.5.1-58	When adding value to transit accounts associated with customer accounts, customer account administrators will be able to select from the available fare products configured for their customer account, and choose whether to initiate a one-time or recurring load (e.g., autoload), on an individual or group basis. The period for recurring loads will be defined in the customer account configuration.	[redacted]
		6.2.5.1-59	Lead Agency representatives and customer account administrators will be able to initiate the loading of value (e.g., stored value and products) to customers' transit accounts individually or by group, and through a bulk process using an imported file in a common Agency-defined format.	
		6.2.5.1-60	The System will enable configuration of duration of short-term Passport products.	
		6.2.5.1-61	The Business Passport program will accommodate subsidies provided by employers for vanpools. These subsidies will be included in the billing and apportionment of Business Passport agreements.	
		6.2.5.1-62	One transit account will be able to support at least 15 distinct fare products of the same type. Distinct fare products or product categories will be determined by Agencies.	
		6.2.5.1-63	The configurable service day may be longer than 24 hours and service day hours may overlap.	
		6.2.5.1-64	In the Business Choice program, organization customers may provide members with stored value E-purse and/or fare products.	
	Mandatory	6.2.5.2-1	The System will handle revenue apportionment according to the apportionment rules.	

		6.2.5.2-2	The System will allocate actual revenue received from a customer using stored value E-purse among Agencies providing service to that customer on a per-trip basis and in proportion the value of the services provided. The value of services provided is calculated as the fare the customer would have paid in the absence of an intra-agency and/or inter-agency transfer agreement.	
		6.2.5.2-3	The System will allocate actual revenue received from a regional monthly or day pass among Agencies providing service to that customer, for the duration of the pass product, in proportion to the value of services provided, which include the calculation of transfers. Revenue-sharing provisions will be configurable by the region.	
	Desired	6.2.5.2-4	Calendar monthly pass products will be valid for the designated month purchased. The revenue will be available for distribution whether or not the product is used.	
Section 6.3 Customer Relationship Management Application				
General Capabilities	Mandatory	6.3.1-1	The SI shall deploy a CRM application that provides central management for all customer data, customer service operations, and fare media and product ordering and fulfillment, as well as cradle-to-grave tracking of all customer service contacts and requests. The CRM application will be a COTS solution, and there is a preference for a web-based CRM solution.	
		6.3.1-2	The core function of the CRM application will be to support call center operations with a tool that provides a 360-degree view of the customer, and enables creation, viewing, and modification of customer service records related to contacts and requests, and the actions taken to resolve those requests.	
		6.3.1-3	The CRM will have functionality that allows for the creation of incidents related to assets in the AIM.	
		6.3.1-4	The CRM will support the issuance of refunds for fare media and product sales as needed and create the appropriate transactions in the Financial Management application (accounts payable) using the Customer Account Management API.	
		6.3.1-5	The CRM will allow customer account creation and transit account registration.	
	Desired	6.3.1-6	The Program needs the SI to deploy a CRM application that provides access to all transit and customer account information, and the ability to track all customer service contacts and requests, including	

			escalation from initiation through resolution.	[redacted]
		6.3.1-7	The CRM application will provide central order management and fulfillment functionality for the distribution of fare media and products sold through all fare distribution channels, including but not limited to orders placed through the customer website and mobile app. The CRM application will interface with the FMM to maintain proper fare media inventory controls.	
		6.3.1-8	Access to the CRM application will require multi-factor authentication or other Agency-approved authentication technology that meets the criteria outlined in NIST 800-63, and allowed functions will be restricted based on centrally defined user-access privileges.	
		6.3.1-9	The CRM application will be able to track and flag risky forms of payment including credit/debit cards that are on a system hot list, previously denied personal and corporate checks, and purchase orders linked to customer accounts with a poor payment history.	
		6.3.1-10	The CRM application will connect to the ATP using the SI-provided API, and provide a fully integrated interface for customer service staff to view and modify customer and transit account data.	
		6.3.1-11	The CRM application will accept credit cards, debit cards, and bank account (ACH) transfers for funding during fare media and product sales online and the setup of autoload.	
		6.3.1-12	The CRM application will support split payments where up to three (3) funding methods, including multiple bank cards, can be used to complete payment for a single sale.	
		6.3.1-13	The SI shall deploy a CRM application that provides the ability to email/text message customer accounts. Communications can be distributed based upon business rules using information in the application, for example autoload customers, customer account type, and product type.	
Customer Account Management	Mandatory	6.3.2-1	The CRM will maintain customer accounts that store all customer data, including all personal, contacts, members and payment information associated with customer accounts.	
		6.3.2-2	The CRM application will have the ability to define and categorize customer accounts by type (e.g. individual, family, university, non-	

			profit, business, corporation, elementary school).		
		6.3.2-3	The CRM will be able to serve as the repository for all information on customers applying for a reduced fare classification, including applications and supporting documentation, eligibility parameters, and fare media personalization information, such as customer photographs.		
		6.3.2-4	The CRM application will be supported by a customer information repository that is fully compliant with all applicable PCI standards and the region's ISMS control baseline at the time of Final System Acceptance, and with all agency, state, and local policies and regulations for the handling of PII.		
		6.3.2-5	Each transit account will only be associated to one (1) active piece of fare media at a time. The System will support fare media replacement in the event that a media is lost, stolen, or damaged, which will associate a new piece of fare media to an existing transit account and block use of the old fare media.		
	Desired	6.3.2-6	The CRM will serve as the repository for all information on employees, contractors, and other organization members who are issued fare media by a customer account, including fare media personalization information, such as customer photographs. Actual repository content/structure may vary according to customer account type.		
		6.3.2-7	The System will allow multiple transit accounts to be associated with the same customer account for consolidated transit account management through all customer service channels.		
		6.3.2-8	The System will allow a customer account to be created without associating a transit account.		

[redacted]

		6.3.2-9	Customer data maintained in a customer account will include identity and contract information at a minimum. Actual content will be defined during design, and made available for operations by customer account type configuration. The following is an initial list of generalized information that will be captured • Customer account type • Names (organizational and individual) • Addresses (such as Primary, Billing, and Customer Service) • Phone numbers • Texting phone numbers • Email addresses • Website/Mobile usernames/encrypted password • Security questions and answers	[redacted]		
		6.3.2-10	The CRM application will be able to capture passenger type (such as Adult, Senior, and Youth) and capture one or more additional classifications (such as Access eligibility). The source for this information will be determined during design.			
		6.3.2-11	The Agencies will be able to use the CRM to serve as administrators for their own customer accounts and other organizational programs as necessary.			
		6.3.2-12	The CRM application will allow transit account customers to be disassociated with customer accounts.			
		6.3.2-13	The CRM application will support adding fare products including E-purse value to a transit account that contains a current or expired business product.			
Enhanced Customer Account Management	Mandatory	6.3.3-1	The CRM application will support customer account programs that allow for tracking and management of business rules for distribution channels, fare products, and special programs. The ability to perform this function is configurable by customer account type.			
		6.3.3-2	Customer account program administrators will be able to associate transit accounts to their customer accounts individually using credentials, and through a bulk process using an imported file in an Agency-defined format. The ability to perform the bulk process will be configurable by customer account type.			

	Desired	6.3.3-3	The CRM application will allow customer accounts with appropriate privileges to remove fare products supplied by customer accounts from associated transit accounts and block remaining use of passes. This will be possible without the deletion of the transit account or removal of any E-purse value or passes purchased directly by the transit account holder.	[redacted]
		6.3.3-4	When fulfilling a bulk EU fare media order for a customer account, the System will automatically generate an import file pre-populated with the credentials to support the addition of customers by the customer account. The ability to perform this function is configurable by customer account type.	
		6.3.3-5	The CRM application will enable the placement of bulk orders for fare media to be delivered by the mail center. Bulk sales may include media where the associated transit accounts are pre-loaded with value. The ability to perform this function is configurable by customer account type.	
		6.3.3-6	Read and write permissions by the customer account administrator will be determined by preset permissions associated with their credentials and customer account type.	
		6.3.3-7	The CRM will support contracted pricing for Business Passport agreements, including both fixed and per-trip pricing.	
		6.3.3-8	The CRM application will enable the bulk sale and issuance of fare media, including the initialization and loading of the associated transit accounts, through entry of a transit account/fare media identifier range or upload of a file.	

		6.3.3-9	At a minimum, the following configuration parameters will be supported to govern participation in customer account programs: • Program type (e.g., Business Choice, Passport) • Qualifying customer account types • Available fare media • Available fare products • Fare media and product pricing • Fare media and product ordering windows • Payment type (e.g., prepay or invoice) • Payment terms The customer account program configuration parameters will be set by the Agencies during registration of a customer account customer and will be stored in the customer account.	[redacted]
		6.3.3-10	Customer account programs will include post-bill programs where the account is invoiced based on the customer's actual usage of the System. For these programs, the customers' transit accounts will be loaded with an unlimited-ride pass (i.e., Passport), and the System will calculate the amount due on-a-monthly basis using pass ridership data and an Agency-defined formula.	
		6.3.3-11	The Agencies may use the CRM application to register a customer account and configure all parameters governing the customer account's participation.	
		6.3.3-12	All data associated with customer accounts will be stored securely and associated with the Accounts Receivable and Billing, CRM application and the customer website.	
		6.3.3-13	When associating transit accounts, the customer account will be able to provide fare media personalization information (e.g., employee name or ID) that uniquely identifies the customer in possession of the associated fare media. If personalization information is provided, it will be stored in the transit account and serve as a unique identifier separate from customer registration data, should the customer choose to register the transit account.	
		6.3.3-14	Customer account program administrators will be able to disassociate transit accounts from their customer account program, individually by selection and through a bulk process using an imported file in an Agency-defined format. The actual individual transit account will remain.	

		6.3.3-15	The CRM application will support the management of customer account programs, which will allow transit accounts to be associated to a customer account (e.g., employer or school) for account management and the loading of value.	[redacted]
		6.3.3-16	The CRM application will support the current range of business (organizational) account programs offered by the Agency, and future programs, including but not limited to: • U-Pass and other college programs • School (K-12) programs • Corporate and employer programs • Government and military programs • Social service agency programs • Local attraction and tourist programs • Partner programs supporting transit-related services, including parking • Agency promotional programs • Residential pass programs	
		6.3.3-17	The CRM application will allow customer accounts with appropriate privileges to provide a means of funding transit accounts that will charge the funding source only for value used by the associated transit accounts. This could be achieved by a customer providing a funding source to transit accounts that has a configured maximum that can be drawn on by each transit account, or by a method to reclaim funds that are used to pay for unused E-purse or products by a configurable date or time period. Customers will be able to perform this function for an individual transit account or a group of transit accounts.	
Customer Service Management	Mandatory	6.3.4-1	The CRM application will support call center and in-person customer service operations by providing a complete view of the customer and related transit and customer account activity, including all activity associated with anonymous transit accounts.	

	Desired	6.3.4-2	The CRM application will allow customer service staff, based upon security roles and customer account type, to perform customer account actions, including but not limited to: • Create new customer account • Assign customer account type designation to the customer account • View customer account status and data • Modify customer account data • Associate a transit account to a customer account • Disassociate a transit account from a customer account • Add, update and delete a funding source from a customer account • Close or suspend a customer account			[redacted]
		6.3.4-3	The CRM application will provide the capability to store all customer account correspondence related to invoicing and/or payments.			
		6.3.4-4	The CRM application will allow Regional Reduced Fare Permits (RRFPs) for persons with disabilities to be associated with a transit account configured with a Personal Care Attendant (PCA) designation. PCA designation will be reflected on the printed RRFP cards.			
		6.3.4-5	Agency/customer service staff will have the ability to set up fare products (e.g., stored value, multi-ride products, and passes) for autoload, or to automatically reload based on time or value thresholds. The Program needs the SI to enable this functionality through the CST, CRM application, customer website, and customer mobile app.			

		6.3.4-6	The CRM application will enable customer service staff to perform transit account actions, including but not limited to: • Sell all supported fare media (and create new transit accounts) • Sell all supported fare products (e.g., stored value and passes) and load fare products to transit accounts • Query transit account status (e.g., associated passenger type, active/inactive, blocked/unblocked) • View fare payment transaction history • View sales transaction history • View adjustment transaction history • Enable fare product for autoload (requires funding source in customer account) • Generate fare payment reversal (e.g., cancellation) • Generate sales reversal • Generate sales refund • Generate an account adjustment (e.g., credit or debit) • Transfer balance between two transit accounts • Block/unblock card, account, or individual fare product • Replace lost, stolen, or damaged card (e.g., associate new card with existing account) • Generate an opt-out refund (e.g., close transit account and issue refund) • Capture open-ended notes (size to be determined during design)		[redacted]
		6.3.4-7	The CRM application will enable the bulk registration and loading of transit accounts in support of special fare programs through entry of a transit account/fare media identifier range or upload of a file.		
		6.3.4-8	The CRM application will enable the bulk blocking of transit accounts and issuance of transit account adjustments through entry of a transit account/fare media identifier range or upload of a file.		
		6.3.4-9	The CRM application will enable the CSR to print packing slips and mailing labels.		
		6.3.4-10	The CRM application will track all customer service contacts and requests, and the actions taken to resolve those requests, in customer service records that can be created, viewed, and modified using the CRM tool.		
		6.3.4-11	Customer service records will be created automatically based on customer-initiated actions performed through the customer website		

			and customer mobile app.			
		6.3.4-12	All actions performed by customer service staff that result in a change to a customer or transit account will automatically generate a customer service record.			
		6.3.4-13	Customer service staff will be able to manually create or update (e.g., add notes) a customer service record when responding to customer service requests in person, over the web, or by phone.			
		6.3.4-14	Customer service records will be created for actions associated with both anonymous and registered transit accounts, and will be indirectly associated all linked customer accounts whenever possible.			
		6.3.4-15	The CRM application will support the classification of customer service records by type and severity, using pre-defined selections and Agency-specific custom text fields.			
		6.3.4-16	The CRM application will allow viewing and modification of all customer account data. A request by the customer to reset a password will require the answering of security questions set at the time of registration. For password resets, a temporary password will be automatically emailed or texted to the customer.			
		6.3.4-17	The CRM Application will enable the bulk uploading of customer information using an Excel or .csv file. This can be used by appropriately configured customer account types and by Agency staff to load large numbers of individual customers at one time.			
Section 6.4 Asset Incident Management application (AIM)						
Asset Incident Management application (AIM)	Mandatory	6.4-1	The SI will deploy an Asset Incident Management application (AIM) to support the management of all ORCA assets, including spares, and incidents associated with the assets.			
		6.4-2	The AIM will have workflow functionality to support the addition, commissioning, testing, and retirement of assets. Workflow will also support the incident process and routing of incidents to the right departments and approval for closing.			
		6.4-3	The AIM will have security functionality to support the management of access which is configurable by user role.			
		6.4-4	The AIM will have functionality to support the configuration of assets for fields including Agency, manufacturer, asset type, location, owner, etc.			

		6.4-5	The AIM will have functionality to support the configuration of incident information including owner, status, origination, type, severity etc.	[redacted]
		6.4-6	The AIM will have standard and ad hoc reporting capabilities to monitor assets and incidents. Ad hoc reports will be easy and intuitive to build and run.	
		6.4-7	The AIM will be accessible over the web using any commonly available browser and mobile friendly using either a native app or browser capability.	
	Desired	6.4-8	The AIM will have workflow functionality to support the incident process. Workflow will allow for routing of incidents to the right departments and review, resolve, approve, and closure process.	
		6.4-9	The AIM will use the SI-provided API to allow remote systems (such as CRM to create customer service initiated incidents) to query and create incidents.	
		6.4-10	The AIM will use the SI-provided API to integrate with the System Manager for asset information and events that create incidents.	
		6.4-11	The AIM will provide a user-friendly interface that can be learned quickly by end users with minimal training.	
		6.4-12	The AIM will have functionality that allows remote systems (such as the CRM) to create incidents for an asset in the AIM or link to the incident if it already exists.	
		6.4-13	The AIM will allow for incidents to be linked together and unlinked.	
		6.4-14	The AIM will have mapping capability to link assets to locations and incidents to locations and assets at that location.	
		6.4-15	The AIM will have functionality to support incident management that includes creation, management, resolution, closure, and reporting.	
		6.4-16	The AIM will have functionality to support incident categorization and prioritization.	
		6.4-17	The AIM will have functionality to support logging information and activity associated with an incident.	
		6.4-18	The AIM will provide for manual .csv or Excel upload of device inventories by the Agencies of new equipment received.	

		6.4-19	The AIM design will not preclude future integration through an API or industry standard center-to-center interface with the Agency enterprise asset management, maintenance, or decision support applications for static and real time device information.			[redacted]
		6.4-20	The AIM will have fields for basic device inventory information including but not limited to device name, serial number, location, model, Agency owner, maintenance history, break history, device type, date in service, date out of service, etc. The addition of user defined fields will be possible.			
		6.4-21	The AIM will provide for manual .csv or Excel download of device inventories by the Agencies.			
		6.4-22	The AIM will have operational lookup capabilities on any of the fields or combination of fields within the application, including device, owner, alert type, devices type, location, etc.			
		6.4-23	The AIM will provide a tool to perform ad hoc reporting and build configured reports available to end users.			
		6.4-24	The AIM application will provide the "next number" to issue when adding new assets to the inventory.			
Section 6.5 System Manager						
System Manager	Mandatory	6.5-1	The System Manager will monitor and display in real-time the status of all back office systems, subsystems, applications, databases, and processes. Details of which processes will be monitored will be provided during design review.			
		6.5-2	The System Manager will have functionality that allows for the creation of incidents associated with certain events related to assets in the AIM.			

		6.5-3	The System Manager will automatically monitor asset status, record asset problems and failures, notify selected staff and initiate appropriate action.
		6.5-4	All equipment will be remotely monitored, configured, and managed through the System Manager using the SI-delivered API.
		6.5-5	The System Manager will have user security to allow different roles with different levels of access.
	Desired	6.5-6	The System Manager will have the means to provide for a controlled shutdown of a device or system component and create a maintenance event.
		6.5-7	The System Manager will monitor the operational status and performance of the devices and their components, including but not limited to: • Onboard and wayside validators • Mobile access routers • Driver displays units • Vending machines • Customer service terminals • Mobile validation and inspection devices
		6.5-8	System Manager queries will include tables and graphical charts showing the current and historical performance of each device under measurement. Queries will include but not be limited to device type, Agency, location, and individual device.
		6.5-9	The SI shall deploy a System Manager that enables the central monitoring and management of all next gen ORCA system devices.
		6.5-10	Equipment software and configuration updates, including all valid and invalid card lists, will be managed through the System Manager application.
		6.5-11	The System Manager dashboard will include a system map that can be drilled-down into by location or Agency to view and control that status of system components. The System map will be dynamically updated when devices or systems are added and removed, and configurable to allow editing of device groups, locations, and location names as the System expands.
		6.5-12	The System Manager will include a web-based interface that provides access to all monitoring and management functions, and provides all information in a clear, organized dashboard using color

[redacted]

			graphics and text as approved during the System design.		[redacted]
		6.5-13	The System Manager will provide integration to the electronic monitoring and fault detection systems associated with devices.		
		6.5-14	The System Manager will have the means to detect failure of any device (including cooling device) and provide for a controlled shutdown of the System components and generation of a maintenance event.		
		6.5-15	Device status reported by the System Manager will include operational status (e.g., in service, degraded mode, out of service, or no communications), maintenance alarms associated with individual device modules, and revenue alerts (e.g., vault almost full/full and low stock/out of stock), as described in the equipment sections of this SOW.		
		6.5-16	Events will be configurable with different severity and actions based upon severity.		
		6.5-17	The System Manager will have the ability to monitor devices trying to connect to the next gen ORCA system that are not in the inventory list ("rogue" devices).		
		6.5-18	For each alarm event, a corresponding event to clear the alarm will be transmitted by the VM as soon as the alarm condition is no longer present. Alarm conditions may be cleared either automatically by the VM or manually by service staff.		
		6.5-19	Processor load, memory utilization, errors, and other system performance indicators will be available in real-time to help prevent performance degradation and troubleshoot back office issues. Alarm types and thresholds will be able to be configured to allow for custom alerts.		
		6.5-20	Field devices or systems that are not reporting status for any reason will be easily identifiable in the System Manager, and the last known status and history will be available as approved during system design and accepted during user testing.		
		6.5-21	The System Manager will display device attributes, including but not limited to device type, device ID, location, status, events, and alarms.		

		6.5-22	The System Manager will provide real-time performance and status monitoring for all devices, back office applications, and network nodes using the SI-provided System Management API.	[redacted]
		6.5-23	The System Manager will support the real-time issuance of device commands, and device configuration, using the SI-provided System Management API.	
		6.5-24	The System Manager will support the issuance of device commands system-wide and by device type, Agency, location, and individual device.	
		6.5-25	Command sets will vary by device, but will include configuration, maintenance, revenue, and customer service functions, as described in the equipment sections of this SOW. Commands will be defined during design review.	
		6.5-26	System Manager commands will utilize an appropriate command protocol based on industry standards, such as SNMP3, or a modern functional equivalent. The protocol chosen will be supported by all devices and systems, and take into account expected network traffic and potential for intermittent communications.	
		6.5-27	The System Manager will support the setting and distribution of all configuration parameters stored locally at the devices, including positive and negative lists, as described in the System specifications.	
Section 6.6 Fare Media Management Application				
Fare Media Management Application	Mandatory	6.6-1	The SI shall deploy a Fare Media Management application (FMM) that maintains a full inventory of all fare media procured and issued by the Agencies.	
		6.6-2	The FMM will maintain an inventory of all serialized Agency-issued fare media (e.g., EU media) as it is held by the Agencies, regional partners, and third-party distributors, and eventually issued to customers.	
		6.6-3	The FMM will track the current and historical status of all media in inventory. Whenever a transaction causes a change in media status, the FMM will update all records accordingly. A history of all updates will be maintained to provide an audit trail.	
	Desired	6.6-4	The FMM will maintain the item number and type of inventory at all locations (including consignment locations) at all times. Tracking will include type of inventory, ID numbers, and counts at each location.	

		6.6-5	The System will have the ability to record all sales at each location by type of inventory, type of sale (e.g., cash, credit, or check), identifying inventory number of each sale item, amount of sale, date, customer account and other applicable data.	[redacted]
		6.6-6	The fare media inventory data maintained within the FMM will include at a minimum: • Media serial number • Media type • Media status • Transit account status • Expiration date • Batch ID • Order ID • Location • Ship date Final data fields used for inventory management purposes will be determined during design review.	
		6.6-7	The FMM will support the bulk issuance of EU fare media by identifying appropriate batch IDs and serial number ranges to fulfill orders placed by regional distribution partners, and through the AR/Billing Module/CRM/customer website.	
		6.6-8	The System will be able to issue EU fare media associated with transit accounts with preloaded fare product in bulk for special promotions.	
Section 6.7 Financial Management Application				
Financial Module	Mandatory	6.7.1-1	The System will have the ability to allow online inquiry of balances (MTD, YTD) or for any timespan.	
		6.7.1-2	The System will have the ability to support suspense account utilization with a user entered reference code for analysis and account tracking.	
		6.7.1-3	The System will have the ability to require each journal entry to have a unique number by type of journal.	
		6.7.1-4	The System will have the ability to support standard calendar or fiscal year of 12 periods or 13 periods as defined by the user. The System will have the ability to establish 13 or more accounting periods in a single fiscal year.	

		6.7.1-5	The System will have the ability to assign general authorization journal processing and rules by account code, amount, company, and user.	[redacted]
		6.7.1-6	The System will have the ability to support calendar or fiscal business year accounting.	
		6.7.1-7	The System will have the ability to allow authorized users to make additions and changes to the GL accounts without program or system changes.	
		6.7.1-8	The System will provide the ability to capture the following accounting line item detail on all documents: line item number, line item amount, and line item accounting classification information.	
		6.7.1-9	The System will have the ability to generate error reports for any data failing validation.	
		6.7.1-10	As part of design review, the SI shall be responsible for mapping each transaction type generated by the System to the appropriate GL entries to support automated categorization and summarization by the System.	
		6.7.1-11	The System will have the ability to provide a mechanism to correct out-of-balance conditions.	
		6.7.1-12	The System will have the ability to save a transaction prior to posting and to continue processing the transaction at a later date. The System will make sure that journal entries are balanced before final posting to the GL. The System will allow saving of incomplete and unbalanced journals; however, posting can only occur when journal is valid and balanced.	
		6.7.1-13	The System will have the ability to prevent transactions from posting to GL accounts that have been de-activated.	
		6.7.1-14	The System will have the ability to prevent transactions from posting that would cause GL debits and credits to be out-of-balance at any level of the organization's accounting classification structure specified on a transaction.	
		6.7.1-15	The System will have the ability to allow real time validation of all transaction related data coming from integrated systems against the GL tables (e.g., account, Agency, active/inactive date) and create exception reports for all transactions.	
		6.7.1-16	The System will have the ability to allow an authorized user to reprint a journal entry.	

		6.7.1-17	The System will have the ability to support user-defined accounting periods.	[redacted]
		6.7.1-18	The System will have ability to generate next account for chart of accounts additions.	
		6.7.1-19	The System will have ability to inactivate accounts within chart of accounts, while maintaining archive status and ability to retrieve, review, and/or reactivate.	
		6.7.1-20	The System will have the functionality to create and maintain allocations. Allocations will be configurable using any financial account or statistical account in the Financial Management application, formulas, prior periods/years, multiple input/output sources, effective dates, account ranges, accounting period and existing balances to create the pools and targets of allocation. Allocations can be single and multi-step with no limit to the number of allocations. The Financial Management application will automatically create the journal entries for each allocation referencing the date and allocation name with a full transaction trail in each transit account impacted.	
		6.7.1-21	The System will have the ability to identify which ledger to post journal entries through configuration rules.	
		6.7.1-22	The System will have the ability to make sure that total debits equal total credits for a single journal entry (e.g., double-entry accounting).	
		6.7.1-23	The System will have the ability to accept and post only balanced journal entry transactions (debits equal credits).	
		6.7.1-24	The System will have the ability to view date, amount, account name, account number, user ID, user name, and description when processing journal transactions.	
		6.7.1-25	The System will have the ability to provide full audit trail of allocations.	
		6.7.1-26	The System will have the ability to download results of allocations and reports to Excel for further analysis.	
		6.7.1-27	The System will have the ability to track source information during journal transaction processing.	
		6.7.1-28	The System will have the ability to display in real time running totals when inputting debit and credit journal entries.	

		6.7.1-29	The System will have the ability to create journal entries for current period, any future periods and prior periods subject to user access limits.	[redacted]
		6.7.1-30	The System will have the ability to copy description and accounting from a previous line to the next line.	
		6.7.1-31	The System will have the ability to capture user defined attributes including journal category, journal source, create by user, create date, updated by user, update date, etc.	
		6.7.1-32	The System will have the ability to capture description at header level and line level.	
		6.7.1-33	The System will have the ability to batch, edit, post, and search journal entries in real time.	
		6.7.1-34	The System will have the ability to auto generate offsetting accounting entries based on user defined business rules.	
		6.7.1-35	The System will have the ability to allow the creation of templates for standard journals.	
		6.7.1-36	The System will have the ability to add multiple lines to a journal entry.	
		6.7.1-37	The System will have the ability to search Chart of Accounts (COA) by code or description.	
		6.7.1-38	The System will provide the ability to generate recurring entries in future accounting periods.	
		6.7.1-39	The System will have the ability to create multiple charts of accounts -- global, local statutory, and consolidation for all divisions and Agencies.	
		6.7.1-40	The System will have the ability to use a chart of accounts consistent with the basic numbering structure provided by the FTA and allow for expansion of accounts segments.	
		6.7.1-41	System will have ability to accept automated recording of journal entries directly from subsidiary ledgers.	
		6.7.1-42	The System will have the ability to automatically number journal entries.	
		6.7.1-43	The System will have the ability to enter statistical journal entries for posting data such as head count, square feet, ridership and/or unit volumes or fixed percent rates to be used in allocations or reporting.	
		6.7.1-44	The System will have the ability to perform auto generation of serial number and batch number for the journal entry.	

		6.7.1-45	The System will have the ability to validate that the total amount of the batch transactions is equal to the batch header total. The System will allow for automatic validation rather than manual.	[redacted]
		6.7.1-46	The System will have a financial data architecture that allows for elements to code transactions. These include financial accounts, products, Agency, sales channel, department and at least two additional configurable elements. The elements will be available in the GL and all subsidiary ledgers and modules for use in coding and reporting.	
		6.7.1-47	The System will perform the revenue distribution based upon calculations from the ATP and provide the necessary reporting to enable the settlement of funds.	
	Desired	6.7.1-48	The System will be implemented using a COTS, SaaS if possible, enterprise-level financial management software that interfaces with SI-designed software modules as necessary to provide the required functionality.	
		6.7.1-49	The Program needs the SI to employ an expert with the accounting and technical knowledge necessary to fully setup and configure the Financial Management application based on accounting best practices and the specific design of the delivered system.	
		6.7.1-50	The System will have the ability to perform allocations by any data within the Financial Management application (e.g., account, department, Agency) including statistical accounts.	
		6.7.1-51	The System will have the ability to define workflow rules for journal approval routing based on amount or other criteria.	
		6.7.1-52	The System will have the ability to allow users to decide whether changes will update real-time or in batch.	
		6.7.1-53	The System will have the ability to use standardized rules (e.g., GL posting rules, edits, etc.) identified by reference codes to control transaction editing and posting to the appropriate GL account, and updating other information maintained.	
		6.7.1-54	The System will have the ability to validate all accounts again during posting.	
		6.7.1-55	The System will have the ability to validate accounts in all input transactions, including online entries, spreadsheet uploads and interfaces. The System will validate all portions of the account key.	

		6.7.1-56	The System will have the ability to change error handling default (i.e., error recycle or suspense) at the journal entry level.	[redacted]
		6.7.1-57	The System will have the ability to assign responsibility and ownership of accounts for reconciliation.	
		6.7.1-58	The System will have the ability to allow authorized users to correct out-of-balance conditions discovered during the reconciliation process. The System will maintain an audit trail of any such corrections.	
		6.7.1-59	The System will provide the ability to automatically post to GL weekly or more frequently if needed.	
		6.7.1-60	The System will perform integrity checks on batches received via interfaces. Checks will include a batch number and amount, and make sure amounts in header agree with records in the batch.	
		6.7.1-61	The System will have the ability to allow establishment of permanent (balance sheet) accounts in GL that can only be updated by subsidiary systems with allowance for authorized override.	
		6.7.1-62	The System will provide the ability to restrict the accounting date to open periods.	
		6.7.1-63	The System will have the ability to suspend a batch if a journal entry transaction is not balanced.	
		6.7.1-64	The System will have the ability to restrict, based on security level, who can change error handling defaults on journals.	
		6.7.1-65	The System will have the ability to reprocess suspended journal for posting.	
		6.7.1-66	The System will have the ability to reject journals in error, correct errors online, and reprocess journal for posting.	
		6.7.1-67	The System will have the ability to allow an authorized user to delete an unposted journal entry.	
		6.7.1-68	The System will have the ability to allow an authorized user to copy journals.	
		6.7.1-69	The System will have the ability to view online whether or not a journal is reversing as well as if the transaction line is reversing.	
		6.7.1-70	The System will have the ability to restrict posting unapproved journals.	
		6.7.1-71	The System will have the ability to create a future dated journal to closed periods.	

		6.7.1-72	The System will have the ability to edit all entered, but not posted journals.	[redacted]
		6.7.1-73	The System will have the ability to conduct journal entry and posting in separate stages.	
		6.7.1-74	The System will have the ability to capture processing date together with effective date of journal entry.	
		6.7.1-75	The System will have the ability to rollup expenses for the same cost center/Agency across business units.	
		6.7.1-76	The System will have the ability to apply allocations to both actual and budget fields.	
		6.7.1-77	The System will have ability to review journal entries in workflow and approve them prior to entry into GL.	
		6.7.1-78	The System will have the ability to capture comments on transactions at the lowest level (i.e., comments can be both text and attachments).	
		6.7.1-79	The System will have the ability to define skeleton journals where the amounts change monthly, but the accounts remain the same.	
		6.7.1-80	The System will have the ability to drill down (e.g., to descriptions, from journal to source activity).	
		6.7.1-81	The System will have the ability to enter a journal entry without authority for posting it.	
		6.7.1-82	The System will have the ability to enter and maintain statistical information either along with or independently of journal entries.	
		6.7.1-83	The System will have the ability to provide a free-form notes section to attach to a journal entry or transaction.	
		6.7.1-84	The System will have the ability to create and approve journals.	
		6.7.1-85	The System will have the ability to reverse a posted journal entry manually or systematically.	
		6.7.1-86	The System will have the ability to schedule automated, integrated, and recurring journals to run and post without user intervention.	
		6.7.1-87	The System will have the ability to view or print journals online in a summary or detail format.	
		6.7.1-88	The System will provide the ability to capture start dates, end dates, and posting frequency for recurring entries.	
		6.7.1-89	The System will provide the ability to capture the date a transaction is effective in the GL (i.e., the date a financial event is recognized).	

		6.7.1-90	The System will provide the ability to generate and modify online reversing entries in future accounting periods.	
		6.7.1-91	The System will include a user access management tool that will control and configure user access privileges to each module or component of the entire system.	
		6.7.1-92	The System will support business rules and procedures that provide fast and efficient month end close processing including workflow for approvals and messaging, and subsystem posting.	
		6.7.1-93	The System will have the ability to reopen the final accounting period to post audit adjustments.	
		6.7.1-94	The System will have the ability to allow authorized users to define general ledger posting rules and the logic associated with each transaction.	
		6.7.1-95	The System will provide a method to create transaction corrections in a manner that allows subsystems to update the GL keeping it in sync.	
		6.7.1-96	The System will provide the ability to process year-end adjustments.	
		6.7.1-97	The System will have the capability to carry forward into the new fiscal year GL account balances and updates for current activity prior to the final year-end closing.	
		6.7.1-98	The System will have the ability to allow authorized end users to add/change/delete business logic, based upon design and testing, within Chart of Account and report hierarchies.	
		6.7.1-99	The System will support the full auditing of all system financial activity, including reconciliation of all Agency revenue and customer accounts, and end-to-end tracking of revenue as it is generated and recognized by the participating Agencies.	
		6.7.1-100	The System will support daily cash settlement to Agency bank accounts.	
		6.7.1-101	The Agencies will have the capability to generate manual GL postings to support corrections and the tracking of activity that is not performed by the System.	
		6.7.1-102	Summary entries will be posted to the GL automatically at the end of each closeout period, no less than daily.	
		6.7.1-103	The System will support the reconciliation of the stored value deferred revenue GL account balance to the total transit account balances maintained within the ATP at any point in time.	

		6.7.1-104	The System will provide support for current and future standard banking formats such as SWIFT and BAI.	[redacted]
		6.7.1-105	The System will provide interfaces or related files to support banking capabilities such as positive pay and monthly reconciliation for checks issued.	
		6.7.1-106	The System will have the capability to reconcile checks/wire transfers.	
		6.7.1-107	The System will have the capability to produce a file containing all rejected check reconciliation transactions which could be available for corrections.	
		6.7.1-108	The System will have the capability to identify un-reconciled customer account check payments online and from reports.	
		6.7.1-109	The System will have the capability to determine online if a customer account check has cleared at the bank based upon reconciliation data.	
		6.7.1-110	The System will have the capability to allow for automatic bank reconciliation via bank interface of bank cleared funds, direct debits, receipts compared to system payment records.	
		6.7.1-111	The System will provide the capability to define unlimited number of banks and unlimited bank accounts for each bank and capability to pay from different banks.	
		6.7.1-112	The System will provide the ability to assign a transaction number.	
		6.7.1-113	The System will have the ability to trace back from allocated to original source of the cost.	
		6.7.1-114	The System will have the ability to support Excel spreadsheet upload and download of journals.	
		6.7.1-115	The System will have the ability to capture descriptive information on journals.	
		6.7.1-116	The System will have the ability to maintain an audit trail from the original postings to the final posting when the accounting structure is modified.	
		6.7.1-117	The System will have the ability to automatically reclassify accounting data when a reorganization of the classification structure is necessary, such that manual reversals of previously recorded detailed transaction activity is not needed.	
		6.7.1-118	The System will have the ability to auto-generate a new chart of account combination if it meets the segment combination validation	

			rules defined.		[redacted]
		6.7.1-119	The System will provide the ability to automatically close the subledgers on scheduled dates.		
		6.7.1-120	The System will have the ability to rollover GL account balances after closing. (Note that this includes sub-accounts.)		
		6.7.1-121	The System will have the ability to perform automated month-end closing of GL accounts, with approval.		
		6.7.1-122	The System will have the ability to close subsystems on a different schedule from GL.		
		6.7.1-123	The System will have the ability to allow selected transactions for closing, e.g., adjustments, to be processed.		
		6.7.1-124	The System will have the ability to re-open prior periods and make adjusting financial entries; re-run allocations using the appropriate allocation methodology which may not be the current month's methodology.		
		6.7.1-125	The System will have the ability to open/close prior closed periods multiple times based on business rules (not externally reported).		
		6.7.1-126	The System will have the ability to support at year-end close that all entries are in balance and that all periods have been closed.		
		6.7.1-127	The System will have the ability to close accounting periods and prevent the posting of new transactions to any closed period.		
		6.7.1-128	The System will process transactions originating in other systems, recording and keeping track of such transactions and related information, in order to provide the basis for central financial control.		
		6.7.1-129	The System will support the management of monthly and annual accruals. Include automated accruals to the general ledger, ability to enter accrual journal and automatically post reversal in future period and ability to link the accrual to the reversal.		
		6.7.1-130	The System will have the ability to set up standard journal entries with multiple line items and debits and credits lines may be uneven.		
Accounts Receivable & Billing Module	Mandatory	6.7.2-1	The Accounts Receivable (AR) module will provide the capability to allow invoices to contain pertinent information (e.g. date of invoice, date of delivery, due date,) that will be defined and approved during design.		

		6.7.2-2	The AR module will have capability to update GL accounts for all accounts receivables, sales, receipts, and other adjustments originating in the subsidiary ledger.	[redacted]
		6.7.2-3	The AR module will be fully installed and configured by the SI, and will support the creation and management of receivables and customer accounts with integration to the GL.	
		6.7.2-4	The AR module will provide capability that allows default customer account data such as terms to automatically populate when invoices are being entered. Default data will be configured according to the customer account type.	
		6.7.2-5	Data available for a customer account will include at a minimum: • Customer account name • Administrator name • Multi addresses (mailing, shipping, billing, etc.) • Phone numbers • E-mail addresses • Special Instructions • Contract account agreements • Customer account ID	
		6.7.2-6	Payment terms for customer accounts will be configured as part of the account setup. The Agencies will be able to configure customer accounts such that payment is required at the time an order is placed, or to allow the customer account to be invoiced based on established payment terms.	
		6.7.2-7	The AR module will provide functionality to manage multiple payment terms of the course of a contract with customer accounts.	
		6.7.2-8	The AR module will allow customer accounts to be assigned to a specific Agency and allow for customer accounts to be managed by the Agency.	
		6.7.2-9	The AR module will provide the capability for Agencies to configure custom business rules and terms for their customer accounts.	
		6.7.2-10	The AR module will have the capability to differentiate customer account sales and inventory sold by cash, credit card, check, and ACH as well as totals.	
		6.7.2-11	The AR Billing module will have the capability to capture multiple contacts for every customer account.	

		6.7.2-12	The AR module will support the aging of receivables and an automated, fully auditable write-off process to be defined during design review.	[redacted]
	Desired	6.7.2-13	For customer account orders where invoicing is configured, an invoice will automatically be generated in the AR module, available for display on the customer website, and sent electronically.	
		6.7.2-14	For customer accounts where prepayment is required, the customer will be required to provide a funding source in the form of a credit card, debit card, or bank account (e.g., ACH). Funding source information will be stored securely within the CRM in a tokenized form.	
		6.7.2-15	The AR module will have the capability to post credits to customer accounts.	
		6.7.2-16	The AR module will support the automatic generation of invoices and monthly statements detailing account activity, including consolidation of multiple AR accounts on a single customer account statement.	
		6.7.2-17	The AR module will have the ability to calculate amount of invoice based on products sold, ridership use or contractual agreement.	
		6.7.2-18	The AR module will have ability to calculate amount of invoice utilizing customized pricing.	
		6.7.2-19	The AR module will provide the ability to include invoice transaction details such as any applicable surcharges, discounts, extended price, penalties, price, product/service code, volume, Agency, and mode.	
		6.7.2-20	The AR module will provide the ability to include advances and prior collections received on invoices.	
		6.7.2-21	The AR module will provide the ability to track original invoice amounts and remaining balance after receiving partial payments.	
		6.7.2-22	The AR module will provide the ability to allow for invoices to be canceled, deleted, or voided.	
		6.7.2-23	The AR module will provide the ability to allow historical data to be viewed online for amounts invoiced, amounts paid, credit memos, debit memos, adjustments, and tolerance written off.	
		6.7.2-24	The AR module will provide the ability to automatically print copies of previously issued invoices at any time without recalculation or regeneration.	

		6.7.2-25	The AR module will provide the ability to print current and cumulative invoice totals on the same page within the specified invoice template.		[redacted]
		6.7.2-26	The AR module will provide the ability to define different invoice formats for different types of invoices or different Agencies.		
		6.7.2-27	The AR module will provide the ability to print free-form recurring text on each invoice page.		
		6.7.2-28	The AR module will provide the ability to customize the text and data elements to be displayed on system-generated invoices, by customer type, receivable type, or billing method.		
		6.7.2-29	The AR module will provide the ability to define reason codes and related descriptions for invoice processing actions such as invoice adjusted, invoice held for payment schedule, and invoice canceled.		
		6.7.2-30	The AR module will provide the ability to derive the invoice date from the System date.		
		6.7.2-31	The AR module will provide the capability to support a system link to trace voided (original) invoice to the revised invoice.		
		6.7.2-32	The AR module will provide the ability to store a complete copy of the contract with online review and print capability.		
		6.7.2-33	The AR module will not reuse voided invoice numbers.		
		6.7.2-34	The AR module will provide the capability to allow default customer account data such as name to automatically populate when invoices are being entered.		
		6.7.2-35	The AR module will provide capability that allows customer data such as customer account number to automatically populate when invoices are being entered.		
		6.7.2-36	The AR module will provide capability for comments to be entered against an invoice.		
		6.7.2-37	The AR module will have the capability to capture unlimited document line items per invoice.		
		6.7.2-38	The AR module will provide the capability to update the invoice date on each record.		
		6.7.2-39	The AR module will provide the capability to store journal ID, user, paid date, posted date, transaction amount, transaction ID, transaction type, etc. for all invoice transactions.		
		6.7.2-40	The AR module will provide the capability to produce invoices to any		

			customer account for NSF checks received.	[redacted]
		6.7.2-41	The AR module will have an option to generate a receipt for customer account payments.	
		6.7.2-42	The AR module will have the capability to record cash receipts and apply to a GL account.	
		6.7.2-43	The AR module will provide the capability to reconcile any payments to the appropriate invoice.	
		6.7.2-44	The AR module will support the capability to record billing items (e.g., fare media and products) by line item in order to identify unique accounting classification codes.	
		6.7.2-45	The AR module will support the setting of configurable credit limits for customer accounts. The AR module will support the automated generation of credit holds, and disabling of order privileges within the customer website, when the credit limit is reached.	
		6.7.2-46	The AR module will support the application of payments (full and partial), credit memos, and adjustments against customer accounts. The process will support batch entry of receipts and lockbox functionality. The AR module will provide the capability to apply partial payments against an invoice and the ability to apply one payment to multiple invoices.	
		6.7.2-47	The AR module will provide the capability to track and post refunds to a customer account against the applicable contract and/or invoice.	
		6.7.2-48	The AR module will provide the capability to track check number, payment reference (for electronic payments), check date, check amount, contract number, account name, address, point of contact name when duplicate payment returned to issuing customer account.	
		6.7.2-49	The AR module will provide tracking and collection processes for open accounts receivable.	
		6.7.2-50	The AR module will provide the capability to store a copy of demand letter for payment.	
		6.7.2-51	The AR module will have the option of sending a form letter along with any statement either electronically or physically.	
		6.7.2-52	The AR module will provide automated write-offs capability based on user defined criteria.	

		6.7.2-53	The System will have the capability to generate statements on request, categorized by month, displaying history, invoice number and date, check number received and amount, customer, and amount due.	[redacted]
		6.7.2-54	The AR module will support the automatic generation of interest charges for charges that are past due, and generate dunning (e.g., collection) letters for overdue receivables when they become delinquent.	
		6.7.2-55	Accounts Receivable and Billing reports will be created and used to make manual entries in the participating Agencies' financial applications. All reports can be exported to .csv or excel and can include invoice amounts, customer account name, amounts paid, outstanding balances and other information in The AR module.	
		6.7.2-56	The AR module will track receivables for prepaid, post-bill fare media and product sales initiated through the CRM application and customer website to support bulk sales and special fare programs.	
		6.7.2-57	The AR module will provide the capability to perform online queries of account activity (e.g., billing, collection, and adjustment) by customer account and receivable to support the display of invoice, account, and payment status in the CRM application and on the customer website.	
Accounts Payable Module	Mandatory	6.7.3-1	The Accounts Payable (AP) module will support the issuance of customer account refunds via check or wire transfer depending on transaction amounts.	
		6.7.3-2	The AP module will prohibit a vendor from having more than one Vendor ID in the System. The System will also provide the ability to define parent/child/partner/other relationship fields/categories to facilitate vendor-based reporting.	
		6.7.3-3	The AP module will provide the ability to process refunds from Accounts Payable or CRM. The Customer Account Management API will provide integration with the Financial management application through Accounts Payable for the issuance of customer account refunds.	
		6.7.3-4	The AP module will have the ability to create vendors and maintain the necessary information for correspondence, payment and 1099 tracking (e.g., name, address, contract, payment terms, payment method, tax ID).	

		6.7.3-5	The AP module will allow assigning payment method (check, ACH, wire transfer, etc.) to the vendor and only authorized users can make changes.	[redacted]
		6.7.3-6	The AP module will provide the ability to default vendor payment terms and capture payment terms on an invoice that are different than those specified on the associated vendor record.	
		6.7.3-7	The AP module will have the ability to produce letters for vendors who have not yet provided a tax id.	
		6.7.3-8	The AP module will provide the ability to update payment status after confirmation from bank interface.	
	Desired	6.7.3-9	The AP module will provide the ability to access vendor list when processing invoices.	
		6.7.3-10	The AP module will provide fields to differentiate the invoice date from the received date for vouchers.	
		6.7.3-11	The AP module will provide the ability to do paperless matching between invoice, purchase order and/or receipt.	
		6.7.3-12	The AP module will provide the ability to void a payment and reissue without rekeying the invoice.	
		6.7.3-13	The AP module will provide the ability to either withhold, transfer, or release retainage and costs.	
		6.7.3-14	The AP module will provide the ability to enter comments while processing invoices.	
		6.7.3-15	The AP module will provide the ability to enter invoices and code them to specific projects, departments, or Agency.	
		6.7.3-16	The AP module will provide the ability to establish funding schedules for each bank account.	
		6.7.3-17	The AP module will provide the ability to link bank wire number to invoice number.	
		6.7.3-18	The AP module will provide the ability to make accounting adjustments to invoice after posting but before payment.	
		6.7.3-19	The AP module will provide the ability to record internal comments on invoices that will not appear on the check remittance advice and the ability to record external comments that will appear on the check remittance advice.	
		6.7.3-20	The AP module will provide the ability to categorize invoice types.	
		6.7.3-21	The AP module will provide the ability to default accounting fields	

			for payments.	[redacted]
		6.7.3-22	The System will provide the capability to create a positive pay file for the bank.	
		6.7.3-23	The AP module will support partial payments to vendors.	
		6.7.3-24	The AP module will provide the ability for vendors to participate as an ACH payee.	
		6.7.3-25	Payment will be considered to be made on the settlement date for an EFT payment or the date of the check for a check payment. Payments falling due on a weekend or federal holiday may be on the following business day without incurring late payment interest penalties.	
		6.7.3-26	The AP module will provide the ability to identify payments to be disbursed in a particular payment cycle based on their due date.	
		6.7.3-27	The AP module will provide the ability to record payments made on behalf of another Agency, citing the other Agency.	
		6.7.3-28	The AP module will provide the ability to void payments and reverse invoices.	
		6.7.3-29	The AP module will provide the ability to modify recurring payments schedules.	
		6.7.3-30	The AP module will have the ability to link a copy of a check to a corresponding invoice.	
		6.7.3-31	The AP module will provide the ability to allow check remittance advice prints with the check.	
		6.7.3-32	The AP module will provide the ability to allow processing of prepayments (advances) and applying prepayments to invoices once invoices are received.	
		6.7.3-33	The AP module will provide the ability to prevent the creation of EFT (Fedwire, ACH, or CTX) funding that does not contain a RTN, bank account number and account type (checking or savings).	
		6.7.3-34	The AP module will provide the ability to process debit/credit memos.	
		6.7.3-35	The AP module will provide the ability for the starting payment number to be entered when printing checks.	
		6.7.3-36	The AP module will provide the ability to pay from multiple bank accounts.	
		6.7.3-37	The AP module will provide the ability to pay invoices individually	

			(one check per invoice).	[redacted]
		6.7.3-38	The AP module will have the ability to show both pending and released payments.	
		6.7.3-39	The AP module will provide the ability to perform multiple check runs in a given day.	
		6.7.3-40	The AP module will provide the ability to prevent payment to vendors with a debit balance (AR/AP netting).	
		6.7.3-41	The AP module will be able to attach supporting documentation, such as receiving documents and correspondence relating to the invoice.	
		6.7.3-42	The AP module will provide the ability to assign unique applicatio generated document numbers to invoices along with the vendor invoice number.	
		6.7.3-43	The AP module will provide the ability to scan and store invoice documents.	
		6.7.3-44	The AP module will provide the ability to automatically create invoice and line detail from a corresponding purchase order/recei	
		6.7.3-45	The AP module will provide the ability to allow for user-defined treatment of matching differences to include: payment hold, payment with debit memo, or payment after workflow routing fo proper authorization.	
		6.7.3-46	The AP module will provide the ability to allow partial approval of invoices.	
		6.7.3-47	The AP module will provide the ability to assign invoices to individuals for approval.	
		6.7.3-48	The AP module will provide the ability to enable workflow for approval routing of invoices and vendors.	
		6.7.3-49	The AP module will provide the ability to identify and resolve matching exceptions.	
		6.7.3-50	The AP module will provide the ability to include reason codes an comment field on invoices that are not approved.	
		6.7.3-51	The AP module will provide the ability to apply credit memos to existing invoices or on the vendor's account.	
		6.7.3-52	The AP module will provide the ability to specify multiple approve with business rules within workflow.	

		6.7.3-53	The AP module will provide the ability to apply the credit to any transit account specified regardless of the actual disbursement against which the credit may be applied.	[redacted]
		6.7.3-54	The AP module will provide the ability to process future dated invoices.	
		6.7.3-55	The Financial Management application will provide the ability to use multiple inter-company accounts for accounts payable purposes	
		6.7.3-56	The AP module will provide the ability to calculate discounts based upon invoice date.	
		6.7.3-57	The AP module will provide the ability to calculate multiple due dates when items on an invoice have different payment terms.	
		6.7.3-58	The AP module will provide the ability to notify vendors of payments that have been offset by credit memos. Specifying the invoice number, invoice amount, payment amount, and payment date.	
		6.7.3-59	The AP module will provide the ability to split invoice lines between 1099 and non-1099 lines.	
		6.7.3-60	The AP module will provide the ability to prevent payments without corresponding invoices.	
		6.7.3-61	The AP module will provide real-time visibility of vendor payment status to authorized users.	
		6.7.3-62	The AP module will provide the ability to view outstanding vendor balances.	
		6.7.3-63	The AP module will have the ability to retain cleared checks in a database for inquiry and/or reporting purposes.	
		6.7.3-64	The AP module will have the ability to perform online query to provide payment information via accounts payable transactions by an invoice number.	
Financial Reporting & Query Module	Mandatory	6.7.4-1	The System will have the ability to allow users access to historical general ledger entries and be able to sort them by financial data architecture elements (e.g., account, department, product, Agency).	
		6.7.4-2	The Financial Reporting and Query Module will have functionality to run custom queries and provide a dashboard that can be configured.	
		6.7.4-3	Financial reports will have access to all data and fields in the financial, accounts receivable, and billing modules.	

		6.7.4-4	The Financial Reporting and Query Module will have an easy-to-use interface as defined during design review and user acceptance testing. The interface will allow end users to create (select a title, add fields, add parameters such as dates), save, and “keep private” or “make public” based on security and access. The user interface will have simple look-ups to find fields or create parameters.	[redacted]
		6.7.4-5	The Financial Management application will include a robust reporting tool that generates canned and custom reports. The reporting tool will allow the viewing, running, and scheduling of predefined reports, as well as the creation of custom reports.	
		6.7.4-6	The System will provide audit history and reports to clearly track changes in data.	
		6.7.4-7	The Financial Reporting and Query Module will allow for all reports to be exported to pdf, .csv, Excel, or other defined format.	
		6.7.4-8	Financial Reporting and Query Module will allow for configured, ad hoc queries, saved queries and pre built reporting.	
		6.7.4-9	Access to the Financial Reporting and Query Module will be controlled through the same role based security model as the financial, accounts receivable and billing modules.	
		6.7.4-10	Reports built by the SI as part of the initial implementation will include at minimum: • Trial balance • next gen ORCA financial Statements • Revenue and expenses by Agency • Revenue by product • Revenue by sale channel • Revenue by Agency • Revenue by customer account • Accounts receivable aging • Customer account invoice • Customer account invoices by date • Customer account statement • Customer account statements by date	

		6.7.4-11	Financial reports will be created and used to make manual entries in the participating Agencies' GLs. The reports will provide the accounting details required to make the journal entries in the Agencies' financial management applications. No electronic interfaces between the fare collection and the Agencies' existing financial systems will be required.	[redacted]
Section 6.8 Central Payment Application				
Central Payment Application	Mandatory	6.8-1	The System will use solution that meets the ISMS security control baseline for all funding sources stored within the System. The SI shall make use of a third-party service so that no payment data, encrypted or otherwise, is stored within the System.	
		6.8-2	The integration to the payment processor will be built using an API. All devices and systems processing payments will use the API to connect to the SI-provided Central Payment application.	
		6.8-3	All devices and systems accepting payments will support a configurable amount for limits associated with a signature on credit card transactions.	
		6.8-4	If a payment authorization is not completed within a configurable time period, or is interrupted, the ATP will cancel the transaction and notify the customer if possible and/or Agency staff. Any canceled transactions will be recorded.	
		6.8-5	The System will maintain payment records to support the auditing of all payments processed, and to support payment dispute and chargeback resolution.	
	Desired	6.8-6	The SI shall be responsible for integrating with the bank card processor/processing service for sales through all fare sales channels processed by the back office that uses a single merchant account with a transit merchant category code.	
		6.8-7	The customer mobile app and customer website will support refunds. The refund process will be detailed and approved during design review. Refunds for bank card purchases will be available for automatic refund without having to re-enter the bank card number.	

		6.8-8	Devices and systems requiring an interface to the payment processor include, but are not limited to: • ATP • VMs • CSTs • CRM application (for the call center) • Customer website • Customer mobile app • Validators (for open payments in the future) The System will be able to support open payments if accepted in the future.			[redacted]
		6.8-9	All devices and systems accepting payments will support split payments, with the use of up to three (3) funding sources to complete payment for a single sale, including use of multiple credit/debit cards, ACH funding sources, and cash.			
		6.8-10	All devices and systems accepting payments will support configurable minimum and maximum payment amounts. The minimum and maximum amounts will be able to be independently set by distribution channel and payment type, including by credit/debit card type (e.g., Visa, MasterCard, American Express, and Discover).			
		6.8-11	During payment processing, the System will be able to identify pre-tax benefit cards issued by the government and pre-tax benefit providers based on the Issuer Identification Number (IIN). Stored value and products loaded using this fare media will be identified as such and segregated within the transit account to support compliance with all applicable IRS regulations.			
		6.8-12	The System will accommodate the ability to change bank processors in the event that the Agencies wish to do so. The Program needs the SI to be responsible for integration tasks.			
		6.8-13	Bank card processing for the retail network and WSF toll booths will be performed through their separate point of sale systems.			
		6.8-14	The Central Payment application will accept credit and debit cards through all channels, including customer service offices, VMs, call centers, and customer website.			
		6.8-15	The Central Payment application will accept ACH transfers through the customer website, customer mobile app, and the CRM.			

		6.8-16	The System will support full transaction-level reconciliation of all bank card payments processed through the System, including those accepted for customer account orders. This reconciliation will be automatic with any exceptions reported, the process will be approved during design.	[redacted]
		6.8-17	The Program needs the SI to provide all labor and materials required for Central Payment application testing, including but not limited to all bank cards, and all support services and facilities required to stage, inspect, and test all hardware and software being supplied.	
		6.8-18	Chargebacks will be automatically processed so that any remaining value associated with the purchase will be blocked.	
		6.8-19	The Central Payment application will incorporate any services supported by the payment processor for the automated update of card data on file.	
Section 6.9 Configuration & Change Management Application				
Configuration & Change Management Application	Mandatory	6.9-1	The SI will deploy a COTS, preferably SaaS, solution for software configuration management and version control.	
		6.9-2	All workflow functionality and setup within the Configuration & Change Management application will be drag and drop to support simple administration and implementation.	
	Desired	6.9-3	The Configuration & Change Management application will support the maintenance and consistency and updates within each software release.	
		6.9-4	The Configuration & Change Management application will have functionality to track the physical attributes, design, and operational information for each environment throughout its life.	
		6.9-5	The Configuration & Change Management application will support the planning, designing, development, and release for all software development.	

		6.9-6	The Configuration & Change Management application will have functionality to allow for collaborative team software development.
		6.9-7	Software updates to back office software, databases, and associated modules will be centrally managed with appropriate version control in place. Software releases will only be released by authorized system administrators following Agency approval.
		6.9-8	Functionality will allow for issue and resolution tracking.
		6.9-9	Functionality will allow for prioritization of tasks and development
		6.9-10	Each update will have a unique version number and include an activation date and time if applicable. Updates will be able to be downloaded and applied at that activation time, or activated immediately after download and verification is confirmed.
		6.9-11	The Configuration & Change Management application will have functionality to manage and monitor software capabilities, development, testing, environments, and migrations between environments.
		6.9-12	The Configuration & Change Management application will have workflow functionality to review and approve tasks, assign tasks, and monitor workloads.
		Section 6.10	**Tariff Management Application**
Tariff Management Application	Mandatory	6.10-1	SI will design, build, and deploy a Tariff Management application that integrates with all the back office components allowing fare product changes and updates to be controlled by the Agencies.
		6.10-2	The fare tables will be easy to view, review, and test when entering during creation of initial tables and any future fare updates. This will be addressed during design and testing.
		6.10-3	The Tariff Management application will allow configuration by Agency, sales channel, location, and individual device.
	Desired	6.10-4	The Tariff Management application will integrate with frontend devices including the website and physical equipment where applicable.

		6.10-5	The Tariff Management application will have role-based security access to control who can access what based upon role.	[redacted]
		6.10-6	The Tariff Management application will allow a separate workflow process for each Agency and regional fare product so that changes can go through a formal review and approval process.	
		6.10-7	The Tariff Management application will allow for design of fare sets. This includes all fare tables, fare rules, and other parameters necessary to support the fare structure by Agency by product. Different rules and structures will be available by Agency by product. Regional fare products will be configured centrally.	
		6.10-8	The Tariff Management application will be able to manage, store, and deploy an active fare set and at least two (2) pending fare sets. An active fare set will become effective immediately upon publication. Pending fare sets will be able to be activated manually, or automatically based on a future activation date configured.	
		6.10-9	The Tariff Management application will have an online manual and training guide.	
		6.10-10	The Tariff Management application will allow Agencies to view and compare draft fare sets and changes to active and pending fare sets by Agency and regionally, by sales channel, and by fare product.	
		6.10-11	The System will have the flexibility to support Agency fare changes without software modifications. All fare changes will be through fare table and other configuration changes.	
		6.10-12	The back office will be capable of supporting at least four (4) fare tables (one current, two future, and one past), which includes all fare and configuration data required to sell and validate fare products.	
		6.10-13	The Tariff Management application will have the ability to roll back to a previously used fare set.	
		6.10-14	All fare product configurations will be able to be performed by the Agencies, as well as by the SI during implementation and throughout the warranty and software maintenance agreement terms.	
		6.10-15	The System will allow fare set changes on a frequent, including daily, basis without regard to additional pending changes. For example, an Agency could change fare rules regardless of other Agency changes that are pending.	
Section 7 Fare Media				

Section 7.1 General Capabilities				
General Capabilities	Mandatory	7.1-1	Smart card media will be available for competitive purchase from multiple U.S. sources. The SI shall provide the specifications and associated documentation necessary to support the Agencies' future procurement of smart card media from third-parties.	[redacted]
		7.1-2	All fare media will be designed for use in an account-based system, and serve as a credential for accessing closed-loop transit accounts maintained within the back office. No data will be written to the media when loading or using fare value, with the exception of data required to support risk mitigation techniques.	
		7.1-3	The SI shall provide the initial supply of fare media to support the first year of operation following system launch.	
	Desired	7.1-4	The System will support a one-time charge, or "card fee," for issuance of new fare media. This card fee will be able to be configured based on fare media type, passenger type, and distribution channel, and may be set to zero for specific fare media types, specific passenger types, or sales through specific channels.	
		7.1-5	Agency-specific and regional fare products will be sold for use on next gen ORCA media.	
		7.1-6	Sales channels and fare distribution devices will have the capability of issuing EU fare media. The System will also support other media types such as LU fare media should they be needed in the future.	
		7.1-7	The Program needs the SI to design, develop, and provide manufacturing and delivery of all fare media required for successful deployment of the new System. The Program needs the SI to deliver all graphics files and related materials required for manufacture of the fare media to the Agencies for review and approval no less than 120 calendar days prior to the start of fare media production.	
		7.1-8	All supplied fare media will undergo a comprehensive quality assurance process prior to delivery to confirm adherence to all required performance standards and certifications. Media that fail to meet these capabilities will be replaced by the SI at their own expense.	

Section 7.2 Fare Media Format				
Physical Characteristics	Mandatory	7.2.1-1	All contactless fare media will comply with the most recent versions of ISO/IEC 14443-1 for physical characteristics and ISO/IEC 7810 ID1 for physical dimensions. Thickness and other physical characteristics not defined by these standards will be finalized during design reviews.	[redacted]
		7.2.1-2	EU fare media will be constructed of appropriate durable materials for a minimum useful life of 10 years. The media will comply with the most recent versions of ISO/IEC 10373 and ANSI INCITS 322 for durability. Media supplied by the SI that fails to meet these capabilities will be replaced by the SI at their own expense.	
		7.2.1-3	The System will support the printing of personalized and customized media using the CST.	
	Desired	7.2.1-4	In the future, the System may accept media issued by third parties, including but not limited to: • Reduced fare media (youth, senior, disabled, low income, etc.) • Employee IDs • College and school IDs	
		7.2.1-5	The fare media will have read/write performance of not less than 200,000 read/write cycles.	
		7.2.1-6	In addition to the contactless interface, EU fare media may be produced with barcodes and/or magnetic stripes to allow interaction with third-party systems outside the scope of the new System. If required, the format and data content of any barcodes or magnetic stripes will be defined during design review.	
		7.2.1-7	All fare media will include an etched, unique non-sequential serial number for the purposes of traceability that is separate from the credential and smart card Unique Identification Number (UID) and a three-digit security code.	
		7.2.1-8	Fare media will be produced based on branding developed by the Agencies and a card design developed jointly with the SI. Fare media will also be produced with one or both sides left blank for custom printing following manufacture.	
		7.2.1-9	All pre-printed graphics will be protected by a clear coat that covers the entire surface of the card. This coating will not prevent secondary printing of cards.	

		7.2.1-10	EU fare media will be printed using a four-color process, front and back, and support edge to edge printing.	
Digital Characteristics	Desired	7.2.2-1	The transit payment application will be compatible with all modern MIFARE formats, including but not limited to: Ultralight C, MIFARE Plus, DESFire, and SmartMX. The specific platform to be used for the Agency-issued fare media will be proposed by the SI and approved during design review.	
		7.2.2-2	The fare media will support account-based closed-loop fare payments in both single- and multi-application smart card environments.	
		7.2.2-3	The fare media format will support a minimum of a 7 byte smart card Unique Identification Number (UID).	
		7.2.2-4	In addition to the 14443 contactless interface, EU fare media may be produced with Indala 125KHz, 26 bit Weigand proximity technology to support King County Metro issuing a single card for ORCA use and its access control for employees. If required, the format and data content of any additional contactless interface will be defined during design review.	
		7.2.2-5	The transit payment application will support the secure storage of a unique credential used to access a transit account maintained within the back office. The secure transit account credential will not be the smart card UID or transit account number used within the back office, and will not be printed on the media or otherwise accessible using a non-system device.	
		7.2.2-6	The transit application will support the encoding of additional data at the time of manufacture and use to support risk mitigation techniques.	

		7.2.2-7	The SI-developed transit payment applications and formats will be fully owned by or licensed to the Agencies, including the right to distribute specifications to third-parties for media production and to support multi-application smart card implementations without further approval, license, or payment.			[redacted]
		7.2.2-8	The Program needs the SI to publish bit-level specifications for all transit payment applications across all supported fare media within the System, including information on all security protocols necessary to access and encoded data on the media. The software specifications will be subject to Agency review and approval during design review.			

SOUNDTRANSIT

PROPOSAL FORM NO. 2 CERTIFICATION REGARDING CONFLICT OF INTEREST

The Proposer is required to certify that performance of the work will not create any conflicts of interest or disclose any actual or potential conflicts of interest by completing and signing one of the following statements:

The Proposer hereby certifies that to the best of its knowledge and belief, performance of the services described in the Scope of Work will not create any conflicts of interest for the Proposer, any affiliates, any proposed subconsultants or key personnel of any of these organizations.

DATE: 10/25/17

AUTHORIZED SIGNATURE: [redacted]

TITLE: Vice President + CFO

PROPOSER/COMPANY NAME: INIT Innovations in Transportation, Inc.

OR

The Proposer hereby discloses the following circumstances that could give rise to a conflict of interest for the Proposer, any affiliates, any proposed subconsultants or key personnel of any of these organizations. (Attach additional sheets as needed.)

Name of Individual/Company to which potential conflict of interest might apply:

Nature of potential conflict of interest:

Proposed Remedy:

DATE:

AUTHORIZED SIGNATURE:

TITLE:

PROPOSER/COMPANY NAME:

SOUNDTRANSIT

PROPOSAL FORM NO. 3A DBE/SMALL BUSINESS COMMITMENT FORM - INSTRUCTIONS

We affirm that we have read and understand the provisions in the Contract Documents setting forth the subcontracting and DBE and Small Business participation requirements established in this RFP and that we have complied with all such DBE/Small Business participation objectives. We certify that all documentation (including outreach information) submitted by us to demonstrate such compliance is true and accurate.

Furthermore, we have listed on the following form all DBE/Small Businesses that we will use if awarded the Agreement under this RFP and whose participation will be counted toward meeting the applicable DBE/Small Business participation requirements.

Definitions for DBE/Small Business Participation Plan

Box	Name	Description
1	Procurement Number	Sound Transit's Procurement Number as listed on the cover of the solicitation document.
2	Procurement Title	Name of procurement as written on the cover of the solicitation document.
3	Company Name	Proposer's company name.
4	Address	Business address of Proposer's office in Sound Transit's locale.
5	City, State, Zip	City, state, zip for Box No. 4 above.
6	Contact Name	Proposer's contact person for this procurement.
7	Contact Phone	Contact's phone number.
8	Contact's Email	Contact's Email address.
9	DBE/Small Business Commitment	Total percentage the Proposer commits to including on the contract of proposed subconsultants who are DBEs or certified or self-declared Small Businesses, including the Proposer's contribution if Proposer is a DBE or certified or self-declared Small Business.
10	DBE/Small Business Goal	Sound Transit's DBE/Small Business Goal as listed in the solicitation.
11	Total Proposal Price	Total Amount of Proposal
12	DBE/Small Business Participants	List all DBE/Small Business participants, including Proposer, if Proposer is a DBE or certified or self-declared Small Business.
13	Small Business Indicator	Indicate the type of certification status or other indicator of each Small Business: Disadvantaged Business Enterprise (DBE), Minority Business Enterprise (MBE), Women Business Enterprise (WBE), Small Business Enterprise (SB), Small Business Administration (SBA), Americans With Disabilities Act Businesses (ADAB), Other (identify).
14	Description of Work	Brief description of the work to be performed by the proposed DBE/Small Business participant.

PROPOSAL FORM NO. 3B DBE/SMALL BUSINESS COMMITMENT FORM

				Diversity Contract Goals		
Procurement No.	1. RTA/RP 0119-17	Company Name	3. INIT, Innovations in Transportation	Small Business Commitment	9.	%
		Address	4. 424 Network Station Road	DBE Commitment		%
Procurement Title	2. Systems Integrator for next Generation ORCA	City/State/Zip	5. Chesapeake, VA, 23320	**Small Business Goal**	10.	**5%**
		Contact Name	6. Mr. Jim Hicks	**DBE Goal**		**2%**
		Contact Phone	7. 757-413-9100 ext 314			
		Contact Email	8. JHicks@INITusa.com	11. Total Proposal Price	$	48,885,888.71

12. DBE/Small Business Participants (May include Proposer if counted towards Goal)	13. Small Business Indicator (DBE, MBE, WBE, Size, etc.)	14. Description of Work	DBE/Small Business Participants	
			15. Proposed Subcontract Amount	16. Percent of Proposed Contract
ESP Enterprises, Inc.	MBE	Vending Machine and Validator Installation Services	[redacted]	
Anthro-Tech	DBE/WBE	User Experience Design Consulting		
West Sound Workforce	DBE/WBE	Customer Service Terminal Installation Services		
Go Systems and Solutions	DBE/WBE	Business Analyst Consultant		
Subtotal and percent from attached list of DBE/Small Business participants:				
(Please attach a separate list of additional planned DBE/Small Business participants, as necessary)		**DBE/Small Business Participants Total:**	**19.** $ 5,309,719.70	20. 10.86 %

SOUNDTRANSIT

PROPOSAL FORM NO. 4 DBE/SMALL BUSINESS OUTREACH DOCUMENTATION FORM

If there is a DBE or Small Business goal in this RFP, or if the Proposer will have subconsultants perform all or part of the Scope of Work, then the Proposer shall submit this form as part of its Proposal as documentation of its efforts to reach out to DBEs and Small Businesses to participate in the Agreement under this RFP. Sound Transit may request the Proposer provide additional information regarding its efforts. Attach additional forms as necessary.

By submitting this Form, the Proposer certifies it contacted the identified DBEs and Small Businesses, in an effort to solicit their participation in performance of the work in the Agreement under this RFP.

Is Subcontracting anticipated for this Contract? Yes **Yes** _____ **No**

1. **Firm Name:** PH Traffic
   Contact Person: [redacted]
   Area of Expertise: Civil and traffic engineering, traffic signal design, modifications, & ITS planning
   DBE and Small Business Status: DBE
   Date Contacted: October 17th
   Response: [redacted]

2. **Firm Name:** Premium Fleet Services
   Contact Person: [redacted]
   Area of Expertise: Truck/Fleet Maintenance and Service
   DBE and Small Business Status: MBE
   Date Contacted: October 17th
   Response: [redacted]

3. **Firm Name:** RPL Electric LLC
   Contact Person: [redacted]
   Area of Expertise: Electrical contracting on residential, commercial and industrial projects
   DBE and Small Business Status: WBE
   Date Contacted: October 17th
   Response: [redacted]

4. **Firm Name:** Sundance Electric
   Contact Person: [redacted]
   Area of Expertise: Electrical contracting on commercial, industrial, and mass transit
   DBE and Small Business Status: DBE
   Date Contacted: October 17
   Response: [redacted]

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SOUNDTRANSIT

PROPOSAL FORM NO. 4 DBE/SMALL BUSINESS OUTREACH DOCUMENTATION FORM

If there is a DBE or Small Business goal in this RFP, or if the Proposer will have subconsultants perform all or part of the Scope of Work, then the Proposer shall submit this form as part of its Proposal as documentation of its efforts to reach out to DBEs and Small Businesses to participate in the Agreement under this RFP. Sound Transit may request the Proposer provide additional information regarding its efforts. Attach additional forms as necessary.

By submitting this Form, the Proposer certifies it contacted the identified DBEs and Small Businesses, in an effort to solicit their participation in performance of the work in the Agreement under this RFP.

Is Subcontracting anticipated for this Contract? Yes **Yes** _____ **No**

1. **Firm Name:** ESP Enterprises Inc.
   Contact Person: [redacted]
   Area of Expertise: Installation and maintenance of electronic fare-box equipment
   DBE and Small Business Status: MBE
   Date Contacted: September 12, 2017
   Response: Received quotation for vehicle and VM installation services

2. **Firm Name:** Anthro-Tech
   Contact Person: [redacted]
   Area of Expertise: User-centered design consultancy focused on government agencies
   DBE and Small Business Status: DBE/WBE
   Date Contacted: Several Conversations week of October 17 and 23rd
   Response: Received quotation for Web, mobile and software Apps

3. **Firm Name:** Applexus Technologies LLC,
   Contact Person: [redacted]
   Area of Expertise: Information Technology Services and Consulting
   DBE and Small Business Status: MBE
   Date Contacted: October 17, 2017
   Response: Selected another company with similar services

4. **Firm Name:** XITIJ
   Contact Person: [redacted]
   Area of Expertise: Microsoft certified independent software vendor
   DBE and Small Business Status: MWBE
   Date Contacted: October 17, 2017
   Response: Selected another company with similar services

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SOUNDTRANSIT

PROPOSAL FORM NO. 4 DBE/SMALL BUSINESS OUTREACH DOCUMENTATION FORM

Page 3 of 4

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By submitting this Form, the Proposer certifies it contacted the identified DBEs and Small Businesses, in an effort to solicit their participation in performance of the work in the Agreement under this RFP.

Is Subcontracting anticipated for this Contract? YES **Yes** **No**

1. **Firm Name:** Autoscan, Inc
   Contact Person: [redacted]
   Area of Expertise: Computer Aided Design Services
   DBE and Small Business Status: MBE
   Date Contacted: October, 17, 2017
   Response: [redacted]

2. **Firm Name:** Fair Cape Consulting, LLC
   Contact Person: [redacted]
   Area of Expertise: Computer Aided Design Services
   DBE and Small Business Status: DBE/WBE
   Date Contacted: October, 12, 2017
   Response: [redacted]

3. **Firm Name:** ITEN Associates
   Contact Person: [redacted]
   Area of Expertise: Computer Aided Design Services
   DBE and Small Business Status: DBE/MBE
   Date Contacted: October, 18, 2017
   Response: [redacted]

4. **Firm Name:** Keiser Group
   Contact Person: [redacted]
   Area of Expertise: Computer Aided Design Services
   DBE and Small Business Status: MWBE/DBE
   Date Contacted: October, 10, 2017
   Response: [redacted]

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SOUNDTRANSIT

PROPOSAL FORM NO. 4 DBE/SMALL BUSINESS OUTREACH DOCUMENTATION FORM

If there is a DBE or Small Business goal in this RFP, or if the Proposer will have subconsultants perform all or part of the Scope of Work, then the Proposer shall submit this form as part of its Proposal as documentation of its efforts to reach out to DBEs and Small Businesses to participate in the Agreement under this RFP. Sound Transit may request the Proposer provide additional information regarding its efforts. Attach additional forms as necessary.

By submitting this Form, the Proposer certifies it contacted the identified DBEs and Small Businesses, in an effort to solicit their participation in performance of the work in the Agreement under this RFP.

Is Subcontracting anticipated for this Contract? YES **Yes** **No**

1. **Firm Name:** Verity Cleaning Solutions
   Contact Person: [redacted]
   Area of Expertise: Office Celaning
   DBE and Small Business Status: Not listed as DBE or WBE
   Date Contacted: October 16, 2017
   Response: [redacted]

2. **Firm Name:** Paracletemc
   Contact Person: [redacted]
   Area of Expertise: Security and Network Systems
   DBE and Small Business Status: DVOB
   Date Contacted: October 16, 2017
   Response: [redacted]

3. **Firm Name:** GO Systems and Solutions, LLC
   Contact Person: [redacted]
   Area of Expertise: Transportation Technology Consulting
   DBE and Small Business Status: DBE/WBE
   Date Contacted: October 15, 2017
   Response: [redacted]

4. **Firm Name:** Westsoundworkforce
   Contact Person: [redacted]
   Area of Expertise: Temporary Staffing Needs
   DBE and Small Business Status: DBE / WBE
   Date Contacted: October 10, 2017
   Response: [redacted]

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

Instructions for Certification:

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1. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, Sound Transit may pursue available remedies, including suspension and/or debarment.

2. The prospective lower tier participant shall provide immediate written notice to Sound Transit if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

3. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "bid/proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 29]. You may contact Sound Transit for assistance in obtaining a copy of those regulations.

4. The prospective lower tier participant agrees by submitting this bid or proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by Sound Transit.

5. The prospective lower tier participant further agrees by submitting this bid or proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction", without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

6. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

7. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

8. Except for transactions authorized under Paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, Sound Transit may pursue available remedies including suspension and/or debarment.

[1] "Lower tier participant" includes all contractors, consultants, subcontractors and subconsultants participating on any of Sound Transit's contracts.

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

9. The prospective lower tier participant certifies, by submission of this bid or proposal, that neither it nor its "principals" [as defined at 49 C.F.R. § 29.105(p)] is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: INIT Innovations in Transportation Inc.
(Type or Print Company Name)

By: [redacted] VP. & CTO
(Title)

Print Name: [redacted]

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

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10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: GO Systems and Solutions LLC
(Type or Print Company Name)

By: [redacted] President
(Title)

Print Name [redacted]

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

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10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: Bytemark, Inc.
(Type or Print Company Name)

By: [redacted] CEO & President
(Title)

Print Name [redacted]

SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

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Proposer: _____

By: _____

Print Name: _____

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

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Proposer: ESP Enterprises INC

By: [redacted]

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

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Proposer: Anthro-Tech Inc.

[redacted]

SOUNDTRANSIT

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[1] "Lower tier participant" includes all contractors, consultants, subcontractors and subconsultants participating on any of Sound Transit's contracts.

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

9. The prospective lower tier participant certifies, by submission of this bid or proposal, that neither it nor its "principals" [as defined at 49 C.F.R. § 29.105(p)] is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: UAB E-Bros
(Type or Print Company Name)

[redacted]

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

Instructions for Certification:

By signing and submitting this form, the prospective lower tier participant[1] is providing the signed certification set out below.

1. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, Sound Transit may pursue available remedies, including suspension and/or debarment.

2. The prospective lower tier participant shall provide immediate written notice to Sound Transit if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

3. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "bid/proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 29]. You may contact Sound Transit for assistance in obtaining a copy of those regulations.

4. The prospective lower tier participant agrees by submitting this bid or proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by Sound Transit.

5. The prospective lower tier participant further agrees by submitting this bid or proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction", without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

6. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

7. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

8. Except for transactions authorized under Paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, Sound Transit may pursue available remedies including suspension and/or debarment.

[1] "Lower tier participant" includes all contractors, consultants, subcontractors and subconsultants participating on any of Sound Transit's contracts.

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

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[redacted]

SOUNDTRANSIT

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SOUNDTRANSIT

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10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: Wow Technologies, Inc. (WOWRACE)

[redacted]

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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5. The prospective lower tier participant further agrees by submitting this bid or proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction", without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

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10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: Arctic Wolf Networks, Inc.

[redacted]

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SOUNDTRANSIT

PROPOSAL FORM NO. 6 CERTIFICATION REGARDING LOBBYING

The undersigned [Consultant] certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for making lobbying contacts to an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form--LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions [as amended by "Government wide Guidance for New Restrictions on Lobbying," 61 Fed. Reg. 1413 (1/19/96). Note: Language in paragraph (2) herein has been modified in accordance with Section 10 of the Lobbying Disclosure Act of 1995 (P.L. 104-65, to be codified at 2 U.S.C. 1601, et seq.)]

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

[Note: Pursuant to 31 U.S.C. § 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such expenditure or failure.]

The Consultant, IVIT Innovation in Transportation Inc, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Consultant understands and agrees that the provisions of 31 U.S.C. 3801, et seq., apply to this certification and disclosure, if any.

[redacted]

10/25/17
Date

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SOUNDTRANSIT

PROPOSAL FORM NO. 7 BUY AMERICA

Certification Requirement for Procurement of Steel, Iron, or Manufactured Products.

Certificate of Compliance with Buy America Requirements

The proposer or offeror hereby certifies that it will comply with the requirements of 49 U.S.C. 5323(j)(1) and the applicable regulations in 49 CFR Part 661.

Date 10/26/17

[redacted]

Attorney, Corporate Officer, Owner, or Partner

Printed Name Linda Keith

Company INIT Innovations in Transportation, Inc.

Title Vice President + CFO

OR

Certificate of Non-Compliance with Buy America Requirements

The proposer or offeror hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j) but it may qualify for an exception to the requirement pursuant to 49 U.S.C. 5323(j)(2), as amended, and the applicable regulations in 49 CFR Part 661.7.

Date _____

Signature _____

Attorney, Corporate Officer, Owner, or Partner

Printed Name _____

Company _____

Title _____

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Suggested Changes to Proposed Agreement

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

The Future of Mobility

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The section listed below contain trade secret information that provides a business advantage to INIT over competitors. These sections are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

CONFIDENTIAL SECTIONS:

10 Suggested Changes to Proposed Agreement.....10

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10 Suggested Changes to Proposed Agreement

EXHIBIT A [PROPOSED] AGREEMENT

Section 00 Agreement Form

Section 01 Systems General Conditions

Section 02 Federal Provisions

Section 03 Insurance Requirements

Section 04 Liquidated Damages Amounts

Section 05 Labor Compliance Manual

Section 06 Prevailing Wages

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AGREEMENT SECTION 01 – AGREEMENT FORM

THIS AGREEMENT between CENTRAL PUGET SOUND REGIONAL TRANSIT AUTHORITY ("Sound Transit"), on behalf of the Regional Fare Collection System, and [Contractor name], hereinafter called the "Contractor" agree as follows:

The Contractor, for the consideration specified in the Contract Documents, shall in strict accordance therewith perform all the activities required by the Contract Documents for the following project:

SYSTEMS INTEGRATOR FOR NEXT GENERATION ORCA
Contract No. RTA/RP 0119-17

Sound Transit agrees to pay the Contractor for fulfillment of the Work and performance of the covenants set forth in Attachment A, Scope of Work and the other Contract Documents.

The Contract Documents consist of the documents listed below issued prior to execution of this Contract Agreement and all Change Orders issued subsequent to execution of this Contract Agreement. The following is an enumeration of the documents, not in their order of precedence:

- Change Orders
- This Agreement Form and Attachment A Scope of Work, [DATE]
- Addenda, issued for RFP No. RTA/RP 0119-17
- RFP No. RTA/RP 0119-17
- Contractor's Proposal Submittal, [DATE]
- Addenda, submitted to revise Contractor's Proposal Submittal, [DATE]
- Systems General Conditions, [DATE]
- All other Agreement Sections, [DATE]

Such Contract Documents form the Contract and all are as fully a part of the Contract as if attached to this Contract Agreement or repeated herein.

The Contractor agrees to complete the Work, furnish all tools, materials, facilities, and equipment necessary on the terms and conditions specified in the Contract Documents. The Contractor further agrees to assume and perform all of the covenants and conditions required of the Contractor pursuant to these Contract Documents, for the total not-to-exceed Contract Price of [$AMOUNT].

Except as expressly provided in the Contract Documents, no liability shall attach to Sound Transit by reason of entering into this Contract Agreement.

IN WITNESS WHEREOF, the parties have caused this Contract Agreement to be executed as of the dates indicated below.

SOUND TRANSIT:	*CONTRACTOR:*
By: _____	By: _____
Michael Harbour Deputy Chief Executive Officer	_____ Print Name and Title
Date: _____	Date: _____

Approved as to Form:

_____
Sound Transit Legal Counsel

END OF FORM

Attachment A **Scope of Work**

SECTION 01 - SYSTEMS GENERAL CONDITIONS

SYSTEMS GENERAL CONDITIONS

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ARTICLE 1 GENERAL

DEFINITIONS

A. **Acceptance** – ~~The~~ A written notice from Sound Transit to Contractor indicating full and satisfactory physical completion of specific Work ~~all~~ or part of the Work including all physical Punch List work.

B. **Addenda/Addendum** – Written modifications issued by Sound Transit to the Request for Proposals (RFP) that make changes to the Instruction to Proposers and /or Contract Documents.

C. **As-Built Drawings** – Neatly and legibly marked set of Contract Drawings, maintained by the Contractor with up to date information, showing all Changes in the Work, including final locations of all items of Work.

D. **Change** – A~~n~~ written alteration that modifies the scope of Work, equipment, materials, facilities, services, site, performance, schedule, or other material provision of the Contract.

E. **Change Notice** – Request for Proposal (CN-RFP) - A written request by Sound Transit to the Contractor for a Cost and Schedule proposal for a Change to the Contract. A CN-RFP does not authorize the Contractor to commence performance of the changed Work

F. **Change Notice** – Work Directive (CN-WD) - A written directive by Sound Transit to the Contractor to immediately proceed with a Change in the Work. Work Directives are incorporated into the Contract by a subsequent Change Orders.

G. **Change Order** – A written document signed by ~~Sound Transit~~ the parties that alters the scope of the Work, the Contract Time, the Contract Price, or makes any other change to the Contract.

H. **Claim** – A written demand by the Contractor seeking (1) the payment of money or adjustment to the Contract Price; (2) an extension of Contract Time; (3) an adjustment of Contract terms; and /or, (4) other relief arising under or relating to this Contract.

I. **Contract (aka "Agreement")** – Written agreement executed by Sound Transit and the Contractor which sets forth the rights and obligations of the parties in connection with the Work.

J. **Contract Documents** – The Change Orders, Agreement Form with attachments, Special Conditions, General Conditions, Contract Specifications, Contract Drawings, Diversity Program Provisions, any materials referenced therein, and any other documents listed in the Contract as embodying the legally binding obligations between Sound Transit and the Contractor for completion of the Work.

K. **Contract Drawings** – Plans, profiles, typical cross sections, general cross sections, elevations, schedules, and details listed or included in the Contract Documents.

L. **Contract Milestone** – A date specified in the Contract by which the Contractor is required to complete a designated portion, delivery or increment of the Work.

M. **Contract Price** – The amount payable to the Contractor under the terms and conditions of the Contract based on lump sum prices, unit prices, provisional sums, or combination thereof, with adjustments made in accordance with the Contract.

Comment [Legal1]: The change to this definition makes it clear that acceptance notice should be in writing and that it relates to specific Work. Such changes would reduce the risk of any uncertainty as to when Acceptance takes place and it clarifies what Work it relates to.

Comment [Legal2]: The added language clarifies the paragraph. The change would reduce the risk of confusing the change details.

Comment [Legal3]: The added/changed language clarifies the paragraph and makes it more balanced. The change would make it clear that both parties need to sign a Change Order. This will clarify any Change Order and reduce risk of uncertainties.

Comment [Legal4]: The changed/added language clarifies the paragraph. The change would make it clear that both parties need to sign a Change Order. This will reduce risk of uncertainties.

N. **Contract Specifications** – The part of the Contract Documents containing written directions or requirements that specify the requirements which have to be fulfilled for the completion of the Work.

O. **Contract Time** – The time allotted in the Contract Documents for completion of the Work. The Contract Time begins upon the receipt by Contractor ~~effective date~~ of the Notice to Proceed and ends on the date of Final Acceptance. Contract Time incorporates the Contract Milestones established for the Contract.

P. **Contractor** – The person, persons, partnership, joint venture, company or corporation which enters into this Contract with Sound Transit for the performance of Work required by this Contract.

Q. **Contractor's Project Manager** – Contractor's authorized representative designated to perform technical and administrative functions of this Contract, ~~that is charged with the professional execution of this Contract,~~ as designated in writing to Sound Transit.

R. **Cost and Schedule Proposal** – A document prepared by the Contractor at the request of Sound Transit, which proposes in detail changes to the Work and/or adjustments to the Contract Price and/or Contract Time.

S. **Critical Path** – The longest, continuous sequence of activities that begins at the start of the Contract (~~effective date~~ receipt by Contractor of the Notice to Proceed) and concludes with the completion of the Contract Milestone(s). This path represents the longest chain of interrelated activities throughout the network from beginning to end. These activities are critical because delay to an activity on this path ~~will~~ may extend the Contractor's attainment of one or more Contract Milestone(s).

T. **Days or days** – Calendar days, unless otherwise specified.

U. **Defective Work** – Specific elements of the Work that do not conform to the requirements of the Contract and that will not be accepted by Sound Transit, at Sound Transit's discretion.

V. **Equitable Adjustment** – An adjustment to the Contract Price and / or Contract Time to compensate the Contractor for Extra Work, as part of a negotiated Change Order.

W. **Equivalent** – Equal or better quality and performance to that specified in the Contract Documents.

X. **Extra Work** – Furnishing of materials and equipment and the performance of Work neither directly nor by implication called for in the Contract Documents that is necessary for the Contractor's timely completion of the Work through no fault, error, omission, negligence, neglect, lack of planning, or lack of diligence of the Contractor.

Y. **Field Clarification** – a document prepared by Sound Transit and issued to the Contractor that clarifies and/or corrects minor discrepancies in the Contract Documents that do not affect the cost or schedule of the Work.

Z. **Final Acceptance** – Written notice from Sound Transit acknowledging that the Contractor has fulfilled all of its obligations under the Contract and that Sound Transit has accepted the Work as of the date stated in the Notice. Final Acceptance is a condition precedent to Final Payment.

Comment [Legal5]: The addition clarifies that the time for completion only starts when the contractor receives the Notice to Proceed.

Comment [Legal6]: The changed/added language would make the term consistent with Sound Transit's own definition of the duties for its Regional Project Manager. (RFP Article – "Definitions" – UU.)

Comment [Legal7]: The changed/added language clarifies the clause. The change will provide clarity as to when the Critical Path starts, as well as making it clear that this may extend the Contractor's attainment of one or more Contract Milestone(s).

AA. **General Conditions** – Sound Transit's standard general contractual provisions for contracts which, as augmented and supplemented by other Contract Documents, describe the contractual relationship of the parties and their rights and responsibilities to each other.

BB. **Hazardous or Contaminated Substance** – (a) any substance, product, waste, or material of any nature whatsoever which is or becomes listed, regulated, or addressed pursuant to the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. Section 9601, et seq. ("CERCLA"); the Hazardous Materials Transportation Act, 49 U.S.C. Section 1801, et seq.; the Resource Conservation and Recovery Act, 42 U.S.C. Sections 6901, et seq. ("RCRA"); the Toxic Substances Control Act, 15 U.S.C. Sections 2601, et seq.; the Clean Water Act, 33 U.S.C. Sections 1251, et seq.; or any other federal, state, or local statute, law, ordinance, resolution, code, rule, regulation, order, or decree regulating, or imposing liability or standards of conduct concerning any hazardous, toxic, or dangerous waste, substance, or material, as now or any time thereafter in effect; (b) any substance, product, waste, or other material of any nature whatsoever that may give rise to liability under any of the above statutes or under any reported decision of a state or federal court; (c) petroleum or crude oil, excluding de minimus amounts; and (d) asbestos.

CC. **Industry Standards** – Drawings and specifications or portions thereof published by industry organizations, which are not Contract Documents unless specifically listed as such in a Specification.

DD. ***Partial Payment Schedule*** - The breakdown of the Contract Price into incremental performance stages or deliveries..

Comment [Legal8]: Should to be moved to be in alphabetical order – consistent with other definitions.

EE. **Non-Conforming Work** – Specific elements of the Work that do not conform to the requirements of the Contract but that otherwise may be acceptable to Sound Transit, at Sound Transit's discretion.

FF. **Notice** – Communication in writing, unless otherwise specified, which complies with the notice requirements of the Contract Documents, to provide or issue any information, warning, announcement, instruction, consent, approval, certificate or determination by any person or party to the Contract.

GG. ***Notice of Intent to Claim*** - A written notice of a potential claim submitted by the Contractor to Sound Transit within the time limits and in accordance with the conditions specified in the Contract Documents.

HH. **Notice to Proceed** – Written notice issued by Sound Transit which, on the date received by the Contractor establishes the date on which the Contractor may commence Work and directs the Contractor to proceed with all or a portion of the Work.

Comment [Legal9]: The change clarifies the timing of when Notice to Proceed is received and would reduce uncertainty. The definition heading is not in alphabetical order as the rest of the defined terms, and for clarification should be moved to be consistent.

II. **Partial Payment** – Payment of a portion of the Contract Price before the contract is completed for delivery or performance in increments. Delivery and performance incremental stages are defined in the Partial Payment Schedule.

JJ. **Product Data** – Information furnished by the Contractor to describe materials used for some portion of the Work, such as written or printed descriptions, illustrations, standard schedules, performance charts, instructions, brochures, and diagrams.

KK. **Project** – Sound Transit's Project, of which this Contract is a part.

LL. **Project Schedule** – The schedule, prepared by the Contractor in accordance with the requirements of the Contract and accepted by Sound Transit, setting forth the logical sequence of activities required for the Contractor's orderly performance and completion of the Work in accordance with the Contract and specifically to meet the specified Contract Milestones.

MM. **Proposal** – The written proposal submitted to Sound Transit as required by the Request for Proposals.

NN. **Proposal Documentation** – Any and all work papers, spreadsheets, takeoffs, material lists, subcontractor quotes, vendor or material quotes, lists of wage rates and equipment rates (both rented and owned) and any and all papers, documents and electronic information or computer files created or used by Contractor when preparing its Proposal.

OO. **Proposer** – An individual, firm, partnership, corporation, joint venture or other legal entity submitting a proposal for the work.

PP. ***Provisional Sum or Allowance*** - An amount established in the Contract Documents for inclusion in the Contract Price to cover the cost of prescribed items not specified in detail, with provision that variations between such amount and the finally determined cost of the prescribed items will be reflected in Change Orders appropriately adjusting the final Contract Price. Any amount included in the Contract Price but not used in the course of the Work shall be returned to Sound Transit by way of deductive Change Order.

QQ. **Punch List** – The list(s) of elements of the Work that remain to be completed or corrected after achievement of Substantial Completion of the Work or portions of the Work which must be completed as a condition of Acceptance.

RR. **Reference Documents** – Drawings, specifications, and other documents that do not specify Work required by the Contract, but which provide supplemental information regarding the Contract.

SS. **Reference Specifications** – Specifications prepared by or belonging to Utilities or third parties (including but not limited to other governmental bodies) in whose rights-of-way, easements or properties all or part of the Work is to be executed.

TT. **Request for Information (RFI)** – The document by which the Contractor requests clarification, verification or information on a portion of the Work.

UU. **Regional Program Manager** – Sound Transit's authorized representative designated to perform technical and administrative functions of this Contract.

VV. **Safety Certification** – A formal process implemented to ensure that all of Sound Transit's Rail Transit System facilities, equipment, and training programs conform to the established requirements. This includes reviewing and certifying items for compliance with operational safety requirements prior to the start of revenue service to ensure a safe operating Rail Transit System.

WW. **Safety Critical Item** – Any submittal, installation, inspection, or test identified in the Specification Conformance Checklist that has been determined by Sound Transit to have an impact on the safe operation of its Rail Transit System.

XX. **Samples** – 1) Representative quantities of materials taken in specified amounts and frequencies for subsequent testing in accordance with specified procedures; or 2) physical examples of materials to be supplied or workmanship, which shall, when approved by Sound Transit, establish standards by which the Work shall be compared and evaluated.

YY. **Site (aka Project Site)** – The areas that are occupied by or used by the Contractor, Subcontractors, Consultants, Subconsultants during performance of the Work in the Puget Sound area of Washington, and are indicated in the Contract Documents as being within the project limits. This includes any areas outside the project limits, which are designated in writing by Sound Transit as being part of the Project Site. For purposes of the Contract Documents, and not for prevailing wage determinations, off-site precast factories/facilities will not be considered part of the Site.

ZZ. **Software System** – A term used for a system software, written programs or procedures, or rules, and associated documentation designed to perform an intended purpose and identified in the contract documents and requirements. This system may be made up of multiple software programs that are developed by Contractor and licensed ~~for~~ to Sound Transit and/or third party software applications.

AAA. **Sound Transit** – The Central Puget Sound Regional Transit Authority.

BBB. **Special Conditions** – A part of the Contract Documents, which modify the General Conditions and provide information specific to this Contract.

CCC. **Specification Conformance Checklist** – A document that provides evidence that the Sound Transit's Rail Transit System will operate safely in accordance with safety critical requirements for documentation, installation, inspection and testing referenced in the Contract Specifications.

DDD. **Subcontract** –- Any Contract between the Contractor and a Subcontractor, or between Subcontractors of any tier, to perform a portion of the Work.

EEE. **Subcontractor** – An individual, firm, partnership, or corporation that has a contractual obligation with a Consultant, Contractor or other Subcontractor to perform some part of the Work required for the completion of the Contract, and whose principals or employees are actively performing such Work at the Project Site.

FFF. **Submittal** – Written or graphic document or sample that is required by the Contract Documents and is prepared for the Work by the Contractor, a Subcontractor or Supplier, and submitted to Sound Transit by the Contractor, including shop drawings, product data, samples, certificates, schedules of material or other data. Submittals are not Contract Documents.

GGG. **Substantial Completion** – The time at which the Work or a portion thereof has progressed to the point where it is sufficiently complete in accordance with the Contract Documents, so that the Work, or a specified portion thereof, can be utilized for the purpose for which it is intended.

HHH. **Substitution** – An item of significant difference in material, equipment or configuration which functionally meets the requirements of the Contract Documents but does not meet the

Specifications and is equivalent to the specified item.

III. **Suppliers** – Any person, firm, partnership, corporation, joint venture, or combination thereof, other than a Subcontractor, contracting with the Contractor, either directly or through a lower-tiered contractual relationship, to furnish goods or services in connection with the Contract.

JJJ. Intellectual Property of Contractor ~~***Technical Data***~~ - Any plans, drawings, designs, specifications, technical reports, operating manuals, notes, data, documentation, and computer software (in source code and object code form), ~~not specifically~~ other than those licensed by ~~designated as existing proprietary know-how of the~~ Contractor, its Subcontractors or Suppliers~~, which are required~~ to be supplied as part of the Work.

KKK. *Third Party Software*- Any software, firmware, or program reasonably necessary to operate or maintain any part of the System that does not constitute Contractor Software.

LLL. **Unknown Hazardous and Contaminated Substances** – Hazardous or Contaminated Substances that were not indicated in the Contract Documents that were present on the Site, and that are unexpectedly encountered by the Contractor during the performance of the Work.

MMM. **Utility or Utilities** – All public and private facilities, other than the Sound Transit system facilities, which relate to 1) the conveyance and supply of water, sewage, gas, chemicals, steam, petroleum products, and other piped installations; or 2) electrical energy, telephone, telegraph communications, radio, television, and public transit installations.

NNN. **Utility Standards** – Drawings and specifications for Utilities published or issued by municipalities or utility companies.

OOO. **Work** – The requirements of the Contract as specified, shown, indicated or implied in the Contract Documents, including all alterations, amendments or extensions thereto made by Change Orders.

Comment [Legal10]: These changes make it clear that it is the Intellectual Property of Contractor that is referenced. Moreover, that is it the property of the Contractor, and that Contractor has agreed to license said IP to Sound Transit. If the change of description for heading is accepted, the term needs to be moved to be in alphabetical order under "Definitions".

INTENT AND INTERPRETATION OF CONTRACT DOCUMENTS

A. The intent of the Contract Documents is to describe the Work and completion of the Work. Where the Contract Documents describe portions of the Work in general terms, but not in complete detail, the Contractor shall use its best practice ~~shall be followed~~ and, unless otherwise specified herein, Contractor shall use only materials and workmanship that it considers of best quality ~~shall be used~~. Unless otherwise specifically stated in the Contract, the Contractor shall furnish, deliver, provide, and pay for all materials, labor, professional services, tools, equipment, water, light, power, heat, transportation, supervision, temporary Work of any nature, consumables, and other services and facilities of any nature, whatsoever necessary, to execute, complete and deliver the Work within the Contract Time. The Work shall be executed in strict conformance to the Contract requirements.

Comment [Legal11]: It makes it clear that it is Contractor's best practice which is referred to. The second change reflects that there could be references in other documents as to the type of materials and/or workmanship to be applied.

B. The Contract Documents set forth the requirements as to the nature of the completed Work and do not purport to control the means and methods of performing Work, unless specifically set forth in the Contract Documents. The Contractor is wholly responsible for making its own decisions about the means and methods of performing the Work. If any references have been made in the Contract Documents to responsibilities of work by crafts and specialty or trade contractors, these references were made for the convenience of preparing the Contract Documents and are not intended to limit any responsibility of the Contractor to provide a complete installation under the Contract.

CONTRACT IS SUBJECT TO FEDERAL PROVISIONS

The Contract is partially funded by the Federal Transit Administration ("FTA") and/or the Federal Highway Administration ("FHWA") is therefore subject to certain federal provisions. Further, the FTA and FHWA require that certain terms and conditions of the Contract Documents be included in all Subcontracts. The Contractor shall be responsible for ensuring all applicable mandatory Federal provisions are included in all Subcontracts. These mandatory Federal provisions are set forth in Section 02 Federal Provisions.

CONFORMITY TO CONTRACT DOCUMENTS

The Work in all cases shall conform to the Contract Documents or approved modifications thereto, and shall be within the tolerances specified, or, if no tolerance is specified, as determined by the Regional Program Manager.

ORDER OF PRECEDENCE

A. The Contract Documents are intended to be complimentary and to describe and provide for a complete Work. They are also to be interpreted in harmony so as to avoid conflict, with words and phrases interpreted consistent with design industry standards. The documents identified below are listed in order of precedence. To the extent that there are different provisions in Contract Documents that address the same matter or subject and these different provisions conflict, the document having the highest priority that addresses the matter or subject shall control. If conflicting provisions within the same level of Contract Documents exist, and one is more stringent than another, the more stringent provision will prevail.

- Change Orders/Contract Amendments with the most recent taking precedence over earlier dated
- Section 00 Agreement Form with Attachment(s), [DATE]
- Section 01 Systems General Conditions, [DATE]
- Section 02 Federal Provisions, [DATE]
- Section 03 Insurance Requirements, [DATE]
- Section 04 Liquidated Damages, [DATE]
- Section 05 Labor Compliance Manual, [DATE]
- Section 06 Prevailing Wage Rates, [DATE]
- Contract Drawings, [DATE]
- Industry Standards, only when specifically incorporated into a Contract Scope of Work
- Reference Specifications
- Reference Drawings
- Contractor's Proposal

Comment [Legal12]: Language added since Contract Amendments may not be considered Change Orders.

Comment [Legal13]: In accordance with Section 01 Agreement Form – Contract Documents.

B. In case of differences between small and large-scale drawings, the large-scale drawings shall govern. Schedules on drawings shall take precedence over conflicting notations on drawings. In the event of discrepancy between any drawing and the figures written thereon, the figures, unless otherwise indicated, shall govern over-scaled dimensions.

C. References to Industry Standards, material specifications, test methods, or other publications of the Washington Department of Transportation (WSDOT), American Association of State Highway and Transportation Officials (AASHTO), Federal Railroad Administration (FRA),

American Association of Railroads (AAR), American Railroad Engineering and maintenance of Way Association (AREMA), Institute of Electrical and Electronic Engineers (IEEE), American

Society for Testing and Materials (ASTM), other governmental agencies, or other recognized national organizations are those officially adopted by those agencies and organizations. Industry Standards (if specifically incorporated by any Specification) apply only to material, workmanship and procedure. Commercial terms (e.g. Control of Work, Temporary Traffic Control, Legal Relations and Responsibilities to the Public, and Measurement and Payment) are not included in the reference. All material, equipment and workmanship specified by the number, symbol, or title of a referenced Industry Standard shall comply with the latest edition or revision thereof and all amendments and supplements thereto in effect on the date of the Request for Proposals, except where a particular edition or revision thereof is indicated in the reference.

REQUESTS FOR INFORMATION / FIELD CLARIFICATIONS

A. Request for Information

1. If the Contractor discovers, or in the exercise of reasonable diligence should have discovered, that the Work to be performed is not sufficiently detailed or explained in the Contract Documents, or that there is an apparent conflict or inconsistency between any part of the Contract Documents, the Contractor shall promptly apply a Request for Information in writing to the Regional Program Manager for such further written explanations as may be necessary. The Regional Program Manager ~~will~~ shall promptly address the RFI in writing. Before submitting a RFI, the Contractor shall diligently and thoroughly examine the Contract Documents. Costs incurred by Sound Transit to respond to RFIs which could have been avoided had the Contractor examined the Contract Documents shall be the responsibility of the Contractor. The Contractor shall also plan its Work in an efficient manner so as to allow for timely responses to RFIs. If requested by the Regional Program Manager, the Contractor shall prioritize its RFIs and explain the reasons for such priority. The Contractor's submission of an RFI shall be a condition precedent to a Contractor submitting a claim related to any conflict or inconsistency, and the Contractor's failure to apply to the Regional Program Manager for interpretation or clarification of any known conflict or inconsistency shall bar any subsequent claim related to the conflict or inconsistency. The Contractor's submission of an RFI does not fulfill the requirements of Article 10 for timely Notice of Intent to Claim or Notice of Delay and shall not constitute a Claim.

Comment [Legal14]: Language is added/changed for clarification of the paragraph. Time is of essence to both parties and words indicating action timing have been added.

2. Sound Transit will reply to the RFI with reasonable promptness. If Contractor submits an RFI on an activity less than twenty (20) days prior to the commencement of that activity, Contractor shall not be entitled to any time extension or adjustment to the Contract Price due to the time it takes Sound Transit to respond to the RFI.

3. Responses by Sound Transit to RFIs are not changes to the Contract. If Contractor believes a response to an RFI constitutes changed work or causes an adverse impact to performance of the Work or schedule, the Contractor is required to submit a Request for Change in accordance with the requirements of Article 4.02.

B. Field Clarification

If Sound Transit identifies minor discrepancies in or a need to clarify information contained in the Contract Documents, Sound Transit may issue a Field Clarification to so correct the minor

discrepancies or provide the clarification. Because Field Clarifications should not have any effect on the cost or time of performance of the Work, they do not provide for either a time extension or a change in the Contract Price. If Contractor believes that a Field Clarification constitutes changed work for which a time extension or additional compensation is necessary, the Contractor is required to submit a Request for Change in accordance with the requirements of Article 4.02.

SITE INVESTIGATION AND CONDITIONS AFFECTING WORK

A. By submitting its Proposal for the Work and executing the Contract, the Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the condition of the site itself, including without limitation the general and local conditions which can affect the work or its costs, including but not limited to local weather, traffic patterns, availability of labor, available utilities, local requirements, adequacy and accuracy of Contract Documents, the character of equipment and materials required to perform the Work, and conditions bearing upon utilities as relates to temporary or permanent relocation or installation thereof.

B. The Contractor acknowledges that any equipment or site reports referenced in the Contract Documents are only intended to describe the conditions at a particular point in time, and are not guaranteed to represent the actual conditions the Contractor will encounter during the course of the Work. The Contractor acknowledges that it has satisfied itself as to the character, quality and quantity materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the equipment or site and information available to the Contractor in the Contract Documents or Reference Documents.

C. Any failure of the Contractor to take actions described and acknowledged in this Article will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the Work, or for proceeding to successfully perform the Work without additional expense to Sound Transit.

D. By submitting a Proposal for the Work and by executing the Contract, the Contractor certifies that it has carefully reviewed, has had clarified, and understands all of the Contract Documents; has inspected the equipment and site as needed to evaluate and assess all pertinent existing conditions applicable to the Work, and is satisfied as to its ability and intention to conduct and complete the Work required in the Contract Documents on the terms and conditions stated in the Contract. In particular, the Contractor certifies that it has reviewed the requirements for the format and detail of records to be maintained at all times during the performance of Work, and that it has instituted or will implement the preparation and maintenance of all such records. In particular, the Contractor represents as follows:

1. It is familiar with and is satisfied as to all Federal, state and local laws and regulations that may affect the cost, progress, performance and furnishing of the Work;

2. It has correlated with the Contract Documents the information known to the Contractor, information and observations obtained from visits to the site, and reports and drawings identified in the Contract Documents; and

3. It has given Sound Transit written notice of all conflicts, errors, ambiguities or discrepancies that the Contractor has discovered in the Contract Documents and that

the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 2 AUTHORITY AND RESPONSIBILITY

CONTRACT IS BETWEEN CONTRACTOR AND SOUND TRANSIT

The Contractor is an independent contractor with respect to the performance of all Work hereunder, retaining control over the detail of its own operations and the Contractor shall not be considered the agent, partner, fiduciary or trustee of Sound Transit. The Contractor shall not conduct itself as nor claim to be an officer or employee of Sound Transit. The Contractor will not make any claim, demand or application to or for any right or privilege applicable to an officer or employee of Sound Transit, including, but not limited to, worker's compensation coverage, unemployment insurance benefits, social security coverage or retirement membership or credit. No employee of the Contractor or any Subcontractor is or shall be deemed to be an officer or employee of Sound Transit. Subcontractors to the Contractor will not be recognized as having a direct relationship with Sound Transit, nor are Subcontractors intended or incidental third-party beneficiaries to this Contract.

DUTY OF CONTRACTOR

A. The Contractor has sole authority and responsibility to employ, discharge and otherwise control its employees and has complete and sole responsibility as a principal for its agents, for all Subcontractors and for all other persons that the Contractor or any Subcontractor hired to perform or assist in performing the Work.

B. The Contractor shall enforce strict discipline and good order among its employees at all times and shall not employ on the Work any unfit person or anyone not skilled in the task assigned to him or her. Any person employed on the project by the Contractor or any of its Subcontractors who, in the opinion of Sound Transit, is not needed to perform assigned work, is not qualified or licensed, does not perform his or her work in a proper and skillful manner or is intemperate, disorderly, reckless, or engages in any abuse or harassment, shall, at the written request of Sound Transit, be removed forthwith by his or her employer, shall not again be employed on the project without the approval of Sound Transit, and shall at the Contractor's own expense be replaced by a suitably qualified person.

AUTHORITY OF REGIONAL PROGRAM MANAGER

A. Sound Transit will designate a Regional Program Manager prior to or concurrent with Sound Transit's issuance of the Notice to Proceed. The Regional Program Manager is Sound Transit's point of contact for the Contractor. The Regional Program Manager shall have the authority to manage the Contract so that the completion thereof may be accomplished in accordance with the contractual requirements.

B. The Regional Program Manager may designate technical support staff to perform functions under the Contract, such as inspection of the Work, review and/or inspection and acceptance of materials, supplies, services, witness of functional testing, and other functions of a technical or administrative nature.

C. Sound Transit and the Regional Program Manager, or a designee, shall have access to the Site and the Work at all times. Should the performance of the Contractor, or the quality of the

Contractor's work or materials furnished, not meet the standards specified, the Regional Program Manager may take or require such measures as the Regional Program Manager deems necessary to ensure compliance with contractual requirements. Any failure by the Regional Program Manager to take these actions shall not relieve Contractor from performing its Contract obligations. The Contractor shall carry out the instructions of the Regional Program Manager or any person to whom the Regional Program Manager delegates authority and gives the Contractor written notice of said delegation, concerning the Work.

CONTRACTOR'S PROJECT MANAGEMENT AND SUPERVISION

A. The Project Manager shall be Sound Point's main point of contact for the Contractor. The Project Manager shall have the authority to manage the Contract so that the completion thereof may be accomplished in accordance with the contractual requirements. ~~shall have complete authority to represent and to act for the Contractor.~~ If for any reason and at any time, the Project Manager and/or Lead Engineer submitted by the Contractor is not acceptable to Sound Transit, or becomes unacceptable, the Contractor shall propose additional candidates within ten (10) days of receiving written notice from Sound Transit. If the Contractor wishes to replace its Project Manager or Lead Engineer at any time during the performance of this Contract, it first shall submit the résumé of its new candidate to Sound Transit for Sound Transit's approval, which shall not be unreasonably withheld or delayed. The Contractor shall not make the substitution without Sound Transit's prior written approval. Sound Transit shall have the right to require the Contractor to remove the Project Manager or Lead Engineer from the Site in the event either fails to uphold or meet the requirements of the Contract or fails to perform in a competent, qualified or professional manner. Failure by Sound Transit to remove such personnel shall not relieve Contractor of its Contract obligations.

Comment [Legal15]: Change made to make it clear who is Contractor's Project Manager point of contact during the Project.

Comment [Legal16]: Term added since time is of essence to the parties and any cause of action which is delayed may negatively impact the time-line for the project, and therefore such approval should not be delayed.

A. The Contractor's Project Manager, or a designee, shall be present at the site of the Work at all times while the Work is actually in progress. The Contractor's Project Manager shall notify the Regional Program Manager of the name(s) and means to contact the individual(s) who have the authority to act for the Contractor's Project Manager at such times that the Contractor's Project Manager is not present on any particular part of the Work. In the absence of such notification, the Regional Program Manager may give direction to the superintendent or foreman in charge of the particular part of the Work in reference to which the directions are given so long as said directions are confirmed by the Regional Program Manager in writing to the Contractor's Project Manager.

B. The Contractor was awarded the Contract due in part to the Contractor's submittal of qualifications for key personnel. Contractor's failure to use such key personnel after award of the Contract shall (subject to the exception in ~~Part~~ Article 2.04D) constitute a breach of Contract entitling Sound Transit at its option to any and all remedies, including but not limited to specific performance, revocation of the Contract Award, refusal to authorize Notice to Proceed, suspension of Work for such time period as is necessary for Contractor comply with the Contract by mobilizing the specific individuals, and/or termination of the Contract. If Sound Transit elects to continue the Work with Contractor's replacement key personnel, Sound Transit may, in addition to all other remedies available to it, deduct 0.3 percent of the initial Contract Price as damages for such substitution of one or more of the key personnel. Contractor acknowledges that in that event such amount is not a penalty and constitutes a reasonable estimate of damages to Sound Transit associated with the replacement of the key personnel on which Sound Transit relied for the award of this Contract.

C. Sound Transit will not enforce the provisions in ~~Part~~ Article 2.04C in the event compliance becomes impossible or commercially impracticable, provided Contractor first submits substitute key

personnel of equivalent skills, credentials and experience for approval by Sound Transit which shall not be unreasonably withheld or delayed.

Comment [Legal17]: The first change is just a clarification to use the term Article instead of Part. (Article is used otherwise in the Contract.) The second change is explained above under changes to 2.4, as with regards to delay, and is added to make it clear that delay is not a proper cause for not acting since such action may prevent Contractor to continue work on the project in a timely manner.

SUBCONTRACTING

A. The Contractor was awarded the Contract due in part to the Contractor's submittal of qualifications for major Subcontractors and suppliers. Contractor's failure to use such Subcontractors after award of the Contract shall (subject to the exception in ~~Part~~ Article 2.05B~~)~~ constitute a breach of Contract entitling Sound Transit at its option to any and all remedies, including but not limited to specific performance, revocation of the Contract Award, refusal to authorize Notice to Proceed, suspension of Work for such time period as is necessary for Contractor comply with the Contract by mobilizing the specific individuals, and/or termination of the Contract. If Sound Transit elects to continue the Work with Contractor's replacement Subcontractor, Sound Transit may, in addition to all other remedies available to it, deduct 0.3 percent of the initial Contract Price as damages for such substitution of one or more of the Subcontractors. Contractor acknowledges that in that event such amount is not a penalty and constitutes a reasonable estimate of damages to Sound Transit associated with the replacement of the Subcontractor on which Sound Transit relied for the award of this Contract.

Comment [Legal18]: Term changes to be consistent with the use of Article otherwise in the Contract.

B. Sound Transit will not enforce the provisions in ~~Part~~Article 2.04A in the event compliance becomes impossible or commercially impracticable, provided Contractor first submits substitute Subcontractor of equivalent skills, credentials and experience for approval by Sound Transit which shall not be unreasonably withheld or delayed.

Comment [Legal19]: Language was changed to reflect the use of the term Article as used otherwise within the Contract. The second change as to "delayed" is explained above (2.4.A & D.) and is added to make it clear that delay is not a proper cause for not acting since it may prevent Contractor to continue work on the project during the delay.

C. The Contractor shall be responsible for obtaining from its Subcontractors and submitting to Sound Transit all required certifications, documentation, and submittals, including but not limited to technical submittals, federal certificates, small business compliance forms, or other documentation that is required to be submitted under the terms of this Contract. The Contractor shall be responsible for ensuring that all Contract requirements provided for in the Contract Documents that are specific to subcontracting will be included in Subcontracts, including but not limited to all reporting requirements and mandatory Federal provisions set forth in Section 02, Federal Provisions.

D. The Contractor is responsible for evaluating each of its Subcontractors under this Contract and shall award subcontracts only to responsible Subcontractors. All Subcontractors shall be properly licensed, registered, or certified, as applicable, to perform the assigned Work. If requested by Sound Transit, the Contractor shall provide documentation regarding the Contractor's evaluation of any Subcontractor's responsibility and that the Subcontractor is properly licensed, registered or certified, as applicable. The Contractor shall require all Subcontractors to comply with all provisions of this Contract and shall pass down the requirements of this Contract to its Subcontractors so that all the applicable provisions of this Contract are fully effective.

E. Within thirty (30) days of the signing of each subcontract, the Contractor shall submit to Sound Transit a Business Participation Plan. The Business Participation Plan shall identify the Subcontractor, provide the data on which the responsibility determination was based, and provide the socio-economic profile data of the Subcontractor. The Contractor shall include a copy of the subcontract (or at least that portion of the subcontract that demonstrates that all required federal clauses were included in the subcontract) with the Subcontractor Participation

Comment [Legal20]: The change reflects the need for Sound Transit to define the term. The term is capitalized but not defined in section "Definitions", nor is it defined within the article(s) in which the term is used.

Plan. The copy of the subcontract that is submitted to Sound Transit shall have been signed by both the Contractor and the Subcontractor. Proprietary provisions may be redacted. A sample Subcontractor Participation Plan form will be provided by Sound Transit.

Comment [Legal21]: The change adds language to protect any proprietary information in the Subcontract.

F. Contractor shall submit a Monthly Report on Subcontractors, on a form provided by Sound Transit, as part of its monthly partial payment request. Submission of a completed Monthly Report of Subcontractors shall be a condition precedent to Sound Transit processing partial payment requests.

G. If the Contractor believes that a Small Business / Disadvantage Business Enterprise (SB/DBE) Subcontractor that was listed at any tier to fulfill the Contractor's SB/DBE commitment may not be able to successfully complete any portion of the subcontracted Work, the Contractor shall immediately identify to the Regional Program Manager the Subcontractor at issue, the reason for believing such subcontractor may not be able to perform the subcontracted Work, and any actions being taken by the Contractor to mitigate such possibility.

H. No Work shall be subcontracted to new Subcontractors without written notification to Sound Transit, on a form provided by Sound Transit. No substitutions shall be made for any Small Business/Disadvantaged Business Enterprise Subcontractor that was listed to fulfill the Contractor's SB/DBE commitment without written notification to, and approval by, Sound Transit; such approval to be neither unreasonably withheld or delayed. The Contractor's Request for Substitution of Subcontractors shall be made on a form provided by Sound Transit.

Comment [Legal22]: Language added to make sure that work continues as soon as possible.

I. Subcontracting shall create no contract between Sound Transit and the Subcontractor, nor shall the Subcontractor have any rights against Sound Transit by reason of its Subcontract with the Contractor. The Contractor shall be responsible for all Work furnished, and no Subcontract shall relieve the Contractor of any of the Contractor's obligations or liabilities under the Contract.

J. The Contractor shall be fully responsible and liable for the acts or omissions of all Subcontractors and Suppliers including persons directly or indirectly employed by them, their guests, and invitees. The Contractor shall have sole responsibility for managing and coordinating the operations of its Subcontractors and Suppliers, including the settlement of disputes with or between them.

K. If a Subcontractor's work fails to meet Contract requirements or demonstrates careless or unacceptable workmanship and the Subcontractor fails to respond to notice of such defective work or to improve workmanship, the Regional Program Manager may direct the Contractor to replace the Subcontractor, in which event the Subcontractor shall not again be employed on the Work under the Contract.

L. The on-site production of materials produced by other than the Contractor's forces shall be considered as subcontracted. The erection, establishment, or reopening of on-site facilities for production of materials and the operation thereof in the production of said materials for use on the Work shall conform to the requirements relating to labor and insurance set forth in the Contract Documents.

M. The performance of the Work may require Sound Transit or other ORCA partner agencies to work and/or communicate directly with Subcontractors from time to time. As such, Sound Transit or other ORCA partner agencies shall not direct Subcontractors to do work without advance written permission from the Contractor.

Comment [Legal23]: The term is added to clarify that such notice needs to be provided before such communication is attempted.

CONTRACTOR'S FACILITIES AND EQUIPMENT

The Contractor shall furnish facilities and equipment that shall be of adequate number, size, and condition to produce satisfactory quality of Work, including without limitation all applicable federal requirements. All facilities and equipment used by the Contractor shall meet all applicable safety, noise, and emission regulations and permit requirements as well as other requirements of the Work. Facilities and equipment that fails to meet the requirements of the Contract or to produce a satisfactory product or result shall, upon written order by Sound Transit, be removed immediately and not used again on the Project without Sound Transit's prior written approval. All additional costs, delay or impact resulting from Contractor's use of facilities or equipment failing to meet Contract requirements shall be at Contractor's expense.

ACCEPTANCE OF EXISTING CONDITIONS

If any part of the Contractor's Work depends on proper execution of the work of other forces or existing conditions, the Contractor shall report to the Regional Program Manager, before using the work, all defects found in such work that render it unsuitable for the Contractor's Work. Such report shall be in writing and shall be submitted within thirty (30) days of being granted access to the work. Failure of the Contractor to report such defects shall constitute an acceptance of the other forces' work or existing conditions as fit and proper for the execution of the Contractor's Work and shall preclude any claim for additional compensation or schedule extension for uncovering the Work or correcting defects, except for defects in the other force's work which are latent and not reasonably discernible. Any request for additional compensation based on defective work of others or existing conditions shall be governed by the procedures of Article 4, Changes and Change Order Process.

ARTICLE 3 CONTROL OF THE WORK

NOTICES AND COMMUNICATIONS

A. Sound Transit

All notices, communications, product data, submittals, and other documentation (hereinafter "Communications") submitted by the Contractor to Sound Transit during the course of Contract performance shall be in writing and in English. The Contractor shall deliver Communications to the Regional Program Manager either in person or at his/her designated office via courier, U.S. Postal Service, or overnight delivery service. Communications by facsimile and e-mail shall be confirmed with original documents properly numbered and delivered.

B. Contractor

Communications from Sound Transit shall be delivered through the Regional Program Manager and shall be deemed to be well and sufficiently given to the Contractor if delivered to its project office, if mailed or delivered to the Contractor's post office box or address as stated in the Contract, or if faxed to the Contractor at a designated fax number or emailed, followed up by hard copy.

C. Communications shall be numbered and marked in accordance with specifications related to Document Control in the Contract Documents.

COORDINATION WITH OTHERS

A. Sound Transit reserves the right to perform work not included in the Contract or let other contracts to third parties to perform other work in the vicinity of, or relating to, this Contract. Other government agencies may also be performing other work in the vicinity of or relating to this Contract such as inspections, maintenance / relocation / equipment installation / and other activities. Private developers or businesses may be engaged in activities in the vicinity of, or relating to, this Contract. The Contractor shall cooperate with Sound Transit, other agencies, and other contractors or developers in scheduling and coordinating the Contractor's Work with the work of others in order to minimize conflicts, avoid interruptions or delays to others and promote the orderly completion of the Work as a whole. The Contractor shall not commit or permit any act that will interfere with the performance of work by any government agency, contractor, developer, or Sound Transit. In the event Contractor incurs additional costs or extended delays as a result of such compliance Contractor shall be entitled to make claim for additional time and/or compensation.

Comment [Legal24]: Sentence added, since it is reasonable that Contractor should be entitled to make a claim for additional time and/or compensation for these types of incidents not caused by the Contractor but by the actions of Sound Transit and/or its agents and/or other partners of Sound Transit.

B. Unless specifically identified otherwise, the Contractor may not have exclusive access to or use of work areas. Unless the Contractor has exclusive access to a work area, the Contractor may be required to use facilities and areas concurrently with others. When other forces are employed on related or adjacent work, the Contractor shall conduct its operations in such manner as to cause the least possible delay and hindrance to the other forces. The Contractor shall be responsible to Sound Transit for all damage to the Work, persons, and property caused to other forces by Contractor's operations and for loss to other forces caused by the Contractor's unnecessary delays and for failure to finish the Work within the time specified for completion.

C. If the Contractor is unreasonably delayed by others, immediate notification shall be made in writing to the Regional Program Manager. Any request for a time extension or additional compensation allegedly resulting from such delay shall be made in accordance with the procedures of Article 4, Changes and Change Order Process and Article 10.02 B, Delays. The Contractor shall mitigate and minimize any such delay by other forces.

CONTRACT RECORDS

A. The Contractor shall keep and maintain comprehensive records and documentation relating to the Work under this Contract, as well as documents related to the Contractor's proposal for this Contract. The Project Records shall include, but are not limited to, submitted Proposal, Contract Documents, subcontracts (if any), purchase order(s), employment records, payrolls, project cost accounting records, prevailing wage records, plans, specifications, addenda, shop drawings, Change Orders, and all working documents leading to Change Orders, field test records, quality control documents, daily logs by all field supervisors and project management personnel, correspondence relating to the Contract, and drawings labeled as as-built. Project records shall be maintained and retained by the Contractor for the audit period required under Article 3.04 below.

B. EEO/Non-Discrimination Documentation. The purpose of this sub-section is to ensure that the Contractor and all of its subcontractors at every tier maintain sufficient written documentation so that Sound Transit can easily and quickly verify that all hiring and termination decisions related to workers fully complies with applicable Title VI, equal employment opportunity and non-discrimination laws, regulations, and policies. When any employee or prospective

employee of the Contractor or in the event Contractor becomes aware a subcontractor at any tier (including, but not limited to, an apprentice or journey-level worker sent by the appropriate union hall) is terminated, turned

away without the opportunity to work, or otherwise denied the opportunity to work on the Site for any reason other than completion of all work to be performed by individuals with the skills of the particular worker, the Contractor shall retain, and make available to Sound Transit within 5 business days of a request to review, the following documentation:

1. Written documentation explaining why the specific individual was terminated, turned away, or otherwise denied the opportunity to work on the Site; and

2. Written objective, non-discriminatory criteria used to determine whether such individual was sufficiently qualified to perform the work and how such criteria relates to the particular work.

If, without excusable event, Contractor fails to provide complete and detailed documentation to Sound Transit within 5 business days of receipt of Sound Transit's written request, liquidated damages not exceeding ~~in~~ the amount of $10,000 in total will be assessed ~~per business day that such documentation has not been provided to Sound Transit~~. Contractor acknowledges that liquidated damages will not be considered a penalty and constitutes a reasonable estimate of damages to Sound Transit associated with the Contractor's failure to timely submit the required documentation and Sound Transit's inability to publicly demonstrate that the Contractor is fully complying with Title VI, EEO and non-discrimination requirements in the Contract.

C. Cost records shall be kept in accordance with generally accepted accounting principles and the Contract Documents and shall include all records reasonably necessary, as reasonably determined by Sound Transit and provided in writing, in advance to Contractor, to verify all costs incurred and any schedule revision required.

D. The Contractor shall ensure each of its Subcontractors maintains and retains for said audit period all Project Records pertaining to the performance of the Subcontractor's Work under this Contract in full compliance with Article 3.03A and B. In the event this Contract is funded in part with federal funds, and the federal grant requires different reporting or retention periods, the more stringent requirement will apply.

Comment [Legal25]: This addition is added in the event a Subcontractor fails to keep such records.

Comment [Legal26]: The additions and/or changes are made to provide the Contractor with some protection if it relates to an excusable event, and that the clock does not run until the written request from Sound Transit is received by Contractor. This refers to the duties imposed on the Contractor under this paragraph. The amount of damages for a breach of this clause should not exceed $10,000 in total since this sum bears a more reasonable relationship with the alleged harm.

Comment [Legal27]: The words added are to ensure that Contractor has adequate notice.

AUDIT ACCESS TO RECORDS

The Contractor shall permit, and shall require Subcontracts to permit, authorized representatives of Sound Transit, the U.S. Department of Transportation, and the Comptroller General of the United States to audit, inspect, examine, and copy the Project Records that are maintained by Contractor, any affiliated company or any Subcontractor involved in the Contract at any reasonable time and shall provide such assistance as may be reasonably required in the course of such inspection, including the right to interview personnel. Sound Transit further reserves the right to examine and re-examine the Contract Records during the six (6) year period following the Final Payment and until all pending matters are closed. Such audit(s) may include examination of the Contract Records for evaluation of any Change Order or Claim, or any issue related to performance of the Work. The Contractor shall in no event dispose of, destroy, alter, or mutilate said Contract Records in any manner whatsoever for six (6) years after Final Payment and until all pending matters are closed. No additional compensation will be provided to the Contractor for compliance with the requirements of this Article.

SUBMITTALS AND SHOP DRAWINGS

A. Where required by the Contract Documents, the Contractor shall submit specified information that will demonstrate that the Contractor's proposed materials, equipment, or methods of Work

are in compliance with the Contract Documents. Sound Transit will not be obligated to accept or pay for materials, equipment or Work for which submittals are required herein, unless and until all submittals have been submitted and reviewed in accordance with the Contract Documents.

B. Review and other appropriate action with regard to Submittals by Sound Transit shall be for general conformance with the Contract requirements and shall not relieve the Contractor of responsibility for any errors or omissions in such Submittals, nor from compliance with the requirements of the Contract Documents; and further, the Contractor shall have no claim under the Contract on account of the failure, or partial failure, of the method of work, material, or equipment so reviewed. Review by Sound Transit shall not constitute approval of the safety precautions employed by the Contractor or constitute approval of the Contractor's means or methods of the Work. The Contractor shall not deviate from shop drawings, product data, samples, or similar submittals that have been reviewed with a finding of "No Exception Taken" without submitting the proposed deviation for Sound Transit's review and appropriate action.

C. Sound Transit reserves the right to charge the Contractor for all, or some portion of, the costs of excessive or unreasonable costs of reviewing submittals repeatedly rejected for being incomplete or inadequate.

D. Submittals offered to demonstrate methods, procedures, sequences, or duration for performing the Work or to detail temporary elements such as shoring or formwork, shall be reviewed by Sound Transit for general compliance with applicable requirements of the Contract. Such review will not include a detailed analysis of the design or an evaluation of the adequacy of the method, procedure, resource commitments, or time allocated for performance.

E. Contractor shall make Submittals to Sound Transit only after (1) reviewing all Contractor and Subcontractor Submittals for accuracy and compliance with the Contract and (2) coordinating all Submittals with all Work by other trades.

CUTTING AND PATCHING

The Contractor shall be responsible for all cutting, fitting, and patching required to complete the Work or to make its parts fit together properly. The appearance following any cutting, fitting, or patching shall conform to the appearance of adjacent like materials or surfaces and be consistent with the overall appearance of the Project. The Contractor shall be responsible for any damages caused by its cutting, fitting, and patching, whether of its own Work or of other work affected by the cutting, fitting or patching. The Contractor may not alter any work other than its own except by permission by Sound Transit. Such permission by Sound Transit shall not relieve the Contractor from responsibility for the Work affected by the cutting, fitting, or patching.

INSPECTION, SAMPLING, AND TESTING

A. Contractor Testing

1. It is the Contractor's responsibility to provide materials, supplies, equipment and workmanship that conforms to the Contract Documents. Unless specifically provided otherwise in the Contract Documents, the Contractor shall be responsible for demonstrating and documenting that the materials or equipment to be incorporated into the Work comply with the Contract Documents. Materials testing shall be

performed by an Independent Testing Laboratory in accordance with the Contract Documents. The Contractor shall bear all costs of said tests.

Comment [Legal28]: The term is capitalized but not properly defined in the paragraph used, nor it is defined in "Definitions" under Article 1, and as such needs to be defined by Sound Transit.

2. In the event that a third-party public agency has authority over materials or equipment, approval must be obtained from said third-party public agency prior to Sound Transit's approval. Approval by a third-party public agency does not constitute approval by Sound Transit. The Contractor shall provide Sound Transit, and any applicable third-party public agency, with a schedule by which any testing will be conducted as well as timely notice of the time and place of any such tests. The Contractor shall maintain complete test records and submit them to Sound Transit upon request or as required elsewhere by the Contract Documents.

3. Any mechanical, electrical and instrumentation systems which function as a completed system must be tested or inspected as a complete system in addition to any tests or inspections conducted for the component parts.

4. If conformance of materials or equipment to the requirements in the Contract is not determinable through inspection and tests, the Contractor shall provide properly authenticated documents, certificates, or other satisfactory proof of conformance. Such documents, certifications, and evidence shall include performance characteristics, materials, and the physical and chemical characteristics of materials. All costs associated with such certification shall be paid by the Contractor.

B. Sound Transit Inspection and Testing

1. Sound Transit reserves the right to sample, inspect, or test the materials, equipment, and Work, as it deems necessary at any reasonable time during the Work. Said testing and inspection may occur on or off the site. Sound Transit shall conduct such tests or inspections in a manner that will cause no undue delay in the Work. The Contractor shall provide Sound Transit with sufficient notice, access, and assistance to allow Sound Transit's representative to inspect, sample, and test materials and equipment prior to their incorporation into the Work or to inspect, sample, or test Work prior to covering the Work. Re-inspection or re-testing required because of non-conformance to specified requirements will be charged to the Contractor.

2. Sound Transit, at any time prior to Final Acceptance, may require the Contractor to uncover either portions of or all of the Work for inspection, sampling, and testing. The Contractor shall restore these portions of Work to the standard required by the Contract. The uncovering and restoration shall be done at the Contractor's expense, if the Work uncovered does not comply with the Contract, if it complies but was done without required documentation, or if Sound Transit was given insufficient notice to allow adequate time for inspection, sampling, or testing. If the Work uncovered meets the Contract requirements and was done with sufficient notice to Sound Transit, the costs of uncovering and restoration shall be paid by Sound Transit in accordance with Article 4, Changes and Change Order Process.

3. The Regional Program Manager may inspect the production of material or the manufacture of products at the source of supply. Facilities inspection, however, will be undertaken with the cooperation and assistance of both the Contractor and the material

producer. The Regional Program Manager or the Regional Program Manager's authorized representative shall have reasonable entry at all times to such parts of the facilities as concern the manufacture or production of the materials. Adequate facilities shall be furnished free of charge to make the necessary inspection. The Regional Program Manager assumes no obligation to inspect materials at the source of supply. The responsibility for incorporating satisfactory materials in the Work rests entirely with the Contractor, notwithstanding any prior inspections or tests.

4. The Regional Program Manager's inspection is conducted to verify that the Contractor has performed its work properly. Any observation, verification, inspection, or approval of the Work or materials by Sound Transit shall not relieve the Contractor of any of the Contractor's obligations to fulfill the Contract as prescribed. Work and materials not meeting Contract requirements shall be made acceptable to Sound Transit. Unsuitable work or materials may be rejected, notwithstanding that payment for such Work or materials may have been previously authorized and included in a Partial Payment.

5. Unless the subject items are expressly accepted by Sound Transit in writing, any inspection and testing done by Sound Transit is for the sole benefit of Sound Transit only and does not constitute or imply acceptance; relieve the Contractor of responsibility for providing adequate quality control measures; relieve the Contractor of responsibility for risk of loss or damage to the Work, materials, or equipment; relieve the Contractor of its responsibility to comply with the requirements of the Contract Documents; or impair Sound Transit's authority to reject defective or non-conforming Work or invoke any remedy to which it may be entitled.

NON-CONFORMING WORK AND DEFECTIVE WORK

A. Defective Work - If Sound Transit determines that material, equipment, or workmanship proposed for or incorporated in the Work does not fully comply with the requirements of the Contract and will not be accepted by Sound Transit (Defective Work), Sound Transit may reject such Work upon written notice to the Contractor. In such event, Sound Transit may, at its discretion, (1) require the Contractor to promptly repair, replace or correct all Work not performed in accordance with the Contract; (2) require the Contractor to provide a suitable corrective action plan, which shall only be performed if approved by Sound Transit; or (3) provide a suitable corrective action plan and direct the Contractor to execute it, and in such case Contractor shall have the option of (i) implementing the Sound Transit plan or (ii) promptly repairing, replacing or correcting all Work not performed in accordance with the Contract. Regardless of the option chosen by Sound Transit, the Contractor shall implement such plan with no delay to the Project Schedule, at no additional cost to Sound Transit, and within a period provided by Sound Transit. If the corrective action plan as accepted or directed by Sound Transit does not remedy the Defective Work, the Contractor shall remain responsible for remedying the Defective Work to Sound Transit's satisfaction and at no additional cost or schedule delay to Sound Transit. The Contractor shall also be responsible for repairing all property and work damaged by the Contractor at no cost or schedule delay to Sound Transit.

B. Non-Conforming Work - Sound Transit may at its option retain Work that does not fully comply with the requirements of the Contract. Sound Transit shall provide Contractor promptly with detailed written notice of the manner in which it considers the Work not fully in compliance with the requirements of the Contract. Failure to do so shall be considered full compliance by

Contractor of its obligation to provide Work fully in compliance with Contract specifications. A reasonable value for such Non-Conforming Work will be determined by Sound Transit, and appropriate deductions will be made in the payments due or to become due to the Contractor. Final acceptance will not act as a waiver of Sound Transit's

Comment [Legal29]: The changes made are so the Contractor have full notice of concerns Sound Transit may have as to the work.

right to recover from the Contractor an amount representing the deduction for retention of Non-Conforming Work.

C. Sound Transit's inspection of the Work or right to reject Work that does not fully comply with the Contract shall not relieve the Contractor of its responsibility for performing the Work in full conformance with the Contract Documents. Other than as set forth herein, ~~N~~no failure or forbearance of Sound Transit in notifying the Contractor of Work that does not fully comply with the Contract shall relieve the Contractor of its Contract responsibility to ensure that the Work is performed in accordance with the Contract Documents.

Comment [Legal30]: Language added for clarification, and it refers to the change made under subparagraph B.

ACCEPTANCE OF WORK

A. Inspection - When the Contractor has concluded the Work or a designated portion thereof, the Contractor shall notify Sound Transit in writing that the work is complete and ready for inspection. Upon receipt of the notification, Sound Transit will promptly by inspection determine the actual status of the Work in accordance with the terms of the Contract. If Sound Transit finds materials, equipment, or workmanship not in conformance with the Contract, Sound Transit will prepare a punch list of such corrective items and submit the list to the Contractor. At any time prior to Acceptance, Sound Transit may add punch list items. The Contractor shall complete all punch list items and notify Sound Transit that the Work is ready for Acceptance. Upon such notice, Sound Transit will verify that the Work has been completed. If such Work has not been completed and additional inspections become necessary because of the acts or omissions of the Contractor, the Contractor shall reimburse Sound Transit for its costs related to such inspections. Following completion of the corrective Work and inspection by Sound Transit, Sound Transit shall issue a Notice of Acceptance of the Work or a designated portion thereof.

B. Substantial Completion - At the Contractor's request or as determined by Sound Transit, Sound Transit will conduct an inspection and review of required documents to determine Substantial Completion of all or a designated portion of the Work. If upon inspection and document review, Sound Transit determines that the Contractor has in fact achieved Substantial Completion, Sound Transit will issue to the Contractor a Notice of Substantial Completion. The Notice of Substantial Completion will provide the Contractor with a punch list of corrective actions or other work to be completed for Acceptance. The Contractor shall complete all punch list work within thirty (30) days after receiving the Substantial Completion Notice. Failure to do so may result in a determination by Sound Transit to have the work done by others. The Contractor will be responsible for all costs associated with completing the punch list work. Further, Sound Transit reserves the right to commence use of any portion of Work that has been substantially completed. In such event, Sound Transit will assume care, custody and control of said portion of the Work, including responsibility for operation and maintenance costs associated with use of said Work. In no case shall the Notice of Substantial Completion be construed as relieving the Contractor from liquidated damages due to delay for any portion(s) of the Work not specifically referenced therein, or any other requirement under the Contract Documents. Such Notice shall not constitute Acceptance or Final Acceptance.

Prior to Sound Transit granting Substantial Completion for any Contract Milestone, the Contractor is required to have submitted acceptable copies of all as-built drawings, operation and maintenance manuals, test report and warranties, and Contractor must have provided and

completed all training of operations and maintenance personnel required by the Contract that are associated with the Milestone for which Substantial Completion is being requested.

C. Acceptance -A written Notice of Acceptance issued by Sound Transit shall constitute Acceptance of a designated portion of the Work. A Notice of Acceptance shall not waive claims by ~~or rights of~~ Sound Transit ~~to revoke acceptance or~~ for any unauthorized, Non-Conforming or Defective Work, nor shall the making of any Partial Payment be deemed a waiver of claims or rights of Sound Transit under this Contract. Sound Transit shall not be barred from requiring the Contractor to remove, replace, repair, or dispose of any unauthorized, Non-Conforming or Defective Work or from recovering damages for any such Work. Contractor shall remain responsible for site security where it has sole access through the date of Acceptance. Sound Transit's rights hereunder shall exist and remain to the full extent permitted by law and as set forth in this Contract. The Contract Warranty shall commence upon Acceptance.

Comment [Legal31]: The change is made since the Contractor should not be responsible where other parties have access to such area. Multiple access gives Contractor no control but could result in penalty as the paragraph was initially written.

D. Final Acceptance - A written Notice of Final Acceptance shall constitute Sound Transit's acknowledgement that the Contractor has fulfilled all of its obligations under the Contract and that Sound Transit has accepted the Work as of the date stated in the Notice. The Contractor may request Final Acceptance from Sound Transit upon full and satisfactory completion of all Contract Work and fulfillment of all obligations under this Contract.

USE OF COMPLETED OR PARTIALLY COMPLETED PORTIONS OF THE WORK

A. Sound Transit shall have the right to take possession of or use completed or partially completed portions of the Work notwithstanding that the time for completing such portions may not have expired. Such use by Sound Transit shall in no case be construed as Substantial Completion, Acceptance or Final Acceptance of the Work, and shall neither relieve the Contractor of any of its responsibilities under the Contract, nor act as a waiver by Sound Transit of any of the conditions thereof. Such use shall not trigger the commencement of Warranty provisions under this Contract or as provided by manufacturers, unless specifically provided otherwise in writing by Sound Transit. Operations and maintenance costs, as well as responsibility for all Work incurred as a result of Sound Transit's use of such portions will be borne by Sound Transit.

Comment [Legal32]: Language added to clarify that any such use will be on the responsibility of Sound Transit.

B. If such use increases the cost or delays the completion of remaining portions of the Work for which Contractor seeks payment and/or additional time, the Contractor must notify Sound Transit of its Request for Change in writing as required by the Contract and may be entitled to such additional compensation or extension of time, or both, as determined in accordance with Article 4, Changes and Change Order Process. Any disputes regarding such entitlement shall be resolved in accordance with the provisions of Article 10, Delays and Claims. The Contractor shall not be entitled to extra compensation for Sound Transit's possession of portions of Work that are specifically required in the Contract to be placed into use and operation or that are required to be turned over to Sound Transit upon a given Contract Milestone date before completion of the entirety of the Work.

C. In the course of such use, if the Work proves to not be in compliance with the Contract, Sound Transit shall have the right to continue such use until such portion of the Work can be taken out of service so that the Contractor can, at no additional cost to Sound Transit, correct defects, errors, omissions, or replace unsatisfactory materials, as necessary for such portions of the Work to comply with the Contract. Upon notice and opportunity to cure by the Contractor,

Sound Transit, at its option, may perform or have another entity perform the corrective work. The Contractor shall remain responsible for the cost of the corrective work. In the event that the Work is determined to be in compliance with the Contract at the time Sound Transit takes possession Sound Transit shall be fully responsible for all costs of whatever nature required to return the Work to its original state.

Comment [Legal33]: The language is added to protect Contractor in case the work was originally in compliance with Contract.

LOSS OR DAMAGE TO WORK AND MATERIAL

Other than as provided above, ~~U~~until Sound Transit's Acceptance of any completed or partially completed Work, the Contractor shall have the responsibility for care, custody and control of the Work and of the materials to be used therein, including materials for which the Contractor has received partial payment, materials in transit, and materials which have been furnished by Sound Transit, and shall, unless excused elsewhere herein, bear the risk of injury, loss or damage to any part thereof by the action of the elements or from any other cause. The Contractor shall replace, rebuild, repair or restore all damage to any portion of the Work and materials occasioned by any unexcused cause before its completion and Acceptance, at no additional cost to Sound Transit. Contractor shall, at the Contractor's expense, provide suitable drainage and erect such temporary structures as are necessary to protect the Work and materials as herein specified. A suspension of Work shall not relieve the Contractor of responsibility for the Work and materials as herein specified. The Contractor shall properly store materials for which partial payments have been made by Sound Transit or which have been furnished by Sound Transit. Such storage by the Contractor shall be on behalf of Sound Transit and Sound Transit shall at all times be entitled to possession of such materials, and the Contractor shall promptly return the same to the site of the Work when requested. The Contractor shall not dispose of any of the materials so stored except on written authorization from the Regional Program Manager.

Comment [Legal34]: Added language to clarify paragraph. The change is provided to make it clear that only work that is unexcused needs to be repaired etc. This clarification is fair in that it provides liability on the Contractor for such work, and it is consistent with the other changes in the paragraph.

WARRANTY OF WORK

A. The Contractor warrants that the Work and any portion thereof: (a) shall meet the requirements of the Contract, (b) shall be free of defects in material and workmanship, and (c) shall be free of defects in design(s) where such design(s) is performed or provided by the Contractor, Subcontractors or Suppliers. This Warranty shall apply to Defective Work and Non-Conforming Work that is discovered within twelve (12) months after the date of Acceptance. If corrective work is performed by the Contractor under this Warranty, the Warranty shall also apply to discrepancies and defects in the corrective work that are discovered within twelve (12) months after the corrected work is again placed in operation. These warranty terms shall be extended for any period that a portion of the Work cannot be used for the purpose intended as a result of discrepancies or defects. This Warranty shall apply whether or not designs, data or information have been reviewed or approved by Sound Transit or the Regional Program Manager, but shall not apply to defects caused by vandalism, misuse and/or improper operation or maintenance of the Work by Sound Transit.

Comment [Legal35]: The additional term is added and is a reasonable event to be exempt for this type of warranty.

B. Sound Transit will notify the Contractor in writing or facsimile confirmed in writing, on discovery of Defective Work or Non-Conforming Work covered by this Warranty in accordance with the provisions of Article 3.08, Non-Conforming Work and Defective Work. The Contractor shall commence to remedy the Defective Work or Non-Conforming work in accordance with the provisions of Article 3.08, Non-Conforming Work and Defective Work.

C. The Warranty provided under this Article shall be in addition to those specific warranty requirements for particular equipment or work items indicated in the Contract Documents, and in addition to other rights or remedies available to Sound Transit under this Contract ~~or at law~~.

Comment [Legal36]: Change made since the parties have agreed on the type of Warranty for the Work.

Warranties shall be secured by the Performance Bond, or in Sound Transit's sole discretion, other financial security acceptable to Sound Transit, such as a warranty bond or letter of credit.

1. In circumstances in which Sound Transit determines that it would be inefficient or impracticable for the Contractor to perform the corrective work, Sound Transit reserves the right to select another firm to perform the corrective work or to perform the corrective work itself upon notice to the Contractor. Such corrective work by another firm, or by Sound Transit, shall be at Contractor's expense, provided that Contractor is kept fully informed as to the details and costs of any such corrective work. If the Contractor performs work at the job site under these guaranty provisions, the Contractor shall furnish insurance coverage therefore as specified in Section 03 Insurance Requirements. Prior to beginning such work the Contractor shall furnish certification of insurance satisfactory to Sound Transit.

2. Unless otherwise required by Sound Transit, the Contractor shall commence to perform the corrective work required to satisfy this warranty within fifteen (15) days from the date of written notification. The Contractor shall at its sole expense perform the corrective work on an overtime and/or shift work basis, and shall procure required materials using the fastest means available when necessary to minimize the impact to other Sound Transit contractors or Sound Transit's loss of operating time. The Contractor shall diligently prosecute the corrective work and shall complete such corrective work within the time frame stipulated by Sound Transit.

3. If the Contractor fails to make or undertake the corrections or removal/replacement with due diligence within the time periods specified above, Sound Transit is hereby authorized to make such corrections. In case of an emergency, whereby delay could cause serious loss or damage in the opinion of Sound Transit, corrections or replacement may be made prior to or concurrent with notice being sent to the Contractor. All expenses in connection with such corrections or replacement by Sound Transit, including the cost for professional services, will be charged to the Contractor.

D. Nothing in this warranty is intended to limit any manufacturer's warranty, which provides Sound Transit with greater warranty rights than set forth in the Contract Documents.

WARRANTY OF TITLE

A. The Contractor shall have no property right in the materials and equipment used after they have been attached or affixed to the Work or existing real property, or after ~~any~~ full payment has been made by Sound Transit towards the value of materials delivered to the site of the Work, or stored subject to or under the control of Sound Transit. Title to all such materials shall become the property of Sound Transit upon being so attached or affixed or after ~~any~~ full payment towards the value of materials stored off site or delivered to the site of the Work or stored subject to or under the control of Sound Transit, whichever occurs earlier.

Comment [Legal37]: The added language makes it clear that title does not vest until payment is done in full.

B. No material, supplies, equipment, or items for the Work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein, or in any part thereof is retained by the seller or Supplier. The Contractor shall warrant good title to all materials, supplies, equipment, and items installed or incorporated in the Work. Upon completion of all the Work, the Contractor shall deliver the same together with all improvements and appurtenances constructed or placed thereon by the Contractor to Sound Transit free from any claims, liens, or charges. ~~Neither~~ Other than the Contractor no~~r~~ ~~any~~ person, firm, or corporation furnishing any material or labor for any Work covered by this Contract shall have

any right to lien upon any improvement or appurtenance thereon. This Article shall not defeat or impair the right of the persons furnishing materials or labor to recover under any payment bond given by the Contractor for their protection, or any rights under state law permitting such persons to look to retained funds due the Contractor in the hands of Sound Transit.

Comment [Legal38]: The changes made are to clarify the paragraph.

C. The provisions of this Article shall be inserted or referenced in or otherwise made a part of all subcontracts and material contracts, and notice of its provisions shall be given to all persons furnishing materials for the Work whenever no formal contract is entered into for such materials. Additionally, as a part of the subcontract, material contract, or notice, the Contractor shall provide to such Subcontractors and Suppliers the name, address, and phone number of the Contractor's bonding company and the bond number applicable to the Contract under which the Subcontractor or Supplier would make its claim.

MANUFACTURER'S WARRANTIES

The Contractor shall furnish to Sound Transit any manufacturer's or Supplier's guarantee or warranty furnished in connection with the purchase by the Contractor or any Subcontractor of any equipment, materials, or items required, provided such guarantee or warranty shall be in addition to those specific guarantee or warranty requirements for particular equipment or Work items indicated in the Specifications and shall not relieve the Contractor of its obligations under Article 3.12, Warranty of Work.

ARTICLE 4 CHANGES AND CHANGE ORDER PROCESS

CHANGES

A. Sound Transit reserves the right to make by written order, designated ~~or indicated~~ to be a Change Order, alterations to, deviations from, additions to, or deletions from the Contract Documents. Such changes may be made without notice to any surety(ies) or guarantors. Within the Performance and Payment Bonds and any financial guarantees, the surety(ies) and guarantors must waive notice of any Change Orders and agree to be bound in all ways to Sound Transit for any such Change Orders as if it (they) had received notice of the same. Change Orders are required to make any changes to the Contract Price, Contract Documents, or Contract Time. All additions, deductions, or changes to the Work as directed by Change Orders shall be executed under the conditions of the Contract.

Comment [Legal39]: Term deleted. Redundant.

Comment [Legal40]: The term "Performance and Payment Bonds" which is capitalized indicates that it should have been defined by Sound Transit. There is no definition of the term in Article 1, "Definitions," nor in the paragraphs where the term is used.

B. Pending resolution of any issue or dispute related to a Change Order, RFC, CN-RFP and/or CN-WD, Contractor shall continue to perform all Work, including the Contract Work associated with the pending change unless Sound Transit explicitly waives this requirement in writing. Contractor shall also be governed by all applicable provisions of the Contract related to compensation and/or additional time for changed work, inclusive of Article 10.

C. Adjustments in the Contract Price - One of the following methods shall be used to determine the cost and/or value of any work covered by a Change Order, RFC, CN-RFP, CN-WD or Claim. Sound Transit and the Contractor shall negotiate in good faith to determine an equitable adjustment of the Contract Price. The available methods are:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities involved in the changed Work;

2. Where Provisional Sums are provided for work items, the provisional sums shall be applied to changes for those work items;

3. By establishment of new unit prices and related quantities for the changed work;

4. By reference to catalog prices or other published prices offered to the public in the open marketplace;

5. By mutual acceptance of a firm fixed price (also referred to as lump sum);

6. On a time and materials basis in accordance with Article 9.09, Payment on Time and Material Basis.

In the event of disagreement, Sound Transit shall determine the method for calculating the adjustment to increase or decrease the Contract Price.

D. All Change Orders (CO) and Change Notices (CN) shall be issued through Sound Transit. No other order, statement, act of omission or conduct of any representative of Sound Transit or third party will be treated as a change hereunder. Nothing in this Article shall be construed to bind Sound Transit for acts of its employees or agents exceeding their authority.

E. Nothing in this Article shall be deemed to require a change in Contract Price or Contract Time when additional, extra, or changed work is the result of actual conditions or performance differing from that assumed by the Contractor (except for differing site conditions) or as a result of the Contractor's error in judgment or mistake in designing, estimating, contracting, constructing or otherwise performing the Work. The Contractor shall not be entitled to a change in the Contract Price or Contract Time for delays caused by the Contractor or its Subcontractors, employees, or agents or for any non-compliance with any Contract provisions, applicable law, regulations, or permit requirements affecting the Work.

F. The Contractor's records pertaining to Changes pursuant to this Article are subject to audit as set forth in Article 3.04, Audit Access to Records.

G. Where the firm fixed price/lump sum method is used, the Contractor shall provide a detailed cost breakdown supporting its requested compensation and any additional cost documentation requested by Sound Transit. Any adjustment to the Contract Price made under the firm fixed price/lump sum method shall include all applicable costs for labor, equipment, material, overhead and profit.

H. Where the firm fixed price/lump sum method is used and the cost of the Change is negotiated after completion of the Work, the allowed profit and overhead markup shall not exceed that for work performed on a time and material basis as permitted in Article 9.09, Payment on a Time and Material Basis.

I. Where the firm fixed price/lump sum method is used and the cost of the Change is negotiated before completion of the Extra Work, the negotiated profit and overhead markup is not subject to a fixed maximum and is to be based on a reasonable calculation of direct and indirect costs incurred in executing the Extra Work, including any delays, impacts or inefficiencies.

J. Where any unit price method is used, the applicable unit price shall include reimbursement for all direct and indirect, onsite and offsite, costs of the changed Work, including profit and overhead.

REQUEST FOR CHANGE

A. If the Contractor believes it is entitled to an adjustment of the Contract Price or Contract Time for any reason, Contractor shall submit a Request for Change (RFC) to Sound Transit in writing (in a format reasonably acceptable to Sound Transit) in accordance with the provisions of the Contract. The Contractor in the RFC must specify the reasons for such change, including relevant facts and any impacts on the cost and / or schedule.

Comment [Legal41]: The added language clarifies the form of the request.

B. The Contractor may request additional compensation and/or time through a RFC, but only in the event Contractor provides a written Notice to Sound Transit no later than fourteen (14) days after the onset or occurrence of the event or condition giving rise to the RFC.

C. The Contractor in its RFC shall provide Sound Transit with a reasonably detailed explanation of the nature and cause of the event or condition giving rise to the RFC, a reasonably accurate calculation of the adjustment to the Contract Price and/or Contract Time, and the reasons why Sound Transit is responsible for the relief sought. Sound Transit shall review the RFC and may require additional information or cost documentation from Contractor to help determine the validity and / or value of the requested change.

D. Any RFC that is approved by Sound Transit will be incorporated into a Change Notice or a Change Order. If the RFC is denied, but the Contractor believes that it does have merit, the Contractor must submit a Notice of Intent to Claim in accordance with Paragraph 10.01A, Notice of Intent to Claim, if it wishes to preserve its right to seek any adjustment to the Contract Price and/or Contract Time.

CHANGE NOTICE

A. Change Notice - Request for Proposal (CN-RFP).

1. Sound Transit may issue a Change Notice – Request for Proposal to the Contractor describing a proposed change and requesting the Contractor to submit a Cost and Schedule Proposal (in a format acceptable to Sound Transit). A CN-RFP does not authorize a Contractor to commence performance of the changed Work. After receipt of the Cost and Schedule Proposal, Sound Transit may:

   a. Proceed no further with the proposed change,

   b. Issue a Change Notice – Work Directive incorporating part or all of the proposed change, or

   c. Issue a Change Order incorporating part or all of the proposed change.

B. Change Notice - Work Directive (CN-WD).

1. Sound Transit may issue a Change Notice - Work Directive ordering the Contractor to proceed with a change in the Work. A CN-WD may be issued under one of the following circumstances:

a. To execute changes in the Work covered by the unit prices or a lump sum price contained in the Contract;

b. To execute changes in the Work on a Time and Material basis, in accordance with Article 9.09, Payment on Time and Material Basis; or

c. To direct the Contractor to execute change(s) in the Work pending resolution of an equitable adjustment to the Contract Price and/or Contract Time. If Sound Transit and the Contractor cannot reach agreement on changes to the Contract Price and/or Contract Time prior to starting on the changed Work, the Contractor shall maintain cost records in accordance with Article 9.09, Payment on Time and Material Basis.

2. The Contractor shall not commence performance of the Work described in the CN-WD, until the CN-WD is issued by Sound Transit. The CN-WD shall expressly specify the:

a. Intention to treat such items as changes in the Work;

b. Scope of the changes in the Work; and

c. Basis under which changes to the Total Contract Price and/or Contract Time will be determined.

3. When the Contractor receives a CN-WD, the Contractor shall promptly proceed with the Work as indicated in the CN-WD. The Contractor shall carry on the Work and adhere to the schedule. No work shall be delayed or postponed pending resolution of any dispute or disagreement except as Sound Transit and the Contractor may otherwise agree in writing.

4. Until such time as resolution of an equitable adjustment is reached, the Contractor shall maintain its records in accordance with Article 9.09, Payment on Time and Material Basis. The CN-WD shall become the basis for a Change Order when the amount of the adjustment to the Total Contract Price and/or Contract Time can be determined. The issuance of a CN-WD is sufficient authority for a Change Order, but only within the stated limits of the value of the CN-WD.

5. The CN-WD shall contain a Not to Exceed (NTE) amount. Contractor may invoice Sound Transit for changed work performed under the CN-WD but only up to and not in excess of the NTE amount. The Contractor is required to notify Sound Transit at the point at which 80 percent of the NTE amount has been expended, and provide an estimate of the cost to complete the changed Work. If Sound Transit agrees that costs in excess of the NTE amount are justified, Sound Transit may issue a revised CN-WD increasing the NTE amount or negotiate a lump sum amount for the changed Work.

C. Contractor's Cost and Schedule Proposal - If directed by Sound Transit in the Change Notice, the Contractor shall submit a Cost and Schedule Proposal to Sound Transit within fifteen (15) days (or more, if Sound Transit at its option so determines) after receipt of the Change Notice. The Cost and Schedule Proposal shall detail price and scheduling information, showing all of the impacts on the Contract Price and Construction Schedule, and the changes in the level of commitment for Small Business and Disadvantaged Business Enterprises as a result of the

changes identified in the Change Notice. If any prices or other aspects are conditional, such as orders being made by a certain date or the occurrence of a particular event at a specified time, the Contractor shall identify these conditions in its Cost and Schedule Proposal. The cost breakdown shall have separate estimates of the costs of added Work and any deleted Work and shall be prepared using one or more of the cost methods described in Article 4.01C as directed by Sound Transit, and shall be presented in a manner such that all phases of work can be easily identified. The Contractor shall submit detailed cost breakdowns as described above for any Subcontractor proposed to perform Work under the change. The Contractor shall also provide detailed scheduling analysis demonstrating the effect of the changed work on the Contract Milestones.

CHANGE ORDER

A. The Change Order shall expressly state that it is Sound Transit's intention to treat the items described therein as changes in the Work; identify scheduling requirements, time extensions, prices, and all costs of any nature arising out of the; and shall contain a statement that the adjustment to the Total Contract Price, if any, includes all amounts to which the Contractor is entitled as a result of the events giving rise to the Change Order. The execution of a Change Order by both parties shall be deemed to be an agreement to all costs and time of performance related to the change, including full and complete payment and final settlement of all extensions of time, changes, Claims, damages and costs for all time, direct or indirect overhead costs, profit and any and all other costs associated with delay, disruption, impact, inefficiency, acceleration, stand-by or any other costs related to the Work covered by or affected by the change.

B. Bilateral Change Order: Sound Transit will issue a Change Order as soon as practicable following agreement with Contractor's Cost and Schedule Proposal, if Sound Transit decides to proceed with the changed work. If the Contractor agrees with the terms and conditions of a Change Order, the Contractor shall sign the Change Order and return it to Sound Transit for execution by Sound Transit. There will be no reservation of rights by either party on a bilateral Change Order.

C. Unilateral Change Order: Sound Transit may unilaterally issue a Change Order at any time making changes within the general scope of the Contract, without invalidating the Contract and without providing notice to sureties. In addition, in the event that the Contractor and Sound Transit are unable to agree on the terms and conditions, the amount of any change or adjustment to be made to the Total Contract Price or Contract Time, Sound Transit may execute a Unilateral Change Order. If Contractor disagrees with the adjustment to Contract Price or Contract Time as stated in the Unilateral Change Order, Contractor must file a claim in accordance with the requirements of Article 10, Delays and Claims. If the Contractor fails to follow the claim procedures in Article 10, the Contractor shall not be entitled to any claim for additional compensation or schedule extension arising out of or relating to the Unilateral Change Order other than that specified in the Unilateral Change Order. The Contractor is required to continue with performance of all work associated with the Unilateral Change Order pending resolution of any Claim under Article 10.

D. When a Change Order has been executed by Sound Transit, the Contractor shall promptly proceed with the Work as indicated in the Change Order. The Contractor shall carry on the Work and adhere to the schedule during all disputes or disagreements with Sound Transit. No

work shall be delayed or postponed pending resolution of any dispute or disagreement, except as Sound Transit and the Contractor may otherwise agree in writing.

E. At Sound Transit's request the Contractor shall submit, on a form provided by Sound Transit, a Non-Conflict of Interest Certification for any Change Order

F. Special Rules When Pricing Change Orders

1. If this Contract is subject to the Project Labor Agreement, in accordance with the requirements of the Labor Compliance Manual, the Contractor and its Subcontractors are required to contribute five cents ($0.05) per hour for each hour of contract labor (those subject to prevailing wages requirements) utilized on the Contract to a Pre-apprentice Training Program Fund. Accordingly, the Contractor shall incorporate into each Change Order an amount equal to five ($0.05) per hour for each hour of contract labor.

2. Premium increase(s)/decrease(s) for Performance and Payment Bonds:

a. Premium increase(s) / decrease(s) for Performance and Payment Bonds will not be paid as a part of Change Order payments, but will be paid / deducted as a lump sum in the final payment. Verification of increased / decreased payment, from the surety, must be provided and will be included in the final reconciling Change Order.

b. If the surety should require an immediate payment for the increased Bond(s) value as a result of a large Change Order, the Contractor must supply evidence of the payment made and a copy of the surety's request for early payment.

SCHEDULE EXTENSIONS

If the Contractor is delayed in completion of the critical path of the Work either by reason of changes made under this Article, or by a delay for which the Contractor is entitled to additional time as specified in Article 10, Delays and Claims, and if Contractor meets all Contract requirements for seeking an increase in time to complete the Work associated with a Contract Milestone(s), the Contractor shall submit a Request for Change within the time allowed by the Contract Documents specifying the number of days of time requested. The Contractor shall demonstrate the schedule impact of changes and delays in order to justify any schedule extensions.

CONSTRUCTIVE CHANGE ORDER

Except as herein expressly stated, no order, statement, act, or omission of Sound Transit unless provided in writing shall be treated as a change or Change Order under the Contract or entitle the Contractor to an adjustment under the Contract. If the Contractor considers that an act, omission, order or statement by the Regional Program Manager or Sound Transit deviates from the Contract requirements or may entitle the Contractor to extra compensation or a time extension, the Contractor shall submit a Request for Change as provided above. Failure to submit a timely and documented RFC shall constitute a waiver of any Claim associated with the subject of such alleged constructive change. The Contractor shall not proceed with the Work until appropriate directions are received from Sound Transit.

EXCLUSIVE REMEDIES

The procedures specified herein and in Article 10, Delays and Claims, of these General Conditions are the Contractor's exclusive remedy for any claim against Sound Transit, whether for extension of the Contract Time, an increase in the Contract Price, actual or constructive changes, delays, impacts, inefficiencies, equitable adjustments or otherwise. The requirements of Article 10 cannot be waived except by explicit written waiver signed by Sound Transit and Contractor. No course of conduct or dealings between the parties, no express or implied acceptance of change or alterations to the Work, and no claim that Sound Transit has been unjustly enriched by an alteration or Change to the work, shall be the basis of any other claim for an increase in Contract Price or extension in the Contract Time for completion of the Work.

CHANGES IN QUANTITIES

A. This Article applies to unit price items on the Contract Price Schedule with an estimated quantity of four (4) or more and the measured quantities required to complete the Work.

B. Increases in Quantities of More than 25 percent.

Should the actual total quantity of a Contract Pay item of work shown on the Price Form exceed the estimated quantity shown on the Price Form by more than 25 percent, the Work in excess of 125 percent of such estimated quantity and not covered by an executed Change Order specifying the compensation to be paid, will be paid for by adjusting the Contract unit price as hereinafter provided or at the option of the Regional Program Manager, payment for the Work involved in such excess will be made on a time and material basis as provided in Article 9.09, Payment on Time and Material Basis.

1. The adjustment of the Contract unit price for such excess quantities will be the difference between the Contract unit price and the actual unit cost to perform the work, as determined in this Article. If the costs applicable to such item of Work include fixed costs, such fixed costs will be deemed to have been recovered by the Contractor by the payments made for 125 percent of the estimated quantity shown on the Price Form for such item, and in computing the actual unit cost; such fixed costs will be excluded. Subject to the above provisions, such actual unit cost will be determined by the Regional Program Manager in the same manner as if the Work were to be paid for on time-and-materials basis as provided in Article 9.09, Payment on Time and Material Basis, or such adjustment as agreed to by the Contractor and the Regional Program Manager.

2. When the total compensation payable for the number of units of an item of Work performed in excess of 125 percent of the estimated quantity is less than $5,000 at the applicable Contract unit price, the Regional Program Manager reserves the right to make no adjustment in said unit price.

C. Decreases of More Than 25 percent.

1. Should the total pay quantity of any item of Work required under the Contract be less than 75 percent of the estimated quantity thereof, an adjustment in compensation pursuant to this Article will not be made unless the Contractor so requests in writing. If the Contractor so requests, the quantity of said item performed, unless covered by an executed Change Order specifying the compensation payable therefore, will be paid for

by adjusting the contract unit price, or at the option of the Regional Program Manager, payment for the quantity of the Work of such item performed will be made on time and materials basis as provided in Article 9.09, Payment on Time and Material Basis.

2. Adjustment of the Contract unit price for such decreased quantities will be the difference between the Contract unit price and the actual unit cost, which will be determined as hereinafter provided, of the total pay quantity of the item, including fixed costs. Such actual unit cost will be determined by the Regional Program Manager in the same manner as if the Work were to be paid for as provided in Article 9.09, Payment on Time and Material Basis, or such adjustment will be as agreed to by the Contractor and the Regional Program Manager.

3. No compensation shall be made in any case for loss of anticipatory profits.

D. If the Contractor disagrees with an equitable adjustment determination by the Regional Program Manager, the Contractor shall strictly follow all procedures in accordance with Article 10, Delays and Claims. Failure to do so shall constitute the Contractor's acceptance of determinations by the Regional Program Manager. When ordered by the Regional Program Manager, the Contractor shall proceed with the Work pending determination of the adjustment in costs or time, as applicable.

E. When Sound Transit has entered an amount for any proposal price item, whether unit or otherwise, solely for the purpose of providing a common proposal price for all proposers, this Article 4.09, Changes in Quantities, shall not apply. Any impact due to an increase or decrease in the amount provided for the purpose of obtaining a common proposal price shall be the sole risk of the Contractor.

ELIMINATED WORK

A. Sound Transit may, by written order to the Contractor, omit work, equipment and/or material to be provided under this Contract, and the value of the omitted work equipment and/or material (inclusive of associated profit and overhead) will be deducted from the Contract Price. The deducted value will be based upon the applicable unit price or lump sum, or if there is no such price, the deducted value will be a lump sum agreed upon in writing by the Contractor and Sound Transit based on the Contract Price Schedule and other cost information submitted by the Contractor or obtained otherwise by Sound Transit. In the event that no agreement can be reached on a lump sum basis, Sound Transit shall be entitled to a deduction based on the value as if the work were to be paid for on a Time and Material basis as provided in Article 9.09, Payment on Time and Material Basis.

B. Should any Contract item of the Work be eliminated in its entirety, in the absence of an executed Change Order covering such elimination, payment will be made to the Contractor for actual costs incurred in connection with such eliminated Contract item if incurred prior to the date of notification in writing by the Regional Program Manager of such elimination.

C. If acceptable material is ordered by the Contractor for the eliminated work prior to the date of notification of such elimination by the Regional Program Manager, and if orders for such material cannot be canceled, it will be paid for by Sound Transit at the actual cost to the Contractor. In such case, the material paid for shall become the property of Sound Transit and the actual cost of any further handling will be paid for by Sound Transit. If the material is

returnable to the vendor and if the Regional Program Manager so directs, the material shall be returned and the Contractor will be paid for the actual cost of charges made by the vendor for returning the material. The actual cost of handling returned material will be paid for by Sound Transit.

DIFFERING SITE CONDITIONS

A. The Contractor shall immediately upon discovery and before the conditions are further disturbed, notify the Regional Program Manager, verbally and in writing of:

1. Subsurface or latent physical conditions at the Site which differ materially from the conditions indicated in the Contract Documents;

2. Unknown physical conditions at the site, of an unusual nature, which differ materially from the conditions ordinarily encountered and generally recognized as inherent in the Work of the character provided for in the Contract.

B. In areas not affected by the alleged differing site conditions, the Contractor shall continue with performance of the Work.

C. The Regional Program Manager will promptly investigate the conditions and provide direction with respect to continuing performance of the Work in the area of the alleged differing site conditions.

D. Unless otherwise agreed upon in writing by Sound Transit, within seven (7) days of the Contractor's initial written notification of the Differing Site Condition to Sound Transit, the Contractor shall provide:

1. A detailed description of the Differing Site Condition;

2. A reasonable estimate of the price and time impacts such Differing Site Condition shall cause to the Contract; and

3. Substantive, contractual, and technical basis supporting the existence of the Differing Site Condition and its impacts.

E. Within fourteen (14) days from receipt of the Contractor's detailed description of impacts, Sound Transit shall either:

1. Issue a Change Notice (CN) or a Change Order (CO);

2. Make a written determination that the event or condition does not justify any changes to the Contract;

3. Request additional information, or

4. Respond to the Contractor and indicate when a determination will be made, if it cannot be made within the above stated fourteen (14) days.

F. If Sound Transit finds that conditions are materially different and cause a material increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the Work under this Contract, the Regional Program Manager will make an equitable adjustment in

the cost or the time required for the performance of the Work, as provided in Paragraph H below.

G. No request by the Contractor for an equitable adjustment to the Contract or claim for a Differing Site Condition shall be allowed unless the Contractor has fully complied with the written notice required in Paragraphs A and D above, unless by explicit written waiver Sound Transit has agreed to extend the applicable notice deadline prior to its expiration. Such notice shall be a condition precedent to any request for an equitable adjustment or claim, and failure to comply shall waive the Contractor's right to make a request for an equitable adjustment or claim.

H. Cost and time adjustments for a differing site condition accepted as a change by Sound Transit shall be resolved in accordance with this Article and Article 10, Delays and Claims, except to the extent that an equitable adjustment for any condition, otherwise within the scope of this Article, has been addressed by unit price or Provisional Sum item, which shall control if provided. All other provisions and requirements of this Article shall apply to such conditions, including without limitation, notification obligations and investigation requirements with respect to any such conditions.

I. After providing Notice to Sound Transit and upon receiving direction from the Regional Program Manager, the Contractor shall be required to continue with performance of all work and maintain its progress with the Work pending resolution of the Differing Site Condition.

J. If the Contractor does not agree with Sound Transit's determination that the event or condition does not justify any change to the Contract, the Contractor must file a Claim in accordance with Article 10, Delays and Claims, or such right to any adjustment in Contract Price and/or Contract Time shall be waived.

VALUE ENGINEERING CHANGE PROPOSALS (VECPS)

A. Sound Transit encourages the Contractor to submit Value Engineering Change Proposals (VECPs) in order to avail Sound Transit of potential cost or time savings or increased safety during the Work. The Contractor and Sound Transit will share any savings in accordance with this Article. VECPs may be submitted at any time after Notice to Proceed. A proposal merely to delete or reduce scope of Work does not constitute a VECP.

B. The Contractor shall submit VECPs directly to the Regional Program Manager. As a minimum, the following information shall be submitted by the Contractor with each VECP:

1. Description of the existing Contract requirements that are involved in the proposed change;

2. Description of the proposed change;

3. Discussion of differences between existing requirements and the proposed change, together with advantages and disadvantages;

4. Itemization of the Contract requirements that shall be changed if the VECP is accepted (e.g., drawing numbers and specification);

5. Justification for changes in function or characteristics of each affected item, and effect of the change on performance of the end item;

6. Effect of proposed change on life-cycle costs, including operation, maintenance, replacement costs, and life expectancy;

7. Date or time by which a Change Order adopting the VECP shall be issued in order to obtain the maximum cost reduction, noting any effect on contract completion time or delivery schedule; and

8. Cost estimate for existing Contract requirements correlated to the Contractor's unit price or lump sum breakdown and the proposed changes in those requirements.

9. Costs of development and implementation by the Contractor shall be provided.

10. Additional costs to Sound Transit (e.g., costs of testing, redesign, and effect on other contracts) shall also be estimated.

C. Sound Transit retains the right to reject a VECP without review, without recourse by the Contractor if a similar change is already under review; or if in Sound Transit's sole opinion, the potential savings are unlikely to justify the cost of the review; or if the proposed change is otherwise unacceptable to Sound Transit.

D. Sound Transit shall expeditiously process VECPs accepted for review but shall not be liable for any delay in acting upon any VECP submitted pursuant to this Article. Sound Transit may accept, in whole or in part, by Change Order, any VECP submitted pursuant to this Article. Until an order to proceed is issued on a VECP, the Contractor shall remain obligated to perform in accordance with this Contract. Change Orders made pursuant to this Article will so state. Sound Transit's decisions as to acceptance or rejection of any VECP shall be at Sound Transit's sole discretion and shall be final and not subject to review by a dispute resolution process or otherwise.

E. If a VECP submitted by the Contractor pursuant to this Article is accepted, the Contract Price shall be reduced by an amount equal to 50 percent of the Estimated Net Savings (ENS) to the Contractor plus 50 percent of Sound Transit's Review Costs (STRC) (or the reduction = 0.5ENS + 0.5STRC). The Estimated Net Savings shall be calculated by subtracting the Contractor's Costs from the Contractor's Estimated Gross Savings. For the purposes of this Article, the Contractor's Costs are defined as the reasonable costs incurred by the Contractor in preparing the VECP and making the change, such as cancellation or restocking charges; and the Contractor's Estimated Gross Savings are defined as the difference between the cost of performing the Work according to the existing requirement and the cost to perform the Work according to the proposed change. The Contractor's profit shall not be considered part of the cost and shall not be reduced by application of the VECP.

F. The Contractor shall include appropriate value engineering incentive provisions in all subcontracts of $100,000 or greater, and may include those provisions in any subcontract. In determining Estimated Net Savings for cost reduction proposals that involve a Subcontractor, only actual costs to the Contractor and Subcontractor, as defined in Paragraph E above, will be allowed as Contractor Costs. Incentive payments made to the Subcontractor by the Contractor in connection with the cost reduction proposal will not be allowed in determining Net Savings.

G. Sound Transit is subject to public disclosure of records in accordance with Washington State Law. Material and information, which may be submitted as part of any VECP, will be subject to such public disclosure pursuant to State law.

H. The compensation provisions of this Article shall constitute the Contractor's exclusive and complete compensation for Sound Transit's use of the VECP, and the Contractor shall have no right to additional compensation for future or additional uses of the VECP. Sound Transit shall have an absolute and unrestricted right to use the concepts, ideas, methods, materials, and any other salient feature of a VECP, for any purpose other than on the Contract or contracts for which it was submitted.

I. In the event Sound Transit and Contractor cannot agree on the Estimated Net Savings, Sound Transit may at its option (i) terminate the proposed VECP or (ii) unilaterally determine the Estimated Net Savings. If Contractor disagrees with such unilateral determination and seeks to assert a Claim, Contractor shall comply with the Claim requirements of the Contract Documents.

ARTICLE 5 MATERIALS AND EQUIPMENT

GENERAL

A. The Contractor shall furnish all materials, including without limitations, equipment and completely or partially assembled items, required to complete the Work, except materials that are designated in the Contract Documents to be furnished by Sound Transit.

B. Material and equipment furnished and installed for this Work shall be new and of a quality equal to or better than that specified.

C. Sound Transit's acceptance of materials on the basis of compliance documentation, inspection or testing shall not relieve the Contractor of its obligation for conformance with the Contract.

D. Manufacturers' warranties, instruction sheets, and parts lists, which are to be furnished with certain materials, shall be delivered to the Regional Program Manager before Substantial Completion.

E. The materials and equipment provided and work performed by the Contractor shall strictly conform to the requirements contained in the Contract Documents. The burden of proof that the completed Work conforms to the Contract Documents shall be on the Contractor.

F. The Contractor shall not use any permanently incorporated materials or equipment unless such use is approved in writing by Sound Transit. Where Contractor's request is granted for the use of certain materials, the Contractor shall properly use and maintain, and upon completion of its use, and at its own expense, recondition such materials or equipment to the satisfaction of Sound Transit.

MATERIALS CERTIFICATIONS

A. All materials except materials specified by brand name or mark or manufacturer, furnished for use or incorporation in the Work, shall be covered by quality certifications, test results or other documentation as required by the Contract to establish compliance of the products with Contract requirements. Unless specific tests are required by the specifications, the Contractor may provide certifications to establish acceptability of the products furnished. Materials or

products which require certification or other documentation shall not be incorporated until certifications have been delivered and the product approved by Sound Transit for incorporation.

B. When the Contract requires documentation that materials comply with a given specification or Industry Standard, the Contractor shall provide documents that include a certification that the material conforms to all applicable Contract requirements. The documentation shall identify the material, list the applicable specifications and tests covered by the certification, describe the source of the material, and the quantity of material certified. The certifying document shall originate with manufacturer or producer of the material and shall bear the signature of a person qualified to perform the certification and authorized to sign on behalf of the manufacturer or producer. If applicable, the certificate shall list any marking or other identification of the certified material.

C. For fabricated or manufactured materials, in addition to the documentation required by this Article, the Supplier shall furnish documentation that the fabrication or manufacturing process complies with Contract requirements. The documentation shall be comparable to that required by this Article and shall list the name and address of the manufacturer or fabricator, the specific processes covered by the certification and procedures and equipment used, tests performed and testing frequency, and any other pertinent information required to demonstrate Contract compliance.

D. For materials specified or approved by brand name or mark, an identifying label or other marking affixed by the manufacturer, which contains sufficient information to verify that the material furnished is the material specified, will be accepted as documentation in lieu of additional certification. Other physical characteristics or packaging information may be accepted at Sound Transit's discretion to demonstrate compliance.

E. Sound Transit may require testing at the Contractor's expense of materials that are delivered without acceptable identification, certification or other required documentation. Work that incorporates materials for which the required documentation has not been provided will be considered nonconforming work.

F. Sound Transit reserves the right to sample and test any material provided for use or incorporation into the Work. The Contractor shall furnish, at no cost to Sound Transit, all samples requested for testing. If Sound Transit's tests indicate that the material tested does not comply with Contract requirements, all materials covered by the same certification as the test sample shall be considered as non-conforming.

G. If, at any time, Sound Transit deems the Contractor's testing is not adequate, the Contractor shall immediately take corrective action as directed by Sound Transit.

EQUIVALENT MATERIALS AND EQUIPMENT

When material or equipment is specified by one or more patents, brand names, or catalog numbers, it shall be understood that this is for the purpose of defining the performance or other salient requirements and shall be understood as if followed by the words "or equal," whether or not such words appear. Should the Contractor propose to furnish an "or equal" material or equipment then Contractor shall demonstrate conformance to the specified performance, testing, quality or dimensional requirements and suitability of the material or equipment for the use intended. The Regional Program Manager shall promptly review and approve or disapprove Contractor’s proposed “or equal” material or

equipment and any such approval shall not relieve Contractor of its obligations to achieve the specified performance, testing, quality or dimensional requirements and suitability of any approved "or equal" material or equipment for the use intended under this Contract.

SUBSTITUTIONS

A. If material or equipment is specified as a sole source, Sound Transit will not consider substitutions.

B. Materials or equipment of equal or better capacity, quality, or function may be allowed by Sound Transit, in its sole discretion, upon written request for substitution by the Contractor. Requests for substitution shall be made in accordance with these Contract Documents. Denial of a request for substitution is not grounds for any claim against Sound Transit.

C. Except for sole source materials or equipment, the Contractor may offer material or equipment of equal or better quality and performance in substitution for those specified in the Contract Documents. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor. Sound Transit will consider offers for substitution only from the Contractor and not from Suppliers, distributors, manufacturers, or Subcontractors. If the offered substitution necessitates changes to or coordination with other portions of the Work, the Contractor, as a condition of Sound Transit's acceptance of the substitution, shall perform such changes or coordination at no additional cost to Sound Transit. Substitutions shall be submitted to Sound Transit in sufficient time to avoid delays to the Work. The Contractor shall be responsible for any delay or cost resulting from untimely submittal of substitution requests.

D. The Contractor has the burden of demonstrating that the proposed substitution's function, quality, and performance will be equal in all respects to that of the specified item.

E. A request for substitution constitutes a representation that the Contractor:

1. Has investigated the proposed product and determined that it meets or exceeds the quality level of the specified product;

2. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Sound Transit;

3. Waives claims for additional costs or time extension that may subsequently become apparent; and

4. Bears all Sound Transit costs of any redesign or modification to other systems, parts, equipment or components of the Contract Work resulting from the substitution.

F. Substitutions will not be considered when they are indicated or implied on Shop Drawings or product data submittals without a separate written request. Substitutions will not be considered when they are due to the Contractor's failure to order the specified items in a timely manner.

G. Sound Transit shall be the sole judge of whether the offered substitution is in conformance with the Contract Documents for the Work and whether the changes to other portions of the Work necessitated by the incorporation of the offered substitution are acceptable. Any savings

resulting from the use of a substituted item shall be passed on to Sound Transit in the form of a Value Engineering Cost Proposal.

H. Sound Transit may, at its option, supply hardware, software, licenses, warranties, infrastructure, or materials outside of this Contract in accordance with design specifications provided by the Contractor. In the event that ST supplies any such items, they shall be delivered in new condition and working order and in a timely fashion to the Contractor at a location and date to be determined in advance and agreed in writing.

MANUFACTURER'S DIRECTIONS

Manufactured articles, materials, solvents, and equipment or other goods shall be transported, stored, applied, installed, connected, erected, adjusted, tested, operated, and maintained as recommended by the manufacturer, unless otherwise specified herein. Items shall be installed by the manufacturer where recommended or directed; however, the Contractor shall not be relieved of responsibility for such installation and costs.

RESPONSIBILITY FOR PERFORMANCE

Designation of brand names, components, and/or equipment in the Specifications shall not relieve the Contractor from responsibility for performance in accordance with contractual requirements. The Contractor is responsible for notifying the Regional Program Manager of any inappropriate brand name, component, and/or equipment that may be called for in the Specifications, and for proposing a suitable alternate for consideration. Any substitution required by Sound Transit or the Regional Program Manager under this Article shall be implemented in accordance with the procedures set forth in Article 4, Changes and Change Order Process.

ARTICLE 6 PROSECUTION AND PROGRESS OF THE WORK

CONTRACT TIME

A. All time requirements set forth in the Contract Documents are of the essence in the performance of this Contract. Unless specifically authorized in writing by Sound Transit, the Contractor is not allowed to perform Work or incur costs under this Contract until the effective date of the Notice to Proceed. The Contractor shall proceed with performance of the Work under this Contract immediately after the effective date of Notice to Proceed and shall continuously and diligently prosecute the Work and specified portions thereof to completion on or before the time or times set forth in this Contract. Any work performed by the Contractor prior to the effective date of Notice to Proceed shall be at the Contractor's risk. The Contract Time shall not be extended or reduced except by Change Order. The Contractor shall not be entitled to receive delay damages or costs for non-realization of anticipated early completion of the Work before a Contract specified Milestone date.

B. The Contractor shall work such hours including overtime operations and/or extra shifts, within the parameters of permitted working days and hours, as may be necessary to meet its performance obligations under the Contract.

C. The Contractor shall comply with all local requirements and permit conditions relating to acceptable hours of operation for work locations, and to noise control and abatement. If the Contractor deems that a waiver of any local requirements is necessary to enable the Contractor

to perform the Work in accordance with the Contract requirements, it is the Contractor's responsibility to obtain said waivers, at no additional cost to Sound Transit.

D. All time periods measured in days for Contract Milestones and Notices shall be based upon calendar days, unless specified otherwise. Time periods measured in days for each Contract milestone and notice shall be computed by excluding the day upon which the period begins to run and including the last day of the period unless the last day is Saturday, Sunday or a legal holiday as defined in RCW 1.16.050. If the last day of the period is a Saturday, Sunday or legal holiday, the period shall run until, and shall include, the next day that is not a Saturday, Sunday, or legal holiday.

E. When an extension of time for completion of a milestone is granted, the extended date for completion of that milestone shall be calculated using the sum of the number of days originally allowed plus the number of days extension of time, commencing on the effective date of the Notice to Proceed, unless otherwise noted in the Special Conditions.

PROJECT SCHEDULES

A. Preparation and Submittal of Schedules

1. The Contractor shall develop and deliver, in accordance with the Contract Documents, the various schedules and progress reports to Sound Transit for review and acceptance. Sound Transit's review shall not constitute approval or acceptance of the schedules' sequencing or time of completion, nor of the Contractor's means and methods.

2. The Contractor shall not be entitled to payment, nor shall Sound Transit be required to make payment for any Contract Work, until the Project Schedule complies with the Contract requirements.

B. Float

1. Float is defined as the number of days by which a Work activity identified in the project schedules could be delayed from its "early start date" until the date upon which the Work activity would become a Critical Path Activity.

2. Any float (other than Sound Transit Controlled Float), slack time, or contingency within the Project Schedules (i.e., the difference in time between the Contract's early completion date and the Contract Milestone(s)) is not for the exclusive use of either Sound Transit or the Contractor, but is jointly owned by both and is a resource available to and shared by both parties as needed to meet Contract Milestones. Use of such jointly owned float shall be on a first come, first served basis and may be applied to delays caused (without limitation) by unmarked utility interferences or third parties.

3. The Contractor shall not sequester shared float through such strategies as extending activity duration estimates to consume available float, using preferential logic, or using extensive crew/resource sequencing, etc. Since float time, other than Sound Transit Controlled Float, within the schedule is jointly owned, no time extensions will be granted nor delay damages paid until a delay occurs which extends the work beyond the Contract Milestone(s). Since float time within the project schedule is jointly owned, it is acknowledged that Sound Transit-caused delays on the Contract may be offset by Sound

Transit-caused time-savings. In such an event, the Contractor shall not be entitled to receive a time extension or delay damages until all Sound Transit-caused time-savings are exceeded.

FAILURE TO MAINTAIN PROGRESS

If, in the opinion of the Regional Program Manager, the Contractor is not maintaining its anticipated progress towards the completion of the Milestones and / or falls behind the approved project schedules, the Contractor shall take any and all steps necessary to improve its progress. If the Contractor fails to implement appropriate remedial actions, the Regional Program Manager may require the Contractor to increase the number of shifts, increase the number of crews and/or operations, initiate or increase overtime operations, increase days of work in the work week, increase the amount of facilities and equipment, or all of the foregoing. Sound Transit may also require the Contractor to submit for approval supplemental progress schedules that detail specific operation changes to be instituted to regain the approved schedule. The cost of the actions necessary to improve the Contractor's progress will be the responsibility of the Contractor and will not be reimbursed by Sound Transit.

PROTECTION OF PROPERTY

In addition to the requirements set forth elsewhere in the Contract documents, the Contractor shall comply with the following general requirements:

A. Protect all public and private property, insofar as it may be endangered by the Contractor's operations, and take every reasonable precaution to avoid damage to such property.

B. Restore and bear the cost of restoration of any public or private improvement, facility, structure or land and landscaping inside or outside of the right-of-way or easement, which is damaged or injured directly or indirectly by or on account of an act, omission, or neglect in the execution of the Work; restore to a condition substantially equivalent to that existing before such damage or injury occurred, by repairing, replacing, rebuilding, or otherwise affecting restoration thereof, or if this is not feasible, make a suitable settlement with the owner of the damaged property. All restoration shall be governed by the requirements of local authorities, including but not limited to local codes, standards, and permit conditions.

C. Give reasonable notice through the Regional Program Manager to occupants of buildings on property adjacent to the Work to permit the occupants to remove vehicles, trailers and other possessions as well as salvage or relocate ~~facilitiess~~facilities, trees, fences, sprinkler systems, or other improvements in the right-of-way which are designated for removal or which might be destroyed or damaged by work operations.

D. Protect all trees, lawns, and ~~facilitiesed~~facilities areas within the Right-of-Way or Easements that are designated for preservation.

Comment [Legal42]: Term misspelled.

E. Not operate tracked equipment on the streets that are not scheduled for demolition and repaving under this Contract. In the event tracked equipment is used, the streets shall be fully protected.

PUBLIC SAFETY AND CONVENIENCE

The Contractor shall conduct its operations to ensure the least possible obstruction and inconvenience to the public, and the Contractor shall have no greater amount of work than the Contractor can prosecute properly with due regard to the rights of the public.

EMERGENCY WORK

A. In an emergency affecting the safety of persons, the Work, or adjoining property, the Contractor, without special instructions or authorization from the Regional Program Manager, shall act to prevent such threatened loss or injury. In such an emergency, the Contractor shall perform such additional work as required. Any compensation claimed by the Contractor on account of emergency work shall be governed by Article 4, Changes and Change Order Process, or as deemed appropriate by the Regional Program Manager.

B. If, during the Warranty period or during the progress of the Contract, the Contractor is absent from the locations of the Work at the time when a failure or faulty condition of the Contractor's work requires emergency action in the public interest, Sound Transit shall have the right to make repairs or corrections by itself or with other forces, as required, and Sound Transit may withhold from monies due the Contractor any costs which Sound Transit incurs from such emergency work.

PROTECTION OF UTILITIES

A. Facilities and installations of various utilities may be present in the area of Work. In general, the locations of existing major utilities, whether aboveground or underground, are indicated on the Contract Drawings. This information has been obtained from utility maps and field surveys. Sound Transit does not guarantee the accuracy or completeness of the information. It is understood that other facilities not shown on the Contract Drawings may be encountered during the course of the work. In any case, most minor lines such as water, gas, electric power and communication, sewer services, and sprinkler irrigation lines may not be indicated. The Contractor shall protect any utility property that is on or adjacent to the Site or affected by the Work. Existing utilities, whether shown on the Contract Drawings or not, shall be maintained, relocated, rerouted, removed, repaired, and restored as may be necessary by the Contractor in a manner satisfactory to owners and operators of the utilities and to Sound Transit. The Contractor shall contact the utility owners and arrange operations and schedules to minimize any interruption of utility services. The Contractor shall provide utility owners with notice as may be required by said utilities for location of utility services, scheduling of outages, or other utility activities needed to accommodate the Contractor's operations.

B. The Contractor shall comply with the requirements of RCW 19.122, Underground Utilities, and take steps to ascertain the exact location of all facilities prior to doing work which may damage such facilities or interfere with their service. Where the location of a facility is not indicated, or is, in the opinion of the Regional Program Manager, doubtful, the Contractor may be directed to make such excavations and explorations as are necessary to ascertain the correct location.

C. When performing work in streets and easements, the Contractor shall notify all affected utilities and local agencies of its proposed operations and properly coordinate and expedite the Work in such a manner as to cause the least amount of conflict and interference between the work and operations of other agencies. In the event of disruption or threat of disruption to utility services

as a result of Work-related activities, regardless of cause, the Contractor shall notify Sound Transit immediately and shall notify and cooperate with the utility as well as any fire, police, or other public authority which may be affected by the disruption, as required by said utility, agency, or authority.

D. The Contractor shall document all incidents of damage or impacts to utilities that are the result of Work activity, and report all such incidents to Sound Transit immediately with the date, time, place and type of property damage.

E. The Contractor shall ensure that unauthorized personnel are strictly prohibited from the operation of utility or agency water valves and hydrants and shall obtain written permission from the applicable proper utility or agency prior to using any water hydrant or operating any water valve. No Work shall be undertaken around fire hydrants until provisions for continued access and service have been approved by the local fire authority.

TEMPORARY FACILITIES AND UTILITIES

A. Temporary facilities and utilities shall be installed in compliance with federal, state, and local codes and statutes, at the Contractor's expense. The installation and maintenance of all temporary facilities will be subject to the approval of Sound Transit, and unless otherwise authorized in writing by Sound Transit, all such facilities shall be removed before Acceptance of the Work.

B. Before proceeding with the erection of any facilities, including temporary structures, machinery, offices, and warehouses, the Contractor shall, at its expense, notify and furnish Sound Transit with such information and drawings as Sound Transit may request showing locations of such facilities, capacities and capabilities of the machinery and equipment, and projected utility requirements. Such facilities shall be fully adequate for the uses intended and fully comply with the requirements of the Contract.

TEMPORARY REARRANGEMENT OF UTILITIES

The Contractor may desire to rearrange utilities temporarily for Contractor's convenience. In this case, the Contractor shall make whatever arrangements are necessary with the owners of such utility or other facility for such rearrangement and bear all expenses in connection therewith. Further, the Contractor shall maintain all utility facilities placed by the Contractor in temporary locations, and all utilities within the work area not required to be permanently rearranged but which are required to be shored or supported during the Work period. Unless otherwise indicated, the cost of such temporary rearrangement and maintenance shall be borne by the Contractor and no other compensation shall be due the Contractor for this work.

REARRANGEMENT OF UTILITIES BY OTHERS

Some or all of the utilities and other facilities, both above ground and below ground, which are required to be rearranged to accommodate the specified work, may be rearranged by other forces. In the event that rearrangement will be performed prior to the start of the Contractor's operations, or where the rearrangement must be coordinated with the Contractor's Work operations, the existing facilities which are to be rearranged by others will be indicated in the Contract Documents. Where such a rearrangement by others is indicated in the Contract Documents, the Contractor will have no liability for the cost of performing the work; however, the Contractor shall cooperate with those involved in such

rearrangement. Wherever necessary, the work of the Contractor shall be coordinated with the rearrangement of utility or other facilities, and the Contractor shall make arrangements with the owner of such facilities for the coordination of the work. The Contractor shall anticipate potential delays by the utility owners and such reasonable delays shall not be the basis for additional compensation or time extensions. Only in the event that the utility owners fail or refuse to relocate or do so in a manner causing unreasonable delays to the critical path of the Work, may the Contractor request a time extension as provided in Article 4, Changes and Change Order Process.

EXPLORATION FOR UTILITIES

Where excavations or explorations to determine the location of utilities are directed by the Regional Program Manager and where it is determined by the Regional Program Manager that the rearrangement of an underground facility, which is not shown in the Contract Documents, is essential in order to accommodate the Work, the Regional Program Manager will provide for the rearrangement of such facility by other forces or, when so ordered by a CN-WD or CO, such rearrangement shall be performed by the Contractor and will be paid for as provided in Article 4, Changes and Change Order Process. In the event of unscheduled or unanticipated disruption(s) or threat of disruption(s) to utility services as a result of work-related activities, regardless of cause, the Contractor shall promptly notify Sound Transit, the affected utility, and fire and/or police agencies as necessary, and shall cooperate with those authorities. If temporary disruption(s) of utility service(s) is (are) unavoidable pursuant to the Work, the Contractor shall immediately notify the Regional Program Manager and secure authorization from Sound Transit before disrupting the utility service(s). Operation of utility or agency water valves and hydrants by unauthorized personnel is strictly prohibited without obtaining written permission from the applicable authority prior to using any water hydrant or operating any water valve. No work shall be undertaken around fire hydrants until provisions for continued access and service have been approved by the local fire authority.

SAFETY, FIRST AID AND SECURITY

A. The Contractor shall be solely and completely responsible for conditions of the Site and the safety of all persons and property twenty-four (24) hours per day during the performance of the Work of this Contract. The Contractor shall:

1. Maintain the site and perform the work in a manner that meets statutory, regulatory and common law requirements for the provision of a safe place to work and that does not pose unreasonable safety risks to employees of Sound Transit or the public;

2. Initiate, maintain, and supervise all safety precautions and programs in connection with the performance of the Work;

3. Protect the lives and health of employees performing the work and other persons who may be affected by the Work, and

4. Prevent damage to and theft of materials, supplies, and equipment whether on-Site or stored off-Site.

B. The Contractor shall comply with all applicable local, state and federal laws, ordinances, rules, regulations and orders of any public authority building and codes, and safety regulations bearing on the safety of people and property and their protection from damage, injury or loss. In the case of conflict, the more stringent requirement shall apply. Any review of the Contractor's

performance conducted by Sound Transit or its consultants, does not and shall not be intended to include review of the adequacy of the Contractor's safety measures in, on, or near the Site.

C. The minimum safety requirements and procedures for accident prevention, safety and loss prevention, accident and incident reporting, and control for the Work are contained in other Contract Documents. Failure to comply with these minimum requirements may result in a material breach of contract. The minimum safety requirements contained in the Contract are intended to supplement, and not replace the Contractor's Safety and Security Program or Site Safety and Security Plan.

D. Prior to work, the Contractor shall have in place a Contractor's Safety and Security Program (CSSP). From this Program the Contractor shall prepare a Contractor's Site Safety and Security Plan (SSSP) identifying the methods by which all applicable safety and security requirements of this Contract and the applicable Federal, state and local requirements will be met. The Contractor shall ensure its Subcontractors have either a written safety program that conforms to the applicable requirements or formally adopt the Contractor's Safety and Security Program and Site Safety and Security Plan. The Contractor shall designate a Safety and Security Officer who shall be responsible for proper implementation of the CSSP and the SSSP. The Contractor shall submit a copy of its CSSP and SSSP to Sound Transit in accordance with the Contract Documents. Sound Transit's review of the CSSP or SSSP shall not be deemed to constitute approval or acceptance thereof and shall not transfer any responsibility for the safety of the Work site from the Contractor to Sound Transit.

E. The Contractor shall conduct a monthly safety meeting with all on-site Subcontractors and supervisors to discuss general and specific safety matters. The Contractor shall keep a log of such monthly safety meetings and provide it upon request by Sound Transit, including a sheet on which each attendee signed in and a description of the safety topics discussed at the meeting. The Contractor also shall conduct weekly safety or "tool box" meetings with employees of the Contractor and Subcontractors. The Contractor shall keep a log of such weekly safety meetings and provide it upon request by Sound Transit.

F. As the property owner, Sound Transit retains the right to grant consent to inspections pursuant to State and Federal law. This includes all accident and criminal investigations and general schedule, complaint, and follow-up safety and health inspections conducted by the State of Washington Department of Labor and Industries (WISHA) and the Federal Occupational and Health Administration (OSHA).

ORDER OF WORK

When required by the Contract Documents, the Contractor shall follow the sequence of operations set forth therein. Full compensation for conforming to such requirements will be considered as included in the prices paid for the various Contract items of the Work and no additional compensation will be allowed therefore.

LIABILITY FOR EXPENSES

The Contractor shall be liable to Sound Transit for expenses incurred due to the Contractor's failure to perform tasks in accordance with the Contract requirements. Such expenses may include costs to Sound Transit for providing personnel to perform tasks on behalf of the Contractor and shall be subject to an advance notice to the Contractor that such expenses are expected to be incurred. These expenses may

be deducted as unilateral credit Change Orders or as part of the Change Orders issued in accordance with Article 4, Changes and Change Order Process.

ARTICLE 7 LEGAL REQUIREMENTS

HEADINGS

The parties agree that Article and Section headings and other titles used in this Contract are for convenience only, and are not to be used to interpret this Contract.

WAIVER OF CONTRACT TERMS

Comment [LC43]: Needs to be for both parties.

No act or failure to act on the part of Sound Transit with respect to the exercise or enforcement of any provision of this Contract (including but not limited to rights or remedies conferred upon Sound Transit under this Contract, performance, or standards) shall be deemed to be a waiver on the part of Sound Transit of any provision of this Contract. No waiver of one provision by Sound Transit shall act as a waiver of any other provision or as a subsequent waiver of the same provision. No waiver shall be effective against Sound Transit except an express waiver in writing.

PROHIBITED INTEREST

The Contractor shall not offer or confer any interest, direct or indirect, in this Agreement or the proceeds thereof (or hire or retain in any way, directly or indirectly) to or on any member, officer, or employee of Sound Transit or its governing body, or of any of its component agencies during such person's tenure or one year thereafter, unless such interest has been disclosed in writing to Sound Transit and Sound Transit has determined that no prohibited conflict of interest or ethical violation exists in the circumstances.

SUCCESSOR'S OBLIGATIONS

The grants, covenants, provisos and claims, rights, powers, privileges and liabilities contained in the Contract shall be read and held as made by and with, and granted to and imposed upon, the Contractor and Sound Transit and their respective heirs, executors, administrators, successors and assigns. A Surety under the Performance Bond allowed by Sound Transit to complete the Work in the event of a default, termination, or other failure of the Contractor to perform the Work, shall comply fully with all Contract requirements and shall not use the defaulted or terminated Contractor for continuation or completion of the Work unless Sound Transit consents.

ASSIGNMENT OF CONTRACT

The Contract shall not be assigned in whole or in part by the Contractor without the prior consent of Sound Transit. To the maximum extent permitted by law, involuntary assignment of the Contract caused by the Contractor being adjudged bankrupt, assignment of the Contract for the benefit of the Contractor's creditors, or appointment of a receiver on account of the Contractor's insolvency shall be considered as a failure to comply with the provisions of the Contract and subject to the termination provisions contained herein.

JOINT VENTURE CONTRACTOR

A. In the event the Contractor is a joint venture of two or more partners, the grants, covenants, provisos and claims, rights, power, privileges, and liabilities of the Contract shall be construed

and held to be several as well as joint. Any notice, order, direction, request, or any communication given by Sound Transit to the Contractor under this Contract shall be well and sufficiently given to all persons being the Contractor if given to any one or more of such joint venture partners. Any notice, request or other communication given by any one of such joint venture partners to Sound Transit under this Contract shall be deemed to have been given by and shall bind all joint venture partners being the Contractor.

B. In the event of the dissolution of the joint venture Contractor, Sound Transit shall have the unqualified right to select which joint venture partner(s), if any, shall continue with the Work under this Contract. Such selected partner(s) shall assume all liabilities, obligations, rights, and benefits of the Contractor under this Contract. Dissolution of the joint venture shall not be effected without prior consultation with Sound Transit. In the event of failure or inability of any joint venture partner(s) to continue performance under this Contract, the remaining joint venture partner(s) shall perform all services and Work and assume all liabilities, obligations, rights, and benefits to the Contractor under this Contract. Nothing in this Article shall be construed or interpreted to limit Sound Transit's rights under this Contract or by law to determine whether the Contractor or any joint venture partner thereof has performed within the terms of this Contract.

CONFLICT OF INTEREST

By submission of its Proposal, the Contractor covenants that it has no direct or indirect pecuniary or proprietary interest, and that it shall not acquire any interest that conflicts in any manner or degree with the Work, materials to be provided or services required to be performed under this Contract. Furthermore, the Contractor shall not employ any person or agent having any such conflict of interest. In the event that the Contractor or its agents, employees or representatives hereafter acquires such a conflict of interest, it shall immediately disclose in writing such interest to Sound Transit and take action immediately to eliminate the conflict or to withdraw from this Contract, as Sound Transit requests. The Contractor shall not employ any consultant who is concurrently employed by Sound Transit or by Sound Transit's consultants (including, but not limited to, surveyors, engineers, architects, and testing laboratories), ***without first obtaining Sound Transit's approval in writing***.

PERMITS, FEES, AND NOTICES

A. Except as otherwise indicated, the Contractor shall procure all necessary permits and licenses, pay all charges and fees, comply with all permit conditions and give all notices necessary and incident to the due and lawful prosecution of the Work. Failure of the Contractor to perform any of the requirements specified herein shall result in the Contractor's liability as set forth herein. Upon written request the Contractor shall furnish Sound Transit with satisfactory documentation evidencing compliance with the applicable requirements. Contractor shall sign as co-permitee on any stormwater permits issued for the Work regardless of whether Sound Transit obtains such permit(s) prior to or after execution of this Contract.

B. The Contractor shall be fully liable to Sound Transit and any permit issuing authority for any costs and damages arising out of or relating to Contractor’s failure to obtain a permit or for any failure to comply with the terms of any permit, including (1) costs associated with completing the Work authorized and/or required by any government permit within the time or times, if any, stipulated in such permit and any fees or penalties assessed by the permit issuing authority, (2) any damages or costs assessed under Article 7.14, and (3) delays to the Work caused by failure

to timely complete Work, or any separate part thereof. As used herein, the term “permit issuing authority" includes any authority whose permit or license is necessary and incident to the due and lawful prosecution of the Work.

C. The Contractor shall be responsible for identifying, securing, and paying for all necessary licenses, fees, inspections, waivers, utility connection fees, building and other permits, and similar authorizations from governmental and utility authorities required to fulfill the Contract requirements and the Contractor's obligations except for those identified in the Contract as being furnished or paid for by Sound Transit.

D. The Contractor shall maintain at the Work Site copies of all permits, licenses, certificates, or other documentation demonstrating compliance with any applicable statute, regulation, ordinance, or rule or other requirements of this Contract. The Contractor shall provide copies of such documentation to Sound Transit promptly upon request.

E. The Contractor shall be liable for and shall pay all fines, assessments, and other costs resulting from the Contractor's violation of any applicable federal, state, or local statute, regulation, ordinance, or other restriction.

F. The Contractor shall not be entitled to any additional compensation or extension of time as a result of the Contractor's violation of applicable regulatory requirements. If a delay results from such a violation, the Contractor shall be responsible for all costs including, but not limited to, overtime premium associated with regaining the time lost as a result of such delay, and any damages, including liquidated damages, which may result from Contractor's failure to comply with the project schedule as a result of such delay.

PUBLICITY AND ADVERTISING

The Contractor, its Subcontractors, and Suppliers shall not publish nor cause to be published any advertisement or other material, including news releases and technical papers, regarding the subject matter of this Contract at any time without the prior written authorization of Sound Transit. The Contractor shall not display any signs, posters, or any other advertising matter in or on the Work or on or around the site other than those prescribed by the Contract or by law without the prior written authorization of Sound Transit. In addition, advertising or other copy mentioning Sound Transit or quoting the opinions of any of its employees shall not be released before such copy is approved in writing by Sound Transit. Any material proposed for publication shall be factual and shall not state or imply endorsement by Sound Transit of any firm, service or product.

LIABILITY AND INDEMNIFICATION

A. The Contractor shall comply, and require its subcontractors to comply, with all Sound Transit resolutions, motions and federal, state, and local laws, regulations, and ordinances applicable to the work and services to be performed under this Agreement.

B. Insurance Coverage, whether owner-provided, contractor-provided, or otherwise, shall not relieve the Contractor, Subcontractors or Suppliers of their responsibility for liability or damages to Sound Transit under the Contract Documents.

C. The Contractor shall be solely responsible for any claims for wages or compensation by the Contractor employees, agents, and representatives, including subcontractors, and save and hold Sound Transit harmless therefrom.

D. The Contractor shall indemnify, defend and hold Sound Transit harmless for any costs and pay any damages or judgments related to any claim brought by any person employed in any capacity by the Contractor, Subcontractors, or any agent of Contractor~~cy~~ on the Work, with respect to the payment of wages, salaries, or other compensation or benefits, including but not limited to benefits such as medical, health, retirement, vacation, sick leave, etc.

Comment [Legal44]: Language is added to clarify that it is an agent of the Contractor who it is referred to.

E. To the maximum extent permitted by law, the Contractor agrees to defend, release, indemnify and save harmless Sound Transit, its successors and assigns, and its and their shareholders, officers, officials, directors, contractors, and employees, and the ORCA partner agencies (collectively "the Indemnified Parties") from and against any liability including any and all suits, claims, actions, losses, costs, penalties, response costs, and damages of whatsoever kind or nature to the extent arising out of, in connection with, or incident to the Contractor's negligent performance or negligent failure to perform this Contract or the Work; provided, however, that if the provisions of RCW 4.24.115 apply to the Work and any injuries to persons or property arising out of performance of this Agreement are caused by or result from the concurrent negligence of the Contractor or its Subcontractors, agents or employees, and an Indemnified Party, the indemnification applies only to the extent of the negligence of the Contractor, its Subcontractors, agents or employees.

Comment [Legal45]: The terms are added to clarify that it is a negligent standard applied to this paragraph. Contractor is not an insurer of every contingency regardless of fault.

THE CONTRACTOR SPECIFICALLY ASSUMES POTENTIAL LIABILITY FOR ACTIONS BROUGHT BY THE CONTRACTOR'S OWN EMPLOYEES OR FORMER EMPLOYEES AGAINST ANY INDEMNIFIED PARTY, AND FOR THAT PURPOSE THE CONTRACTOR SPECIFICALLY WAIVES ALL IMMUNITY AND LIMITATIONS ON LIABILITY UNDER THE WORKERS COMPENSATION ACT, RCW TITLE 51, OR ANY INDUSTRIAL INSURANCE ACT, DISABILITY BENEFIT ACT OR OTHER EMPLOYEE BENEFIT ACT OF ANY JURISDICTION THAT WOULD OTHERWISE BE APPLICABLE IN THE CASE OF SUCH CLAIM. THIS INDEMNITY OBLIGATION SHALL NOT BE LIMITED BY ANY LIMITATION ON THE AMOUNT OR TYPE OF DAMAGES, COMPENSATION OR BENEFITS PAYABLE BY OR FOR CONTRACTOR OR A SUBCONTRACTOR UNDER WORKERS' COMPENSATION, DISABILITY BENEFIT OR OTHER EMPLOYEE BENEFITS LAWS. THE CONTRACTOR RECOGNIZES THAT THIS WAIVER WAS SPECIFICALLY ENTERED INTO AND WAS THE SUBJECT OF MUTUAL NEGOTIATION. PROVIDED, HOWEVER, THE CONTRACTOR'S WAIVER OF IMMUNITY BY THE PROVISIONS OF THIS PARAGRAPH EXTENDS ONLY TO CLAIMS AGAINST THE CONTRACTOR BY SOUND TRANSIT, AND DOES NOT INCLUDE, OR EXTEND TO, ANY CLAIMS BY THE CONTRACTOR'S EMPLOYEE DIRECTLY AGAINST THECONTRACTOR.

F. The Contractor further agrees to assume the defense of the Indemnified Parties with legal counsel acceptable to Sound Transit, whose acceptance shall not be unreasonably withheld or delayed, in all legal or claim proceedings arising out of, in connection with, or incidental to the performance of this Agreement or the Work. The Contractor shall pay all defense expenses, including attorneys' fees, expert fees, and costs (collectively "defense costs") incurred directly or indirectly on account of such litigation or claims, and the Contractor shall satisfy any judgment rendered in connection therewith. In the event that any lien is placed upon the property of any of the Indemnified Parties as a result of such suits or legal proceedings, the Contractor agrees to immediately cause the same to be dissolved and discharged by giving bond or otherwise. The

Contractor may settle any suit, claim, action, loss, cost, penalty, or damages, subject to the approval of Sound Transit, whose approval shall not be unreasonably withheld, if such settlement completely and forever extinguishes any and all liability of the Indemnified Parties. In the event of litigation between the parties to enforce the rights under this Article, reasonable attorney fees shall be allowed to the prevailing party.

G. The Contractor further agrees that any review and/or approval by Sound Transit and/or others hereunder shall not relieve the Contractor of any of its obligations to perform to generally accepted professional standards applicable to the types of services and work provided hereunder or in any way diminish its liability for the performance of such obligations or its obligations to provide the indemnities hereunder.

H. The foregoing indemnities and duties to defend shall survive the termination of this Agreement and final payment hereunder, and are in addition to any other rights or remedies which Sound Transit and/or any of the Indemnified Parties may have by law or under this Agreement. In the event of any claim or demand made against any Indemnified Party hereunder, Sound Transit may, in its sole discretion, reserve, retain or apply any monies due to the Contractor under the Agreement for the purpose of resolving such claims; provided, however, that Sound Transit may release such funds if the Contractor provides Sound Transit with adequate assurance of the protection of Sound Transit's and the other Indemnified Parties' interests.

I. The Contractor shall not assign any interest, obligation, or benefit in this Agreement or transfer any interest in the same, whether by assignment or novation, without prior written consent by Sound Transit; provided, however, that claims for money due or to become due to the Contractor from Sound Transit under this Agreement may be assigned to a bank, trust company, or other financial institution without such approval. Notice of any such claim assignment shall be furnished promptly to Sound Transit.

J. Sound Transit's rights and remedies in this Agreement are in addition to any other rights and remedies provided by law.

OWNERSHIP OF WORK PRODUCT

All information, including drawings, specifications and other data, prepared or developed by the Contractor uniquely and specifically for Sound Transit in performance of the Work, whether or not required to be furnished to Sound Transit, shall be the property of Sound Transit and may be used by Sound Transit without restriction. The Contractor hereby assigns and transfers to Sound Transit any and all copyrights for such materials. Prior to the completion of the Work, the Contractor shall provide Sound Transit with a list of all such information which has not previously been furnished to Sound Transit. Sound Transit will then have thirty (30) days to advise the Contractor which information shall constitute Sound Transit property. Before requesting Acceptance, the Contractor shall deliver to Sound Transit the information that has been identified to constitute Sound Transit property.

Comment [Legal46]: The addition made is for clarification of the paragraph to reflect that the work product is specifically made for Sound Transit. Moreover, such change is consistent with other changes/clarifications made in the Contract as it relates to intellectual property.

RIGHTS IN ~~TECHNICAL DATA~~ INTELLECTUAL PROPERTY OF CONTRACTOR

A. The Contractor shall assume all risks arising from the use of patented or copyrighted materials, equipment, devices or processes not furnished by Sound Transit or any other ORCA partner agency, used on or incorporated in the Work, and shall indemnify, defend and hold harmless Sound Transit and any other ORCA partner agency, and all of its directors, officers, employees and agents to the maximum extent permitted by law from and against any and all claims,

liabilities, losses, damages or expenses (including attorney's fees and related costs), whether direct or indirect, arising out of or relating to the ownership, possession or use of any patented materials, equipment, devices or processes. In case such material, equipment, devices or processes are held to constitute an infringement and their use enjoined, the Contractor at the Contractor's expense shall:

1. Secure for Sound Transit the right to continue using said materials, equipment, devices or processes by suspension of the injunction or by procuring a license, or licenses, or;

2. Replace such materials, equipment, devices or processes, or

3. Modify them so that they become non-infringing or

4. Remove the enjoined materials, equipment, devices or processes and refund the sums paid therefore without prejudice to any other rights of Sound Transit or the Regional Program Manager.

B. The preceding Paragraph A shall not apply to and Contractor shall have no obligation or liability with respect to any patent infringement claim based upon: (a) any product that is manufactured to Sound Transit's or those for whom it is responsible, design; (b) the combination, operation, or use of any product furnished hereunder in conjunction with any other apparatus or material; or (c) any products that have been altered, modified, or revised by any party other than Contractor or Contractor's agent. As to any product or use described in the preceding sentence, Contractor assumes no liability whatsoever for patent infringement or the unauthorized use of Products, including, without limitation, a breach of the provisions of the Contract and the failure of Sound Transit to implement any update provided by Contractor that would have prevented the claim. Notwithstanding the foregoing, with respect to any products, or portions thereof, which are not manufactured or developed by Contractor and are not manufactured to Contractor's design specifications, only the indemnity of the manufacturer/developer, if any, shall apply.

~~to any materials or processes specified by Sound Transit or its Contractors, or manufactured to the design of Sound Transit or its Contractor in accordance with the details contained in the Contract Documents, if authorized by Sound Transit; and for such materials and processes the Contractor assumes no liability whatsoever for infringement, except to the extent that the Contractor knew, or should have known of the infringement and failed to promptly notify Sound Transit thereof.~~

~~B.~~C. In respect only of Work performed prepared or developed by the Contractor uniquely and specifically for Sound Transit in performance of the Work ~~,~~ if any invention, improvement, or discovery of the Contractor is conceived or first reduced to practice in the course of Work or under this Contract, and such invention, improvement, or discovery may be patented under the laws of the United States of America or any foreign country, the Contractor shall immediately notify Sound Transit and provide a detailed report. The rights and responsibilities of Sound Transit, the Contractor, and the federal government with respect to such invention, improvement, or discovery will be determined in accordance with applicable federal laws, regulations, policies and any grant agreements. Except for Contractor's use in conjunction with the Work required by this Contract, the Contractor may not publish or reproduce such data in whole or in part, or in any manner or form, nor may the Contractor authorize others to do so, without the written consent of Sound Transit.

~~C.~~D. This Article shall survive any expiration or termination of this Contract.

Comment [Legal47]: The added language is to clarify that there in general is no liability for Contractor and/or Contractor's agents in the event of any patent infringement claim, if Contractor was not responsible for design and or production, or if Sound Transit failed to implement any updates provided.

Comment [Legal48]: Paragraph is deleted since there is no Material licensed. Material is purchased.

Comment [Legal49]: The language added is to clarify that Sound Transit only will have these rights in Work prepared or developed uniquely and specifically for Sound Transit under the Contract.

SEVERABILITY

If a provision of this Contract is found by a court of competent jurisdiction to be unenforceable, the validity and enforceability of the remaining provisions shall remain unaffected, and the parties shall negotiate an equitable adjustment of this Contract so that the purposes of this Contract are effected.

COMPLIANCE WITH LAWS AND REGULATIONS

A. The Contractor shall keep fully informed concerning all governmental requirements, including but not limited to all State, federal, county and municipal laws, ordinances and regulations which in any manner affect the performance of the Work, or the materials and equipment used in the Work, or which in any way affect those engaged or employed to work in connection with the Work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same including the specific legal requirements referenced in the Contract

Documents. The Contractor shall at all times comply with, and shall cause all the Contractor's agents, employees and Subcontractors to comply with all such governmental requirements, and shall indemnify, defend and hold harmless Sound Transit and all of its directors, officers, agents, and employees, and the ORCA partner agencies against all claims, liabilities, losses, damages and expenses (including attorney's fees and related costs) arising from or based on the violation of any such governmental requirement whether by the Contractor or contractor's agents, employees or Subcontractors. If any discrepancy or inconsistency is discovered in the Contract Documents for the work in relation to any such governmental requirements, the Contractor shall immediately report the same to the Regional Program Manager in writing.

B. The Contractor shall comply and, to the best of its ability, shall require its subcontractors to comply with all Sound Transit policies applicable to the Work to be performed under this Agreement (for example Sound Transit's policy on equal employment opportunity, harassment, and ADA compliance). Copies of Sound Transit policies shall be supplied to Contractor~~are available upon request~~ as a condition of the enforcement of this section.

Comment [Legal50]: Language is added. Based on the obligation put on the Contractor in this paragraph, it is only reasonable that these policies are provided to Contractor.

C. The Contractor shall exercise reasonable efforts to stay apprised of changes to said governmental requirements. The Contractor shall bring any such changes to the attention of the Regional Program Manager and identify with particularity the effect of such changes on the Work. Impacts of time or cost from such change will be investigated and managed through the Change Order process. Any such changed law, ordinance, resolution, or regulation supersedes any conflicting provisions of this Contract.

D. Suspected Violation of Governmental Requirements - If the Contractor knows or has reason to know of any suspected violation of Governmental Requirement by itself or any Subcontractor under the Contract, the Contractor must promptly and fully investigate and immediately report the existence of such investigation to Sound Transit. The Contractor shall fully report, in writing, to Sound Transit the facts and information ascertained in the investigation and shall allow Sound Transit to examine all of Contractor's documentation related to the investigation. If Sound Transit reasonably believes access to any individual worker is necessary for a Sound Transit investigation, whether such worker is an employee of Contractor or a Subcontractor of any tier, Contractor must make available, within ~~1~~5 days of a written request, such worker for interview by Sound Transit's representative who has been designated in the written request. The Contractor may withhold communications properly considered attorney-client privileged.

Comment [Legal51]: Language is added. Based on the obligation put on the Contractor in this paragraph, it is only reasonable that these policies are provided to Contractor.

E. The Contractor is liable for all actual costs reasonably incurred by Sound Transit directly related to Sound Transit's response to or necessary actions required for the violation of any Governmental Requirement or a settlement by Contractor associated with such alleged violation, including the total personnel costs of Sound Transit employees and other Sound Transit costs, outside attorneys' fees and costs, and outside consultants' fees and costs. Sound Transit may withhold such amounts from sums otherwise payable to Contractor under the Contract. For purposes of this Article 7.14:

1. Environmental Violation occurs when any federal, state, or local governmental entity or other applicable environmental permitting authority has found any portion of the Work or Contractor's performance thereof to be in violation of any environmental permit or other applicable federal, state, or local environmental law, regulation, or requirement.

2. Safety Violation occurs when any federal, state, or local governmental entity or other applicable authority has found any portion of the Work or Contractor's performance

thereof to be in violation of any applicable federal, state, or local safety law, regulation, or requirement.

3. Violations of Title VI occur (a) when any federal, state, or local governmental entity or other applicable authority has found the Contractor or any subcontractor to have been in violation of Title VI or any other anti-discrimination or equal opportunity law, or (b) when Sound Transit has hired an independent investigator who determines that sufficient facts exist to support a *prima facie* violation of Title VI or any other anti-discrimination or equal opportunity law.

[INTENTIONALLY OMITTED]

[INTENTIONALLY OMITTED]

[INTENTIONALLY OMITTED]

ENVIRONMENTAL COMPLIANCE AND SUSTAINABILITY

Sound Transit has an established environmental policy, a sustainability initiative, and an environmental management system certified under the International Standards Organization (ISO) 14000. Sound Transit is committed to protecting the environment for present and future generations. The purposes of these policies are to:

A. Implement environmental stewardship and sustainable development

B. Reduce environmental risks and liabilities

C. Enhance image with public, regulators, agencies and stakeholders

D. Ensure regulatory compliance

E. Improve environmental performance

F. Simplify environmental communication

Sound Transit is committed to meeting or exceeding all environmental commitments during all phases of the project. The purpose is to prevent environmental degradation, reduce work delays and cost increases, minimize negative publicity, and reduce the number of upset citizens, landowners, and regulating agencies.

Within thirty (30) days of effective date of the Notice to Proceed, Sound Transit shall provide to the Contractor a copy of Sound Transit's environmental policy, its sustainability initiative, and its environmental management system.

TAXES

A. Retail Sales Taxes

1. Sound Transit has determined that the work to be performed under this Contract is exempt from the retail sales tax pursuant to RCW 82.04.050(7) and WAC 458-20-171 ("Rule 171"). Consequently, the Contract Price is not subject to Washington State retail

sales tax and no retail sales tax shall be invoiced to or collected from Sound Transit with respect to the Contract Price.

2. The Contractor is advised that it will be considered the consumer of all materials, equipment and supplies, including prefabricated and precast items that are purchased, used or consumed by them in performing the work and all sales taxable services, and must pay the applicable sales/use tax on all taxable items.

3. In the event that the Washington State Department of Revenue should determine, on audit or otherwise, that all or any portion of the work does not qualify for exemption under Rule 171, or that Sound Transit is otherwise obligated to pay sales/use tax on the Contract, the Contract and any subsequent invoices will be amended to add and separately state any applicable retail sales tax to the Contract Price. In this event, the Contract Price will be adjusted to eliminate any duplication of retail sales tax for retail sales tax amounts already included in the Contractor's proposal. Sound Transit shall be liable for and hold Contractor harmless from and all penalties, costs and expenses of whatever nature suffered by Contractor or its subcontractors arising out of or related to the failure of Sound Transit to pay sales/use tax related to the Work.

4. If a Contractor has questions regarding the application of Rule 171, the Contractor should contact the Washington State Department of Revenue

B. Federal Excise Taxes - Sound Transit is exempt from Federal Excise Taxes and an exemption certification will be furnished upon request.

C. Other Taxes - The Contract Price includes all other taxes applicable to the Contractor's completion of the Work, including without limitation, B&O taxes applicable to all tiers performing the Work.

D. No increase will be made to the amount to be paid by Sound Transit under this Contract because of any misunderstanding by or lack of knowledge of the Contractor as to liability for, or the amount of, any taxes for which the Contractor is liable or responsible by law or under this Contract.

Comment [Legal52]: Sound Transit should pay for any penalties caused by Contractor being penalized for Sound Transit's failure to pay these taxes.

LIENS PROHIBITED

~~The~~ Other than liens for monies due and owing to Contractor, Contractor shall not permit any lien or claim to be filed or prosecuted against Sound Transit, its property or its right-of-way on account of any labor or material furnished or any other reason for work arising out of this Contract. If any lien shall be filed, the Contractor shall satisfy, discharge and extinguish or cause such lien to be satisfied, discharged and extinguished immediately, including at Sound Transit's option obtaining a court order extinguishing the lien, as a condition precedent to release of retainage and/or final payment

Comment [Legal53]: The added language clarifies that the prohibition of liens is not with regard to monies owed Contractor under the Contract.

[INTENTIONALLY OMITTED]

[INTENTIONALLY OMITTED]

[INTENTIONALLY OMITTED]

[INTENTIONALLY OMITTED]

[INTENTIONALLY OMITTED]

[INTENTIONALLY OMITTED]

CONTRACTOR ACQUISITION AND / OR MERGER

If the Contractor executing this Agreement ceases to exist as an independent business entity by means of acquisition by and / or merger with a successor or otherwise, the Contractor shall notify Sound Transit in writing not less than thirty (30) days prior to the effective date of the circumstance causing the cessation of the independent business status. Sound Transit reserves the right to take steps to ensure it has contractual privity with the successor. The Contractor shall cooperate with this effort by agreeing to an assignment, a novation, or other document required to transfer the rights and responsibilities of the Contractor to the successor.

APPLICABLE LAWS AND JURISDICTION

This Agreement and all provisions hereof shall be interpreted in accordance with the laws of the State of Washington and, to the extent incorporated into (or made applicable to the Work by) the Contract Documents, the laws of the United States of America. Subject to the provisions herein regarding exhaustion of administrative remedies, the Superior Court of King County, Washington, shall have exclusive jurisdiction and venue over any legal action arising under this Agreement.

INTELLECTUAL PROPERTY PROVISIONS

A. Software System

Contractor grants to Sound Transit a perpetual, ~~unlimited~~ site specific, royalty-free, non-exclusive and irrevocable license for Sound Transit (including without limitation its officers, directors, employees, and agents) to install, use, copy, modify, and maintain the Software system (and each and every part of the system) in accordance with the terms and conditions of its End User License ., ~~with no limitation on the number of sites or users. For further clarity, and without limitation to the generality of the foregoing, this grant of license includes without limitation:~~

~~1. rights to practice any inventions owned, controlled, or licensed by Contractor (or any of its permitted subcontractors) (or any of its or their parent, subsidiary, sister or otherwise affiliated or related companies) as reasonably desirable or necessary to operate or maintain the Software System (and each and every part of the system);~~

~~2. rights to use any know-how disclosed or otherwise provided by Contractor (or any of its permitted subcontractors) (or any of its or their parent, subsidiary, sister or otherwise affiliated or related companies) as reasonably desirable or necessary to operate or maintain the Software System (and each and every part of the system); and~~

Comment [Legal54]: The first change clarifies that the license and refers to a program site for which Contractor was engaged. The second change reflects that the software system's use is regulated by the End User License agreement between the parties.

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~~3. rights to use, copy and modify (and create derivative works from) Contractor software, with no limitation on the number of sites or users, as reasonably desirable or necessary to operate or maintain the Software System (and each and every part of the system)~~

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~~B. Materials~~

~~Contractor further grants to Sound Transit a perpetual, unlimited, royalty-free, non-exclusive and irrevocable license for Sound Transit (including without limitation its officers, directors, employees and agents) to use, copy, distribute, display publicly, perform, and modify (and create derivative works from) all Materials.~~

Comment [Legal55]: The subparagraphs are deleted because the End User License agreement covers these situations. In case of Materials, there is no applicable license since Materials are purchased.

~~C.~~B. Third Party Software

In providing the Software System, Contractor will use only that Third Party Software that has been expressly approved in writing by Sound Transit. Contractor will procure, maintain, and otherwise be responsible for all licenses for Sound Transit, in Sound Transit's name, for any such Third Party Software reasonably necessary to operate or maintain the Software System. Sound Transit retains sole, ultimate authority on executing and entering into any such licenses. Contractor shall provide to Sound Transit copies of such licenses, along with any related software or license documentation. To the extent that any other licenses or permissions are reasonably desirable or necessary for Sound Transit to operate or maintain the Software System, Contractor hereby grants to Sound Transit to the maximum extent within its rights – or will procure for Sound Transit, in Sound Transit's name, to the maximum extent reasonably negotiable and at Sound Transit's expense – any such licenses and permissions.

~~D.~~C. Right to Sublicense

Comment [Legal56]: The subparagraph is changed from C to B. There is added language to reflect that any cost involved with the obligation referenced will be an expense of Sound Transit.

Comment [Legal57]: D is changed to C.

1. Sound Transit may, in its sole discretion and without incurring any further or additional charges, sublicense any of its rights under this Agreement as reasonably necessary to operate or maintain the Software System, including without limitation: to third-party vendors, contractors, or consultants whom Sound Transit may retain to assist in operation or maintenance of the Software System; and to other transportation entities as reasonably desirable or necessary to implement back-up systems or disaster planning.

2. Licenses Under Bankruptcy Code: All rights and licenses granted under or pursuant to this Agreement are and shall be deemed to be, for purposes of Section 365(n) of the U.S. Bankruptcy Code, licenses of rights to "intellectual property," as defined under Section 101 of the U.S. Bankruptcy Code. The parties agree that Sound Transit, as a licensee of such rights under this Agreement, shall retain and may fully exercise all of its rights and elections under the U.S. Bankruptcy Code; however, nothing herein shall be deemed to constitute a present exercise of such rights and elections.

~~E.~~D. Source Code Escrow

Contractor agrees that as a condition of Final Acceptance it will deposit the source code for any Contractor Software into escrow (including all updates, versions, releases, and upgrades licensed under this Agreement, with a source code agent, nationally recognized, selected by Contractor capable of providing Level 2 certification/~~verification.~~verification. Sound Transit shall become a party to and be governed by the terms of the escrow agreement. Deposit shall be at

reasonable periodic intervals based generally on the pace at which the software is being developed or changed – and shall include any and all

subsequent updates, versions, releases, and upgrades licensed under this Agreement. The source code escrow agreement shall remain in place, and source code deposits shall be updated and maintained, for as long as Sound Transit and Contractor have entered into a software maintenance or support agreement. The applicable source code will be released to Sound Transit (or any Contractor acting on its behalf) in the event of nonperformance or the inability of Contractor to execute or maintain the portion of the Software System controlled by or through its applicable software. Contractor agrees that Sound Transit (or any Contractor acting on its behalf) may use the source code to maintain, fix, or modify Contractor Software as reasonably necessary to operate or maintain any portions of the Software System. Contractor and Sound Transit will separately execute an escrow agreement concurrently with this Agreement. Contractor shall be solely responsible for any costs related to the source code escrow during the warranty period. Thereafter all costs and expenses related to the source code escrow shall be for account of Sound Transit.

Comment [Legal58]: The first change is to the subparagraph reference (E is changed to D.) The other changes relate to input as to the escrow material agent to be selected, and that Contractor needs to be a party to any such agreement. In addition, it needs to be clarified that Contractor is only responsibly for costs relating to source code escrow during the warranty period.

ARTICLE 8 INSURANCE

See Section 03 for insurance requirements.

ARTICLE 9 PAYMENT

COMPLIANCE PREREQUISITE TO PAYMENT

A. Sound Transit shall pay the Contractor Partial Payments for completed Work in accordance with the Partial Payment Schedule as described in Section 9.02, Partial Payment Schedule. Payment to the Contractor shall be based upon Work performed in conformance with the Contract as approved by Sound Transit's review of the payment request. Sound Transit will not approve payments for portions of the Work not performed in full compliance with provisions of the Contract, and applicable laws, ordinances, resolutions, regulations, permits and/or easements, and may withhold such payments to the Contractor in accordance with Section 9.06, Withholding Payments.

B. The Contractor shall be responsible, and have no claim whatsoever against Sound Transit, for all costs and effects of delays resulting or arising from suspension and/or Stop Work orders issued by Sound Transit and/or any governmental authority as a result of incidents of non-compliance with the Contract or any laws, ordinances, or regulations by the Contractor and/or its Subcontractors and Suppliers. This paragraph shall be void and of no effect in the event that Sound Transit and or any other governmental authority is found to have unreasonably and/or wrongfully issue a suspension or Stop Work order to Contractor.

Comment [Legal59]: The added language is to protect Contractor against any unreasonable and/or wrongfully suspension or Stop Work order.

PARTIAL PAYMENT SCHEDULE

The Contractor shall submit a Partial Payment Schedule for the Contract Price which is acceptable to Sound Transit. The initial submittal shall be made within thirty (30) days after issuance of the Notice to Proceed. The Partial Payment Schedule is prepared in accordance with the requirements of the Contract Documents. The Contractor warrants that such values are accurate representations and allocations of the value of the work in each delivery or performance increment on which Sound Transit may rely. Failure to submit a Partial Payment Schedule that is acceptable to Sound Transit will delay the processing of Partial Payments.

PARTIAL PAYMENTS

A. The Contractor shall submit no more than one invoice a month, and each invoice may include any number and combination of delivery or performance increments that are completed that

month. Invoices need not be based on sequential delivery or performance increments. Each invoice shall be submitted upon forms provided by Sound Transit, and shall include:

1. Contract number and Purchase Order number;

2. Applicable delivery or performance increment (s) and vehicle(s);

3. Unit and total prices by delivery or performance increment;

4. Total invoice amount;

5. The Contractor's statement regarding payment of prevailing wages as specified in the Labor Compliance Manual;

6. The Contractor's current progress schedules, cash flow projections and reports if specified in the Specifications;

7. A completed Affidavit of Amounts Paid to all businesses participating on the Contract, and additional information related to the Contractor's commitment to Small Business and DBEs, if applicable to this Contract;

8. A Pre-Apprentice Training Program Fund Contribution Report, if applicable to this Contract,

9. A Monthly EEO/Apprentice Utilization Report, if applicable to this contract; and

10. Certification Regarding Alleged Civil Rights Violations.

If requested by Sound Transit, the Contractor shall provide such additional data as may be reasonably required to support the payment for materials and labor, including payments to Subcontractors and Suppliers. The term "materials", as used herein, shall be considered to include those items which are fabricated and manufactured material and equipment. Only those materials for which the Contractor can transfer clear title to Sound Transit will be qualified for Partial Payment, except as specifically provided below.

B. Partial Payment for Materials Purchased and Delivered but not Installed – To receive Partial Payment for materials purchased and delivered but not yet incorporated into the Work, the Contractor shall submit a list with certified invoices of such materials to Sound Transit for approval together with the Contractor's partial payment request. The required documents to support the Contractor's partial payment request for materials purchased and delivered but not installed will be determined by the storage location of the delivered materials: (1) materials delivered to and stored on the Site (aka Project Site) and (2) materials delivered to and stored in a location not on the Site.

1. For materials delivered to and stored on the site, the Contractor's claimed purchase price shall be supported by (i) certified invoices of Subcontractors or Suppliers (ii) together with proof of payment of such invoices (in the form of cancelled checks or acknowledgment by such Subcontractors or Suppliers of receipt of payment in full for such invoices).

2. For materials delivered to and stored in a location other than the site, For materials delivered to and stored in a location other than the Site, the Contractor's claimed

purchase shall be supported by (i) certified invoices of Subcontractors or Suppliers (ii) together with proof of payment of such invoices (in the form of cancelled checks or acknowledgment by such Subcontractors or Suppliers of receipt of payment in full for such invoices), (iii) together with proof that the materials have been delivered to and accepted by the Contractor and are in its possession and control.

As a condition precedent to making Partial Payment for materials delivered and stored in a location other than the site, Sound Transit shall require that the Contractor, at its expense:

a. Furnish Sound Transit with an irrevocable letter of credit with terms acceptable to Sound Transit or other security acceptable to Sound Transit. The issuer of the Letter of Credit, if provided, shall be a national bank acceptable to Sound Transit. The amount of the Letter of Credit shall be equal to the amount of the Partial Payment requested for the materials delivered to and stored in a location other than the Site. Sound Transit shall be entitled to draw on the Letter of Credit in one or more draws in any of the following circumstances: (a) the Contractor fails to deliver the materials to the Project Site when required; (b) the Contractor, Subcontractor, Supplier or Fabricator, at whose location the material is stored, becomes insolvent, or becomes the subject of a voluntary petition for relief in bankruptcy or other insolvency proceeding (or an involuntary bankruptcy or insolvency proceeding is commenced against the Contractor and not dismissed within thirty (30) days; or (c) Sound Transit receives notice from the issuer that the Letter of Credit will not be automatically renewed or extended; or

b. Subject to Sound Transit's consent, provide Sound Transit with a first and only priority perfected security interest ("Security Interest") in the materials covered by the payment request, pursuant to a written security agreement in form and substance acceptable to Sound Transit. Such security agreement shall be supported by Uniform Commercial Code ("UCC") financing statements describing the subject materials, UCC searches and other terms and conditions acceptable to Sound Transit in its discretion. Sound Transit may require the Contractor to physically segregate materials from other inventory of the Contractor. The Contractor shall plainly, distinctly, and conspicuously place or cause to be placed upon such other places as may reasonably be designated by Sound Transit from time to time a mark, label, or other identification bearing words that indicate Sound Transit's interest in the material.

Contractor's progress of Work shall not include materials delivered and not installed. Progress shall be determined solely on an estimate of the Work completed. Payment for materials purchased and delivered but not installed shall be at the sole discretion of Sound Transit.

C. Partial Payment for Subcontracted Work - In its payment requests, the Contractor shall include payments for Subcontractors whose work was satisfactorily performed and part of the completed Work covered by the payment request. The Contractor shall not request payment from Sound Transit of amounts for Subcontractors until the Contractor has determined that the Subcontractors are entitled to the payment of such amounts for Work satisfactorily completed.

D. Review of Payment Request - Within ten (10) days after receipt of the partial payment request and the required documentation, Sound Transit will review the request and either indicate approval in writing or indicate in writing to the Contractor specific reasons why part or all of the payment is being withheld and what remedial actions the Contractor must take to receive the withheld amount. Any amounts approved by Sound Transit for payment will, within thirty (30) days of acceptance of the Contractor's properly completed invoice or receipt of the goods or services, whichever is later, pay the Contractor a Partial Payment on the basis of the approved partial payment request. The payments will take into account the retention provisions provided for herein.

E. In the event Sound Transit does not concur with the request, the Contractor may make the changes necessary to obtain Sound Transit's concurrence and resubmit the partial payment request. Sound Transit will, within thirty (30) days of acceptance of the Contractor's properly completed payment request, or receipt of the goods or services, whichever is later, and after the Contractor satisfactorily completes the remedial actions identified in Sound Transit's rejection of the payment request, pay the Contractor a partial payment on the basis of the approved partial payment request.

F. The Contractor shall receive a payment from Sound Transit no more than once per calendar month unless otherwise approved by Sound Transit, at its sole discretion.

G. Notwithstanding the payment provisions of this Contract, Sound Transit may make partial payment against any delivery or performance increment when Sound Transit deems such payment to be appropriate and in the best interest of Sound Transit to the extent of work has been satisfactorily completed.

H. No approval for payment, nor any payment by Sound Transit, shall constitute an acceptance of Contract deliverables that are not in accordance with the Contract.

RETAINAGE (WHEN APPLICABLE)

A. Pursuant to RCW 60.28.011, Sound Transit will retain 5 percent of all Partial Payments as a trust fund for the protection and payment of any person or persons, mechanic, Subcontractor, or material provider who performs labor upon the contract or Work hereunder, and all persons who shall supply such person or persons or Subcontractors with provisions and supplies for carrying on such Work, and the State with respect to taxes imposed pursuant to Title 82 RCW which may be due from the Contractor. Such funds shall be deemed as public funds under RCW 39.58. In the event that during the performance of the Contract and prior to the expiration of the claim period as provided in RCW 60.28.011, the amount retained is reduced to an amount below 5 percent, then Sound Transit may retain additional sums from monies earned by the Contractor so as to maintain at all times a 5 percent retained trust fund, unless otherwise reduced or excused by provisions of Chapter 60.28 RCW.

B. Monies reserved under provisions of Chapter 60.28 RCW shall, at the option of the Contractor, be:

1. Retained in a fund by Sound Transit with no interest paid thereon to the Contractor; or

2. Deposited by Sound Transit in an interest-bearing account in a bank, mutual savings bank, or savings and loan association, not subject to withdrawal until after Final Acceptance of all Work, or a portion thereof, as may be approved by Sound Transit; or

3. Placed in escrow in a bank or trust company by Sound Transit. When the monies reserved are to be placed in escrow, Sound Transit will issue a check representing the sum of the monies reserved payable to the bank or trust company and the Contractor jointly. Such check shall be converted into bonds and securities chosen by the Contractor and approved by Sound Transit, and the bonds and securities held in escrow; or

4. Released to the Contractor after the Contractor has provided a ~~R~~retainage ~~B~~bond for the Contract retainage.

Under options 2 and 3 above, interest will be paid to the Contractor as the interest accrues.

C. The Contractor shall designate the option desired on a form as may be provided by Sound Transit. The Contractor in choosing option 2 or 3 agrees to assume full responsibility to pay all costs which may accrue from escrow services, brokerage charges, or both, and further agrees to assume all risks in connection with the investment of the retained monies.

D. In accordance with RCW 60.28.011(5), the Contractor may withhold payment of not more than 5 percent from the monies earned by any Subcontractor or Supplier contracted with by the Contractor to provide labor, materials, or equipment to the Project. The Contractor shall pay interest to the Subcontractors, and Suppliers as required in RCW 60.28.011(5). The Contractor shall inform Subcontractors and Suppliers of their right to receive these interest payments.

E. If the Contractor provides a retainage bond, the Contractor shall comply with the requirements of RCW 60.28.011 with respect to retained funds of subcontractors and suppliers.

F. Sound Transit makes no warranties as to the amount of interest to be paid on any investments. Upon final payment, the Contractor shall be entitled to all retention and accumulated interest, less monies due to Sound Transit.

RELEASE OF RETENTION (WHEN APPLICABLE)

A. The retention will be held and applied by Sound Transit as a trust fund as required by Chapter 60.28 RCW. Except as provided in Paragraph 9.05C below, payment or release of retention will be made in the ordinary course of business no earlier than forty-five (45) days following Final Acceptance of the Work provided the following conditions are met:

1. If the Contract Price hereunder exceeds $35,000, Certificates approved by the Washington State Department of Revenue, the Washington State Department of Labor and Industries, Washington State Employment Security Department, and other departments and agencies having jurisdiction over the activities of the Contractor have been provided to Sound Transit ~~have been provided to Sound Transit~~.

Comment [Legal60]: Sentence deleted. Duplicate.

2. "Affidavits of Wages Paid" for the Contractor and each Subcontractor approved by the Industrial Statistician of the Washington State Department of Labor and Industries have been provided to Sound Transit.

3. No claims or notices of lien, as provided by law, have been filed against the retention and/or that any such asserted liens have been satisfied, discharged and extinguished as required by the Contract.

4. Contractor signs and returns the Release of Retainage and Indemnity form for this Contract.

5. Sound Transit has no outstanding claims under this Contract.

B. If any taxes have not been discharged or any claims, expenses, and fees have not been paid, Sound Transit shall either retain in its fund, or in an interest bearing account, or retain in escrow, at the option of the Contractor, an amount equal to such unpaid taxes and unpaid claims together with a sum sufficient to defray the costs and attorney fees incurred in foreclosing the lien of such claims, and shall pay, or release from escrow, the remainder to the Contractor.

C. If, under Article 9.07, the Contractor released and paid withheld monies to a Subcontractor, the following provisions shall apply.

1. Sound Transit may in its discretion, in furtherance of 49 CFR § 26.29 or otherwise, decline to withhold retainage from the Contractor and prohibit Contractor from withholding retainage from Subcontractors and/or require a contract clause obligating the Contractor to make prompt and full payment of any retainage paid by Sound Transit to Contractor to the Subcontractor within 30 days after the Subcontractor's work is Accepted. The Contractor may request release of a portion of the retainage withheld by Sound Transit under Chapter 60.28 RCW equal to the amount the Contractor released and paid to the Subcontractor under Article 9.07. Sound Transit will release a portion of such retainage following submittal to the Regional Program Manager of the Subcontractor's Affidavit of Wages Paid approved by the Industrial Statistician of the Washington State Department of Labor and Industries, and submittal of a proper and complete Declaration of Completion of Subcontractor's Work and Release of Withheld Amount (including the acknowledgement by the Subcontractor of the declaration form, to be provided by Sound Transit).

2. Upon receipt of a proper and complete Affidavit of Wages Paid and a Declaration of Completion of Subcontractor's Work and Release of Withheld Amount (Declaration), the Regional Program Manager will review the affidavit and any accompanying documentation and may review the work completed by the Subcontractor identified on the Declaration. Review of the Subcontractor's work by Sound Transit shall not relieve the Contractor of its responsibility and liability to ensure all Work under the Contract is performed in accordance with the requirements set forth in the Contract and will not commence warranties of Article 3.12, Warranty of Work.

3. If the Regional Program Manager does not concur with the assurances contained in the Declaration, the Regional Program Manager shall notify the Contractor in writing of that conclusion, provide the reasons for that conclusion and identify the remedial actions that the Contractor must take to gain the concurrence of the Regional Program Manager. Sound Transit shall not release any portion of the retainage withheld under

Chapter 60.28 RCW until the Regional Program Manager gives his or her concurrence with the assurances contained in the Declaration.

4. If the Regional Program Manager concurs with the assurance contained in the Declaration, the Regional Program Manager shall notify the Contractor in writing of that conclusion and prepare and submit documentation for Sound Transit to release the applicable portion of the retainage withheld under Chapter 60.28 RCW. Sound Transit will release such portion of the retainage within thirty (30) days from the date of the written notice from the Regional Program Manager to the Contractor.

5. Release to the Contractor of any portion of the retainage withheld by Sound Transit under Chapter 60.28 RCW shall not relieve the Contractor of its responsibilities and liabilities for liens and claims duly filed and prosecuted under applicable Washington State law. In consideration of Sound Transit releasing any portion of the retainage withheld by Sound Transit under Chapter 60.28 RCW on account of satisfactorily completion of work by one or more Subcontractors, the Contractor shall defend, indemnify and hold harmless Sound Transit from all responsibilities and liabilities related to such liens and claims. The Contractor acknowledges that failure to make timely payment to the Subcontractor may result in sanctions pursuant to Sound Transit's Diversity Program Provisions, and other legal consequences.

WITHHOLDING PAYMENTS

A. The Contractor shall only be paid monies earned by fulfilling its responsibilities under this Contract less the 5 percent retention required by 60.28.011 RCW. Monies shall not be considered earned if any of the following conditions applies:

1. The Work for which the Contractor is claiming payment was not performed in accordance with the Contract;

2. The Contractor's pay request does not contain all the required documentation or is otherwise not in conformance with the requirements of this Contract;

3. There is a good faith dispute over all or a portion of the amount due, as detailed in Article 9.07;

4. Failure of the Contractor to make payments owed to Subcontractors, or for labor, materials, or equipment;

5. Failure of Contractor to submit Project Schedule, or updated Project Schedules that are acceptable to Sound Transit and timely in accordance with the Contract;

6. Failure to maintain progress of the Work in accordance with the accepted Project Schedule unless such failure is ~~solely~~ caused by Sound Transit or by Unavoidable Delays, or failure to take necessary steps to regain time or deliver the Work in the prescribed Contract Time;

Comment [Legal61]: Term deleted. Payment is not withheld if the delay it is caused by Sound Transit in which case such withholding shall be proportional of the fault of Sound Transit.

7. Failure to comply with Contract safety requirements;

8. Imposition of any liquidated damages under the Contract;

9. Defective or Non-Conforming Work;

10. Failure to comply with Governmental Requirements; and/or

11. Third party claims filed or reasonable evidence that third party claims will be filed.

B. In the event Sound Transit withholds all or a part of a payment for deficiencies in either performance, or in a payment request, Sound Transit will notify the Contractor in accordance with RCW 39.76. The Contractor shall have the right to correct all deficiencies that are the basis for the withholding and resubmit the pay request at any time for reconsideration.

C. In the event Sound Transit withholds all or part of a payment because of a dispute, the Contractor may receive the payment by resolving the dispute, or by agreeing to accept the payment tendered by Sound Transit as full and final resolution as between Sound Transit and the Contractor to all claims arising from the dispute.

PROMPT PAYMENT TO SUPPLIERS AND RELEASE OF AMOUNTS WITHHELD FROM SUBCONTRACTORS

A. When the Contractor receives a payment under this Contract, the Contractor shall comply with the following provisions:

1. The Contractor shall pay to each Subcontractor not later than five (5) business days after the receipt of the payment, amounts paid to the Contractor on account of the work performed by the Subcontractor.

   a. In the event of a good faith dispute over all or any portion of the amount due on a payment from Sound Transit to the Contractor, or from the Contractor or subcontractor to a subcontractor, Sound Transit, or the Contractor or subcontractor, may withhold no more than one hundred fifty percent of the disputed amount. Those not a party to a dispute are entitled to full and prompt payment,

2. If the Contractor fails or neglects to make such payment within five (5) business days, the Contractor shall pay to the Subcontractor interest computed at one percent per month on amounts due for the period beginning on the day after the required payment date and ending on the day on which payment of the amount due is made.

3. The Contractor shall include in each of its Subcontracts a provision setting forth the payment and interest penalty clause set forth in this Article 9.07. In addition, the Contractor shall require its Subcontractors to include such a payment and interest clause in each of their Subcontracts and to require each of their Subcontractors to include such clauses in their Subcontracts with each lower tier Subcontractor or Supplier. The time limit for payment under all Subcontracts below the first tier shall be five (5) business days.

4. The payment and interest clauses in this Article 9.07 shall not be construed to impair the right of the Contractor or a Subcontractor at any tier to negotiate and include in their Subcontracts provisions related to retention of a specified percentage or withholding of part or all of Partial Payments without incurring any obligation to pay a late payment interest penalty thereon in accordance with the Subcontract agreement.

B. If the Contractor withholds any portion of payments to a Subcontractor during performance of the Subcontractor's work, whether under Washington State law or otherwise, the Contractor shall comply with the provisions in this Paragraph 9.07B to release such withhold monies following satisfactory completion of the Subcontractor's work.

1. The Contractor shall monitor the work of each Subcontractor to ensure such work is consistent with the terms of the subcontract between the Contractor and Subcontractor.

2. The Contractor shall determine that a Subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required in the subcontract and the Contract between Sound Transit and the Contractor. Upon making such determination, the Contractor shall provide a written notice of such determination to the Subcontractor and submit a copy of the notice to the Regional Program Manager.

3. As required by 49 CFR § 26.29, Contractor shall implement regular and incremental acceptances of portions of the Work as completed by Subcontractors covered by said regulation and shall, within thirty (30) days from and after the date of its determination that a Subcontractor's work is satisfactorily completed in whole or part, the Contractor shall release and make full payment of all monies withheld from Partial Payments to the Subcontractor during performance of all or any incremental part of the Subcontractors work.

FINAL PAYMENT

A. Sound Transit will make Final Payment, excluding held retention, to the Contractor following Final Acceptance of Work, and submittal of a final Affidavit of Amounts Paid to all businesses participating under the Contract. Final Payment shall include the entire sum found to be due hereunder after deducting therefrom such amounts as the terms of this Contract permit. Prior estimates and payments, including those relating to extra work or work omitted, shall be subject to correction by the Final Payment. Final Payment will be made only for materials actually incorporated in the Work; and, all materials remaining for which Partial Payments have been made shall revert to the Contractor, unless otherwise agreed, and Partial Payments made for these items shall be deducted from the Final Payment for the Work.

B. By accepting Final Payment, the Contractor shall be deemed thereby to have released Sound Transit from all claims of Contractor and all liability to the Contractor for things done or furnished in connection with the Work and for every act and neglect of Sound Transit and others relating to or arising out of the Work. Payment by Sound Transit shall not release the Contractor or its surety from any obligation under the Contract or under the Performance and Payment Bonds, which obligations shall continue through the Contract Warranty period.

PAYMENT ON TIME AND MATERIAL BASIS

A. Direct Labor

1. For all labor, foreman and below, engaged in the extra work subject to this Article, the Contractor shall receive:

a. The applicable wage and fringe benefits on the Contract for each hour that labor is actually engaged in changed work.

b. The cost of the payroll taxes and unemployment compensation premiums.

c. The cost of any health, welfare, pension, or collective bargaining agreement benefits paid, including Worker's Compensation.

2. No overtime will be allowed, unless written authorization has been given by Sound Transit.

B. Materials

For all materials and prices approved by Sound Transit used in the extra work subject to this Article, the Contractor shall receive the cost of material, including freight charges and Washington State Sales Tax (if applicable), as shown by the receipted bills for materials and freight.

C. Equipment

1. For all work and automotive equipment required in the performance of the extra work subject to this Article, payment for the use and operation of equipment (owned, leased or rented on a monthly basis by the Contractor) shall be made by Sound Transit under the provisions of this Article. Such charge shall not include any item of equipment or tool with a new cost of less than $500.

2. For Work being performed pursuant to these time and material provisions, reimbursement shall fall into one of two types of equipment ownership (Owned or Rental) and two categories of usage: operated equipment, and standby equipment.

a. Owned Equipment is defined to include that equipment, owned by or under a lease/purchase or lease/option to purchase agreement with the Contractor, a constituent member of the Contractor, or an entity owned and/or controlled by the Contractor or one of its constituent members.

b. Rented Equipment is defined to include equipment that is on a short-term rental, long term rental, or lease. Equipment that is on a lease/purchase or lease/option to purchase agreement will be considered as Owned Equipment. If Owned Equipment is not available and Rented Equipment necessary to perform the changed Work is obtained from an outside source, payment for the "ownership" aspect of the cost will be made as stipulated below. In addition, if the rental rate does not include an "operation" component, the Contractor shall be reimbursed for the estimated hourly operating costs as provided below. The Contractor shall be responsible for monitoring the use of such rental equipment to obtain the overall best rates for its utilization. The Contractor shall use its best efforts to minimize the overall cost of such rentals to Sound Transit.

c. Tunnel Equipment is defined to include the Tunnel-Boring Machines and accessories; tunnel and shaft backup equipment; conveyors (horizontal, vertical, or inclined, either in the tunnel, in the shaft, or on the surface), hoppers or bins; locomotives; all rolling stock; air compressors; shotcrete and grouting equipment; concrete equipment; pumps: water, dewatering, etc.; batch

facilitiess: shotcrete, concrete, grout, etc.; concrete form, travelers, work jumbos; hoists, man or equipment; discharge water treatment facilitiess and linear facilities; all track and necessary accessories; switches; car dumpers; pipes with valves, couplings, etc.; ventilation line (soft or hard) and fans; electrical (transformers, switch gear, substations, power cable, light lines, etc.); communications equipment and lines; and other fixed or mobile facilities and equipment associated with the tunneling operations.

Comment [Legal62]: Term misspelled.

3. Cost Computations for Owned Equipment:

a. The basis for cost computations for operated Owned Equipment in the performance of the extra work subject to this Article, shall be as stated in the Cost Reference Guide for Construction Equipment (CRG) by Primedia Information, Inc. or its successor. The CRG version that shall be used will be that which is in effect at the time of performance of the Work. The equipment costs shall be calculated as follows:

1) Charges to Sound Transit for the "ownership" component of the equipment shall be computed and charged to yield the hourly rate based on the sum of depreciation, cost of facilities capital, and overhead components of the CRG for said equipment.

2) After eight (8) hours of equipment use in a twenty-four (24) hour period, and after forty (40) hours of equipment use in a week, the equipment "ownership" rate shall be 50 percent of the rate established in Sub-paragraph (1) above.

3) The costs of fuel, lubricants, tires and other expendables, repairs, parts, service, maintenance, and overhaul (the operating cost) shall be charged at the sum of the Total Operating Cost/Hour plus the Overhaul Costs/Hour (which shall collectively be referred to hereafter as the "Operating Cost/Hour") set forth in the CRG. This rate shall be paid only for hours that the equipment is operated in performance of the changed Work that is subject to these time-and-materials provisions. If the item of equipment is electrically powered with the electricity being supplied by a public utility and if the CRG does not have an electrical fuel cost per hour component in the Operating Cost/Hour, the cost of electricity to operate the equipment will be calculated and submitted to Sound Transit for approval. The approved rate shall be added to and become a part of the "Operating Cost/Hour."

4) The application of any adjustment factors is hereby excluded.

5) Normal working conditions will be assumed and used as the basis for the rate calculation.

6) Equipment Operators will be paid for as direct labor under Paragraph 9.09A, Direct Labor, above and are not part of the calculated rate for equipment. Compensation for equipment mechanics, oilers (not assigned to a specific item of equipment on a full time basis), and other

indirect support (labor or equipment) for the equipment fleet is included within the equipment rates otherwise established herein.

7) Transportation costs to and from the work Site for equipment mobilized to the Site specifically to perform the changed Work, if approved in advance by Sound Transit, will be paid as an item to be billed to Sound Transit. This cost will be treated as a Service when performing the markup calculations. No separate payment for transportation costs will be made if the equipment is brought to the Site for other than changed Work.

8) If a rate is not provided in the CRG, and the Contractor and Sound Transit cannot otherwise arrive at a mutually agreeable rate for its use, the Contractor shall furnish appropriate equipment and cost information to Sound Transit. Sound Transit will calculate an appropriate rate following the principles established in the CRG.

9) If practicable under the circumstances, all equipment rates shall be established in writing before commencing any changed Work. If it is necessary to employ such equipment in performance of the changed Work before it is practicable to provide rates to Sound Transit, the Contractor shall provide rates at the earliest opportunity available to it without hindering the prosecution of the Work.

b. For Owned Equipment on standby in the performance of the extra work subject to this Article, if approved by Sound Transit, the standby rate will be only the ownership portion of the applicable rate. The total standby cost per day will be based on the number of hours that the equipment is on standby in the performance of the changed Work. The standby hours will be calculated as follows:

1) The total standby hours per day will be a maximum of eight (8) hours less the operating hours paid as a result of the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

2) The total standby hours per week will be a maximum of forty (40) less the operating hours paid for the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

4. Cost Computation for Rental Equipment

a. For Rented Equipment that is operated in the performance of the extra work subject to this Article, the cost shall be calculated as follows:

1) The ownership rate per hour shall be calculated by dividing the invoiced amount by the normal hours covered by the invoice. If the normal rental period would be by the month, then Sound Transit shall not approve rental invoices submitted on a weekly, daily or hourly rate basis or allow ownership rates to be calculated on any rate other than a monthly rate. The same logic shall apply for a normal rental period of a week or a day.

2) If the invoice is based on a single shift of operation, then after eight (8) hours of equipment use in a twenty four (24) hour period, and after forty (40) hours of equipment use in a week, the equipment "ownership" rate shall be 50 percent of the rate established in Sub-paragraph (1) above.

3) The costs of fuel, lubricants, tires and other expendables, repairs, parts, service, and maintenance (the "operating" cost) shall be charged at the Total Operating Cost/Hour set forth in the CRG unless the rental invoice is for equipment which is "operated and maintained", in which case there will be no additional payment for operating costs. This rate shall be paid only for hours that the equipment is operated in performance of the changed Work that is subject to these time-and-materials provisions. If the item of equipment is electrically powered with the electricity being supplied by a public utility, the cost of electricity to operate the equipment will be calculated and submitted to Sound Transit for approval. The approved electrical cost per hour shall be added to and become a part of the "Total Operating Cost/Hour.

4) The application of any adjustment factors is hereby excluded.

5) Normal working conditions will be assumed and used as the basis for the rate calculation.

6) Equipment Operators will be paid for as direct labor under Paragraph 9.09A, Direct Labor, and are not part of the rate calculated for rented equipment unless the rental invoice is for equipment which is "operated and maintained", in which case there will be no additional payment for equipment operators and/or oilers. Compensation for equipment mechanics, oilers (not assigned to a specific item of equipment on a full time basis), and other indirect support (labor or equipment) for the equipment fleet is included within the equipment rates otherwise established herein.

7) Transportation costs to and from the work Site for equipment mobilized to the Site specifically to perform the changed Work, if approved in advance by Sound Transit, will be paid as a discrete item to be billed to Sound Transit. This cost will be treated as a Service when performing the markup calculations. No separate payment for transportation costs will be made if the equipment is brought to the Site for changed Work and is also used on Contract Work items.

8) If a rate is not provided in the CRG and the Contractor and Sound Transit cannot otherwise arrive at a mutually agreeable rate for its use, the Contractor shall furnish appropriate cost information to Sound Transit. Sound Transit will calculate an appropriate rate following the principles established in the CRG.

9) If practicable under the circumstances, all equipment rates shall be established in writing before commencing any changed Work. If it is necessary to employ such equipment in performance of the changed Work before it is practicable to provide rates to Sound Transit, the Contractor shall provide rates at the earliest opportunity available to it without hindering the prosecution of the Work.

b. For Rented Equipment on standby in the performance of the extra work subject to this Article, if approved by Sound Transit, the rate per hour to be paid will be only the ownership portion of the applicable rental rate as calculated above. The total standby cost per day will be based on the number of hours that the equipment is on standby in the performance of the changed Work. The standby hours will be calculated as follows:

1) The total standby hours per day will be a maximum of eight (8) hours less the operating hours paid as a result of the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

2) The total standby hours per week will be a maximum of forty (40) hours less the operating hours paid for the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

D. Markups-Percentage Allowances

The Contractor will be permitted to apply overhead and profit markups, not exceeding the percentage stated herein, to its increased cost resulting from any change in the Work ordered by Sound Transit for which payment is to be made under the time-and-material provisions of this Contract. These overhead and profit markups are maximum allowable percentages subject to reduction by audit.

Markup allowable at the tier for the entity performing the extra work with its own forces, whether the Contractor or a Subcontractor at any tier, shall not exceed 15% of total direct costs of the changed Work. The Contractor's markup allowable to cover the overhead and profit for Work performed by a Subcontractor shall not exceed 6% of the Subcontractor's cost. In no event shall the combined overhead and profit markup paid to Contractor and first tier Subcontractors exceed 21%, unless the work is performed by Subcontractors at the second-tier or lower, in which case an additional 6% markup is allowed at each tier. The markup allowance made shall

constitute compensation for all management and supervision above the foreman level, engineering and surveying, safety, administration; use of equipment and tools costing $500 or less; all administrative and overhead expense; insurance premiums not paid herein; profit; other indirect expense; losses of all kinds; home office overhead expense; and all other items of cost not specifically designated herein as items for which specific payment is to be made. No other reimbursement, compensation, or payment will be made for any such services, costs, or other items.

E. Time and Material Records and Invoices

1. All charges related to Time and Material Work authorized by the Regional Program Manager shall be tracked on a daily basis. The Contractor shall complete a comprehensive Time and Material work report form, furnished by Sound Transit or alternate approved by Sound Transit, which details all the labor, services, material and equipment utilized in the course of completing the Time and Material Work. The report shall itemize the materials used, and shall cover the direct cost of labor and materials, and the charges for equipment rental and operation, whether furnished by the Contractor, Subcontractor or other force. The daily report sheets shall provide names or identifications and classifications of workers, the hourly rate of pay and hours worked; quantity, type and cost of materials used; and also the size, type, and identification number of equipment; the hours operated, and the hours of Sound Transit authorized standby.

2. All charges related to Time and Material Work shall be verified in the field by Sound Transit at the end of each Work shift. The Contractor shall complete a field report at the end of each shift that itemizes and summarizes all the charges. The report shall be signed by the Contractor's Representative and, upon verification by Sound Transit, copies of the signed report shall be provided immediately to Sound Transit's representative. The signature of Sound Transit's Inspector shall not be construed as acceptance of the Work or approval of the value invoiced by the Contractor. The Regional Program Manager shall have the authority to review the charges related to Time and Material Work for reasonableness and efficiency, and to determine if the work for which the Time and Material reports have been submitted is in fact extra work. In the event that certain charges are deemed unreasonable or unnecessary for the Time and Material Work being performed by the Contractor, the Regional Program Manager shall direct the Contractor to delete such charges from the Time and Material Work Records. Evidence of Sound Transit's verification of all field reports shall be submitted by the Contractor with its draft invoice.

3. Invoices for Time and Material Work shall show, in payroll form, the dates, names, hours worked each day, rates of pay, and amounts paid for each individual employed on such Work and shall give in detail the nature of the Work performed by each employee.

4. Invoices for materials and services shall be fully itemized showing dates of delivery, quantities, unit prices, amounts, and discounts, and shall be accompanied by photocopies of vendor invoices covering each item. Such invoices shall be submitted with the daily report sheets. If invoices are not available, they shall be submitted with subsequent daily report sheets; however, except as provided by law, no payment shall be made for material charges until valid copies of vendor's invoices are submitted.

Should said vendor's invoices not be submitted within sixty (60) days after the date of delivery of the material or fifteen (15) days after completion and acceptance of the Work, whichever comes first, the Regional Program Manager reserves the right to establish the cost of such materials at the lowest current wholesale prices at which such materials are available in the quantities concerned delivered to the location of the Work, less any discounts provided in these General Conditions.

5. Invoices for Owned or Rented Equipment charges shall be fully itemized showing a complete description including size and capacity of equipment, number of hours operated and/or number of hours at Sound Transit ordered standby for each day, the hourly rates being charged to Sound Transit for both ownership and operating elements, and the total amount charged, for each individual piece of equipment used. If rates were not pre-approved by Sound Transit as specified herein, the Contractor shall also include the rate computation and appropriate back-up materials as described herein.

6. Invoices for Time and Material Work shall be prepared and submitted in accordance with the payment procedures outlined in this Contract. All invoices, payrolls, and other documents which support the invoice for the Time and Material work shall be submitted with the partial payment request, shall state the Contract number, and Contract Item under which the Work was performed.

7. Failure to present complete Time and Material records and invoicing in proper form after the close of the month in which the time and materials Work was performed shall constitute a waiver by the Contractor of its right to present such a billing or invoice thereafter or to receive payment therefore, unless the Contractor promptly corrects and resubmits the Time and Material Records and Sound Transit approves the re-submittal.

F. The Regional Program Manager will compare the Regional Program Manager's records with the daily report sheets furnished by the Contractor, make any necessary adjustment, and adjust the costs of work paid for on a Time and Material basis on the Time and Material Work forms. When these daily reports are agreed upon and signed by both parties, they shall become the basis of payment for the work performed, but shall not preclude subsequent adjustment based on a later audit.

G. Payment as provided in this Article shall constitute full compensation to the Contractor for performance of work paid for on a Time and Material basis and no additional compensation will be allowed therefore.

H. The Contractor shall maintain its records in such a manner as to provide a clear distinction between the direct costs of Work paid for or required to be paid for on a Time and Material basis and the costs of other operations.

PROVISIONAL SUM WORK

A. No Provisional Sum Work will be performed, or paid for, without prior issuance of a Provisional Sum Authorization (PSA).

B. Sound Transit may, without request from the Contractor, issue a PSA for work to be performed under a Provisional Sum Contract Pay Item.

C. If the Contractor believes that a PSA is required, the Contractor shall notify Sound Transit. Sound Transit will:

1. Issue a PSA; or

2. Request additional information; or

3. Make a written determination that the event or condition does not justify a PSA.

D. The Contractor shall maintain records and invoices for all costs associated with the Provisional Sum Work in accordance with the requirements specified in Section 9.09 Payment on Time and Material Basis.

E. Any potential time impacts arising from Provisional Sum Work shall be resolved in accordance with Article 4, Changes and Change Order Process, and Article 10, Delays and Claims.

ARTICLE 10 DELAYS AND CLAIMS

CLAIMS

A. Notice of Intent to Claim

1. In order to receive any recovery or relief in connection with the Contract, the Contractor must submit a written Notice of Intent to Claim to Sound Transit through the Regional Program Manager in accordance with the provisions of this Article. Written Notice as provided herein shall be a condition precedent to the Contractor's right to recover on a claim, and failure to comply with these requirements shall constitute a waiver by the Contractor on any right, equitable or otherwise, to bring any such claim against Sound Transit.

2. The written Notice of Intent to Claim shall set forth:

   a. Detailed description of the facts and/or conditions giving rise to the Contractor's demand for additional compensation ;

   b. nature of the costs involved;

   c. the Contractor's plan for mitigating such costs; and

   d. the Contractor's best estimate of the amount of the potential claim, and

   e. the Contractor's best estimate of Critical Path(s) impacts.

3. The Notice shall be submitted within ten (10) days after Contractor discovers or becomes aware of the event or occurrence giving rise to the potential claim, or the denial of a Request for Change or the issuance of a Unilateral Change Order by Sound Transit. However, if the event or occurrence is claimed to be an act or omission of Sound Transit, a Notice of Intent to Claim shall be given by the Contractor within ten (10) days after the Contractor discovers or becomes aware of the act or omission ~~and prior to the time for performance of that portion of the Work~~ to which such alleged act or omission relates.

Comment [Legal63]: Language is added to clarify that the clock does not start to run until the Contractor becomes aware of, and/or discovers any potential claims. The other changes are made to reflect the added language in the first sentence and to clarify the overall meaning of the paragraph.

4. The notice requirements of this Article are in addition to any other notice requirements set forth in the Contract.

B. Claims

1. General

a. The Contractor shall file all claims within sixty (60) days of the submission of the Notice of Intent to Claim, with a reasonably detailed factual statement of the Claim providing at minimum (i) all necessary details, locations and items of Work affected, (ii) the specific causes(s) of the Claim or alleged damages sustained,
(iii) an explanation as to how Contractor ~~diligently~~ attempted to mitigate its damages for the Claim, (iv) copies of documents Contractor believes support the Claim, (v) all cost records meeting the requirements of Article 3.03, and (vi) if the claim seeks an extension of the Contract Time, the specific days and dates sought and Contractor's analysis of the Contract Schedule demonstrating entitlement to the time extension. When requested by Sound Transit, the Contractor shall submit such further information and details as may be required to determine the facts and contentions involved in said claim. The Contractor shall give Sound Transit access to its books, records, and other materials relating to the ~~Work~~ claim, and shall cause its Subcontractors to do the same, so that Sound Transit can investigate said claim~~s~~. The Contractor shall provide Sound Transit at its cost, on request, with copies of the portions of all such books, records, and other material determined to be pertinent to the claim.

b. Failure to submit the reasonably detailed factual statement described above ~~will~~ may result in rejection of the Claim.

c. Each claim the Contractor submits for an adjustment that is related to a delay for any cause shall be accompanied by:

1) a revised project schedule reflecting the effects of the delay; and

2) proposals to minimize these effects.

d. If the Contractor fails to submit any Claim in writing in the time and manner specified herein, it shall waive any relief that might otherwise be due with respect to such claim. Depending upon the grounds for the relief and the nature of the relief sought, additional information and/or conditions of submittal may be specified elsewhere in this Contract.

e. At all times during the course of claim evaluation or dispute resolution, the Contractor agrees to continue to perform the Work with due diligence and in accordance with the Contract, unless a Stop Work Order has been issued by Sound Transit. In the event the disputed matter impedes continuing performance, the Contractor shall inform Sound Transit in writing of the impediment and seek direction as to how to proceed. If the Contractor fails to provide such notice to Sound Transit, it shall be assumed that the Contractor is proceeding with performance of the Contract.

Comment [Legal64]: Language has been added to make it clear that the Contractor's responsibilities are to provide sufficient information to make Sound Transit aware of the basis of the claim and not to provide every fact and detail.

Comment [Legal65]: Language has been added and changed to clarify the paragraph and to make it optional to reject the Claim.

f. Compliance with the cost record requirements related to the Claim is a condition precedent to making of any Claim for recovery of any costs or damages related to or arising from performance of the Contract or the Work. In the event Contractor or any Subcontractor or Supplier seeks to make a Claim without complying with such requirements (inclusive of Article 3.03), such Claim is deemed waived and no adjustment shall be made to the Contract Price or Contract Time with respect to such Claim.

Comment [Legal66]: Language has been added to clarify the paragraph.

g. Both parties have a duty to take all reasonable steps necessary to mitigate losses resulting from the dispute whether those losses are their own or another party's losses.

h. All claims filed by Contractor or counterclaims filed by Sound Transit shall be verified under penalty of perjury by an officer or principal authorized to act for Contractor or in the case of a counterclaim for Sound Transit (or, in the case of claims made by or for the benefit of any Subcontractors, by an authorized officer or principal of both Contractor and Subcontractor) containing a sworn certification that the Claim is made in good faith after the exercise of reasonable diligence and investigation, that the supporting cost and pricing data are true and accurate based upon reasonable investigation, that the Claim is fully supported by accompanying data and accurately reflects the adjustment in the Contract Price and/or Contract Time for which Contractor believes Sound Transit is liable, and that in the event the Claim proceeds to alternate dispute resolution or litigation that the Claim amount will not exceed the amount set forth in the Claim plus any increased costs or expenses of any nature increased as a result of alternate dispute resolution and/or litigation.

Comment [LC67]: Applies when Sound Transit files a counterclaim

Comment [Legal68]: Additional language was added to take into account that the Contract provides for Sound Transit to make a counterclaim and to give Contractor the opportunity to recovery additional legal costs arising from proceeding taking place after the claim was submitted.

2. Claims Processing

a. The Contractor shall submit its claim in writing to the Regional Program Manager for evaluation and resolution. Sound Transit shall respond within sixty (60) days after receipt of the claim. ~~Sound Transit~~ Either party may request in writing, within thirty (30) days of receipt of the claim by Sound Transit, that the ~~Contractor~~ other party provide any additional documentation that may be required to support the Contractor's claim or documentation that may relate to defenses or claims Sound Transit may have against the Contractor. Sound Transit shall respond in writing to the Contractor's claim including any additional documentation as requested by Sound Transit, within either thirty (30) days of receipt of said additional documentation, if the Contractor responds during the initial sixty (60) day period, or within a period no longer than that taken by the Contractor in producing the additional documentation, whichever is greater. In no event shall the extension of the response time resulting from Sound Transit's request for additional documentation and the Contractor's response time be deemed to waive any statutory limits or rights to Sound Transit.

Comment [Legal69]: Language has been added/changed to clarify the paragraph and the claims process.

b. The Regional Program Manager shall issue a reasoned written decision regarding the claim and deliver such decision promptly to Contractor. If the claim is found to have merit by the Regional Program Manager, the settlement will be negotiated in compliance with Article 4, Changes and Change Order

Process.

Comment [Legal70]: The language is added to clarify the claims process, and to assist and facilitate a settlement.

3. Claims Two Hundred Fifty-Thousand Dollars ($250,000) and Less

If Sound Transit finds the claim not to have merit, the Contractor may, within ten (10) calendar days of receipt *of* the finding, submit written appeal to Sound Transit's Director of Construction Management. The finding on the appeal will be provided in writing within sixty (60) calendar days unless a longer review period is deemed necessary, in which case the Contractor will be notified of the response period within the initial 60 days after the appeal.

4. Claims Over Two Hundred Fifty-Thousand Dollars ($250,000)

If Sound Transit finds the claim not to have merit the Contractor may, within ten (10) calendar days of receipt of the finding, submit the claim for dispute resolution in accordance with Article 11, Dispute Resolution.

~~If the Dispute Resolution process finds the claim to have merit and if both parties accept the finding, Sound Transit and the Contractor will negotiate the terms and value of a Change Order in accordance with Article 4, Changes and Change Order Process.~~

Comment [Legal71]: Second Paragraph deleted since the amount to be awarded must be determined by the trier of fact and not through negotiations.

5. In no event shall any claims be made, except for claims for Work conducted after Final Acceptance, after Final Acceptance is issued. Failure by the Contractor to submit claims in a timely manner shall result in a waiver by the Contractor as to such claims.

Comment [Legal72]: The language is added to clarify the paragraph.

6. Failure to comply strictly with the notice and other procedures set forth in the Contract Documents shall bar the Contractor from asserting any claim or right to compensation, damages, schedule extension, or any other relief.

DELAYS

A. Liquidated Damages [to be negotiated]

1. For each and every day that Contractor fails to achieve a designated Contract Milestone, as specified in the Special Conditions, damage will be sustained by Sound Transit. These damages may include, but are not necessarily limited to the following:

   a. Delays in completion and operation of the system;

   b. Increased costs of Contract administration, inspection, and other ORCA agency functions related to the design and execution of the Project;

   c. Costs resulting from delays to interfacing Contractors;

2. Because of the difficulty in computing the actual material loss and damages to Sound Transit, it is determined in advance and agreed by the parties hereto that the Contractor will pay Sound Transit the amount(s) set forth in Section 04 Liquidated Damages Amounts for each day of delay as representing a reasonable forecast of the actual damages that Sound Transit will suffer by the failure of the Contractor to complete such Work, or portion thereof, within said time(s). The execution of this Contract shall constitute acknowledgement by the Contractor that it has ascertained and agreed that Sound Transit will actually suffer damages in the amount herein fixed for each and every

day during which the completion of the Work or portions thereof is avoidably delayed beyond the specified time(s).

3. Sound Transit may deduct assessed liquidated damages from any monies due or that may become due to the Contractor under the Contract. If such deducted monies are insufficient to recover the liquidated damages owing, the Contractor or the Contractor's surety or sureties shall pay to Sound Transit any deficiency within thirty (30) days after completion of the Work.

4. Where liquidated damages for contractor-caused delays are applicable, Sound Transit shall not seek actual damages for delay; however, to the extent liquidated damages are not applicable, Sound Transit reserves all other rights and remedies provided by law or under this Contract.

B. Extension of Time for Certain Delays

1. Notice of Delay or Potential Delay. Immediately, but in any event no more than five (5) days, after the Contractor foresees or should foresee a delay or a potential delay in the prosecution of the Work or upon the occurrence of a delay or potential delay that the Contractor regards as Unavoidable or compensable, the Contractor shall provide notice to Sound Transit of such delay or potential delay. Within five (5) days of such notice the Contractor shall provide in writing the extent of the delay, the specific impacts and effects of the delay on critical path activities and the Project Schedule, and its cause. The notice requirement in this Paragraph 10.02B.1 is in addition to notice required by other parts of this Contract, inclusive of Article 4.02. At a minimum the written notice under this Paragraph shall include:

   a. The facts underlying the potential delay;

   b. The nature of any additional costs which may be caused by the potential delay;

   c. The nature of any additional time which may be needed;

   d. The Contractor's plan for mitigating such costs and delay; and

   e. An estimate of the cost impacts due to the delay or the potential delay and an estimate of the time extension required for mitigation, along with all substantiating facts and supporting data.

2. The Contractor shall take immediate steps to prevent, if possible, the occurrence or continuance of the delay. If this cannot be done, the Contractor and Sound Transit will determine how long the delay will continue and to what extent the prosecution and completion of the Work are being or will be delayed thereby. Sound Transit will also determine whether the delay is to be considered Avoidable or Unavoidable and notify the Contractor of Sound Transit's determination.

3. Compliance with the notice requirements of this Article shall be a condition precedent to the Contractor’s claim for delay. The Contractor agrees that no claim shall be made for delays for which timely written notice, as specified above, is not made to Sound Transit.

C. Avoidable Delays

1. Avoidable Delays in the prosecution of the Work shall include delays to the critical path of the Work that could have been avoided by the exercise of due care, prudence, coordination, foresight and diligence on the part of the Contractor, its Subcontractors, or its Suppliers at any tier. Examples of Avoidable Delays include, but are not limited to:

    a. Delays that may in themselves be unavoidable but do not necessarily prevent or delay the prosecution of parts of the Work or the completion of the Work within the Contract Time (e.g., fit within the Float time shown on the Project Schedule(s).)

    b. Time associated with the reasonable activities of Sound Transit, third party stakeholders or other contractors employed by Sound Transit that do not necessarily prevent the completion of the Contract within the Contract Time.

    c. Individualized labor actions or strikes within Contractor's control, normal weather conditions, mechanical breakdown, equipment failure, and acts of negligence by the Contractor's forces, including Subcontractors and Suppliers.

    d. Delays in the prosecution of the Work due to:

        1) The Contractor's failure to provide sufficient resources, including, but not limited to: personnel, equipment, material, or facilities;

        2) The Contractor's failure to submit required work products in a timely manner;

        3) The Contractor's failure to procure and/or deliver materials and/or equipment in a timely manner.

2. Contractor shall not be entitled to any time extension or additional compensation for any Avoidable Delay. However, Sound Transit may in its sole discretion grant an extension of time for Avoidable Delay, if Sound Transit determines that an extension is in Sound Transit's best interest. Any such discretionary time extension shall be issued through a Change Order.

D. Unavoidable Delay

1. An Unavoidable Delay means a delay to the critical path of the prosecution of the Work that results from causes beyond the control of the Contractor and that could not have been avoided by the exercise of care, prudence, coordination, foresight, and diligence on the part of the Contractor, its Subcontractors or its Suppliers at any tier, and for which no provision is specifically provided in the Contract Documents for managing or mitigating such delay.

2. Examples of Unavoidable Delays include, but are not limited to:

    a. Acts of God.

    b. Fire or other casualty for which Contractor is not responsible.

c. War.

d. Riot.

e. Unusually Severe Weather. Unusually severe weather conditions shall not be deemed unusually severe if they fall within two (2) standard deviations from the mean of data recorded by the U.S. Weather bureau for the Seattle and Tacoma metropolitan area over the past twenty (20) years. Impacts of on-going weather conditions shall be updated weekly by the Contractor and provided to Sound Transit. To preclude the difficulties of actual measurement the parties hereto agree that weather data at the Site shall be expressly deemed to be the same as that measured at the Seattle-Tacoma International Airport by the Environmental Data and Information Service of the National Oceanic and Atmospheric Administration ("NOAA") of the U.S. Department of Commerce.

f. Epidemic.

g. Earthquake.

h. Terrorism.

i. General industry strikes or labor disputes beyond the reasonable control of the Contractor.

3. Extension of Time - For delays that the Contractor has given notice as required by the Contract, and considers to be Unavoidable Delay, the Contractor shall submit to Sound Transit complete written information demonstrating the effect of the delay on the critical path on the accepted Project Schedule. The submission shall be made within ten (10) days after the end of the occurrence that is claimed to be responsible for the Unavoidable Delay. Sound Transit will review the Contractor's submission and determine the number of days of Unavoidable Delay and the effect of such Unavoidable Delay on such critical path. Sound Transit may grant an extension of time to the extent that Unavoidable Delays necessarily affect the critical path(s) in the Project Schedule. During such extension of time, liquidated damages will not be charged to the Contractor. It is understood and agreed by the Contractor and Sound Transit that time extensions due to Unavoidable Delays necessarily involve critical path operations that would prevent completion of the Work, or portion thereof, within the Contract Time. Time extensions shall be issued via a Change Order. Contractor shall not be entitled to any additional compensation or Equitable Adjustment for any Unavoidable Delay.

E. Concurrent Delay

If Sound Transit determines that there are delays to the project as a result of concurrent delays, Sound Transit may grant a time extension. However, no compensation will be due to the Contractor for this time extension due to the concurrent nature of delays. Concurrent delay means a situation where both Contractor and Sound Transit are responsible for delays affecting the critical path where none of the delay events are utilizing available project float. If a delay for which Contractor seeks compensation under Article 10.02F is caused concurrently with either Avoidable Delay or Unavoidable Delay, then Sound Transit is only responsible for that portion of

any compensable delay which it caused in excess of such Avoidable Delay or Unavoidable Delay, provided Contractor is able to prove such apportionment.

F. Compensation for Certain Delays

To the extent that the Contractor ~~proves~~ demonstrates (a) that the Contractor has been delayed in completion of the Work by reason of changes made by Sound Transit under these General Conditions, or a Stop Work Order, or a failure by Sound Transit to comply with its obligations under the Contract;
(b) that the Contractor was not concurrently responsible for the delay; (c) that the Contractor has suffered actual losses as a result of the delay; (d) ~~that but for Sound Transit's actions, the Contractor could not have suffered such actual losses~~; (e) that the Contractor could not have mitigated such actual losses despite taking all precautionary and remedial actions; and (f) ~~that the delay was not within the contemplation of the Contract;~~ then Sound Transit shall pay to the Contractor as full compensation for any such delay, and for any actual and real disruption which may have been associated with any such delay which the Contractor can clearly quantify and calculate, the amount of the actual loss as computed in accordance with the Contract Documents, provided that the Contractor shall strictly comply with the notice and other claims procedures set forth in Article 10.01, Claims. Unless the Contractor satisfies the provisions of this Article, the Contractor's sole remedy for Sound Transit-caused delay shall be an extension of time under Paragraph 10.02B, Extension of Time for Certain Delays.

Comment [Legal73]: Language has been deleted and added to clarify the paragraph.

In no event may Contractor or any of its Subcontractors at any tier recover compensation for unabsorbed home office overhead unless (1) Sound Transit directs a suspension of indefinite duration due to Sound-Transit-caused circumstances and (2) Contractor and/or its Subcontractors were unable, in the exercise of reasonable care, to reallocate resources so as to mitigate losses or damages.

ARTICLE 11 DISPUTE RESOLUTION

PURPOSE OF DISPUTE RESOLUTION

The purpose of this Dispute Resolution Article is to provide a structured approach for the parties to resolve disputes fairly at the lowest level possible without incurring significant administrative costs. It is agreed by the parties that the parties shall enter into the dispute resolution process in good faith and that use of the dispute resolution processes for purposes other than resolving a legitimate dispute (e.g. as a delay tactic) shall be evidence of bad faith in the performance of this Contract.

CONTINUATION OF WORK WHILE DISPUTE RESOLVED

At all times during the course of the Claim, conflict or dispute resolution, the Contractor agrees to continue to perform the Work with due diligence, unless a Stop Work Order under Article 12.01 has been issued by Sound Transit.

DUTY TO MITIGATE

Both parties have a duty to take all reasonable steps necessary to mitigate losses resulting from the Claim or dispute whether those losses are their own or another party's losses

PARTNERING

A. Preventing Conflict

1. The parties agree to use the principles of Project Partnering: collaboration and cooperation to identify and engage in measures to prevent and resolve potential sources of conflict before they escalate into disputes, claims, or legal actions. Such measures should extend to all levels of the Work, including lower-tiered Subcontractors, and may include the following:

   a. Conducting a one-day workshop to "kick-off" the performance of the Work by introducing the concepts of Project Partnering and holding follow-up workshops at least annually.

   b. Developing and implementing a Partnering Action Plan devoted to developing and maintaining a collaborative atmosphere on the project at all levels.

   c. Developing and implementing a Dispute Escalation Process.

   d. Conducting facilitated, Executive Partnering Sessions among the senior managers of each party to discuss issues related to potential conflicts and to engage in collaborative problem solving.

   e. Conducting training for all parties in teambuilding, collaborative problem solving and conflict resolution skills.

   f. Conducting evaluations of the Project's partnering efforts.

   g. Including language from this Article in contracts for Subcontractors who become involved in the performance of the Work.

2. Sound Transit will provide the Partnering Facilitator and Facilities. All other costs associated with the Contractor's participation in the partnering program shall be included in the Contract Price.

Comment [Legal74]: Term is capitalized but has not been defined in Article 1, "Definitions," nor in the paragraph where the term is used. Term should to be defined by Sound Transit.

B. Resolving Conflicts

1. Sound Transit and the Contractor agree to use their best efforts to resolve disputes arising out of or related to this Contract using good faith negotiations and the principles of Project Partnering by developing and implementing a Dispute Escalation Process that provides for the timely resolution of disputes as close to the their point of origin as possible. It is agreed that the foregoing will not negate any of the Contract requirements for providing timely notice and the timely submission of documents that are required elsewhere in the Contract Documents.

2. In the event the parties are unable to resolve their dispute using the Dispute Escalation Process, if a Dispute Review Board (DRB) has been established for this Contract and if the claim is over $250,000, the dispute shall be referred to a DRB as a condition precedent to mediation. If the claim is $250,000 or less or, if no DRB has been established for this Contract or, if the dispute remains unresolved after a hearing by and recommendation from the DRB, the dispute shall be referred to mediation as a condition precedent to the commencement of a civil action. For mediation, a mediator shall be chosen that is agreeable to all parties involved in the dispute and such agreement shall not be unreasonably withheld. All statements made by parties involved in the dispute to the mediator shall remain confidential and shall not be disclosed by the

mediator in any litigation or other claim proceedings. All parties hereby agree to such terms and signature of the Contract provides written confirmation of these terms.

DISPUTES REVIEW BOARD

A. A Disputes Review Board (DRB) may be established to assist in resolving claims arising out of this Contract. Disputed claims may be heard by the DRB only after the claims process detailed in Article 10.01, Claims, has been exhausted.

B. The provisions for establishing a DRB, if a DRB is to be utilized in this Contract, will be provided in the Special Conditions in the Article entitled Disputes Review Board Procedures. The form of the Three Party Agreement to be used in establishing a DRB will also be provided in that section.

C. Where no approved DRB is currently established or currently operating, the parties will utilize their best efforts to negotiate resolution of claims in good faith.

EXHAUSTION OF ADMINISTRATIVE REMEDIES/TIME LIMITATION FOR SUIT

It is the intention of this Article that differences between the parties arising under and by virtue of the Contract shall be brought to the attention of Sound Transit at the earliest possible time in order that such matters may be settled without a claim being filed, if possible, or other appropriate action promptly taken. The Contractor agrees to defer, in the absence of special written notice given by Sound Transit, the commencement of any legal action against Sound Transit on a matter required to be covered by written Notice of Intent to Claim pursuant to Paragraph 10.01A, Notice of Intent to Claim, until all of the administrative and dispute resolution processes have been exhausted. ~~Contractor may not sue, cross-claim or bring any action of any kind whatsoever against Sound Transit after the expiration of one hundred eighty (180) days from overall Acceptance, provided, however, that the proper pendency of contract-required dispute resolution procedures shall toll this deadline until thirty (30) days after such contract-required dispute resolution procedure is concluded.~~

Comment [Legal75]: Language has been deleted to ensure that delay in the preliminary dispute resolution process does not operate as a bar to bringing a court action.

ARTICLE 12 SUSPENSION AND TERMINATION

STOP WORK ORDER

A. Sound Transit may at any time and for any reason ~~within its sole discretion~~ issue a written order to the Contractor thereby suspending, delaying, or interrupting all or any part of the Work for a specified period of time ("Stop Work Order"). A Stop Work Order must be in the form of an explicit written Notice and will not be inferred from any oral statement, course of conduct or informal field communication, except in the case of an emergency or exigent safety concern.

Comment [Legal76]: Language deleted since the wording is redundant.

B. In the event that it becomes necessary for Sound Transit to suspend all, or a part, of the Work, Sound Transit will deliver a written Stop Work Order to the Contractor, which shall describe the following:

1. Identification of the work to be suspended;
2. The date and time upon which the Stop Work Order shall be effective;
3. The period of time during which Work will be suspended, if known;
4. Directions to be taken regarding subcontracts; and

5. Other instructions required to safeguard the Work and to prevent property damage and personal injury.

C. The Contractor shall comply immediately with any written order it receives from Sound Transit suspending the Work and take all reasonable steps to minimize costs allocable to the Work covered by the suspension during the period of Work stoppage. The Contractor shall resume performance of the suspended Work upon expiration of the notice of suspension, or upon direction of Sound Transit.

D. Within the period specified by the Stop Work Order, or within any extension of that period, Sound Transit may:

1. Terminate the work covered by the Stop Work Order;

2. Cancel the Stop Work Order; or

3. Allow the period of the Stop Work Order to expire.

E. Costs Associated with a Stop Work Order

1. If a Stop Work Order is canceled or the period of the Stop Work Order expires, the Contractor shall resume work.

2. The Contractor may be allowed an increase in the Total Contract Price or an extension of time, or both, directly attributable to any suspension, provided that:

a. The Contractor submits a Request for Change in accordance with the requirements of the Contract Documents;

b. The Stop Work Order results in an increase in the time required for, or in Contractor's cost properly allocable to, the performance of any part of this Contract; and

c. The Stop Work Order was not caused by Contractor's default or other act or omission within the control or responsibility of Contractor.

3. No adjustment shall be made under this Paragraph for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an equitable adjustment or extension of time is provided or excluded under any other term or condition of this Contract.

4. The provisions of this Paragraph shall only apply if a written Stop Work Order is issued by Sound Transit.

F. During a suspension of work, Contractor shall take appropriate action to prevent damage to or deterioration of the Work. Contractor shall repair or replace, at no additional cost to Sound Transit Work that is damaged or deteriorated during a Work stoppage due to Contractor's failure to comply with this Paragraph. If Sound Transit finds that the Contractor is not taking appropriate action and the Contractor fails to take the appropriate action within the time frame specified by Sound Transit in written notice to the Contractor, Sound Transit may take appropriate action and recover from the Contractor the reasonable costs of such action.

G. In the event that a suspension of the work is ordered, the Contractor shall do all the work necessary to provide any safe, smooth, and unobstructed passageway through the work as deemed necessary by the Regional Program Manager for use by Sound Transit, other Sound Transit contractors, public agencies or their contractors, and/or public traffic during the period of such suspension as specified in the Contract Documents. In the event that the Contractor fails to perform the work above specified, Sound Transit will perform such work and the cost thereof shall be deducted from payments due the Contractor. If the suspension is due to some failure on the part of the Contractor, all costs and delays shall be at no additional expense to Sound Transit.

H. In the event of a suspension of the Work, the Contractor shall not be relieved of the Contractor's responsibilities as set forth in Article 7, Legal Requirements.

TERMINATION FOR DEFAULT

A. Sound Transit will have the right to terminate the Contract in whole or in part, for default, under any of the following circumstances:

1. If the Contractor refuses or fails to prosecute the Work with such diligence as will ensure its completion within the Contract Time and any extension thereof;

2. Material failure of the Contractor to perform any obligation required under the Contract or violation of any duty required of the Contractor, including but not limited to the following:

   a. Violation of a~~n~~ legal authorized order or requirement of Sound Transit by the Contractor;

   b. Abandonment of the Contract;

   c. Failure of the Contractor to pay its undisputed debts owing to any parties performing Work on the Contract, provided that such failure continues for a period of fourteen (14) days after written notice to the Contractor by Sound Transit;

   d. Failure to comply with any law, ordinance, rule, regulation, or order of a legal authority applicable to the Contractor, the Work, the Contract, or the Project;

   e. Failure to indemnify any party that the Contractor is obligated to indemnify under the General Conditions and other provisions of the Contract;

   f. Failure to replace rejected Work or correct rejected workmanship when directed by Sound Transit;

   g. Failure to provide required insurance and/or bonds, or proceeds thereof;

   h. Submittal of false or misleading information or Claims to Sound Transit; or

   i. Disregard of applicable laws, ordinances, rules, codes, regulations, orders, or similar requirements of any public entity having jurisdiction.

3. If the Contractor is adjudged bankrupt or insolvent, or makes a general assignment for the benefit of creditors, or if the Contractor or a third party files a petition to take

Comment [Legal77]: Term added to clarify that the order must apply with applicable law.

Comment [Legal78]: Change made to clarify the intent of the paragraph.

Comment [Legal79]: Change made to clarify the paragraph.

advantage of any debtor's act or to reorganize under the bankruptcy or similar laws concerning the Contractor, or if a trustee or receiver is appointed for the Contractor or for any of the Contractor's property on account of the Contractor's insolvency, and the Contractor or its successor in interest does not provide adequate assurance of future performance in accordance with the Contract within fifteen (15) days of receipt of a request for assurance from Sound Transit.

B. If, in the opinion of Sound Transit, the Contractor is in default of the Contract, Sound Transit will issue a written Notice of Default to the Contractor and its Surety. If the Contractor, within fourteen (14) days after receipt of such notice, fails to remedy or provide assurance acceptable to Sound Transit of its specific plan and timetable to remedy the default ~~within fourteen (14) days after receipt of such notice~~, Sound Transit may terminate the Contractor's right to proceed under all or such part of the Contract as Sound Transit deems to be in its best interest. Sound Transit shall furnish written Notice of Termination for Default to the Contractor, upon which date the Termination for Default shall be effective. The Contractor and its Surety shall be liable for any damage to Sound Transit resulting from the Contractor's refusal or failure to complete the Work in the specified time.

Comment [Legal80]: Changes made to clarify the paragraph and to provide that the Notice to Contractor should be in writing.

C. Upon receipt of a Notice of Termination for Default from Sound Transit, the Contractor shall, except as otherwise directed by Sound Transit:

1. Stop all Work under the Contract on the date and to the extent specified in the Notice of Termination for Default.

2. Place no further orders or Subcontracts for materials, equipment, or services except as may be necessary for completion of such portions of the Work expressly excluded from the Notice of Termination.

3. Communicate any Notice of Termination to the affected Subcontractors and Suppliers, and any other parties at any tier, and take reasonable steps to minimize cancellation charges and other costs arising from termination.

4. Terminate all orders and Subcontracts to the extent that they relate to the performance of Work covered by the Notice of Termination or, at the option of Sound Transit, assign to the Surety or any replacement contractor all such Subcontracts and purchase orders.

5. Comply with all other reasonable and legal requirements of Sound Transit as may be specified in the Notice of Termination.

Comment [Legal81]: Language added to clarify paragraph.

D. Upon Sound Transit's termination of the Contractor's right to proceed with the Work because of the Contractor's default under the Contract, Sound Transit shall have the right to complete the Work by whatever means and methods it deems advisable, including transfer of performance of the work from the Contractor to the Surety. Sound Transit shall have the right to take possession of and use any or all the Contractor's design, goods, facilities, tools, equipment, and property of any kind, at the Project, or related thereto, provided by or on behalf of the Contractor to complete the Work or any portion thereof, without being responsible to the Contractor for fair wear and tear. The Contractor shall have no rights in such property during its use by Sound Transit. Sound Transit may complete the Work by obtaining the services of another Contractor, or by any other reasonable and legal means that Sound Transit deems in its best interest. Sound Transit shall have the right to exercise its sole discretion as to the manner,

Comment [Legal82]: Language added to clarify paragraph.

method and reasonableness of the costs of completing the work subject to a reasonable duty to mitigate

costs. Materials and equipment for which Sound Transit has paid any amount to the Contractor may be incorporated in the Work regardless of whether they are stored at the site or elsewhere.

E. The expense of completing the Work together with a reasonable charge for engineering, managerial, and administrative services arising from the default shall be charged to the Contractor. Sound Transit shall deduct said amount out of any monies that may be due or may at any time thereafter become due the Contractor. In case such expense is in excess of the sum that would otherwise have been payable to the Contractor under the Contract, the Contractor or its Surety shall promptly pay the amount of said excess to Sound Transit upon notice thereof. Sound Transit may, at its sole discretion, withhold all or any part of any Partial Payments or other monies otherwise due the Contractor until completion and final settlement of the Work covered by the Notice of Termination for Default.

F. If Sound Transit terminates the Contractor for default, the resulting damage shall include, but not be limited to, actual and liquidated damages, any increased costs incurred by Sound Transit in completing the Work, and amounts paid to third parties by Sound Transit on account of any claims made against Sound Transit relating to the Work.

G. If the Contract is terminated for default, Sound Transit may require that the Contractor transfer title to and deliver the following items to Sound Transit as directed: any goods, work in progress, tools, dies, jigs, fixtures, plans, drawings, information, contract rights, and other items that the Contractor has specifically produced or acquired for the terminated portion of the Contract and that would have been required to be furnished to Sound Transit if the Contract had been completed. The Contractor shall also protect and preserve property in its possession at its sole expense in which Sound Transit has an interest.

H. If, after Notice of Termination for Default, it is determined for any reason that the Contractor was not in default under the provisions of the Contract, or that the Contractor was properly entitled to an extension of time under the provisions of the Contract, the rights, obligations, and remedies of the parties shall be the same as if the Notice of Termination for Default had been issued pursuant to the Article entitled Termination for Convenience.

TERMINATION FOR CONVENIENCE

A. Upon written notice to Contractor Sound Transit may terminate the Work under this Contract, in whole or in part, at any time, for the convenience of Sound Transit.

B. After receipt of a Notice of Termination for Convenience, and unless directed otherwise by Sound Transit, the Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due under this clause:

1. Stop performance of Work and meet with Sound Transit to develop a Termination Work Plan, including a scope, schedule and budget to safely terminate the Contractor's progress of Work.

2. Place no further subcontracts or orders (referred to as subcontracts in this clause) for materials, services, or facilities, except as necessary to complete the continued portion of the Contract.

3. Terminate all Subcontracts or orders to the extent they relate to the work terminated or, at the option of Sound Transit, assign to the Surety or any replacement contractor all such Subcontracts and purchase orders. Assign to Sound Transit, as directed by Sound Transit, all right, title, and interest of the Contractor under the Subcontract(s) terminated, in which case Sound Transit shall have the right to settle or to pay any termination settlements proposal arising out of those terminations.

4. With approval or ratification to the extent required by Sound Transit, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontract; the approval or ratification will be final for purposes of this clause.

5. As directed by Sound Transit, transfer title and deliver to Sound Transit (1) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced or acquired for the work terminated, and (2) the completed or partially completed plans, drawings, information and other property that, if the Contract had been completed, would be required to be furnished to Sound Transit.

6. Complete performance of any Work not terminated.

7. Take any action that may be necessary, or that Sound Transit may direct, for the protection and preservation of the property related to this Contract that is in possession of the Contractor and in which Sound Transit has or may acquire an interest.

8. Use its best efforts to sell, as directed or authorized by Sound Transit, any property of the types referred to in Sub-paragraph 12.03B.5 above; provided, however, that the Contractor (1) is not required to extend credit to any purchaser and (2) may acquire the property under the conditions prescribed by, and at prices approved by, Sound Transit. The proceeds of any transfer or disposition will be applied to reduce any payments to be made by Sound Transit under this Contract, credited to the price or cost of the work, or paid in any other manner directed by Sound Transit.

C. Payment

In the event of a Termination for Convenience, if such termination occurs after the effective date of the Notice to Proceed, Sound Transit will pay the reasonable, verifiable ~~direct~~ costs incurred by the Contractor toward any incomplete item on the Partial Payment Schedule before the termination. Reimbursable costs incurred by the Contractor will be determined by taking into consideration the following facts, circumstances and limitations:

1. ~~The budget established for the Termination Work Plan,~~Penalties charged to Contractor by suppliers for cancellation of hardware and /or software custom designed and to be produced specifically for the Project.

2. The physical progress of the Work satisfactorily completed to the effective date of the termination, evaluated against the approved Partial Payment Schedule,

3. Costs of removing equipment and materials and otherwise demobilizing,

4. Costs reasonably incurred in anticipation of performing the Work; provided, said amounts are reasonable, verifiable and ~~directly~~ attributed to the Contractor's

Comment [Legal83]: Term deleted. If costs are found reasonable they should be recovered by Contractor.

Comment [Legal84]: Language deleted. Costs are found reasonable and justifiable since the Termination is for the convenience of Sound Transit.

performance of the Work,

Comment [Legal85]: Language is deleted to clarify paragraph. If it is reasonable and justifiable, the Contractor should be entitled to recover.

5. Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of the termination inventory,

6. Termination for Convenience notwithstanding anything to the contrary set forth herein, the Contractor shall not be entitled to, and Sound Transit shall not be liable for, any consequential losses or damages incurred by the Contractor including, but not limited to: loss of profits, business opportunity, reputation or financing. Amounts retained and accumulated under RCW 60.28.011 will be held as provided therein for a period of not less than forty-five (45) days following termination.

SOUND TRANSIT'S RIGHTS AND OBLIGATIONS UPON TERMINATION

A. Upon any termination contemplated herein, Sound Transit may take over the Work and prosecute the same to completion by agreement with another party or otherwise complete the Work.

B. Upon any termination contemplated herein, amounts retained and accumulated under RCW 60.28.011 will be held as provided therein for a period of not less than sixty (60) days following termination and consistent with state law.

CONTRACTOR'S OBLIGATIONS UPON TERMINATION

Upon receipt of Notice of Termination, the Contractor shall immediately discontinue Work, but shall do such Extra Work as may be ordered by Sound Transit to safeguard the Work then completed, to safeguard the materials and equipment then delivered to the site and to leave the Work in a safe and useful condition. The Contractor shall promptly deliver, or otherwise make available to Sound Transit, all Contract Records reasonably necessary for Sound Transit to complete the Work with its own forces, including but not limited to software, data, drawings, specifications, as-built drawings, calculations, reports, estimates, summaries, and other such information as the Contractor or Subcontractors may have accumulated in performing this Contract, whether completed or in progress, and all materials and equipment purchased specifically for the Contract where Sound Transit has reimbursed the Contractor for such costs. The Contractor shall also take all reasonable steps with its Suppliers and Subcontractors to minimize cancellation charges and other costs.

OWNERSHIP OF EQUIPMENT, MATERIALS AND SUPPLIES UPON TERMINATION

As of the date of termination, all the Contractor's right, title and interest in and to equipment, materials, and supplies ordered by the Contractor prior to the termination (including placement or priority in production runs of materials, equipment, or supplies), whether or not they have been delivered to the site, shall be vested in Sound Transit and the Contractor shall, upon demand of Sound Transit, execute and deliver to Sound Transit all requisite bills of sale, assignments, and other documents of transfer that may be necessary to give effect to the intention of the termination procedures set forth in this Article.

END OF SYSTEMS GENERAL CONDITIONS

SECTION 02 – FEDERAL PROVISIONS

INCORPORATION OF FTA PROVISIONS

APPLICABILITY OF FEDERAL GRANT CONTRACT

A. This procurement may be subject to one or more financial assistance contracts between Sound Transit and the U.S. Department of Transportation (DOT), which incorporate the current FTA Master Agreement and Circular 4220.1 as amended.

B. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1, as amended, and the Master Grant Agreement, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Contract. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any Sound Transit request that would cause Sound Transit to be in violation of the FTA terms and conditions.

C. The FTA Master Agreement obligates Sound Transit to incorporate certain provisions into this Contract and any lower tier subcontracts at any level and to take appropriate measures to ensure that Contractor and its lower tier Subcontractors at any level comply with certain applicable requirements set forth in the Master Agreement. The following provisions of the FTA Master Agreement are hereby incorporated by reference into this Contract, and the Contractor shall comply with all such requirements.

D. Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement between Sound Transit and FTA, as they may be amended or promulgated from time to time during the term of this contract. Contractor's failure to so comply shall constitute a material breach of this contract.

E. Copies of the FTA Circular 4220.1, as amended, and the Master Grant Agreement are available from Sound Transit.

FEDERAL FUNDING LIMITATION

The Contractor understands that a portion of the funds to pay for the Contractor's performance under this Contract are anticipated to be made available from the United States Department of Transportation through the Federal Transit Administration (FTA). All such funds must be approved and administered by FTA. Sound Transit's obligation hereunder is, in part, payable from funds that are appropriated and allocated by FTA for the performance of this Contract. If such funds are not allocated, or ultimately are disapproved by FTA, Sound Transit may be required to terminate or suspend the Contractor's services. In such event, the Contract may at Sound Transit's option be terminated for convenience in accordance with these General Conditions.

NO OBLIGATION BY THE FEDERAL GOVERNMENT

A. Notwithstanding that the Federal Government may have concurred in or approved the solicitation for this Contract, the Federal Government is not a party to this Contract and has no obligations or liabilities to any entity other than Sound Transit, including the Contractor and its Subcontractors and Suppliers at any tier.

B. The Contractor agrees to include the above clause in each Subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clause shall not be modified, except to identify the Subcontractor who will be subject to its provision.

CERTIFICATION REGARDING DEBARMENT, SUSPENSION AND OTHER RESPONSIBILITY MATTERS

A. This contract is a covered transaction for purposes of 49 CFR Part 29. As such, the Contractor is required to verify that the Contractor, its principals, as defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945.

B. The Contractor is required to comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CFR 29, Subpart C in any lower tier covered transaction it enters into.

C. By signing and submitting its Bid, the Bidder certifies as follows:

> The certification in this clause is a material representation of fact relied upon by Sound Transit. If it is later determined that the Bidder knowingly rendered an erroneous certification, in addition to remedies available to Sound Transit, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The Bidder agrees to comply with the requirements of 49 CFR 29, Subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The Bidder further agrees to include a provision requiring such compliance in its lower tier covered transactions.

FEDERAL LOBBYING RESTRICTIONS

A. This Contract is subject to Section 319, Public Law 101-121 (31 U.S.C. §1352) and U.S. DOT regulations "New Restrictions on Lobbying," 49 CFR Part 20, which prohibits Federal funds from being expended to influence or to attempt to influence an officer or employee of any agency, members of Congress, an office or employee of Congress or an employee of a Member of Congress in connection with the awarding of any federally funded contract, the making of any Federal grant or loan, or entering into any cooperative agreement and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

B. Contractors and Subcontractors at any time who apply or bid for an award of $100,000 or more shall file the certification required by 49 CFR Part 20, "New Restrictions on Lobbying." Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or any employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier shall also disclose the name of any registrant under the Lobbying Disclosure Act of 1995 who has made lobbying contacts on its behalf with non-Federal funds with respect to that Federal contract, grant or award covered by 31 U.S.C. 1352. Such disclosures are forwarded from tier to tier up to the recipient.

C. The Contractor shall submit the "Certification Regarding Lobbying," included in the Bid documents. The Contractor's signature on this certification shall certify that: a) it has not engaged in the prohibited activity and b) the language of the certification shall be included in all lower tier subcontracts, which exceed $100,000, and that all such Subcontractors shall certify and disclose accordingly. Sound Transit is responsible for keeping the certification form of the Contractor, who

is in turn responsible for keeping the certification forms of Subcontractors. Further, by executing the Contract, the Contractor agrees to comply with these laws and regulations.

D. If the Contractor has engaged in any lobbying activities to influence or attempt to influence the awarding of this Contract, the Contractor must disclose these activities. In such a case, the Contractor shall complete Standard Form SF-LLL, "Disclosure of Lobbying Activities." Sound Transit must also receive all disclosure forms.

E. The Contractor and any Subcontractors shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of a previously filed disclosure form. An event that materially affects the accuracy of the information reported includes:

1. A cumulative increase of $25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence this federally funded Contract; or
2. A change in the person(s) influencing or attempting to influence this federally funded Contract; or
3. A change in the officer(s), employee(s) or member contracted to influence or attempt to influence this federally funded Contract.

PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS

A. The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § § 3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to this Contract. Upon execution of the underlying contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract or the FTA-assisted project for which this contract work is being performed. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.

B. The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. § 5307, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Contractor, to the extent the Federal Government deems appropriate.

C. The Contractor agrees to include the above two clauses in each Subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the Subcontractor who will be subject to the provisions.

ANTI-KICKBACK

A. Sound Transit and contractors are required to comply with the Copeland "Anti-Kickback" Act, 18 USC § 874 and 40 USC § 276(c), as supplemented in U.S. Department of Labor regulations, 29 CFR Part 3. Under state and federal law, it is a violation for Sound Transit employees, proposers, bidders, contractors or subcontractors to accept or offer any money or benefit as a reward for

favorable treatment in connection with the award of a contract or the purchase of goods or services.

B. "Kick-Back" as defined by Federal Acquisition Regulations (FAR), means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind that is provided directly or indirectly to any prime contractor, prime contractor employee, subcontractor or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contractor in connection with a subcontract relating to a prime contract.

CIVIL RIGHTS

In addition to the provisions in Section 00 73 39 00, Diversity Program Provisions, the following requirements pertaining to nondiscrimination and civil rights apply to the underlying contract:

A. Nondiscrimination

In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, Executive Order 11246 as amended, and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, gender identity, status as a parent, marital status, age, or disability. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

B. Equal Employment Opportunity

The following equal employment opportunity requirements apply to the underlying contract:

1. Race, Color, Creed, National Origin, Sex

In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulation, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 et seq., (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Project. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

As required by 41 CFR 60-1.4, during the performance of this Contract, the Contractor agrees as follows:

a. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, marital status, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, gender identity, status as a parent, marital status, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment

advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

b. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, marital status or national origin.

c. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this Section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

d. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, as amended, and of the rules, regulations, and relevant orders of the Secretary of Labor.

e. The Contractor will furnish all information and reports required by Executive Order 11246, as amended, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his or her books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

f. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246, as amended, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246, amended, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

g. The Contractor will include the portion of the sentence immediately preceding paragraph 1.a and the provisions of paragraphs 1.a through 1.f in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246, as amended, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance, provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

a. The Contractor and its Subcontractors shall include the equal employment opportunity clause set forth in paragraph 1.a above in each of their non-exempt Subcontracts.

2. Age

In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. §§ 623 and federal transit law at 49 U.S.C. § 5332, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

3. Disabilities

In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the "Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

4. Federal Equal Employment Opportunity Requirements

As required by 41 CFR 60-4.2, the Contractor shall take into account the following provisions in performing the Work:

a. The Contractor shall comply with the Federal Equal Employment Opportunity (EEO) Requirements.

b. The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows (unless modified by the federal government):

- Minority participation in each trade (King County) – 7.2%
- Minority participation in each trade (Snohomish County) – 7.2%
- Minority participation in each trade (Pierce County) – 6.2%
- Female participation in each trade (Nationwide) – 6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout

the length of the Contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the Contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

c. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) Business Days of award of any construction Subcontract in excess of $10,000 at any tier for construction work under this Contract. The notification shall list the name, address and telephone number of the Subcontractor; employer identification number of the Subcontractor; estimated dollar amount of the Subcontract; estimated starting and completion dates of the Subcontract; and the geographical area in which the Subcontract is to be performed.

d. As used in this Notice, and in this Contract, the "covered area" is Snohomish, King and Pierce Counties of the State of Washington.

5. EEO Construction Contract Specifications

As required by 41 CFR 60-4.3, the Contractor shall comply with the following:

Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246)

a. As used in these specifications:

(1) "Covered area" is Snohomish, King and Pierce Counties of the State of Washington.

(2) "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

(3) "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

(4) "Minorities" includes:

(a) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(b) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(c) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(d) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification.

b. Whenever the Contractor, or any Subcontractor at any tier subcontracts a portion of the Work involving any construction trade, it shall physically include in each Subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which are set forth in this Contract.

c. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

d. The Contractor shall implement the specific affirmative action standards provided in paragraphs g(1) through g(16) below. The goals set forth in this Contract are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

e. Neither the provisions of any collective bargaining agreement, nor the failure by a union with which the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

f. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their

training, subject to availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

g. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

(1) Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

(2) Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

(3) Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

(4) Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor minority persons or women sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

(5) Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and training programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under g(2) above.

(6) Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in

assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

(7) Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

(8) Disseminate the Contractor's EEO policy externally by including it in any advertising in the new media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipate doing business.

(9) Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

(10) Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

(11) Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

(12) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

(13) Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities

to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

(14) Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

(15) Document and maintain a record of all solicitations of offers for subcontract from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

(16) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

h. The Contractor is encouraged to participate in voluntary associations which assist in fulfilling one or more of its affirmative action obligations (paragraphs g(1) through g(16) above). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under g(1) through g(16) of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

i. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

j. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.

k. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

l. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension,

termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

m. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph g of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

n. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

o. Nothing herein provided shall be construed as limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

6. The Contractor also agrees to include these requirements in each Subcontract financed in whole or in part with Federal assistance provided by FTA, modified only if necessary to identify the affected parties.

C. Flow Down

The Civil Rights requirements flow down to the Contractor and its subcontractors at every tier.

BUY AMERICA REQUIREMENTS

A. The Contractor agrees to comply with the requirements of section 165(a) of the Surface Transportation Assistance Act of 1982, as amended, and the applicable regulations in 49 CFR Part 661, which provide that federal funds may not be obligated unless steel, iron and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by the FTA or the product is subject to a general waiver. General Waivers are listed in 49 CFR 661.7. Separate requirements for rolling stock are set out in section 165(b)(3), of the Surface Transportation Assistance Act of 1982 and 49 CFR 661.11. Rolling stock must be assembled in the United States and have a 60 percent domestic content.

B. A bidder or offeror must submit to Sound Transit the appropriate Buy America certification, attached herein, with all bids or offers on FTA-funded contracts, except those subject to a general waiver. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive. This requirement does not apply to lower tier subcontractors

C. Whether or not a Bidder certifies that it will comply with the applicable requirement, Bidder will be bound by its original certification and is not permitted to change its certification after the time that the Bid is submitted, except for clerical error. A Bidder that certifies that it will comply with the applicable Buy America requirements may not change its certification at any point, and is not eligible for waiver of those requirements. (Buy America Regulations, 49 CFR Part 661.13(c))

D. If the Bidder is unable to certify compliance, but believes that it may qualify for an exception to the requirement consistent with section 165(a) of the Surface Transportation Assistance Act of 1982, as amended, Sound Transit, on behalf of the Bidder, will tender the request for exception(s) to FTA for review and approval. Sound Transit does not warrant that any such request will be acted upon in accordance with the Bidder's time frame. Failure to achieve an exception will not relieve the Bidder of its responsibilities under this Section.

CARGO PREFERENCE

Pursuant to 46 CFR Part 381, the Contractor agrees:

A. To utilize privately owned United States flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, materials, or commodities pursuant to this Contract, to the extent such vessels are available at fair and reasonable rates for United States flag commercial vessels.

B. To furnish within twenty (20) Days following the date of loading for shipments originating within the United States, or within thirty (30) Business Days following the date of loading for shipment originating outside the United States, a legible copy of a rated, commercial ocean bill of lading in English for each shipment of cargo described in paragraph A above to Sound Transit (through the prime Contractor in the case of Subcontractor bills of lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, 400 Seventh Street, SW, Washington, D.C., 20590, marked with appropriate identification of the Project.

C. To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this Contract.

FLY AMERICA REQUIREMENTS

The Contractor agrees to comply with 49 U.S.C. § 40018 (the "Fly America" Act) in accordance with the General Services Administration's regulations at 41 CFR Part 301-10, which provide that recipients and subrecipients of Federal funds and their contractors are required to use U.S. Flag air carriers for U.S. Government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. The Contractor shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a U.S. flag carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance

with the Fly America requirements. The Contractor agrees to include the requirements of this Section in all subcontracts that may involve international air transportation.

RECOVERED MATERIALS

A. The Contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in subpart B of 40 CFR Part 247.

B. These requirements flow down to all Contractor and Subcontractor tiers.

ENERGY CONSERVATION

A. The Contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

B. These requirements extend to all third party contractors and their contracts at every tier and subrecipients and their subagreements at every tier.

CLEAN WATER

A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. The Contractor agrees to report each violation to Sound Transit and understands and agrees that Sound Transit will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

B. The Contractor also agrees to include these requirements in each Subcontract exceeding $100,000 financed in whole or in part with Federal assistance provided by FTA.

CLEAN AIR

A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §.§ 7401 et seq. The Contractor agrees to report each violation to Sound Transit and understands and agrees that Sound Transit will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

B. The Contractor also agrees to include these requirements in each Subcontract exceeding $100,000 financed in whole or in part with Federal assistance provided by FTA.

MIGRATORY BIRD TREATY ACT

The Contractor shall comply with the Migratory Bird Treaty Act (MBTA), 16 U.S.C. Sections 703-712, 50 C.F.R. Section 10.13 and all amendments, which makes it illegal for anyone to take, possess, import, export, transport, sell, or offer for sale, purchase, or barter, any migratory bird, or other parts, nests, or eggs of such a bird except unless and except as permitted by regulations or under the terms of a valid permit issued by the Secretary of the Interior.

SEISMIC SAFETY

The Contractor agrees that any new building or addition to an existing building will be constructed in

accordance with the standards for Seismic Safety required in Department of Transportation Seismic Safety Regulations 49 CFR Part 41 and will certify to compliance to the extent required by the regulation. The

Contractor also agrees to ensure that all work performed under this contract including work performed by a Subcontractor is in compliance with the standards required by the Seismic Safety Regulations and the certification of compliance issued on the project.

ELECTRONIC AND INFORMATION TECHNOLOGY

When providing reports or other information to Sound Transit, or to the Federal Transit Administration (FTA), among others, on behalf of Sound Transit, the Contractor agrees to prepare such reports or information using electronic or information technology capable of assuring that the reports or information delivered will meet the applicable accessibility standards of Section 508 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794d, and U.S. ATBCB regulations, "Electronic and Information Technology Accessibility Standards," 36 C.F.R. Part 1194.

DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

In addition to the Disadvantaged Business Enterprise Program provisions set forth in Section 00 733 39, the Contractor shall comply with the following requirements:

A. As a recipient of financial assistance from the federal Department of Transportation (DOT), through the Federal Transit Administration (FTA), Sound Transit developed and administers a Disadvantaged Business Enterprise (DBE) Program in accordance with 49 Code of Federal Regulations (CFR) Part 26. The Contractor shall review and comply with applicable provisions in 49 CFR Part 26 and Section 00 73 39 of this Contract.

B. The Contractor shall comply with the following assurance:

The Contractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or such other remedy as Sound Transit deems appropriate.

C. The Contractor shall include in each Subcontract it awards pursuant to this Contract the following assurance:

"The subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this subcontract. The subcontractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the subcontractor to carry out these requirements is a material breach of this subcontract, which may result in the termination of this subcontract or such other remedy as the Contractor or Sound Transit deems appropriate."

NO TEXTING WHILE DRIVING

A. Contractor shall comply with Executive Order No. 13513, Federal Leadership on Reducing Text Messaging While Driving, October 1, 2009, 23 U.S.C.A. § 402 note, and DOT Order 3902.10, Text Messaging While December 30, 2009. Contractor shall:

1. Adopt and enforce workplace safety policies to decrease crashes caused by distracted drivers including policies to ban text messaging while driving;
2. Contractor-owned or Contractor-rented vehicles or Government-owned, leased or rented vehicles;

3. Privately-owned vehicles when on official Project related business or when performing any work for or on behalf of the Project; or
4. Any vehicle, on or off duty, and using an employer supplied electronic device.
5. Conduct workplace safety initiatives in a manner commensurate with the Contractor's size, such as:
    a. Establishment of new rules and programs or re-evaluation of existing programs to prohibit text messaging while driving; and
    b. Education, awareness, and other outreach to employees about the safety risks associated with texting while driving.

B. "Driving" is defined as operating a motor vehicle on a roadway, including while temporarily stationary because of traffic, a traffic light, stop sign, or otherwise. "Driving" does not include being in your vehicle (with or without the motor running) in a location off the roadway where it is safe and legal to remain stationary.

C. "Text Messaging" is defined as reading from or entering data into any handheld or other electronic device, including for the purpose of short message service texting, e-mailing, instant messaging, obtaining navigational information, or engaging in any other form of electronic data retrieval or electronic data communication. The term does not include the use of a cell phone or other electronic device for the limited purpose of entering a telephone number to make an outgoing call or answer an incoming call, unless the practice is prohibited by State or local law.

D. Contractor shall include this provision in all subcontracts at all tiers.

1.1 SECTION 03 - INSURANCE REQUIREMENTS

ARTICLE 1 INSURANCE REQUIREMENTS

Description

A. Except as otherwise specified, the Consultant, shall at its sole cost and expense, obtain and maintain during the entire term of this Agreement the minimum insurance set below.

B. In the event the Consultant is a Joint Venture, these insurance requirements shall apply to each Joint Venture member separately.

C. By requiring such minimum insurance, Sound Transit shall not be deemed or construed to have assessed the risks that may be applicable to the Consultant under this Agreement. The Consultant shall assess its own risks and, if it deems appropriate and/or prudent, maintain greater limits and/or broader coverage.

D. The fact that insurance is obtained by Consultant shall not be deemed to release or diminish the liability of the Consultant, including without limitation, liability under the indemnity provisions of this Agreement. Damages recoverable by Sound Transit shall not be limited to the amount of the required insurance coverage.

Insurance Coverages

E. **Commercial General Liability**: Commercial General Liability for bodily injury including death, personal injury, and property damage, with contractual and completed operations liability endorsements, and Employer's Liability coverage, utilizing insurers and coverage forms acceptable to Sound Transit, with limits of at least $5,000,000 per occurrence and $5,000,000 general aggregate, with $5,000,000 products and completed operations coverage.

F. ***Commercial Automobile Liability:*** Commercial Auto Liability coverage for bodily injury and property damage utilizing insurers and coverage forms acceptable to Sound Transit, with a limit of at least $1,000,000 combined single limit.

Such liability insurance, identified in 2.a and 2.b above, shall name Sound Transit, its officers, directors, agents, and employees and Community Transit, King County, Kitsap Transit, Pierce Transit, Everett Transit and Washington State Ferriesas additional insured with respect to the work, including completed operations, under this Agreement.

G. ***Workers Compensation***: The Consultant will secure its liability for industrial injury to its employees in accordance with the provisions of Title 51 of the Revised Code of Washington. The Consultant will be responsible for Workers Compensation insurance for any subconsultant who provides work under subcontract.

If the Consultant is qualified as a self-insurer under Chapter 51.14 of the Revised Code of Washington, it will so certify to Sound Transit by submitting a letter

signed by a corporate officer, indicating that it is a qualified self-insurer, and setting forth the limits of any policy of excess insurance covering its employees.

The protection provided by the Workers Compensation Policy Part 2 (Employers Liability), or in states with monopolistic state funds, the protection provided by the Stop Gap endorsement to the General Liability must have a minimum required limit of $1,000,000.

H. **Professional Liability:** This Agreement includes "professional services". The Consultant shall maintain the appropriate Professional Liability insurance, with limits of liability of at least $5,000,000 per claim, for damages sustained by reason of or in the course of operations under this Agreement, whether occurring by reason of acts failing to meet the standard of care required by this Agreement, negligent acts, errors, or omissions of the Consultant.

I. ***Commercial Crime and Employee Dishonesty: A policy with minimum required limits of $2,500,000 per occurrence for losses of money and property as a result of theft, burglary, forgery, alteration, disappearance and destruction and for losses due to the dishonest acts of employees.***

J. **Railroad Protective Liability**: During any construction or demolition work within 50 feet on either side of railroad or light rail tracks, Contractor shall provide Railroad Protective Liability coverage either by (1) endorsing the General Liability policy with an ISO form CG 24 27 10 01 – Contractual Liability – Railroads endorsement, or equivalent, or (2) obtaining a separate Railroad Protective Liability policy. This insurance shall name Central Puget Sound Regional Transit Authority, dba Sound Transit, its officers, directors, agents and employees as additional insured with coverage of at least $2,000,000 per occurrence and $6,000,000 in the aggregate. The coverage shall be effective for the entire duration of the work to be performed. The policy shall be issued on a standard ISO form CG 00 35 10 93, or equivalent.

K. **Builders Risk Insurance:** Prior to any new construction, the Contractor shall purchase and maintain in force throughout the course of construction "All-Risk" Builders Risk Insurance on the Work provided under this Agreement until Acceptance of the Work by Sound Transit and when the project has been put to its intended use. Such insurance shall be written on a completed value in an amount equal to the initial Contract Price, subject to subsequent modifications of the Contract Price. The insurance coverage shall apply on a replacement cost basis. The insurance policy shall name Sound Transit as an additional insured and loss payee, as its interest may appear. The insurance shall cover the entire Work at the Site. Insured property shall also include portions of the Work located away from the Site but intended for use at the Site, and shall also cover portions of the Work in transit. The insurance policy shall cover the cost of removing debris, including demolition of the undamaged portion of property insured, as may be made legally necessary by the operation of any law, ordinance, or regulation which is in force at the time of any physical loss, damage or destruction to insured property by a peril insured by the insurance policy. Deductibles or Self-Insured Retentions (SIRs) in excess of $10,000 each

loss must be disclosed and are subject to Sound Transit's approval. The Contractor shall be responsible for and pay any deductible or SIR. The insurance policy, and all endorsements, is subject to Sound Transit approval as to form.

L. **Network Privacy & Security Insurance / Cyber Liability:** Contractor agrees to purchase and maintain throughout the term of this Agreement, Privacy & Security liability insurance (or its equivalent "cyber/network security" insurance) covering liabilities resulting or arising from acts, errors, or omissions, in connection with the services provided under this Agreement, which are associated with any breach or loss of any personally identifiable information. Such insurance shall provide coverage for up to $5,000,000.00 per claim. Costs and damages to be covered by this insurance policy shall include without limitation: (a) costs to notify individuals whose personally identifiable information was lost or compromised; (b) costs to provide credit monitoring and credit restoration services to individuals whose personally identifiable information was lost or compromised; (c) costs and damages associated with third-party claims arising from the breach or loss of personally identifiable information, including litigation costs and settlement costs; and (d) any investigation and enforcement costs. The policy must be kept in force during the life of the Agreement and for three (3) years (either as a policy in force or extended reporting period) after Agreement termination. Contractor shall also ensure that any Subcontractors that create, receive, maintain, or transmit protected health information or personally identifiable information on behalf of the Contractor agree to the same insurance requirements that apply to the Contractor.

M. ***Other Insurance:*** Other insurance as may be deemed appropriate to cover the specified risk and exposure of the scope of work or changes to the scope of work evaluated by Sound Transit. The costs of which shall be borne by contracting parties as mutually agreed.

General Provisions

A. **Certificates and Policies**: Prior to commencement of Work for this Agreement, the Consultant shall provide Sound Transit with certificates of insurance showing insurance coverage in compliance with the foregoing paragraphs. All insurance coverage outlined above shall be written by insurance companies meeting Sound Transit's financial security requirements, (A.M. Best's Key Rating A-; VII or higher). **Such certificates shall reference Sound Transit's contract number, RTA/RP 0119-17 and title, next generation ORCA Systems Integrator.** The Consultant will provide 30 calendar days' advance written notice to Sound Transit in the event the Consultant's insurance policies are cancelled, not renewed, or materially reduced in coverage. Should the Consultant neglect to obtain and maintain in force any of the insurance required in this Section, Sound Transit may suspend or terminate this Agreement. Suspension or termination of this Agreement shall not relieve the Consultant from insurance obligations hereunder.

B. Taking into account the scope of work and services to be performed by a subcontractor and/or subconsultant, the Consultant shall prudently determine whether, and in what amounts, each subcontractor and/or subconsultant shall obtain and maintain commercial general liability and any other insurance coverage. Any insurance required of subcontractors and/or subconsultants shall, where appropriate and/or applicable, name Sound Transit as an additional insured.

C. Consultant's insurance for General Liability, Automobile Liability and Railroad Protective Liability (if applicable) shall be primary as respects Sound Transit, and any other insurance maintained by Sound Transit shall be excess and not contributing insurance with the Consultant's insurance.

D. The Consultant and its insurers shall require that the applicable insurance policy(ies) be endorsed to waive their right of subrogation against Sound Transit. The Consultant and its insurers also waive their right of subrogation against Sound Transit for loss of their owned or leased property or property under their care, custody and control.

E. The Consultant shall provide Sound Transit with complete copies of all insurance policies to comply with the insurance requirements in this Agreement, including, but not limited to, the Additional Insured Endorsement(s) required in 2.a and 2.b above, the Waiver of Subrogation Endorsements, Primary and Non-Contributory Endorsements, Products and Completed Operations Endorsement and any other endorsements.

F. No provision in this Section shall be construed to limit the liability of the Consultant for work not done in accordance with the Agreement, or express or implied warranties. The Consultant's liability for the work shall extend as far as the appropriate periods of limitation provided by law and up to any legal limits.

G. The Consultant may obtain any combination of coverage or limits that effectively provides the same or better amounts and types of coverage as stipulated above, subject to review and approval by Sound Transit.

H. The Consultant warrants that this Agreement has been thoroughly reviewed by the Consultant's insurance agent/broker, who have been instructed by the Consultant to procure the insurance coverage required by this Agreement.

Claims Management

The Contractor agrees to the following claims management terms and conditions. The Contractor further agrees to include the following terms and conditions in its contract with its Subcontractors and require its Contractor to comply with the following provisions.

I. The Contractor, after award of a Sound Transit contract, shall provide the names, titles, addresses, telephone numbers, and email addresses of the individual(s) employed by Contractor who handles insurance matters and notifies insurance companies of claims. This individual(s) will be the primary

contact for communications between Sound Transit Risk Management Division and the Contractor and its Subcontractors. If the individual(s) change, Contractor shall notify Sound Transit Risk Management Division of the replacement.

J. Contractor shall provide written notice of any incident involving bodily injury and/or property damage to Sound Transit. An "incident" is defined as any event or occurrence involving bodily injury or property damage that may give rise to an insurance claim. Incidents include those involving serious bodily injury, hospitalization, death, or property damage.

K. Contractor's written notice to Sound Transit of any incident or claim shall include the following information:

1) A description of the incident, including any bodily injuries or property damage,

2) The names of anyone injured and/or whose property was damaged,

3) The names and contact information of any insurance company(ies) who may provide insurance coverage related to any aspect of the incident,

4) Policy number(s), claim numbers(s), and policy(ies) effective dates, and

5) A copy of any written Acknowledgement of Claim Receipt issued by any applicable insurance company(ies).

If some information requested above is not available at the time of the initial report, the Contractor shall provide the missing information to Sound Transit as soon as it is available.

L. If Sound Transit receives a claim from a Third Party related to the project, Sound Transit will tender such claim to the Contractor through the established claim management process for handling and resolution. Upon receipt of a Third Party claim from Sound Transit, the Contractor shall acknowledge in writing to Sound Transit that:

1) The Contractor received and accepts Sound Transit's claim tender,

2) The Contractor shall notify its Commercial General Liability insurance company and any other applicable insurance company (ies) of the claim as per Sound Transit insurance requirements that Sound Transit is named as Additional Insured, under the Commercial General Liability policy and as stipulated in the contract between Sound Transit and the contractor.

3) The Contractor shall provide Sound Transit with copies of any/all Acknowledgements of Claim Receipts issued by its Commercial General Liability or other applicable insurance company(ies),

4) The Contractor and its insurance company(ies) shall indemnify and defend Sound Transit, as an Additional Insured, against any/all claims related to the project.

5) The Contractor's General Liability and other applicable insurance company(ies) will investigate and process the claim, provide a coverage determination, an objective disposition and claim resolution for either denial or settlement.

6) The Contractor shall provide copies of any/all documentation related to a claim's disposition and resolution, such as, but not limited to, acknowledgements, settlement agreements, releases, claim denial letters, judgments, payments, and satisfaction of judgments.

M. Contractor shall provide to Sound Transit quarterly status reports on all open and closed claims related to the project that implicates Sound Transit. The report shall include the assigned adjusters, policy numbers, claim numbers and at least the following:

1) A description of the claim handling activities during the quarter,

2) Any changes to the assigned and/or investigating adjuster, and, if so, the name and contact information of the newly assigned adjuster(s),

3) A description of the next steps in the claims adjusting process,

4) A description of the disposition and resolution of any claim, and

5) Copies of any pertinent documents, including, but not limited to, expert reports, reports on investigations, photographs, settlement agreements, releases, claim denial letters, judgments, payments, and satisfaction of judgments.

Contractor shall notify Sound Transit of their final resolution, or the applicable insurance company's(ies') final resolution, any/all claims related to the project, which Sound Transit Risk Management can review and document as a formal notification from the contractor, or its insurance company(ies) that the claims has been fully dispositioned and closed.

2.1 SECTION 04 – LIQUIDATED DAMAGES

[To be negotiated]

SOUNDTRANSIT

3.1 SECTION 05 – LABOR COMPLIANCE MANUAL

PART 1 GENERAL

INSERTION OF PROVISIONS INTO SUBCONTRACTS

Contractor shall insert the provisions set forth in this Labor Compliance Manual ("Manual") in all construction subcontracts of any tier.

DRUG FREE WORKPLACE

Contractor shall comply with applicable Drug Free Workplace requirements as set forth in 49 CFR Part 29, Subpart F, as modified by 41 U.S.C. 702, 49 U.S.C. 5331 and other applicable requirements.

In addition to other remedies available to Sound Transit, the Contractor's failure to comply with the requirements of this Section may render the Contractor subject to suspension of contract payment or termination for default pursuant to the General Conditions.

DISPUTES CONCERNING LABOR STANDARDS

Disputes arising out of terms and provisions of this Manual shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7, the Washington State Department of Labor and Industries, or other applicable procedures. Disputes within the meaning of this clause include disputes between the Contractor (or any of its Subcontractors) and Sound Transit, the U.S. Department of Labor, the Washington State Department of Labor and Industries, or the employees or their representatives.

PART 2 WAGES OF EMPLOYEES.

GENERAL

This Contract is subject to Washington Department of Labor & Industries ("L&I") prevailing wage requirements and may be subject to the federal Department of Labor ("DOL") prevailing wage requirements. In the event that both state and federal prevailing wages apply, the higher of the two prevailing wage rates will prevail. If a state prevailing rate for a particular classification is available but a federal rate is not available, the procedure outlined below for determination of a federal rate shall be followed. In the event that a federal prevailing rate for a particular classification is available but a state

prevailing rate is not available, the procedure outlined below for determination of a state prevailing rate shall be followed. The Contractor shall comply with the requirements of both the state L&I and the federal DOL, for posting notices of applicable wages, submission of certified payrolls, record keeping and other applicable administrative requirements.

Overtime shall be paid in accordance with the highest wage amount determined under the Washington Department of Labor & Industries ("L&I") prevailing wage requirements or the federal Department of Labor ("DOL") prevailing wage requirements.

STATE PREVAILING WAGES.

All determinations of the state prevailing rate of wage shall be made by the Industrial Statistician of the Department of Labor and Industries of the State of Washington. The state schedule of prevailing wage rates applicable to this Contract are set forth in Section 06. If employing labor in a class not listed in such schedule, the Contractor shall require the industrial statistician to determine the correct wage rate for that class and locality.

A. Disputes. In case any dispute arises as to what are the state prevailing rates of wages for work of a similar nature and such dispute cannot be adjusted by the parties in interest, including labor and management representatives, the matter shall be referred for arbitration to the Director of the Department of Labor and Industries of the state of Washington and said Director's decision therein shall be final and conclusive and binding on all parties involved in the dispute. In the event of a dispute as to what the federal rates of wages are, the dispute shall be referred to the Administrator of the Wage and Hour Division, Employment Standards Administration whose decision shall be final and conclusive and binding on all parties involved in the dispute.

B. Posting Notices. Except as provided otherwise in Chapter 39.12 RCW, the Contractor, each Subcontractor and other persons required to pay the prevailing rate of wage shall post in a location(s) readily visible to workers at the site: (1) a copy of the Statement Of Intent To Pay Prevailing Wages approved by the industrial statistician of the Department of Labor and Industries under RCW 39.12.040; and (2) the address and telephone number of the industrial statistician of the Department of Labor and Industries where a complaint or inquiry concerning prevailing wages may be made.

C. Apprentices. Apprentice workers employed hereunder for whom an apprenticeship agreement has been registered and approved with the state apprenticeship council pursuant to Chapter 49.04 RCW shall be paid at least the prevailing hourly rate for an apprentice for that trade. Any worker for whom an apprenticeship agreement has not been registered and approved by the state apprenticeship council shall be considered to be a fully qualified journey worker, and, therefore, shall be paid at the prevailing hourly rate for journey workers.

D. Required Documents. Pursuant to Chapter 39.12 RCW, the Contractor and each Subcontractor shall submit the following documents to Sound Transit:

1. Before payment is made by Sound Transit, the Contractor and each Subcontractor shall submit a "Statement of Intent to Pay Prevailing Wages" that has been approved by the industrial statistician of the Department of Labor and Industries.

2. With each request for payment, the Contractor shall submit a statement that prevailing wages have been paid in accordance with the "Statement of Intent to Pay Prevailing Wages" filed with Sound Transit.

3. Following Final Acceptance of the Work and before funds retained according to RCW 60.28.010 are released to the Contractor, the Contractor and each Subcontractor shall submit an "Affidavit of Wages Paid" that has been approved by the industrial statistician of the Department of Labor and Industries.

4. Any fees charged by the Department of Labor and Industries for filing the "Statement of Intent to Pay Prevailing Wages" and the "Affidavit of Wages Paid" shall be paid by the Contractor and each Subcontractor, as applicable; if Sound Transit pays such fees for any reason, then the Contractor shall be charged the amounts thereof, and shall remit the same to Sound Transit.

E. Worker's Benefits. Contractor shall make all payments required for unemployment compensation under Title 50 RCW and for industrial insurance and medical aid required under Title 51 RCW. The Contractor shall also obey all federal, state and local laws, ordinances, and regulations that establish safety standards for the protection of employees. If any payment required by Title 50 or 51 is not made when due, Sound Transit may retain such payments from any money due the Contractor and apply the same into the appropriate fund. The Department of Labor and Industries will provide the Contractor with applicable industrial insurance and medical aid classification and premium rates. Sound Transit may withhold payment of any amounts needed to pay Industrial Insurance premiums until the Contractor has satisfied to Sound Transit that the Contractor has paid all applicable premiums it owes on the work performed.

FEDERAL PREVAILING WAGES

If this Contract is also subject to federal prevailing wages, Section 06 contains the wage determination decision of the Secretary of Labor.

A. Minimum wages -- All laborers and mechanics employed or working upon the Site will be paid unconditionally and not less than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor, Section 06, and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of this Section. Also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage

rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its Subcontractors at the Site of the Work in a prominent and accessible place where it can be easily seen by the workers.

B. The Resident Engineer will require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the Contract shall be classified in conformance with a wage determination. The Resident Engineer shall approve an additional classification and wage rate and fringe benefits only when the following criteria have been met:

1. Except with respect to helpers as defined as 29 CFR 5.2(n)(4), the work to be performed by the classification requested is not performed by a classification in the wage determination; and
2. The classification is utilized in the area by the construction industry; and
3. The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and
4. With respect to helpers as defined in 29 CFR 5.2(n)(4), such a classification prevails in the area in which the work is performed.

C. If Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and Sound Transit agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by Sound Transit to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within thirty (30) Days of receipt and so advise Sound Transit or will notify Sound Transit within the thirty (30) Day period that additional time is necessary.

D. In the event Contractor, the laborers or mechanics to be employed in the classification or their representatives, and Sound Transit do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), Sound Transit shall refer the questions, including the views of all interested parties and the recommendation of Sound Transit, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within thirty (30) Days of receipt and so advise Sound

Transit or will notify Sound Transit within the thirty (30) Day period that additional time is necessary.

E. The wage rate (including fringe benefits where appropriate) determined pursuant to these provisions, shall be paid to all workers performing work in the classification under this Contract from the first day on which work is performed in the classification.

1. Whenever the minimum wage rate prescribed in the Contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

2. If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

WITHHOLDING

Sound Transit shall, upon its own action or upon written request of an authorized representative of the federal Department of Labor or state Department of Labor and Industries, withhold or cause to be withheld from Contractor under this Contract or any other federal contract with the same prime Contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any Subcontractor the full amount of wages required by the Contract. In the event of failure to pay any laborer or mechanic, including any apprentice trainee, or helper, employed or working on the site of the work all or part of the wages required by the Contract, Sound Transit may, after written notice to Contractor, sponsor, applicant, or owner take such action as may be necessary to cause the suspension of any further payment, advance or guarantee of funds until such violations have ceased.

PAYROLLS AND BASIC RECORDS

A. Payrolls and basic records relating thereto shall be maintained by Contractor during the course of the Work and preserved for a period of three (3) years thereafter for all laborers and mechanics working at the Site of the Work.

1. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits, daily and weekly number

of hours worked, deductions made, and actual wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid.

2. For Contracts that include federal prevailing wage requirements, whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

3. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

B. Certified Payrolls.

1. If this Contract includes federal prevailing wage requirements, Contractor shall submit weekly, for each week in which any Contract Work is performed a copy of all certified payrolls to the Resident Engineer or his designee. In addition, Contractor shall submit monthly reports in electronic format (MS Excel software) summarizing wages and bona fide fringe benefits paid to all laborers and mechanics employed or working upon the Site. Report data, report format and due date to be determined by Sound Transit. The certified payrolls submitted shall set out accurately and completely all of the information required to be maintained under Section 5.5(a)(3)(i) of Regulations, 29 CFR Part 5. This information may be submitted in any form to be approved by Sound Transit. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, DC 20402. Contractor is responsible for the submission of copies of payrolls by all subcontractors.

   a. Each certified payroll shall be accompanied by a "Statement of Compliance", signed by Contractor or Subcontractor, or his or her agent, who pays or supervises the payment of the persons employed under the Contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under Section 5.5(a)(3)(i) of Regulations, 29 CFR Part 5 and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the Contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR Part 3; and

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the Contract.

b. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance".

c. The falsification of any of the above certifications may subject Contractor or Subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

d. Contractor or Subcontractor shall make the records required under this Paragraph available for inspection, copying, or transcription by authorized representatives of Sound Transit, the U.S. Department of Transportation, the U.S. Department of Labor, or the Washington State Department of Labor and Industries and shall permit such representatives to interview employees during working hours on the job. If the Contractor or Subcontractor fails to submit the required records upon request or to make such records available, the FTA may, after written notice to the Contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

APPRENTICE AND TRAINEES

A. Apprentices

Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to an individually registered in a bona fide apprenticeship program registered with a State Apprenticeship Agency recognized by the U. S.

Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or if a person is employed in his or her first ninety (90) days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by a State Apprenticeship Agency to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or Subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division of the U.S. Department of Labor determines that a different practice prevails for the applicable apprentice classification, fringe benefits shall be paid in accordance with the determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

B. Trainees

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with

the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

C. Equal Employment Opportunity

The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

D. Compliance with Copeland Act Requirements

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this Contract.

E. Subcontracts

The Contractor or Subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the Federal Transit Administration (FTA) may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The Contractor shall be responsible for the compliance by any Subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

F. Contract Termination: Debarment

A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the Contract, and for debarment as a Contractor and a Subcontractor as provided in 29 CFR 5.12.

G. Compliance with Davis-Bacon and Related Act Requirements

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CRF parts 1, 3, and 5 are herein incorporated by reference in this Contract.

H. Certification of Eligibility

5. By entering into this Contract, Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in Contractor's firm is a person or firm ineligible to be

awarded Government contracts by virtue of Section 3(a) of the Davis Bacon Act or 29 CFR 5.12(a)(1).

6. No part of this Contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

7. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 USC 1001.

I. Contract Work Hours and Safety Standards Act

1. Overtime Requirements. Neither the Contractor nor any Subcontractor shall require or permit any laborer or mechanic in any workweek in which he or she is employed on such Work to work in excess of forty (40) hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half (1 ½) times the basic rate of pay for all hours worked in excess of forty (40) hours in such workweek.

2. Violation; Liability For Unpaid Wages; Liquidated Damages. In the event of any violation of the clause set forth above, the Contractor and Subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth above, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard work week of forty (40) hours without payment of the overtime wages required by the clause set forth above.

3. Withholding For Unpaid Wages And Liquidated Damages. Sound Transit shall upon its own action, or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from any moneys payable on account of work performed by the Contractor or Subcontractor under any such contract or any other federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or Subcontractor for unpaid wages and liquidated damages as provided in the clause set forth above.

4. Subcontracts. The Contractor shall insert in any subcontracts the clauses set forth in this section and also a clause requiring the Subcontractors to include these clauses in any lower tier subcontracts. The Contractor shall be responsible for compliance by any Subcontractor or lower tier subcontractor with the clauses set forth in this section.

J. Material Suppliers

The requirements of this section do not apply to contracts or subcontracts for the purchase of supplies or materials or articles normally available on the open market.

PART 3 APPRENTICE UTILIZATION GOALS

For Contracts where the Engineer's estimate or the Bidder's Total Bid Price is $1,000,000 or more, the Apprentice Utilization Goal applies and is set forth in Section 00 73 39 Diversity Program in this IFB. The Bidder, by submitting a Bid is thereby certifying that, if awarded the Contract, it shall make good faith efforts to locate, qualify and increase the skills of the region's labor force by using apprentices on the Contract and to comply with the apprenticeship provisions contained in Section 05 Labor Compliance Manual. During Bid evaluation, the apparent low Bidder shall verify its intent to utilize good faith efforts to comply with these provisions by executing the Certification of Intent Regarding Apprentice Utilization, contained in Section 00 45 00 Representations and Certifications in this IFB.

A. Contractor Shall Develop and Implement Apprentice Utilization Plan Subject to Sound Transit Approval

The Contractor shall use good faith efforts to utilize apprentices registered with the Washington State Apprenticeship and Training Council ("SAC") for a portion of the total Contract labor hours utilized on the Project. Prior to Notice of Award, the apparent low Bidder shall submit for Sound Transit approval an Apprentice Utilization Plan, if the Engineer's Estimate or if the Bidder's Total Bid Price is $1,000,000 or more. The Plan shall outline how the apprenticeship goals will be met on the total contract labor hours. The Plan, on a form provided by Sound Transit in Section 00 45 00 Representations and Certifications, shall include the following information:

1. Total Contract labor hours include additional hours worked as a result of change orders.
2. Total Contract labor hours exclude hours worked by foremen, superintendents, supervisors, owners, and workers who are not subject to prevailing wage requirements. However, total Contract labor hours shall include the hours worked by supervisors, foremen, and superintendents if it is determined that they are subject to prevailing wage requirements pursuant to WAC 296-127-015.
3. The Contractor shall include the apprentice utilization requirements of this Section in all subcontracts executed for the Project, and ensure that all subcontractors working on the Project are notified of the apprentice utilization requirements. The Contractor is responsible for using good faith efforts to meet the apprentice utilization requirements of the Contract, including overall compliance on all Contract labor hours worked by subcontractors.

B. The Contractor shall make good faith efforts to:

1. Equally distribute the apprentice hours worked among each trade/craft and consistent with the apprentice utilization percentage requirement set forth herein.

2. Use reasonable and practicable means to recruit and hire apprentices to achieve the apprentice utilization goal accepted by Sound Transit.

3. Use reasonable and practicable means to recruit and hire minority and women apprentices for the Project so that of the apprentice utilization requirement percentage in this Section, the Contractor shall use women and people of color to perform at least fifty percent (50%) of all first-year apprentice hours in all trades and to perform at least thirty-three percent (33%) of all apprentice hours worked.

4. Comply with the apprenticeship training standards for each trade/craft classification used on the Project, as set forth by the Washington State Department of Labor and Industries.

5. It is expected that an apprentice will normally begin training on the Project as soon as feasible after start of work, utilizing the skill involved and remain on the Project as long as training opportunities exist in the work classification or until the completion of the training program. It is not required that all apprentices be retained for the entire length of the Contract.

C. Changes to the Apprentice Utilization Requirement

1. If, during the term of the Contract, the Contractor determines that it will be unable to meet the apprentice utilization identified in the Apprentice Utilization Plan as accepted by Sound Transit, the Contractor may make a written request to Sound Transit, to modify the Plan. The request shall include documentation of the Contractor's affirmative efforts to use apprentices registered with the Washington State Apprenticeship and Training Council ("SAC"), including copies of correspondence between the Contractor and the SAC-approved apprentice programs, union locals, community stakeholders, and others. The documents must demonstrate that an adequate number of apprentices are not available to meet the apprentice utilization percentage.

2. Sound Transit shall evaluate the request, and if appropriate, shall authorize modification of the Apprentice Utilization Plan. If Sound Transit determines that a modification is not justified, Sound Transit shall communicate the decision in writing to the Contractor.

D. Apprentice Utilization Monitoring and Enforcement

1. Sound Transit or its designee shall verify the registration of each apprentice used on the Contract with the Washington State Apprenticeship and Training Council.

2. Sound Transit or its designee shall monitor the apprentice utilization data provided by the Contractor. In the event that the Contractor is deficient in the

use of apprentices, Sound Transit or its designee will meet with the Contractor to discuss the reasons for the deficiency and help the Contractor develop a written plan for meeting the goals.

3. Sound Transit may make routine visits to the Site for the purpose of confirming the use of apprentices. The Contractor acknowledges that parties designated by Sound Transit may make visits to the Site for the purpose of confirming the use of apprentices. Said third party visitors will be required to abide by the Contractor's and Sound Transit's work rules and safety plan.

PART 4 NON-DISCRIMINATION, EEO, APPRENTICE AND CURRENT EMPLOYEE REPORTING REQUIREMENTS

A. With each Request for Progress Payment, the Contractor shall submit to Sound Transit a Monthly EEO in electronic format to be provided by Sound Transit, for the Contractor and all Subcontractors. The monthly reports shall be completed by the Contractor and all Subcontractors performing work on the Contract during the reporting period. The reports shall accompany the Contractor's Request for Progress Payment. A Request for Progress Payment that is not accompanied by the monthly reports will not be processed for payment until said monthly reports are received and approved by Sound Transit.

B. With each Request for Progress Payment, the Contractor will also submit to Sound Transit a certification, in the form provided by Sound Transit, stating that they have no knowledge of allegations (whether as a written or oral statement from a worker or in the form of formal EEOC complaints, union grievances, or other complaints in any other administrative or legal form) regarding the violation of applicable Civil Rights and non-discrimination laws or policies against the Contractor or subcontractors performing work on the contract. If the Contractor has such knowledge, the Contractor shall provide a brief explanation of the alleged violation(s), and a description of any actions that have been or will be taken to address or remedy the alleged violation(s). The Contractor will provide Sound Transit access to all records pertaining to the alleged violation (s) and reasonable access to interview employees or workers that may have information related thereto.

C. Within five (5) working days of receiving notice of any complaint that has been filed against the Contractor regarding allegations of discrimination on this contract by any federal, state or local civil rights enforcement agency, the Contractor shall provide a copy of the complaint to Sound Transit. The Contractor will provide to Sound Transit access to all records pertaining to the complaint.

D. The Contractor shall be responsible for reporting EEO data required by Sound Transit beginning with the first day of work for each apprentice. The Contractor's first submittals are due at the end of the first month after the Contract start date specified in the Notice to Proceed, and at monthly intervals thereafter as specified above. Subcontractor submittals are due at the end of the month after commencement of their work and monthly thereafter, as specified above.

E. The Contractor shall report the following information on journey level employees:

1. Labor hours for reporting period by ethnicity/gender, for each trade/craft.
2. Total journey level labor hours by ethnicity/gender, for each trade/craft.
3. Total labor hours and number of journey level employees for reporting period by ethnicity/gender.
4. Total journey level labor hours and number of employees to-date.
5. Summary information as noted on the reporting form.

F. On a weekly basis, the Contractor shall submit to Sound Transit a Current Employee Report which shall be completed by the Contractor and all Subcontractors of all employees performing work on the Contract for the previous week. In addition, the Contractor will be required to maintain and provide on the report racial and gender data regarding the hiring and termination of craft workers, including the number of hours worked before termination, and upon request, provide to Sound Transit the documentation supporting the reason the worker was terminated. If the work is performed in shifts, the Contractor will also report racial and gender data regarding the staffing of each shift. A sample of this form is included in Section 00500 of this IFB and may be provided in an electronic format by Sound Transit.

G. The Contractor shall submit such other information as may be requested by Sound Transit to verify compliance with the EEO requirements of the Contract. Sound Transit reserves the right to add, delete, or change as necessary the information required by the Contractor on the Monthly EEO and Apprentice Utilization Report form.

PART 5 SUBSTANCE ABUSE PREVENTION PROGRAM

A. Unauthorized use, possession or sale of controlled substances or alcohol on the Project is prohibited. Persons who violate this rule or who are convicted for selling, using, or possessing controlled substances off the job will not be permitted to work on the Project.

B. Applicants for Project employment will be subject to pre-employment controlled substance, alcohol and adulterant testing. Thereafter, employees will be subject to reasonable cause, post-accident, random and return-to-work testing for the presence of controlled substances, alcohol or adulterants in their systems.

C. Employees who report for work with alcohol, adulterants or unauthorized controlled substances in their system will not be permitted to remain on the Project. Employees who violate the substance abuse policy and applicants who fail the pre-employment testing, will be denied employment and will not be eligible for reassignment to any Contractor on the Project until a period of not less than ninety (90) calendar days has passed. Such employees/applicants shall be subject to pre-employment, random and periodic controlled substance, adulterant or alcohol testing thereafter at the request of Sound Transit for up to one year. The program will apply to all Contractor craft personnel, union and non-union, at all construction sites.

D. The Contractor shall assure a drug-free workplace by implementation of a substance abuse program that complies with all applicable federal and state laws. Documentation of the Contractor's program and evidence of testing shall be maintained by the Contractor and provided to Sound Transit for review and inspection upon request.

4.1 SECTION 06 – PREVAILING WAGE RATES

Washington State prevailing wage rates can be found at:
http://www.lni.wa.gov/TradesLicensing/PrevWage/WageRates/.

Davis-Bacon Act Wage determinations are available at http://www.wdol.gov/dba.aspx, and the current rates are included in the following pages.

Questions may be directed to the local Seattle office:

Seattle District Office US Dept. of
Labor Wage & Hour
Division
300 Fifth Avenue, Suite 1130
Seattle, WA 98104

Phone:
(206) 398-8039
1-866-4-USWAGE
(1-866-487-9243)

General Decision Number: WA170036 07/21/2017 WA36

Superseded General Decision Number: WA20160036

State: Washington

Construction Type: Building

County: King County in Washington.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.20 for calendar year 2017 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.20 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2017. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	**01/06/2017**
1	**01/13/2017**
2	**02/03/2017**
3	**02/17/2017**
4	**03/03/2017**
5	**03/10/2017**
6	**05/19/2017**
7	**06/02/2017**
8	**06/16/2017**
9	**07/07/2017**
10	**07/21/2017**

ASBE0007-002 06/01/2017

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR	$ 32.86	15.37

BRWA0001-011 06/01/2016

	Rates	Fringes
Bricklayers, Caulkers	$ 38.24	15.57

CARP0770-020 06/01/2016

	Rates	Fringes
CARPENTER (Acoustical Installation)	$ **40.92**	**14.59**
CARPENTER (Including Formwork, Drywall Hanging, Cabinet Installation; Insulator-Batt and Metal Stud Installation)	$ **40.92**	**14.59**

MILLWRIGHT.....$ 42.42 14.59
PILEDRIVERMAN.....$ 41.17 14.59

(HOURLY ZONE PAY: WESTERN AND CENTRAL WASHINGTON - ALL CLASSIFICATIONS EXCEPT MILLWRIGHTS AND PILEDRIVERS

Hourly Zone Pay shall be paid on jobs located outside of the free zone computed from the city center of the following listed cities:

Seattle	Olympia	Bellingham
Auburn	Bremerton	Anacortes
Renton	Shelton	Yakima
Aberdeen-Hoquiam	Tacoma	Wenatchee
Ellensburg	Everett	Port Angeles
Centralia	Mount Vernon	Sunnyside
Chelan	Pt. Townsend	

Zone Pay:

0 -25 radius miles	Free
26-35 radius miles	$1.00/hour
36-45 radius miles	$1.15/hour
46-55 radius miles	$1.35/hour
Over 55 radius miles	$1.55/hour

(HOURLY ZONE PAY: WESTERN AND CENTRAL WASHINGTON - MILLWRIGHT AND PILEDRIVER ONLY)

Hourly Zone Pay shall be computed from Seattle Union Hall, Tacoma City center, and Everett City center

Zone Pay:

0 -25 radius miles	Free
26-45 radius miles	$ .70/hour
Over 45 radius miles	$1.50/hour

ELEC0046-006 02/06/2017

	Rates	Fringes
ELECTRICIAN	$ 47.56	3%+19.31

ELEC0046-007 02/06/2017

	Rates	Fringes
ELECTRICIAN (Alarm Installation Only)	$ 31.67	3%+12.45
ELECTRICIAN (Low Voltage Wiring Only)	$ 31.67	3%+12.45

ELEV0019-005 01/01/2017

	Rates	Fringes
ELEVATOR MECHANIC	$50.82	31.585

FOOTNOTE:

a. Employer contributes 8% of the basic hourly rate for over 5 year's service and 6% of the basic hourly rate for 6 months to 5 years' of service as vacation paid credit.

b. Eight paid holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Veteran's Day; Thanksgiving

Day; Friday after Thanksgiving and Christmas Day

ENGI0302-019 06/01/2017

	Rates	Fringes
Power equipment operators:		
Group 1A	$ 41.90	19.20
Group lAA	$ 42.52	19.20
Group lAAA	$ 43.13	19.20
Group 1	$ 41.29	19.20
Group 2	$ 40.76	19.20
Group 3	$ 40.29	19.20
Group 4	$ 37.70	19.20

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP lAAA - Cranes-over 300 tons, or 300 ft of boom (including jib with attachments)

GROUP lAA - Cranes 200 to 300 tons, or 250 ft of boom (including jib with attachments); Excavator/Trackhoe: Over 90 metric tons

GROUP 1A - Cranes, 100 tons thru 199 tons, or 150 ft of boom (including jib with attachments); Loaders-overhead, 8 yards and over; excavator/Trackhoe: over 50 metric tons to 90 metric tons

GROUP 1 - Cranes 45 tons thru 99 tons, under 150 ft of boom (including jib with attachments); Excavator/Trackhoe: over 30 metric tons to 50 metric tons; Loader- overhead 6 yards to, but not including 8 yards; Dozer D-10; Screedman; Scrapers: 45 yards and over; Grader/Blade

GROUP 2 - Cranes, 20 tons thru 44 tons with attachments; Drilling machine; Excavator/Trackhoe: 15 to 30 metric tons; Horizontal/directional drill operator; Loaders-overhead under 6 yards; Crane Oiler-100 Tons and Over; Compactor; Scraper: under 45 tons

GROUP 3 - Cranes-thru 19 tons with attachments; Dozers-D-9 and under; Motor patrol grader-nonfinishing; Roller-Plant Mix; Crane Oiler under 100 tons; Excavator/Trackhoe: under 15 metric tons; Forklift: 3000 lbs and over with attachments; Service Oiler; Concrete Pump; Outside Hoist (Elevators and Manlifts); Pump Grout

GROUP 4 - Roller-other than plant mix; Forklift: under 3000 lbs with attachments; Bobcat; Rigger/Bellman

IRON0086-010 07/01/2016

	Rates	Fringes
IRONWORKER (Reinforcing, Structural and Ornamental)	$ 40.52	24.71

LAB00242-002 06/01/2017

ZONE 1:

	Rates	Fringes

LABORER
GROUP 2.....$ 28.45 10.99
GROUP 3.....$ 35.54 10.99
GROUP 4.....$ 36.41 10.99
GROUP 5.....$ 36.99 10.99

ZONE DIFFERENTIAL (ADD TO ZONE 1 RATES):
ZONE 2 - $1.00
ZONE 3 - $1.30

BASE POINTS: BELLINGHAM, MT. VERNON, EVERETT, SEATTLE, KENT, TACOMA, OLYMPIA, CENTRALIA, ABERDEEN, SHELTON, PT. TOWNSEND, PT. ANGELES, AND BREMERTON

ZONE 1 - Projects within 25 radius miles of the respective city hall
ZONE 2 - More than 25 but less than 45 radius miles from the respective city hall
ZONE 3 - More than 45 radius miles from the respective city hall

LABORERS CLASSIFICATIONS

GROUP 2: Flagman

GROUP 3: General Laborer; Mason Tender-Cement/Concrete; Chipping Gun (under 30 lbs.); Form Stripping; Roof Tearoff

GROUP 4: Chipping Gun (over 30 lbs.); Concrete Saw Operator; Grade Checker; Gunite; Pipe Layer; Vibrating Plate

GROUP 5: Mason Tender-Brick

* **PAIN0005-029 07/01/2017**

	Rates	Fringes
DRYWALL FINISHER/TAPER	$ 39.50	17.43

PAIN0005-030 07/01/2013

	Rates	Fringes
Painters:		
Parking Lot and Highway Striping Only	$ 28.00	14.33

* PAIN0005-031 07/01/2017

	Rates	Fringes
PAINTER (Including Brush, Roller, Spray and Prep Work)	$ 29.75	11.58

* PAIN0188-005 07/01/2017

	Rates	Fringes
GLAZIER	**$ 43.24**	17.16

* **PAIN1238-002 07/01/2017**

	Rates	Fringes

SOFT FLOOR LAYER (Including
Vinyl and Carpet).....$ 30.82 16.56

PLAS0528-002 06/01/2017

	Rates	Fringes
PLASTERER.....$	38.10	16.34

PLAS0528-004 06/01/2017

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...$	40.52	16.54

PLUM0032-009 01/01/2017

	Rates	Fringes
PIPEFITTER.....$	53.06	23.03
PLUMBER (Including HVAC Pipe Installation).....$	52.81	22.28
REFRIGERATION MECHANIC.....$	52.22	22.79

ROOF0054-008 01/01/2017

	Rates	Fringes
ROOFER (Includes Roof Tear Off, Waterproofing, and Installation of Metal Roofs).....$	33.32	14.17

SFWA0699-006 07/01/2017

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers).....$	48.47	25.52

SHEE0066-023 06/01/2016

	Rates	Fringes
Sheet Metal Worker (Including HVAC Duct Work and Installation of HVAC Systems)....$	48.17	25.52

* TEAM0174-005 01/01/2017

	Rates	Fringes
Truck drivers:		
ZONE A:		
GROUP 2:.....$	34.13	18.57

ZONE B (25-45 miles from center of listed cities*): Add $.70 per hour to Zone A rates.
ZONE C (over 45 miles from centr of listed cities*): Add $1.00 per hour to Zone A rates.

*Zone pay will be calculated from the city center of the following listed cities:

BELLINGHAM CENTRALIA **RAYMOND** OLYMPIA

EVERETT	SHELTON	ANACORTES	BELLEVUE
SEATTLE	PORT ANGELES	MT. VERNON	KENT
TACOMA	PORT TOWNSEND	ABERDEEN	BREMERTON

TRUCK DRIVERS CLASSIFICATIONS

GROUP 2 - Semi-Trailer Truck

HAZMAT PROJECTS

Anyone working on a HAZMAT job, where HAZMAT certification is required, shall be compensated as a premium, in addition to the classification working in as follows:
LEVEL C: +$.25 per hour - This level uses an air purifying respirator or additional protective clothing.
LEVEL B: +$.50 per hour - Uses same respirator protection as Level A. Supplied air line is provided in conjunction with a chemical "splash suit."
LEVEL A: +$.75 per hour - This level utilizes a fully-encapsulated suit with a self-contained breathing apparatus or a supplied air line.

SUWA2009-024 05/22/2009

	Rates	Fringes
LABORER: Driller	$ 17.17	5.36
LABORER: Irrigation	$11.58	**0.00**
LABORER: Landscape	$ 9.73	**0.00**
LABORER: Overhead Door Installation	$ 22.31	**3.44**
OPERATOR: Backhoe	$ 29.95	**7.20**
OPERATOR: Mechanic	$ 24.33	**4.33**
ROOFER: Metal Roof	$ **24.30**	**4.05**
TILE SETTER	$ **18.72**	3.35
TRUCK DRIVER: Dump Truck	$ **27.43**	**0.00**

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons

resulting from, or to assist a family member (or person who is

like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5(a)(1)(ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CSA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requester considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an

interested party may appeal directly to the Administrative

Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

ELECTRONIC FARE COLLECTION SYSTEM
DISASTER RECOVERY PLAN

CUSTOMER [XXXXXXXXXXXXXX]
AUTHOR: [XXXXXXXXXXXXXX]

Sample

Revision Record

Version	Date	Author	Comments/modifications
1.0	XXX	XXX	[Template]

Sample

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sample

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Sample

Key Personnel

~~[Template details removed for privacy and security]~~

KP-ID	NAME	COMPANY	TITLE	PHONE	LOCATION	BACKUP	ROLE

Sample

Business Impact Analysis

[Template details removed for privacy and security]

BIA-ID#	Function	Dependencies	Supporting Party	Supporting Applications	Supporting Infrastructure	Criticality

Sample

Risk Assessment

[Template details removed for privacy and security]

		Impact				
		Insignificant	Minor	Moderate	Major	Catastrophic
Probability	Almost Certain	Medium	High	High	Extreme	Extreme
	Likely	Medium	Medium	High	High	Extreme
	Possible	Low	Medium	Medium	High	Extreme
	Unlikely	Low	Low	Medium	Medium	High
	Rare	Low	Low	Low	Medium	High

RA-ID#	Threat	Impact	Probability	Risk	Mitigation

Sample

Key Application Listing

[Template details removed for privacy and security]

APP-ID#	Name	Description	Criticality	Devices/Users

Sample

Hardware Procurement/Replacement List

[Template details removed for privacy and security]

HW-ID#	Make	Model	Manufactuer	Warranty	Estimated Cost	Responsible

Sample

Application Dependency Mapping

[Template details removed for privacy and security]

Application (APP ID)	Dependencies (HW-ID)	Responsible (KP-ID)	Criticality

Sample

Disaster Avoidance vs. Disaster Recovery

Disaster recovery is a combination of tools, people and processes deployed to minimize the effect of technology disasters and the impact of unplanned outages. Sometimes, but not always automatic, a disaster recovery system aids in the restoration of data and functionality to a previously known good state. Disaster recovery orchestrates the failover of facilities, hardware, and software and includes the ability to facilitate testing, reporting and recovery after a down-time event.

Disaster avoidance focuses on designs, redundancy and tools to prevent or reduce the probability that a disaster occurs or to minimize the impact of expected normal failures. Because hardware and software failures are the leading cause of failures, single point of failure mitigations and automatic responses are used to maintain or quickly restore functionality. Disaster avoidance does not prepare systems for disasters that cannot be avoided or predicted, but rather strategically addresses the most common failure points to ensure continuity of operations during the more likely failures. Disaster avoidance solutions employ a highly resilient infrastructure that continues to provide service despite failures or quickly responds to failures to avoid downtime. Disaster avoidance facilitates transparent workload mobility, load balancing and downtime avoidance.

While the INIT back-office solution addresses both disaster avoidance and disaster recovery, the proposed solution favors disaster avoidance strategies to limit the impact of failure and need for disaster recovery.

Sample

Infrastructure Failure Avoidance Scenarios

Single Host Failure

[redacted]

Single Database Host Failure

[redacted]
r.

Host Disk Failure

[redacted]

Host Network Failure

[redacted]

Host Fiber Channel Failure

[redacted]

Host Power Supply Failure

[redacted]

Network Device (Switch or Path) Failure

[redacted]
.

Storage Network (Switch or Path) Failure

[redacted]
.

Storage Network Disk Failure

[redacted]

Storage Array Single Site Failure

[redacted]

Quorum Witness Failure

[redacted]

.

Complete Site Failure

[redacted]

.

Infrastructure Redundancy Strategy – Disaster Avoidance

[redacted]

Facility Redundancy

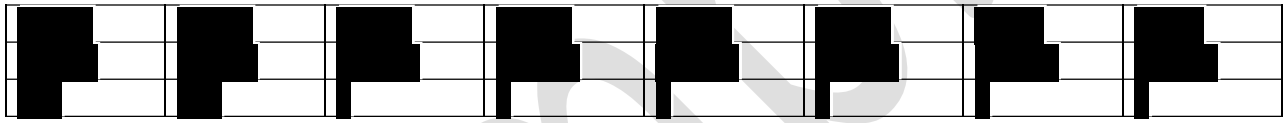
[redacted]

[redacted]

ESXi Host Redundancy

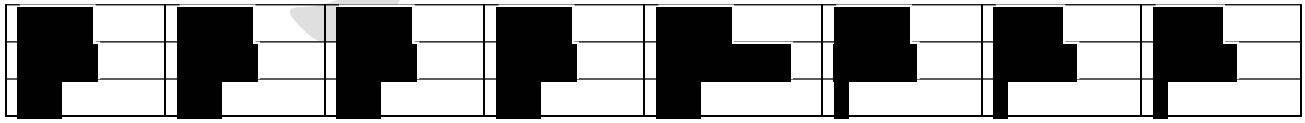
[redacted].

RAID Diagram.



Garage Host Redundancy

[redacted]



SAN Hardware Redundancy

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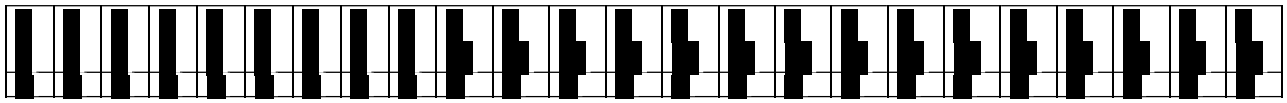
[redacted]



Network Hardware Redundancy

[redacted].

Application Server Redundancy Strategy – Disaster Avoidance

[redacted].

[redacted]

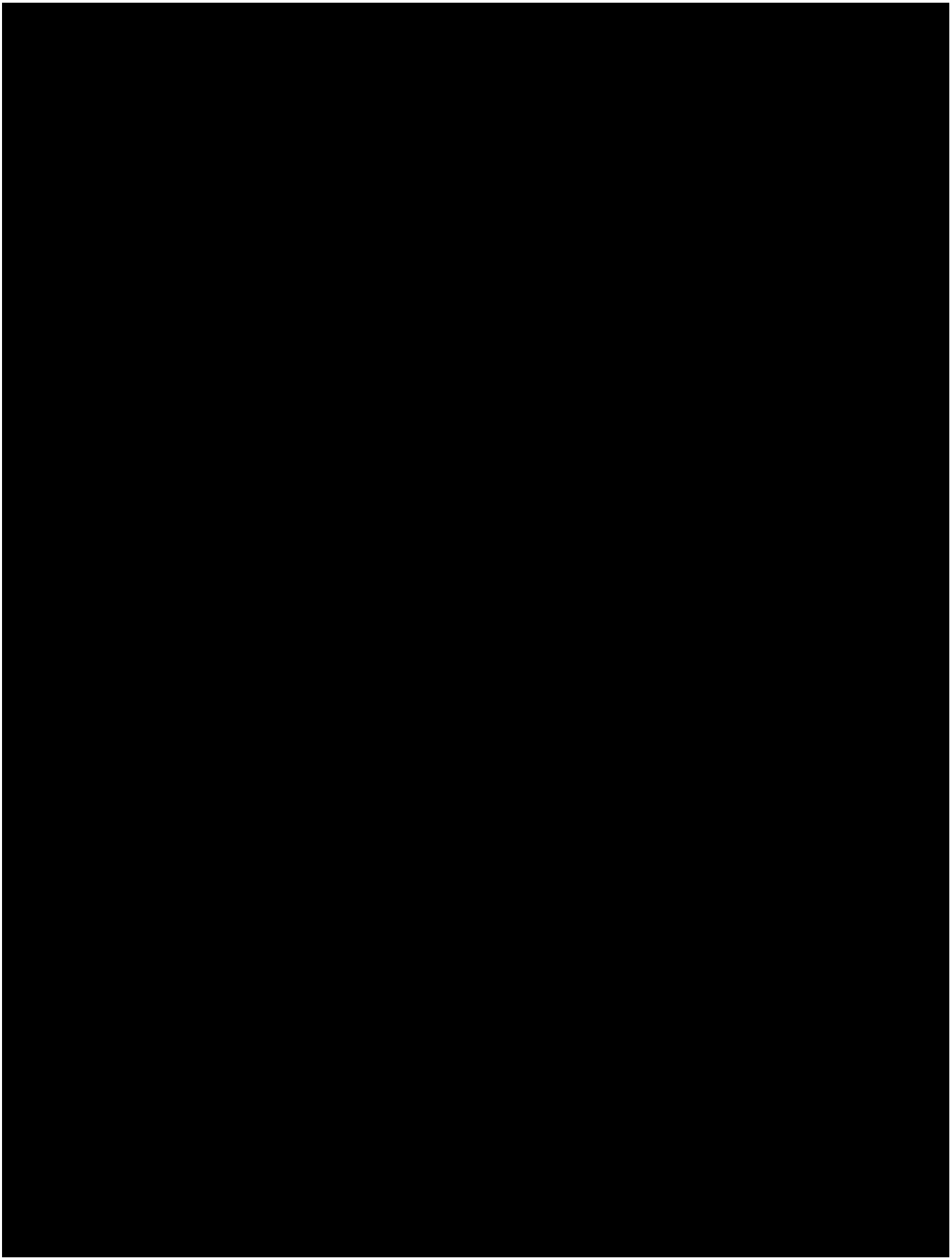
[redacted]

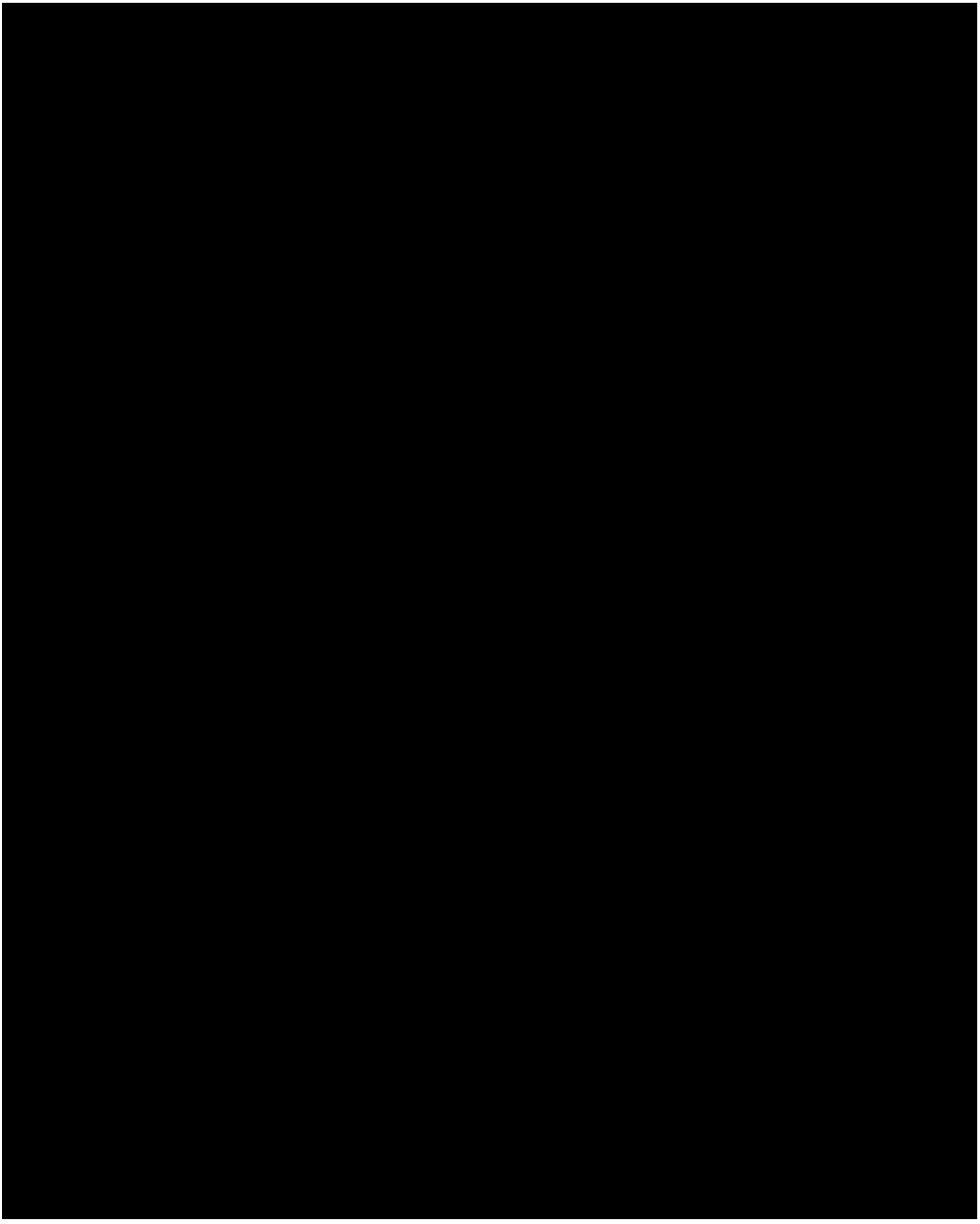
[redacted]

- [redacted]
- [redacted]
- [redacted].

Database Server Redundancy – Disaster Avoidance

[redacted]

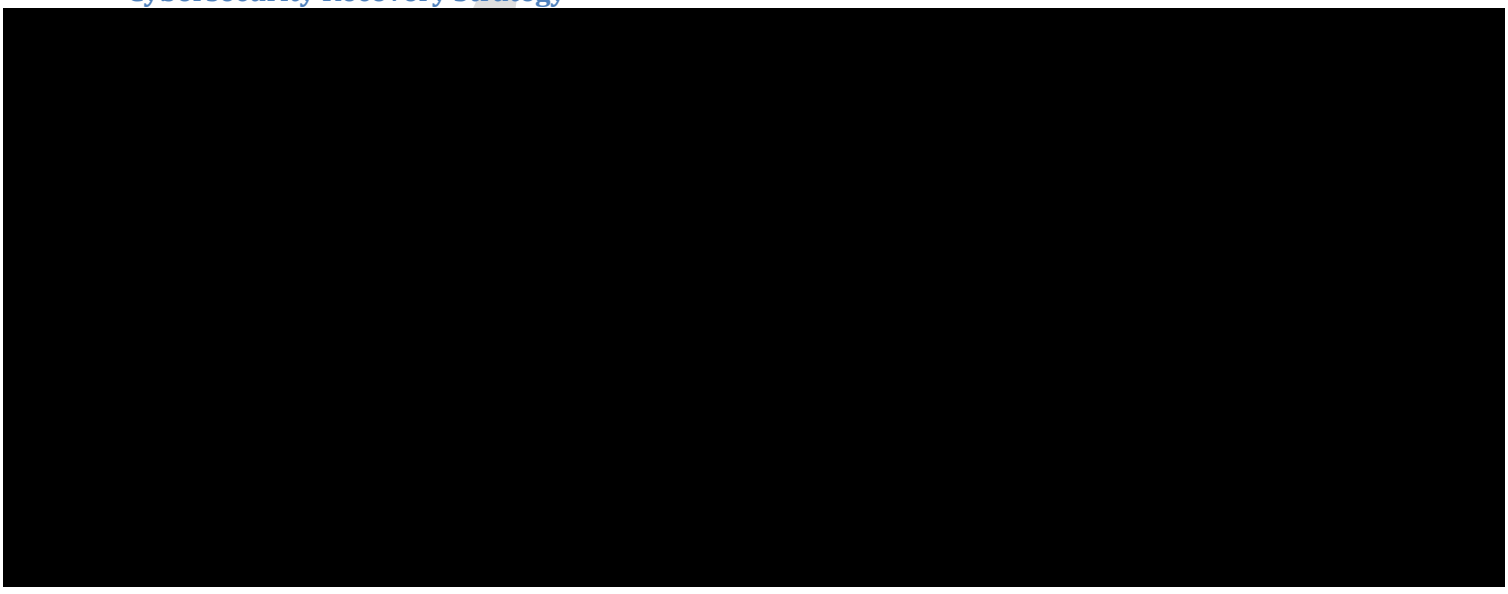


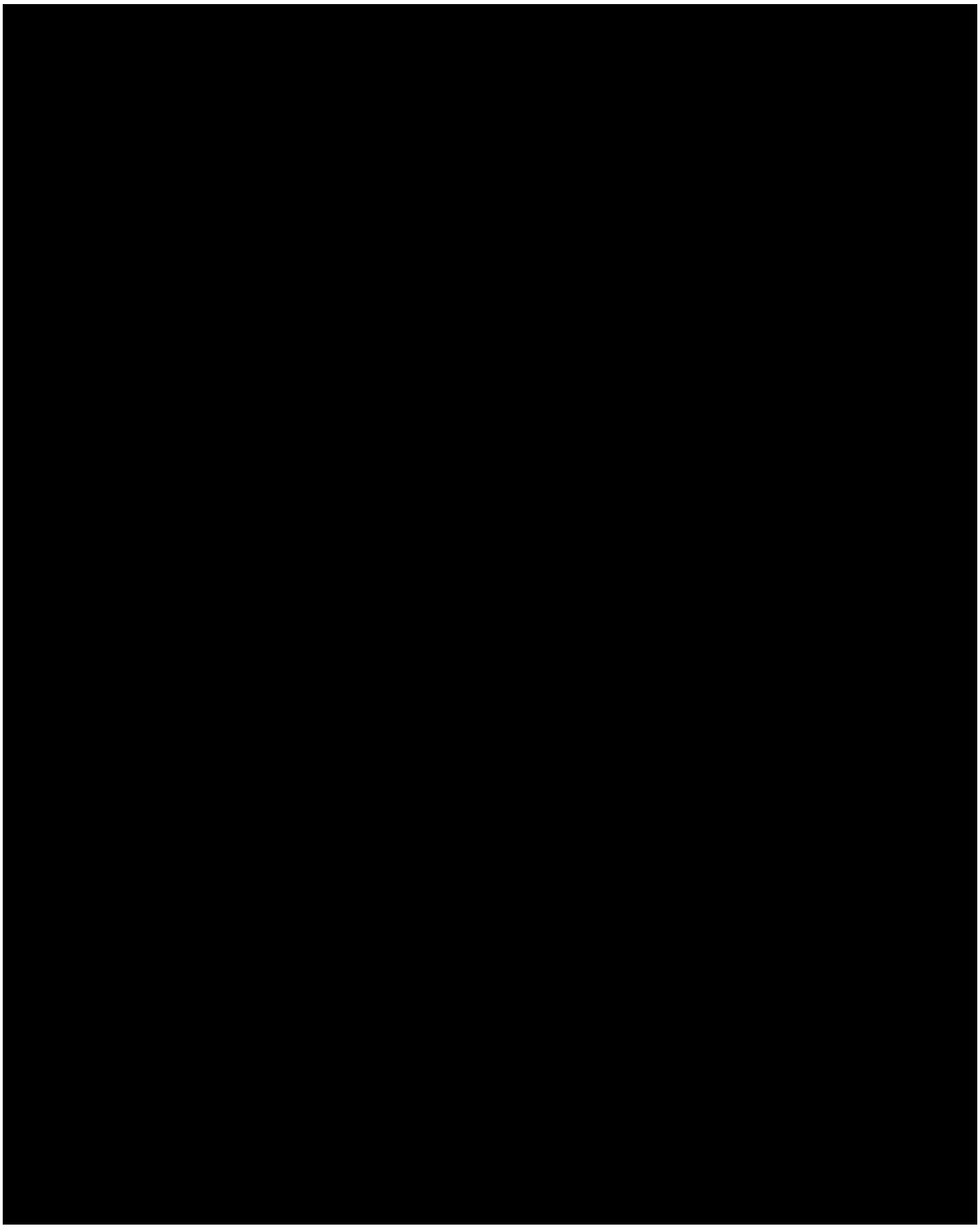


Data or System Recovery

Cybersecurity Failure– Disaster Recovery

Cybersecurity Recovery Strategy





Disaster Recovery - Incident Response Plan

[Template details removed for privacy and security]

Step	Task	Phase	Start Time	End Time	Status	Owner	Comments
1	[redacted]	[redacted]					
[redacted]	[redacted]	[redacted]					
[redacted]	[redacted]	[redacted]					
[redacted]	[redacted]	[redacted]					
[redacted]	[redacted]	[redacted]					
[redacted]	[redacted]	[redacted]					
[redacted]	[redacted]	[redacted]					
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[redacted]	[redacted]	[redacted]					
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[redacted]	[redacted]	[redacted]					
[redacted]	[redacted]	[redacted]					
[redacted]	[redacted]	[redacted] 3					

Sample

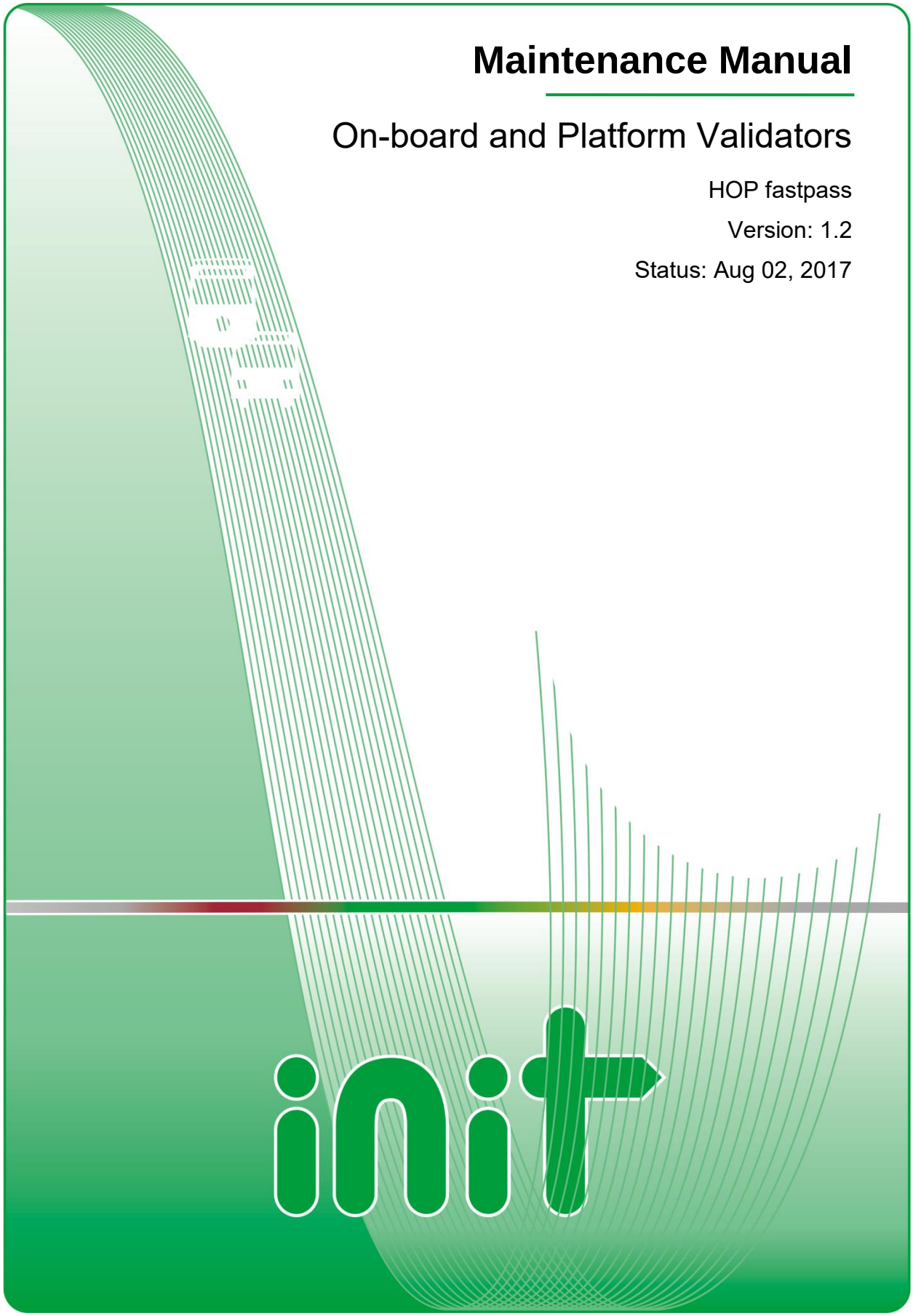
Maintenance Manual

On-board and Platform Validators

HOP fastpass

Version: 1.2

Status: Aug 02, 2017



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Revision record

Version	Date	Author	Comments/modifications
1.0	Dec 2, 2016	[redacted]	Initial version
1.1	Mar 15, 2017	[redacted]	Updates for [redacted] Training
1.2	Aug 02, 2017	[redacted]	Updates for [redacted] Training

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1 Introduction

This manual is intended for maintenance personnel maintaining the HOP efare validators. The document describes how to maintain the on-board and platform validators and gives a brief overview of how to perform system monitoring.

1.1 Symbols and conventions

In order to make the best use of this document, highlighted elements are located in several places.

The following support structures apply to this document:

Note
Indicates additional information.

Caution
Indicates warnings or other important information that have to be precisely followed.

The following conventions apply to this document:

Symbol	Explanation
✓	Indicates a condition that must be met before carrying out a step-by-step instruction.
1.	Indicates an action step.
a.	Indicates a sub step or an alternative action step.
▷	Indicates an intermediate result that can be seen after carrying out an action step.
▶	Indicates a result at the end of the step-by-step instruction.
Interface element	Indicates elements on the user interface, e.g. buttons.
1 Introduction →5	Indicates a cross-reference and shows the page where the corresponding chapter can be found.
Introduction	Indicates a cross-reference to another document.

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2 General Maintenance Information

There are 3 different basic categories of the installation configuration. The variations within the categories are minor and can be found in the supporting installation documentation (e.g. wiring schematics).

The three basic categories are:

- Bus configuration
  - This category contains all TriMet and C-Tran bus installations
- Platform configuration
  - This category contains all TriMet platform validator installations and the C-Tran BRT installations
- Streetcar configuration

The basic validator model used for all configurations is the same and will be described in the following chapter.

2.1 Validator

The PROXmobil3 validator receives and processes validation taps from all HOP cards.

The only difference between the platform validators and the on-board validators [redacted]

[redacted]

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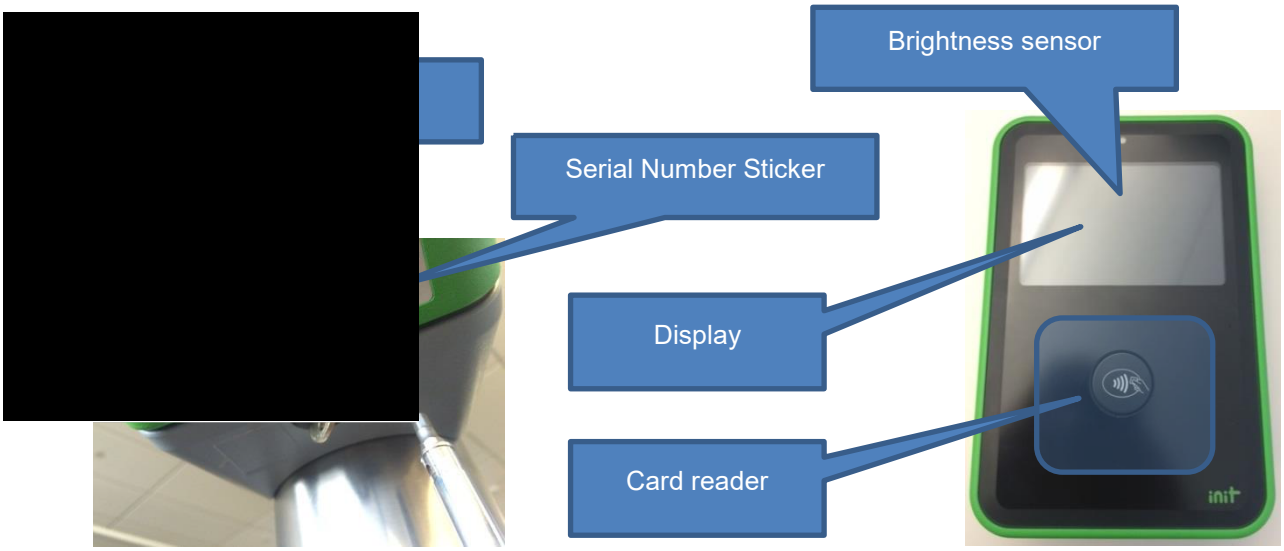
Opening the device voids the warranty. Therefore it is not recommended to open the device during the warranty period.

The different components of the validator are shown in the graphic below.



HOP Validator

2.1.1 Connector

The validator is connected to the backend using a [redacted]

Within the connector, [redacted]

[redacted].

[redacted]

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For the platform installation, the connector comes pre-wired within the provided cable (green cable). For the bus installation and Streetcar, [redacted] the connector is already pre-wired, but the Ethernet and Power connections have to be pinned during the installation.

The pin-out can be found in the table below.

The ignition signal (CL15) is used to determine when the validator should start the shutdown procedure and when the validator should turn on. The validator will stay up for a configurable time after the bus is turned off and then gracefully shut down. This allows the device to transmit and receive data (e.g. new software updates) after the vehicle is turned off.
The platform validators automatically reboot once a day (currently 3AM in the morning, configurable).

Cable POWERsplit to Platform Validator, [redacted]

[redacted]

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There are two different types of connectors for powering up the validator based on the TriMet or CTRAN:

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2.1.2 Validator maintenance information

On the bottom of the main validator screen, the location ID (V-Number) and the device serial number (D-number) can be found.

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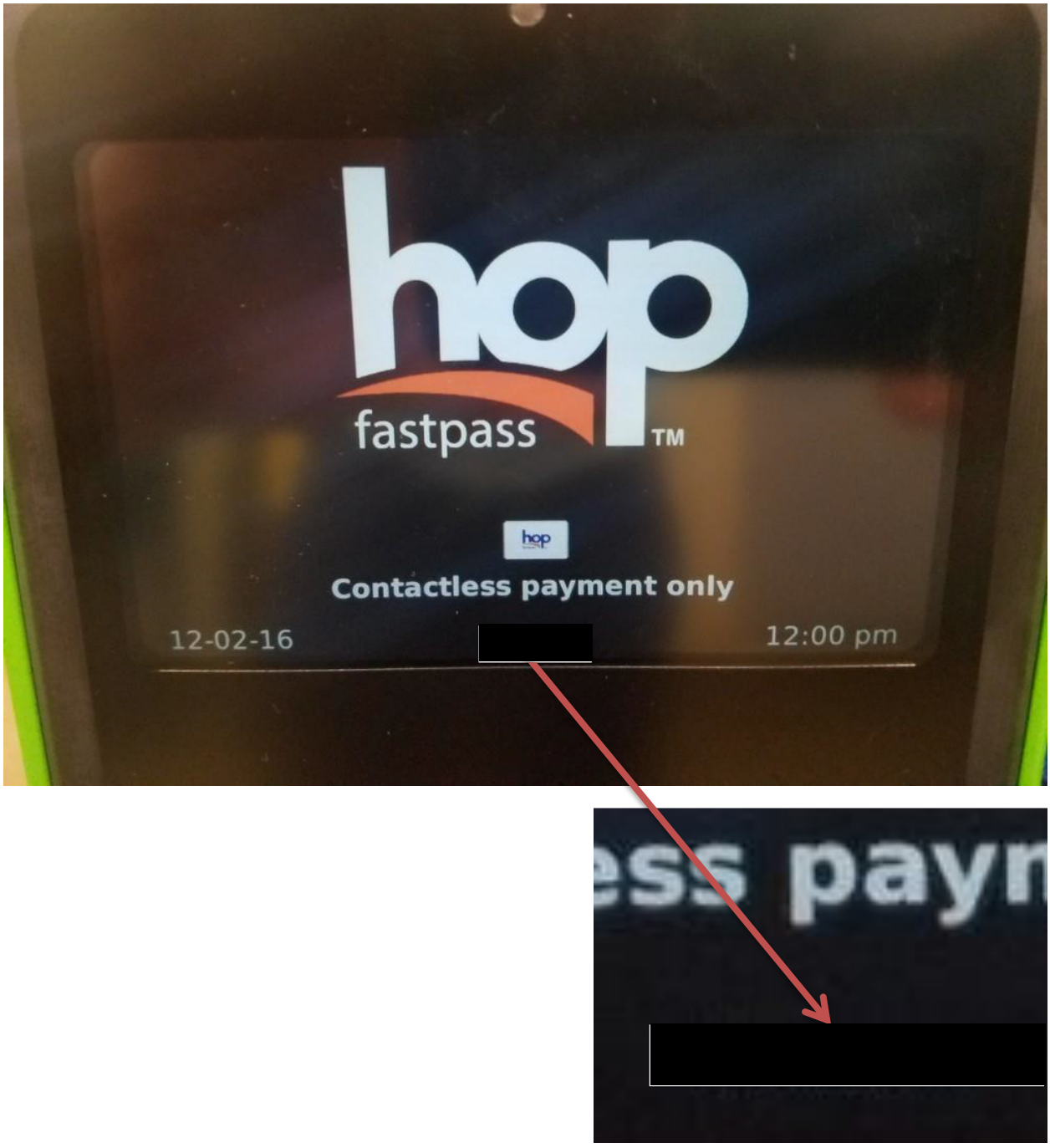

Main Validator screen with maintenance information

[redacted]

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- [redacted]
  - [redacted]
- [redacted]
  - [redacted]
  - [redacted]

2.1.3 Maintenance Screens

Using the [redacted], different maintenance screens are accessible for troubleshooting and status check. The maintenance screens are accessible [redacted].
There is a total of 5 different maintenance screens. After tapping again while the 5th maintenance screen is shown, a sound test will be performed.
Afterwards the device returns to the standard screen (HOP screen).

Note

[redacted].

[redacted]

The first maintenance screen shows general information:

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

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[redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]

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If [redacted]

- [redacted]
- [redacted]
- [redacted]
  - [redacted]
  - [redacted]
  - [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

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2.1.3.4

-
-
- le).

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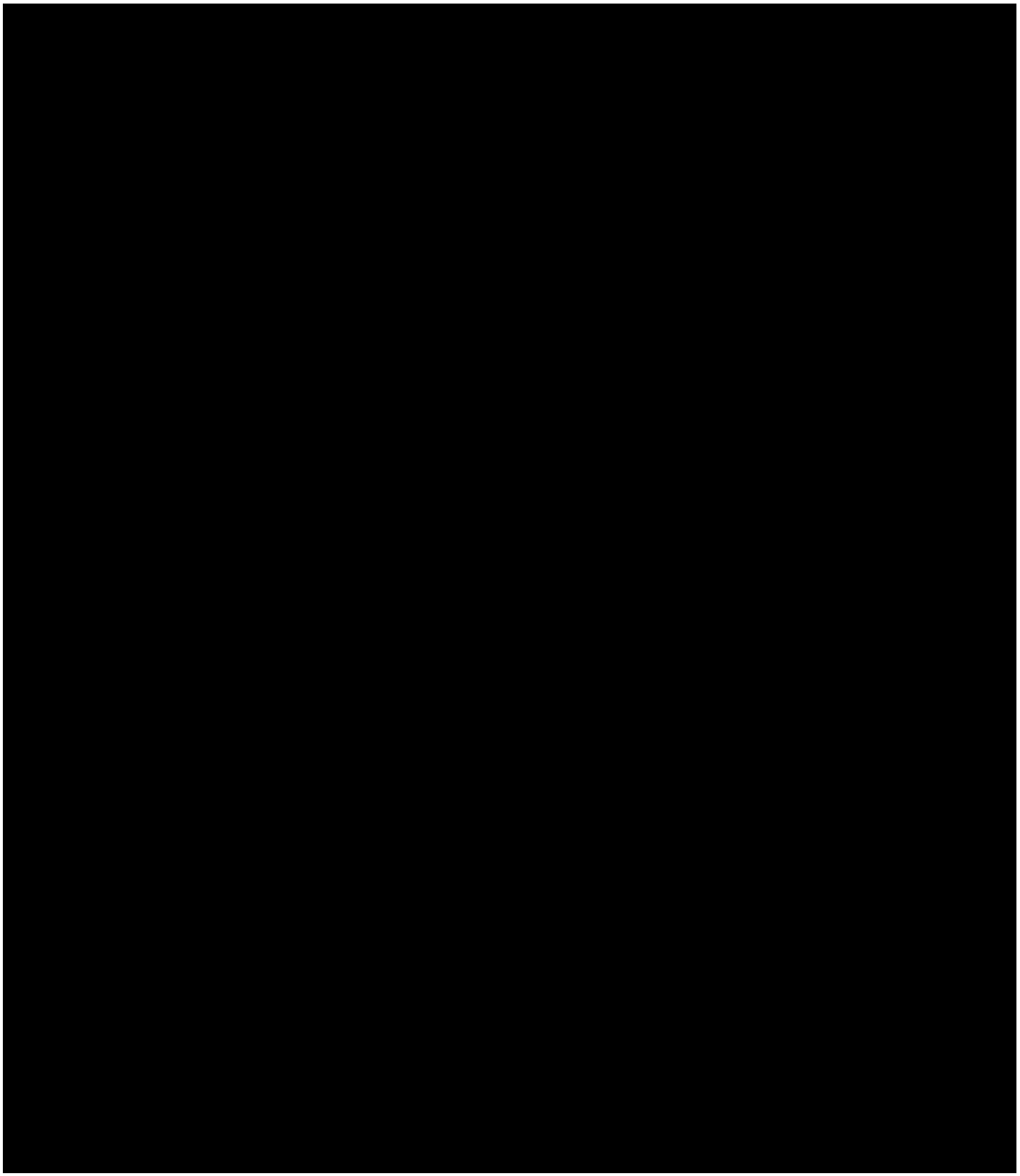

2.1.3.5 [redacted]

[redacted]

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3 Bus configuration

The following chapter lines out what components are used for the bus install and how to troubleshoot and maintain the bus setup.

For further details on the installation, please refer to the respective installation guides for the different vehicle types.

3.1 Components

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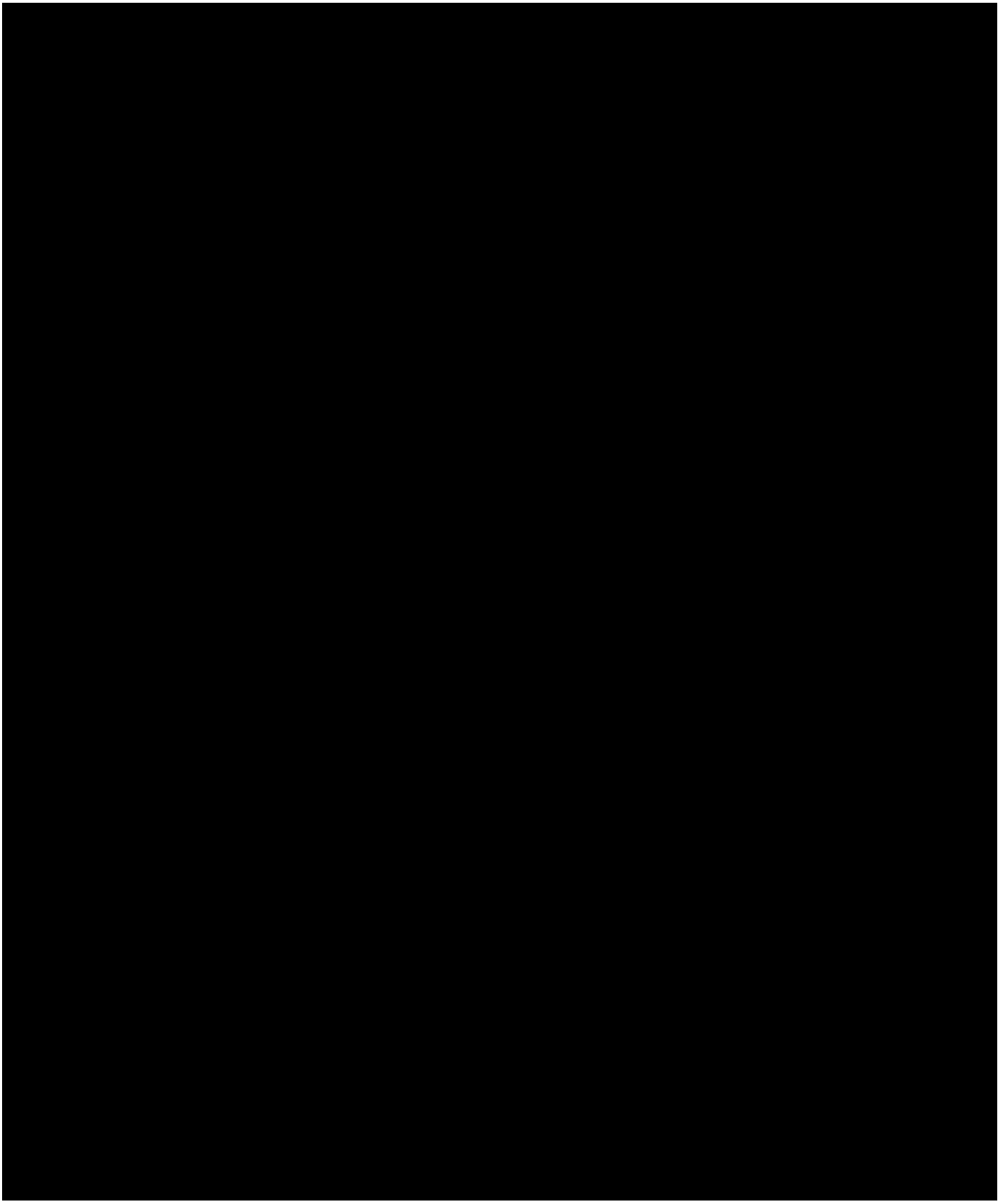

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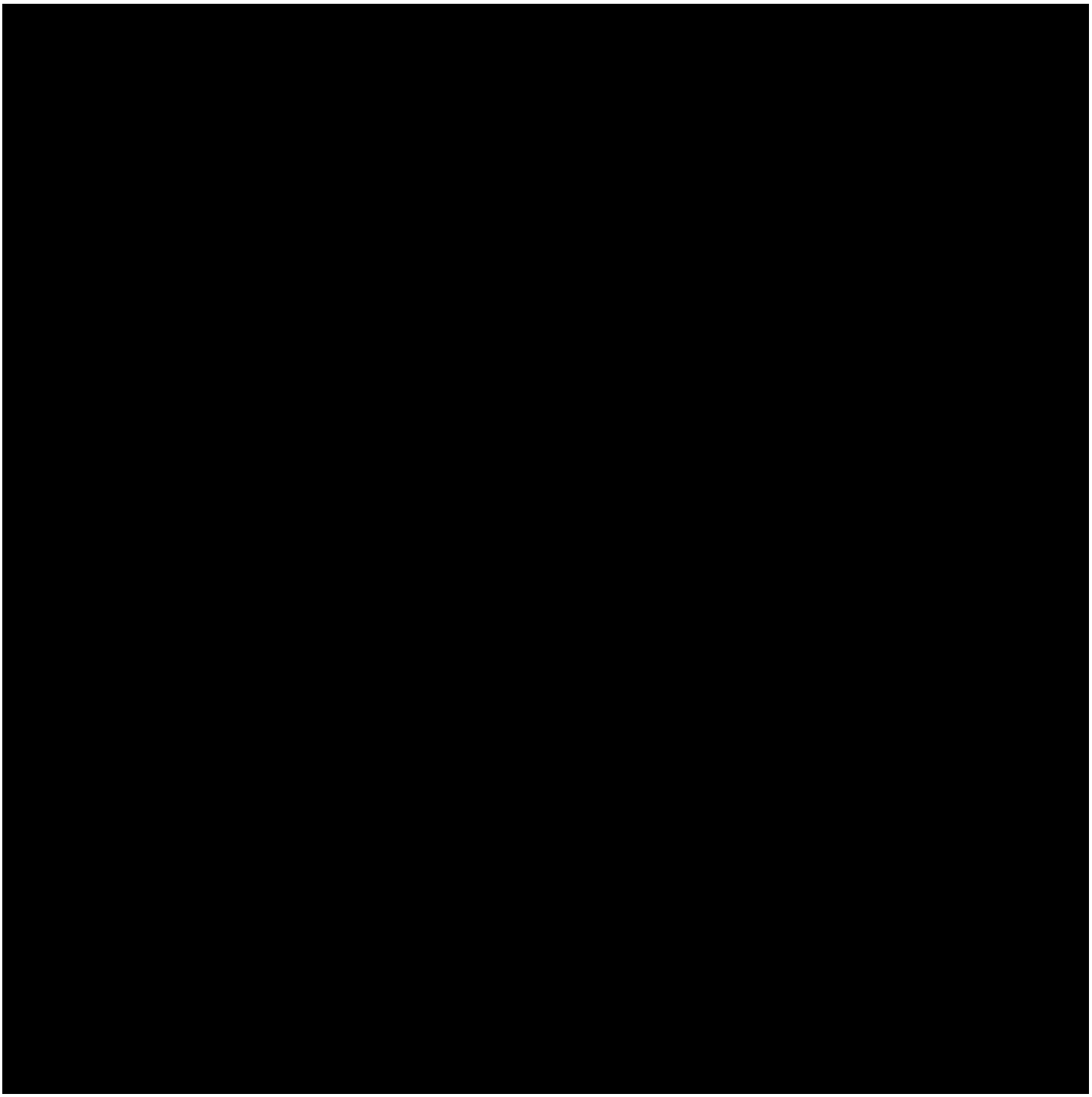
3.2 Validator replacement



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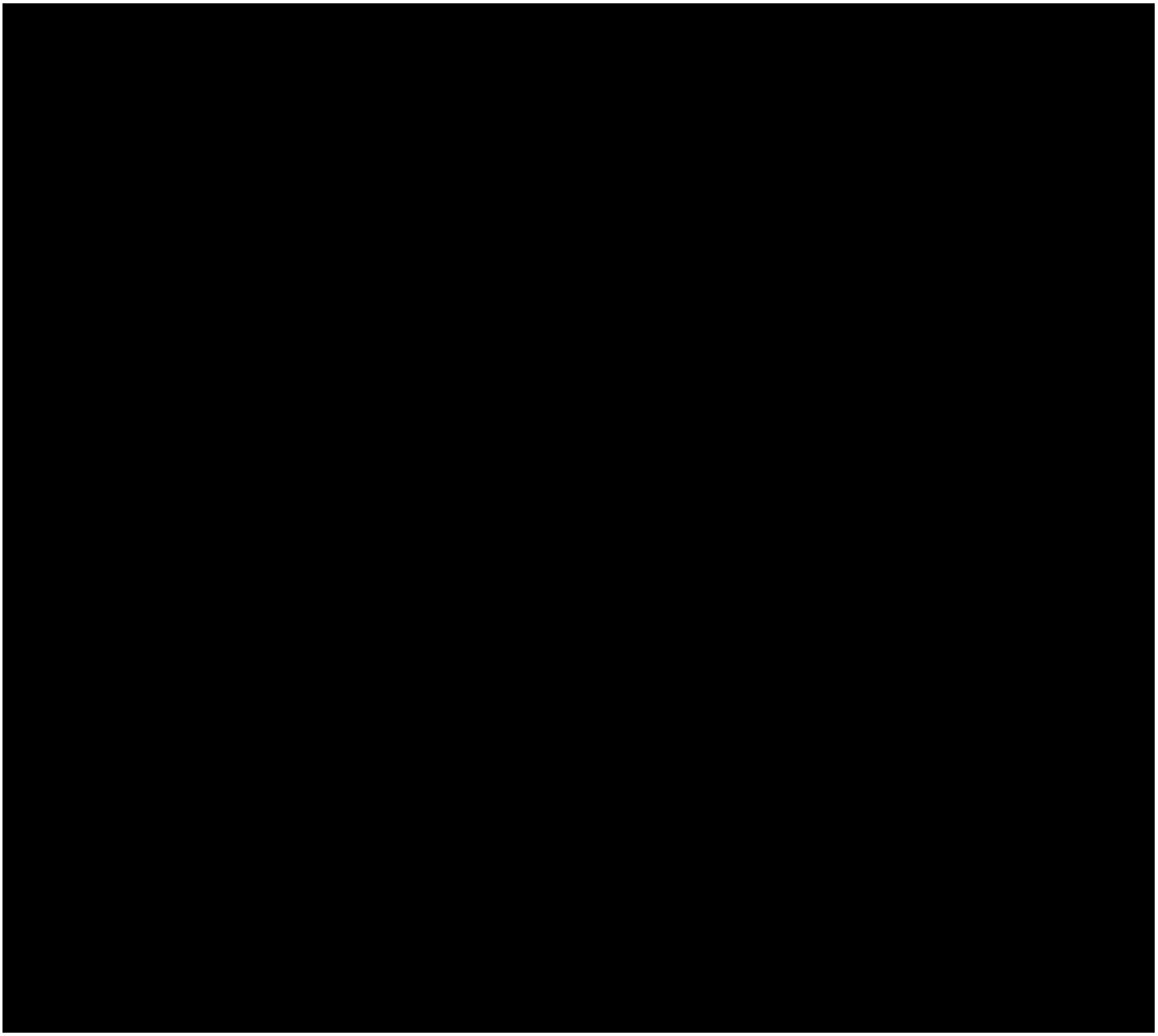

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3.4 Bus specific troubleshooting

The following chapter shall give an overview of bus specific error conditions, the troubleshooting that can be done and the resolution.

Error Condition	Troubleshooting
[redacted]	[redacted]
[redacted]	- [redacted]
[redacted]	[redacted]
[redacted]	- [redacted]
[redacted]	This [redacted] e (or MAR for C-Tran) and the validator by buzzing out each wire.

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[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

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4 Platform configuration

The following chapter focuses on the validator configuration for TriMet platform and C-Tran BRT validators.

Fully assembled platform validator with mast

4.1 Components

This chapter lists all components used for the platform validator installation

4.1.1 Stainless steel mast

The stainless steel mast consists of three major components:

- Mast itself (with stainless steel base to affix the mast to the ground)
- Green mast cap with HOP Card branding

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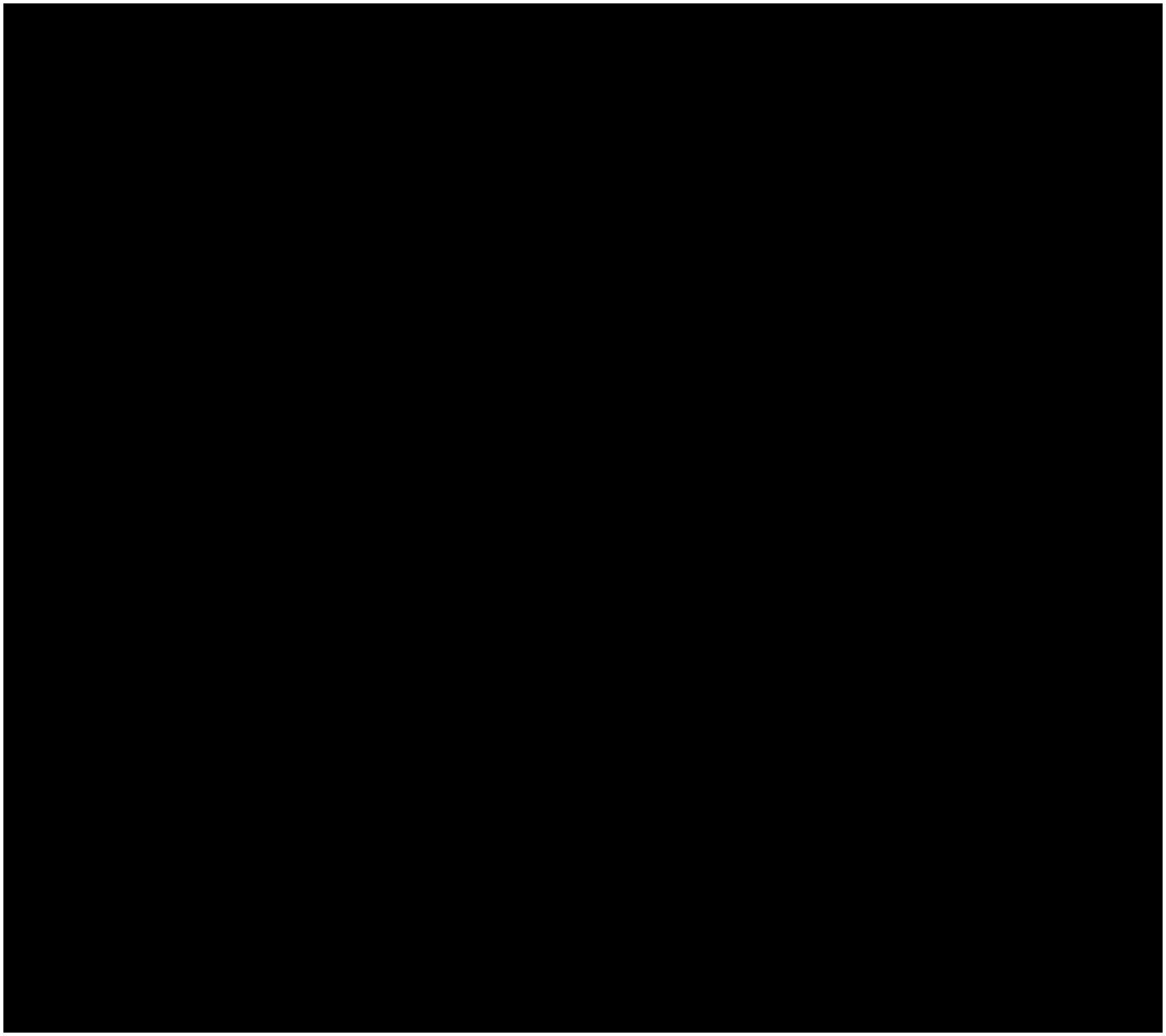

4.1.2 Platform Validator Mounting Bracket

[redacted]

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4.1.4 Variation: Dual Head Mast installation

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Caution

This solution was added to the original scope. Modifications to the mast to encompass the mounting of the POWERsplit (Option A) or the support of the Option B outlined in this chapter are not part of INITs project scope.

For the installation of the back validator, the position of the POWERsplit needs to be modified, since there is only enough space behind the service door for one POWERsplit. There are two possible options to install the POWERsplit, outlined in the following chapters.

4.1.4.1 POWERsplit installation in Mast, Option A

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4.1.4.2 POWERsplit installation in Com Cabinet, Option B

4.2 Validator replacement

4.2.1 Tools needed

- [redacted]
- [redacted]
- [redacted]
- [redacted]s

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[redacted]

4.2.2 Replacement Procedure (Validator)

[redacted]

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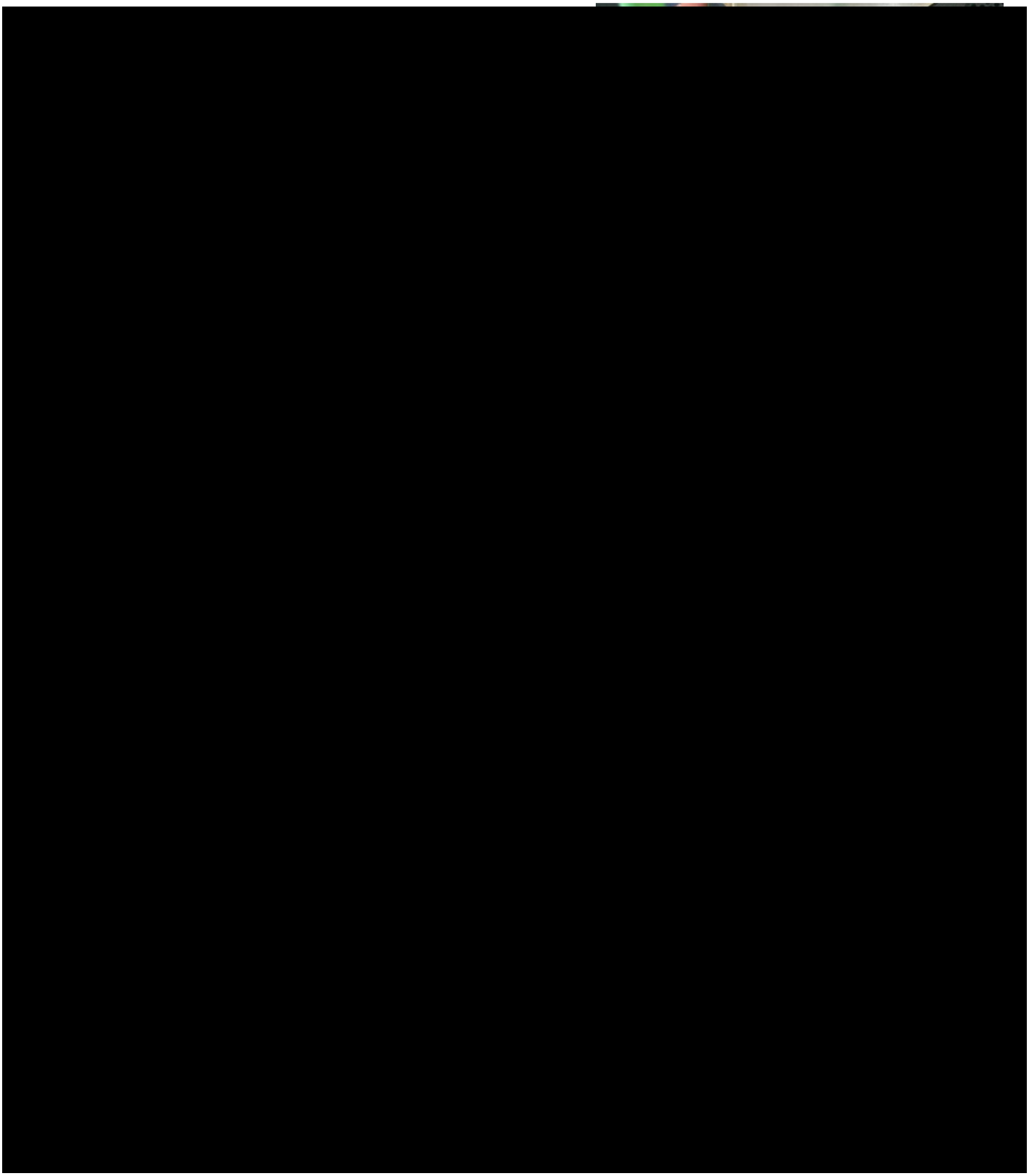

4.2.3 Replacement procedure (POWERsplit)

[redacted]

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Note

- [redacted]
- [redacted]
- [redacted]

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4.3 Platform specific troubleshooting

This chapter shall give an overview of platform specific error conditions, the troubleshooting that can be done and the resolution.

The following flow chart should give an overview of the most common error scenarios and their resolution.

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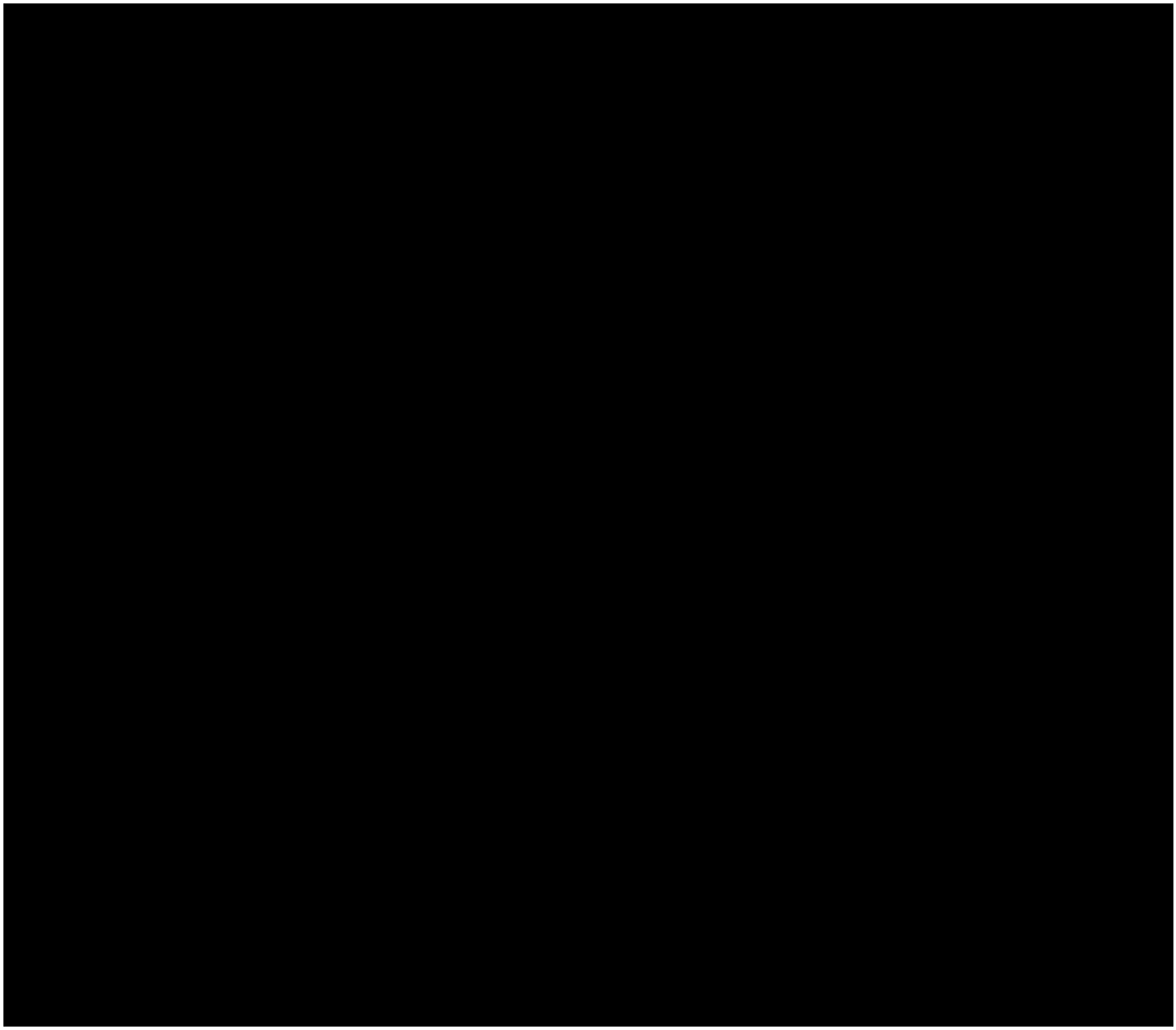

The following table addresses more issues that may occur with the platform validators.

Error Condition	Troubleshooting

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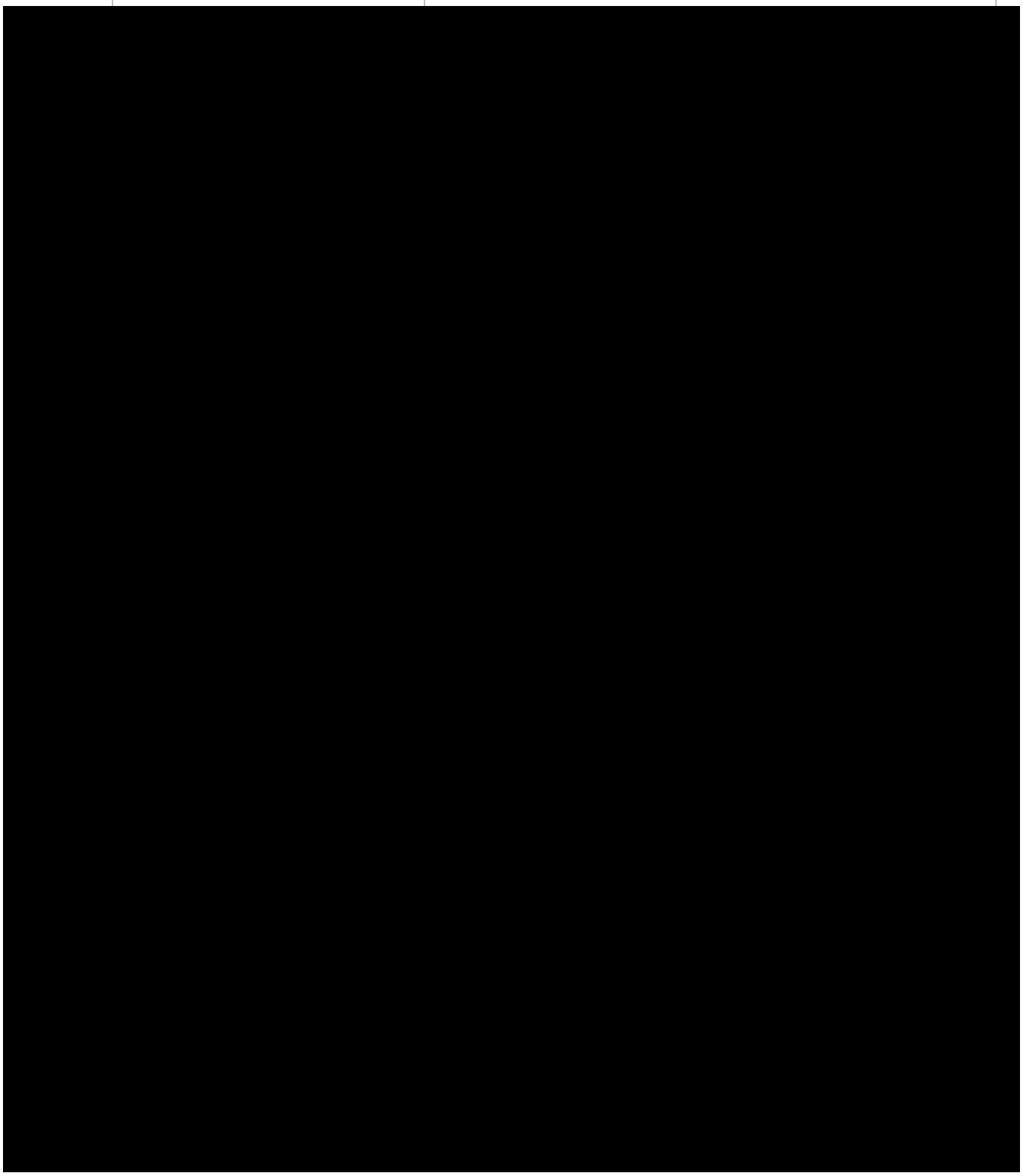
Error Condition	Troubleshooting



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Error Condition	Troubleshooting

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5 Streetcar configuration

5.1 Validator replacement

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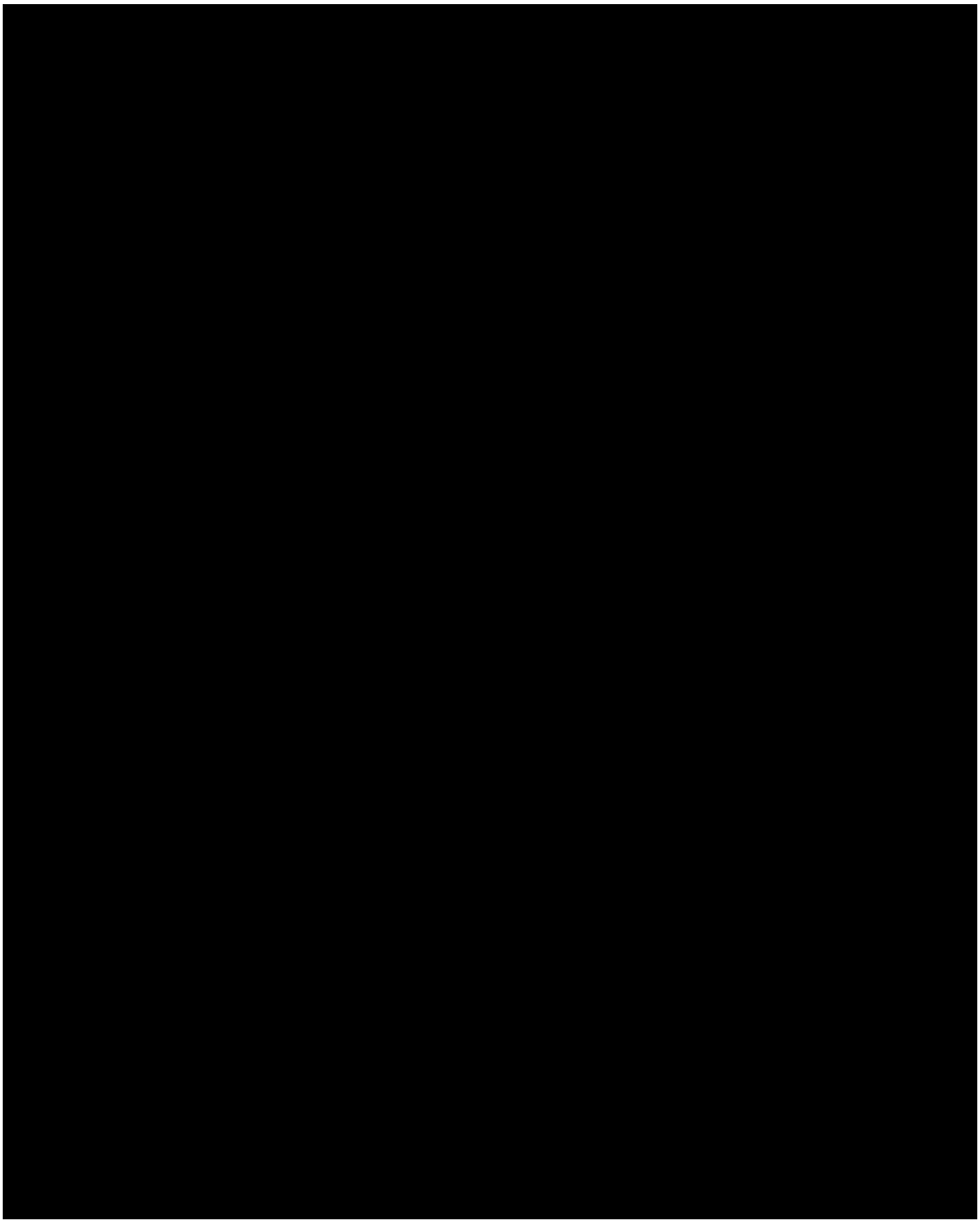

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5.2 IProuter replacement

3. [redacted]

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5.4 Streetcar specific Troubleshooting

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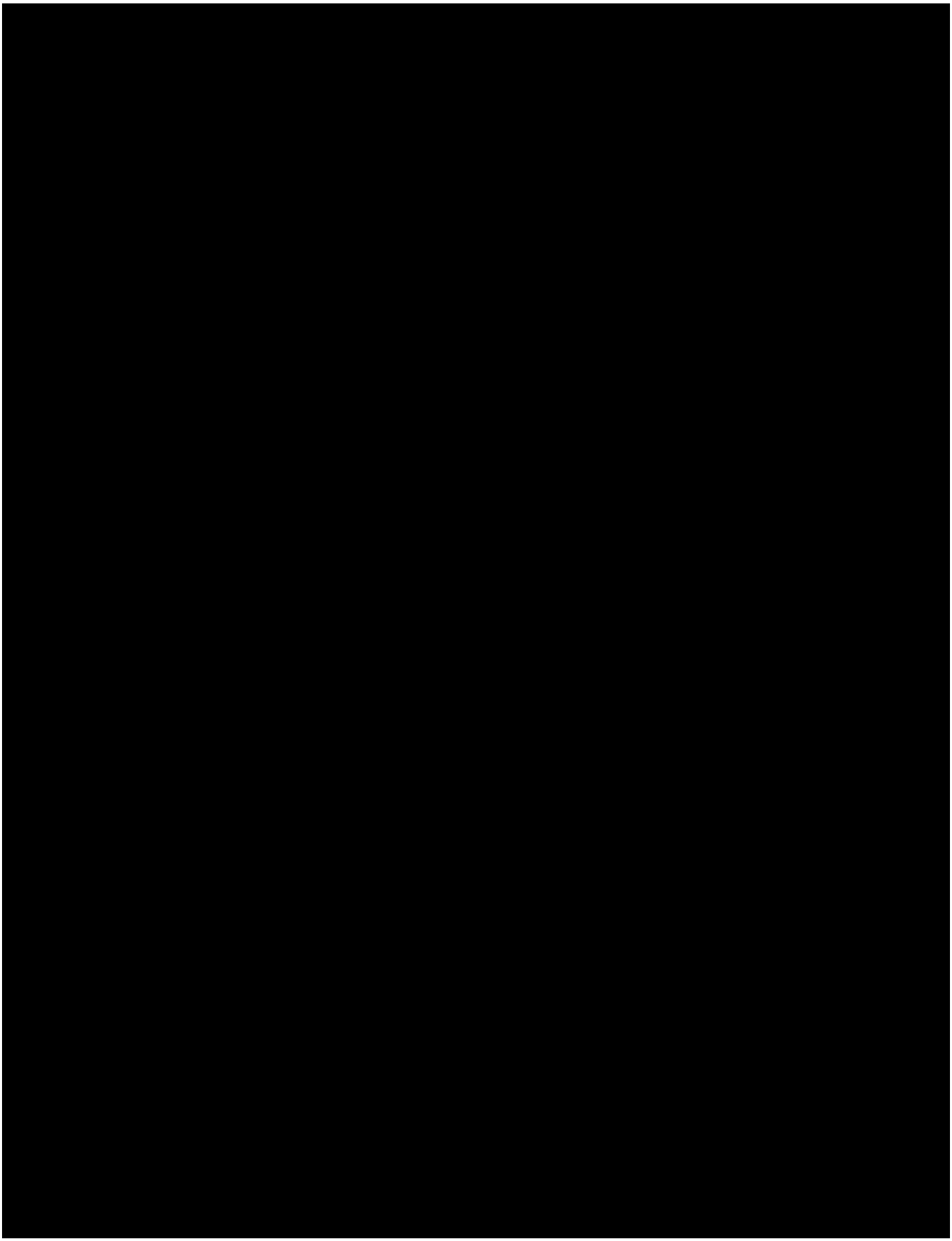

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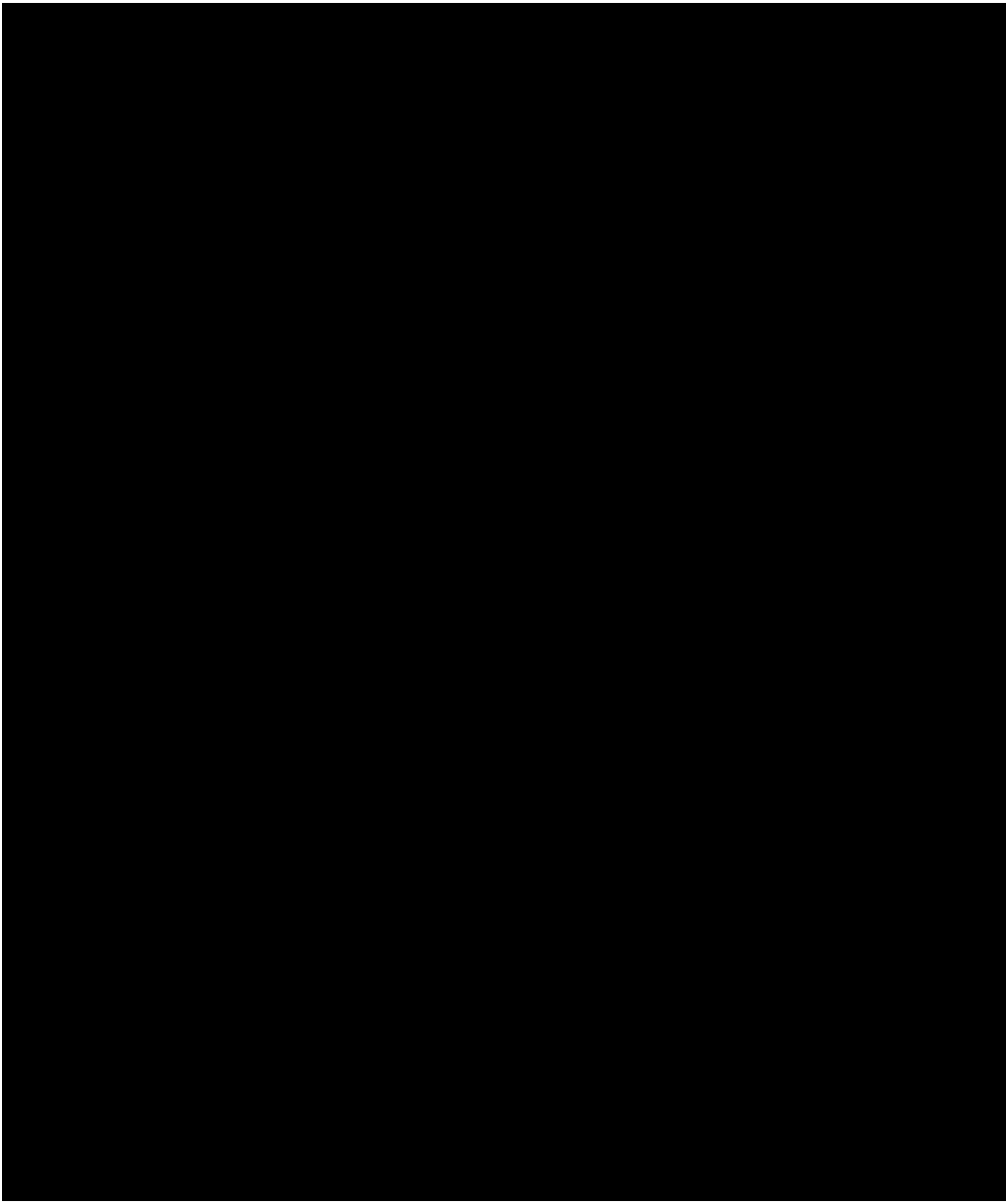
6 Programming [redacted]



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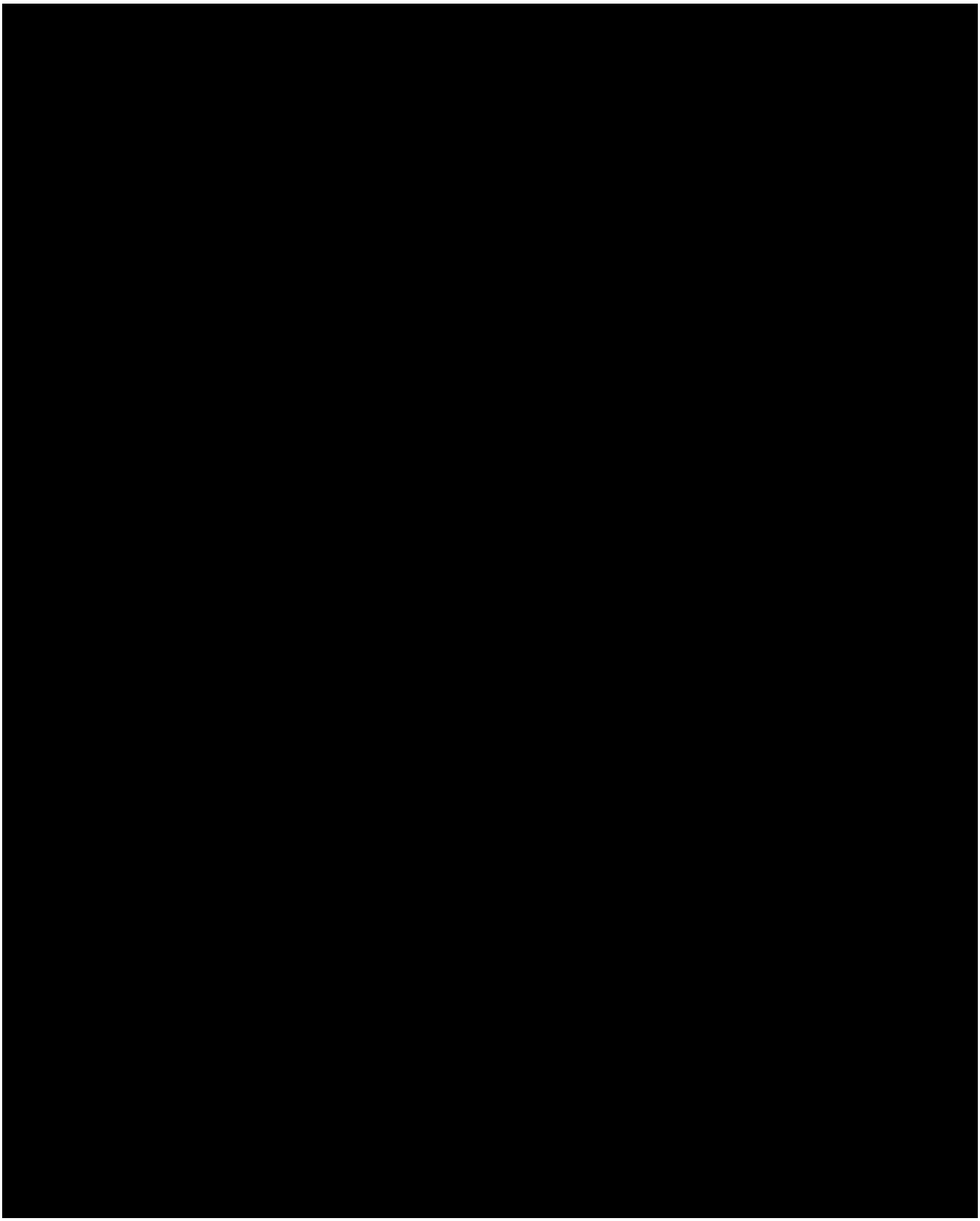

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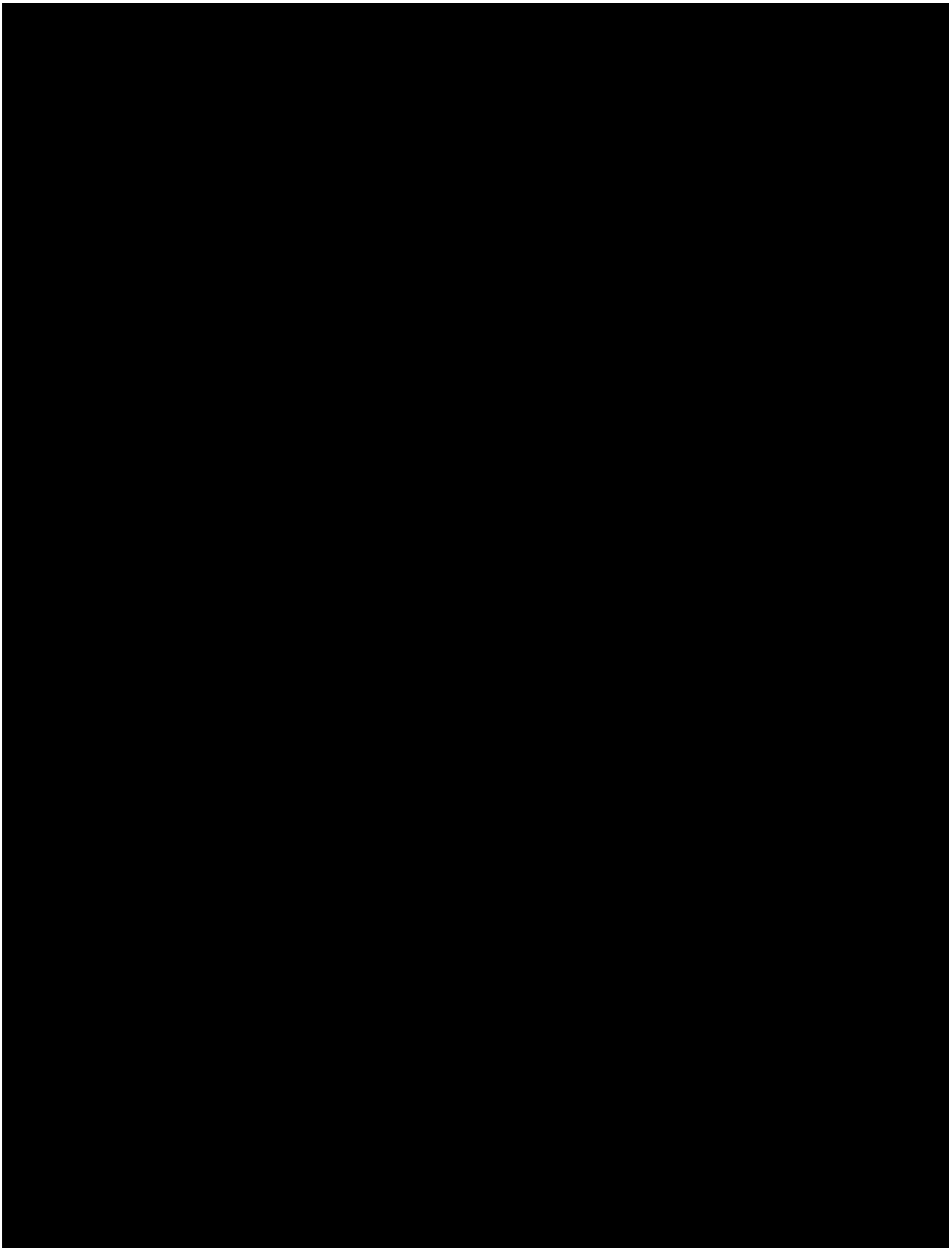

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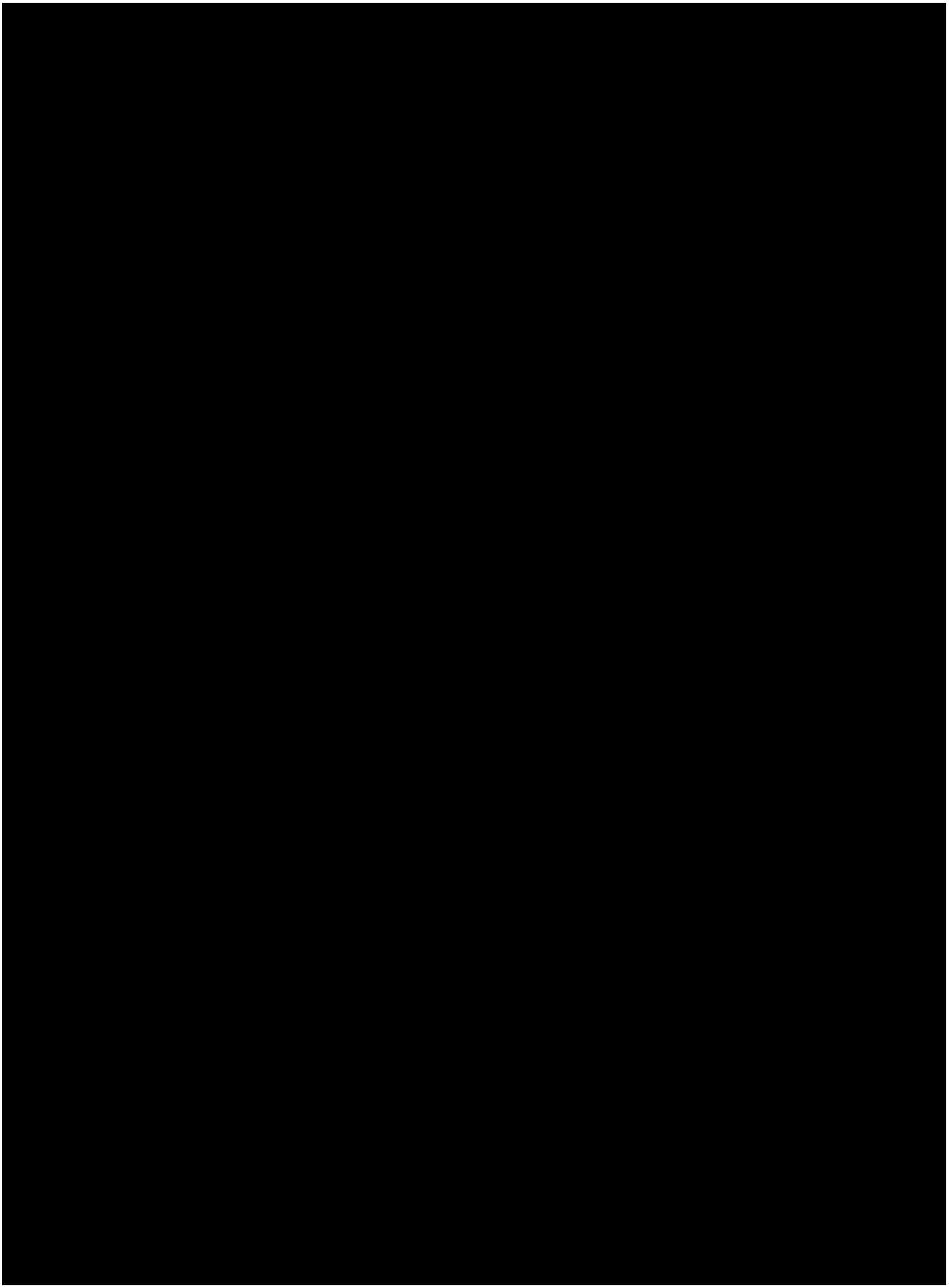

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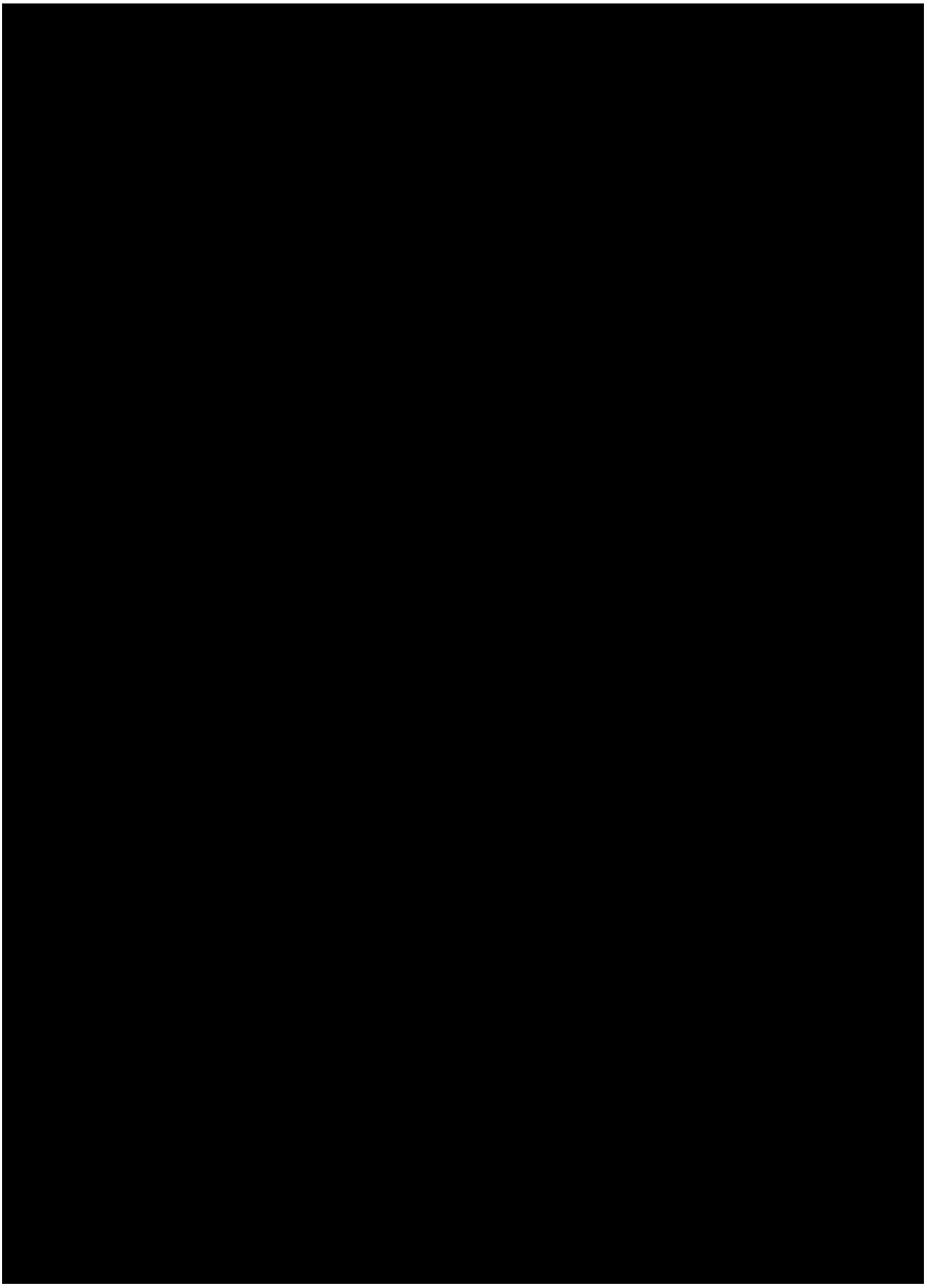

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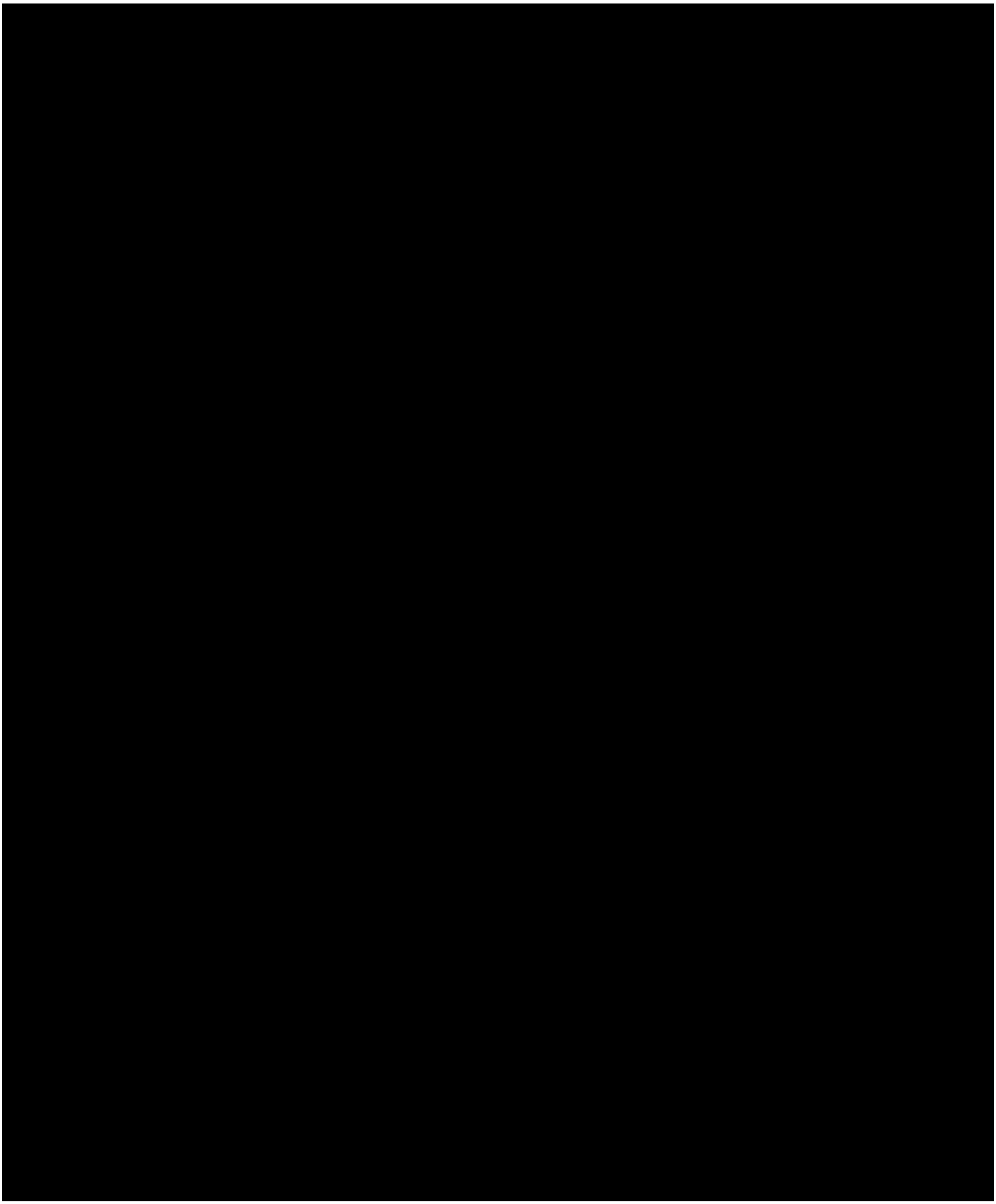
7 Re-imaging the Validator



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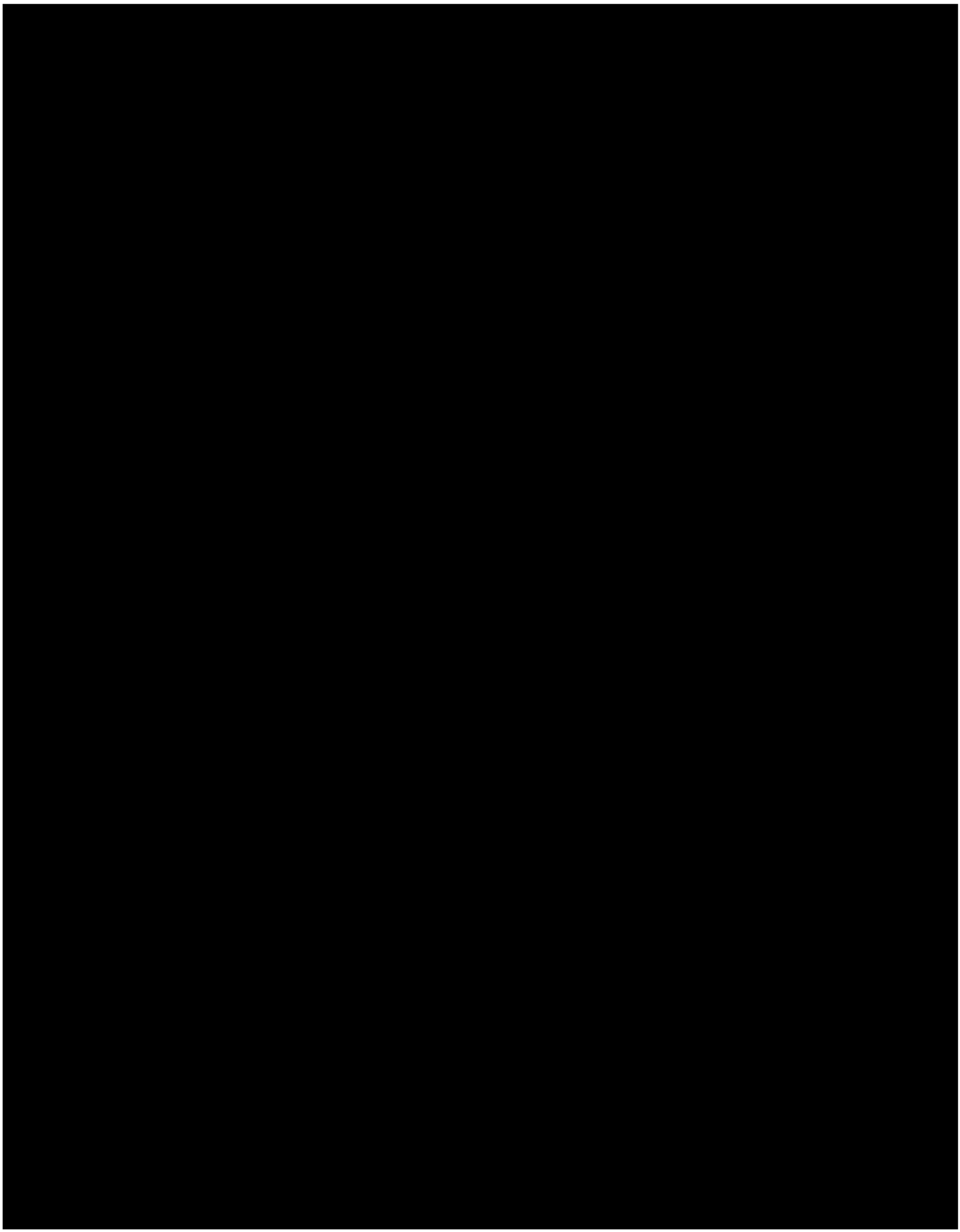

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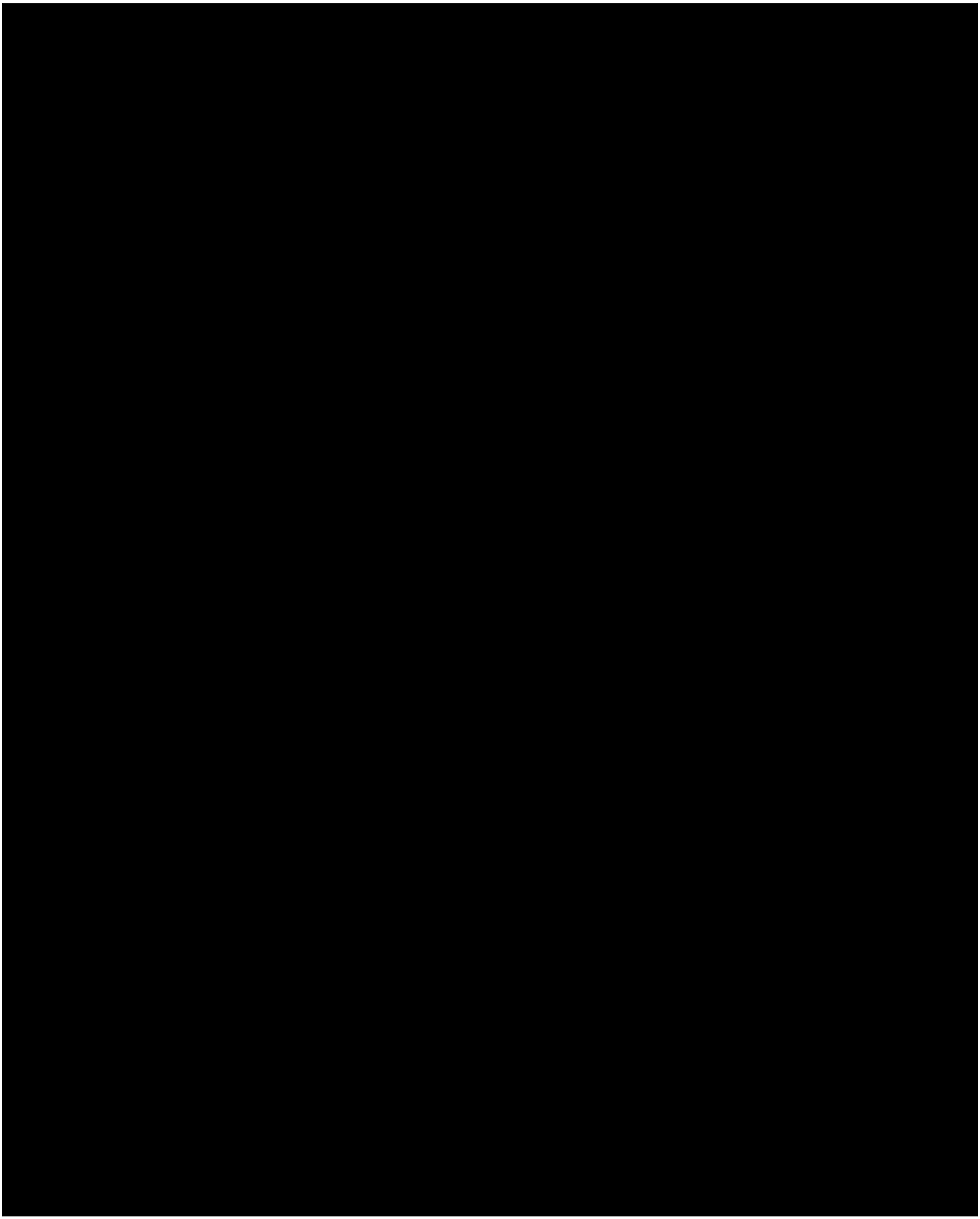

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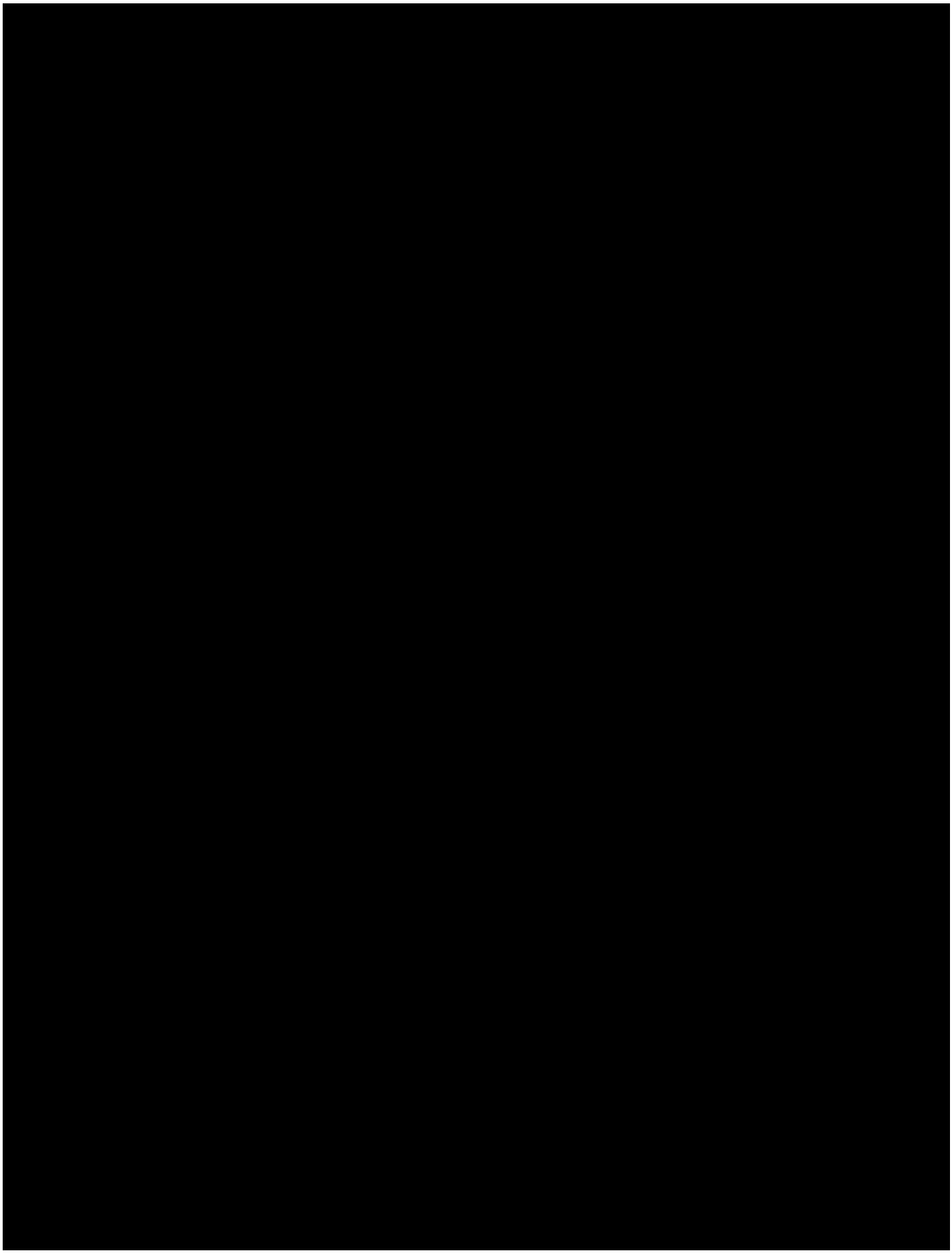

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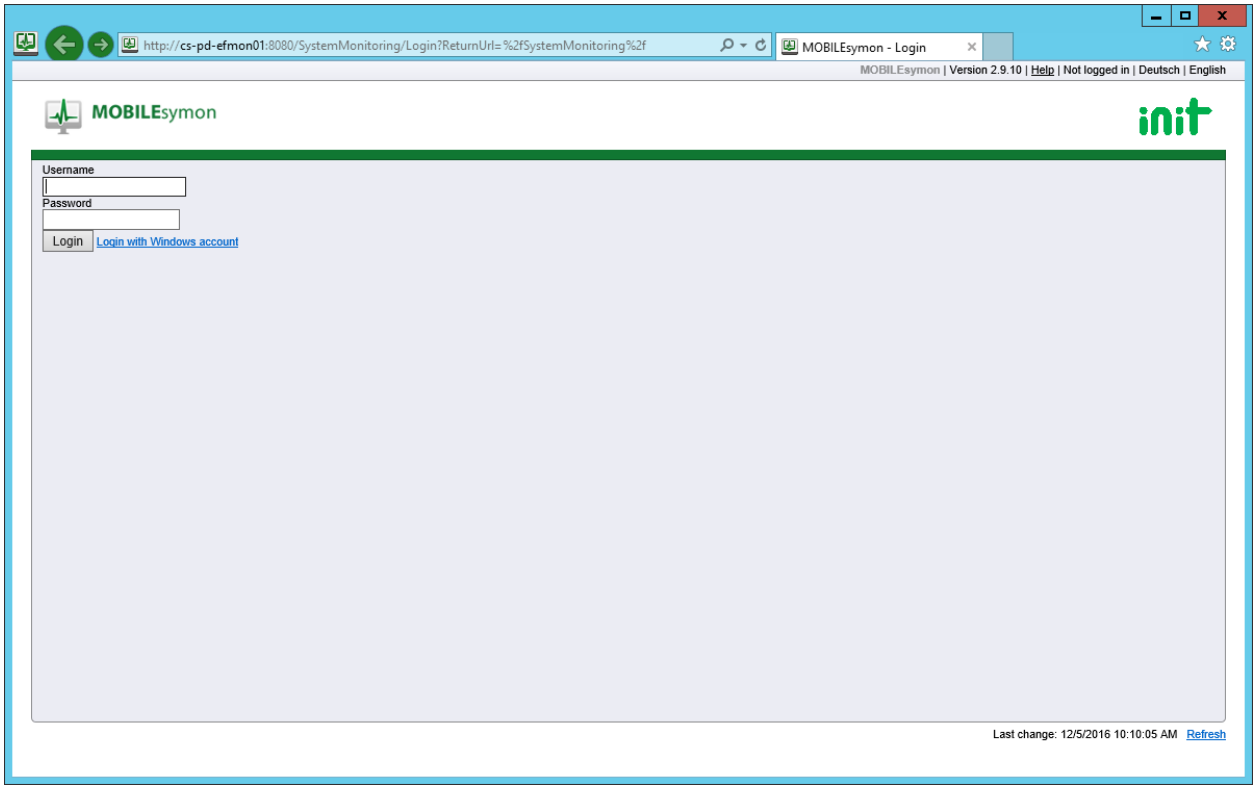
9 System Monitoring

This chapter should provide a high level overview of the tool MOBILEsymon, used for the validator system monitoring. The goal is to provide enough information so that maintenance personnel can identify validators in need for maintenance.

9.1 MOBILEsymon basics

MOBILEsymon is a web based application that can run in a browser.

When MOBILEsymon is loaded in the browser, a login screen will be provided. Please use the credentials provided by the eFare System Admin to login.



MOBILEsymon login screen

After a successful login, the system dashboard is displayed.

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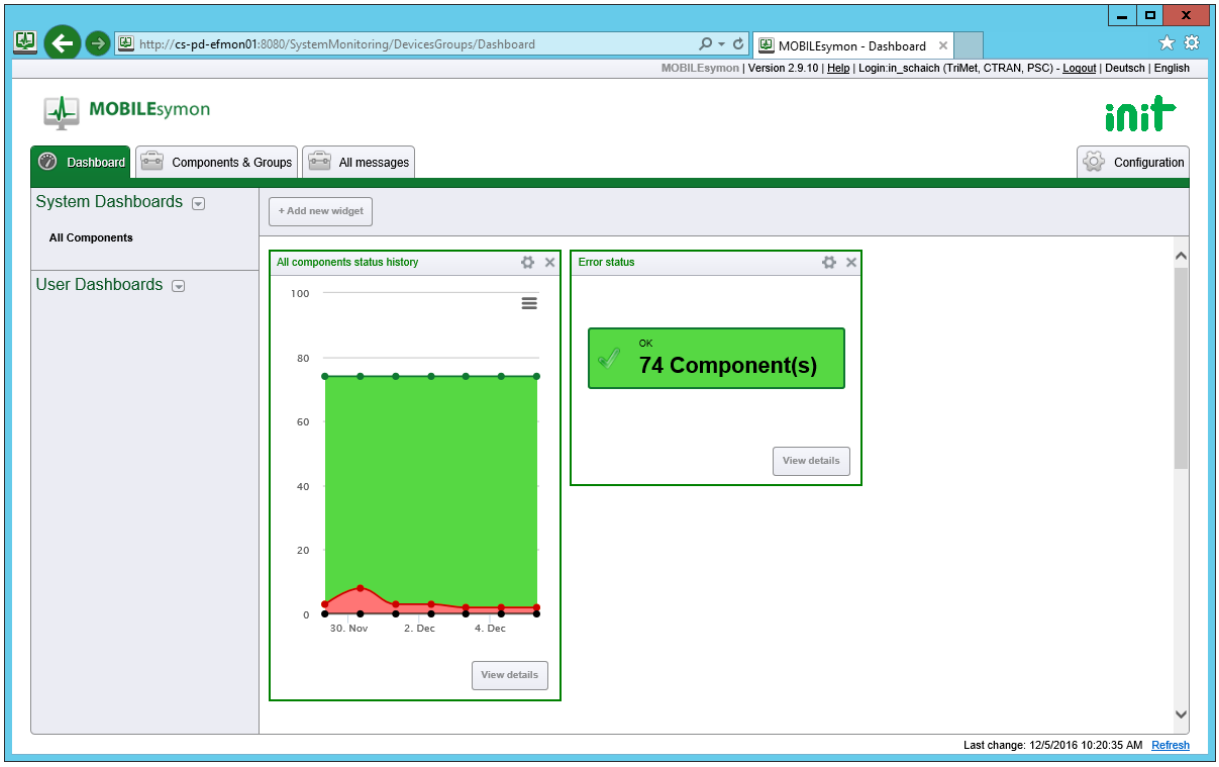
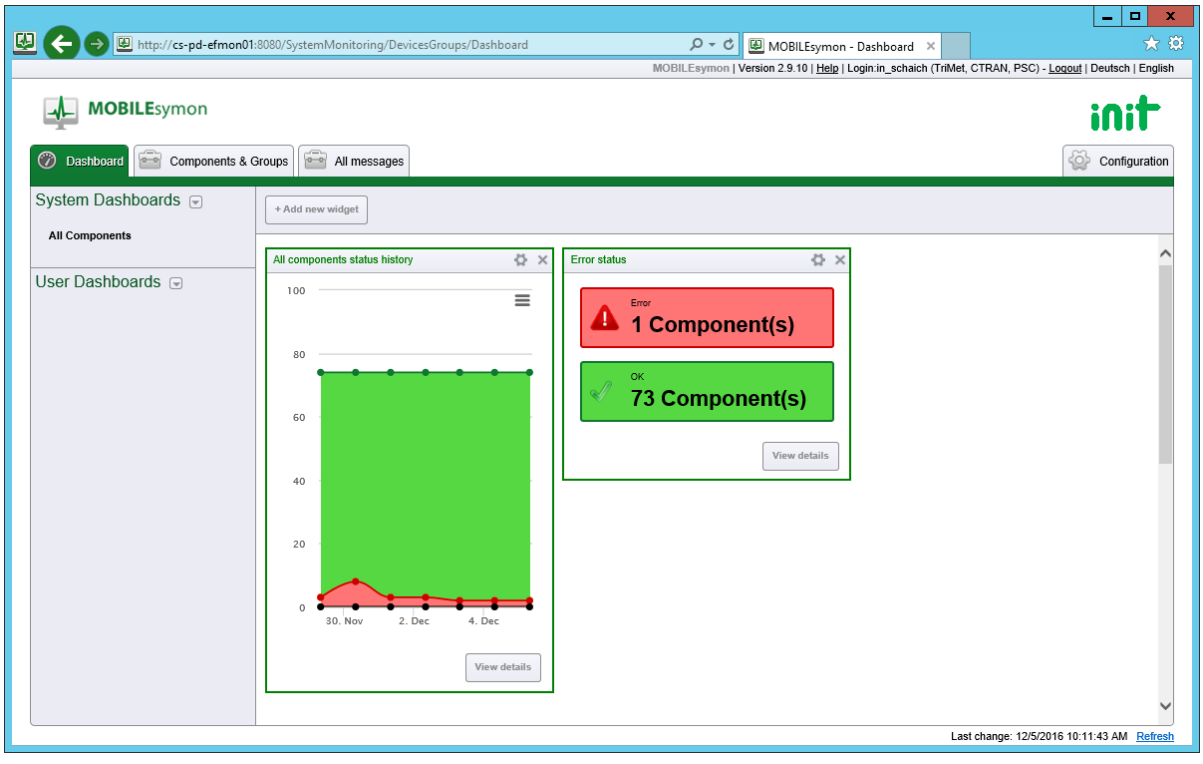


Dashboard

If there are devices in an error state, the number of devices in this state can be found here.

A device is in error state if there is either a hardware defect or if a device did not report back to the background system within a specific time internal (e.g. 5 min for hard wired devices).



Dashboard with errors

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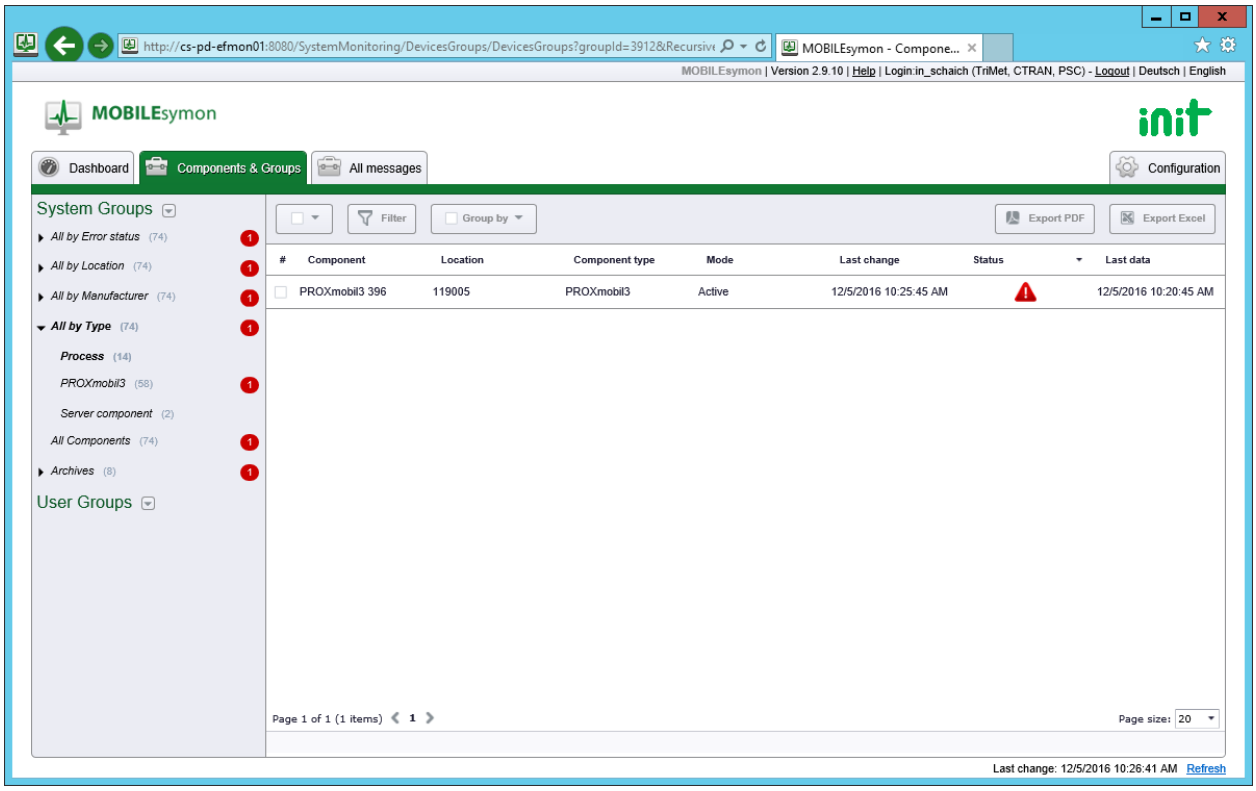
A click on the components in error state in the field 'Error status' opens a device overview of all devices in error state



List of components in error state

Caution

The system monitoring tool monitors not only validators. The same tool is used to monitor e.g. background system services. If there is a component in an error state that does not have the Component type 'PROXmobil3', the component can be disregarded from a maintenance standpoint.

The component overview shows the following fields:

- Component: Component name and Serial Number of the component
- Location: Location ID (see chapter 0)
- Component Type: Type of the component (default: PROXmobil3)
- Mode: Either active or inactive
- Last Change: Timestamp of the last time there was a status change
- Status: Either Error, Warning or OK
- Last data: Last time the background system received data from the device

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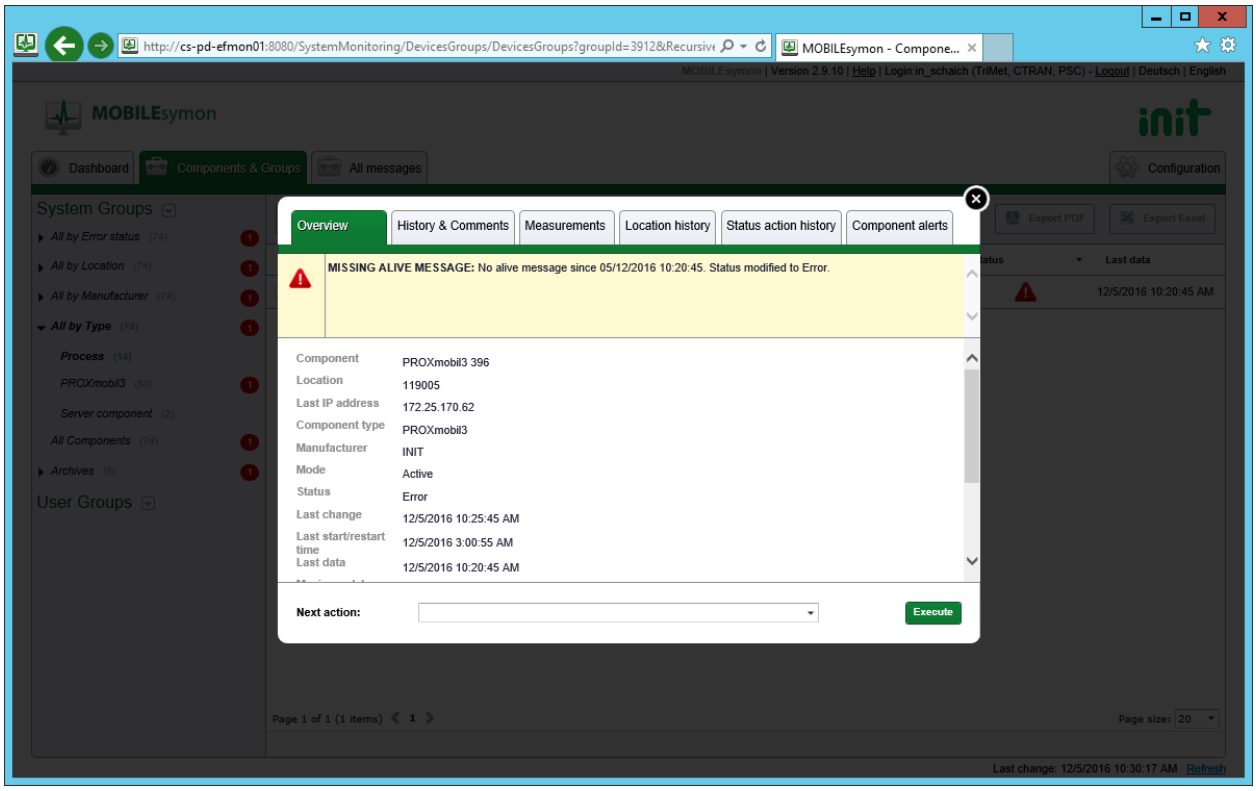
Clicking the component in the component list will open a window with additional information. The information includes the error condition too. In the following example, a device is in error state due to the fact that it was offline for longer than 5 min.



Device in error state

[redacted]

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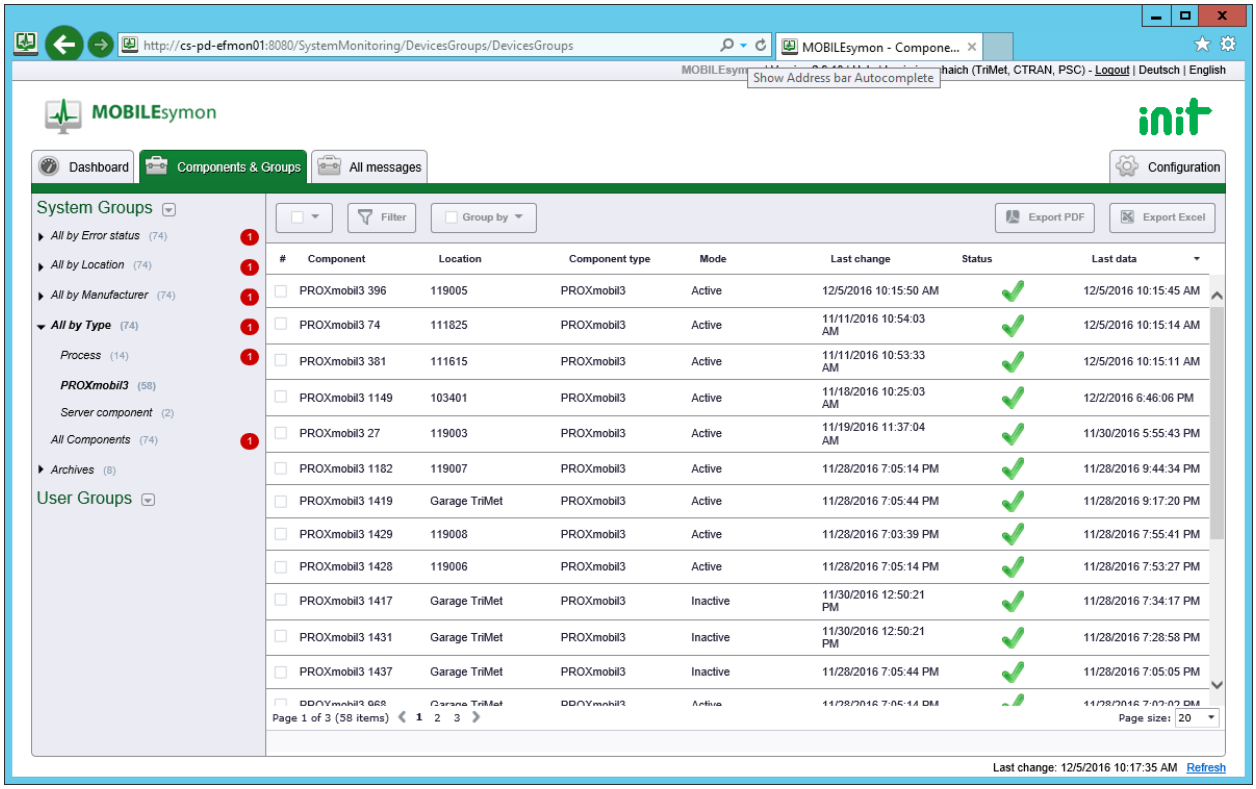

List of all components

9.2 Location change

The logical location of a device can be changed in the background system using MOBILEsymon. To do so, go to the 'Components & Groups' overview, mark the device which location should be changed, select 'Action' and then select 'Execute other actions'. A new window will be shown where the location change can be performed.

The tab 'location history' within the device detail window shows a historic overview of all location changes.

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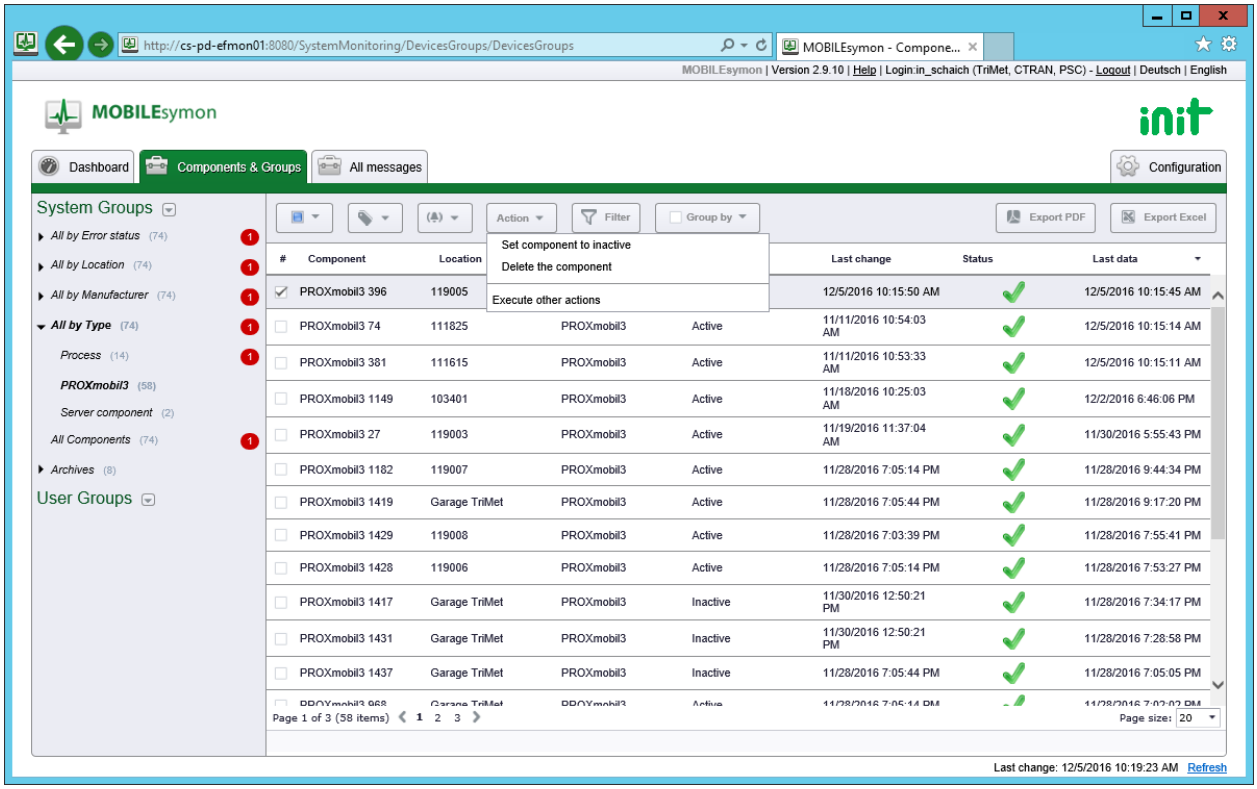
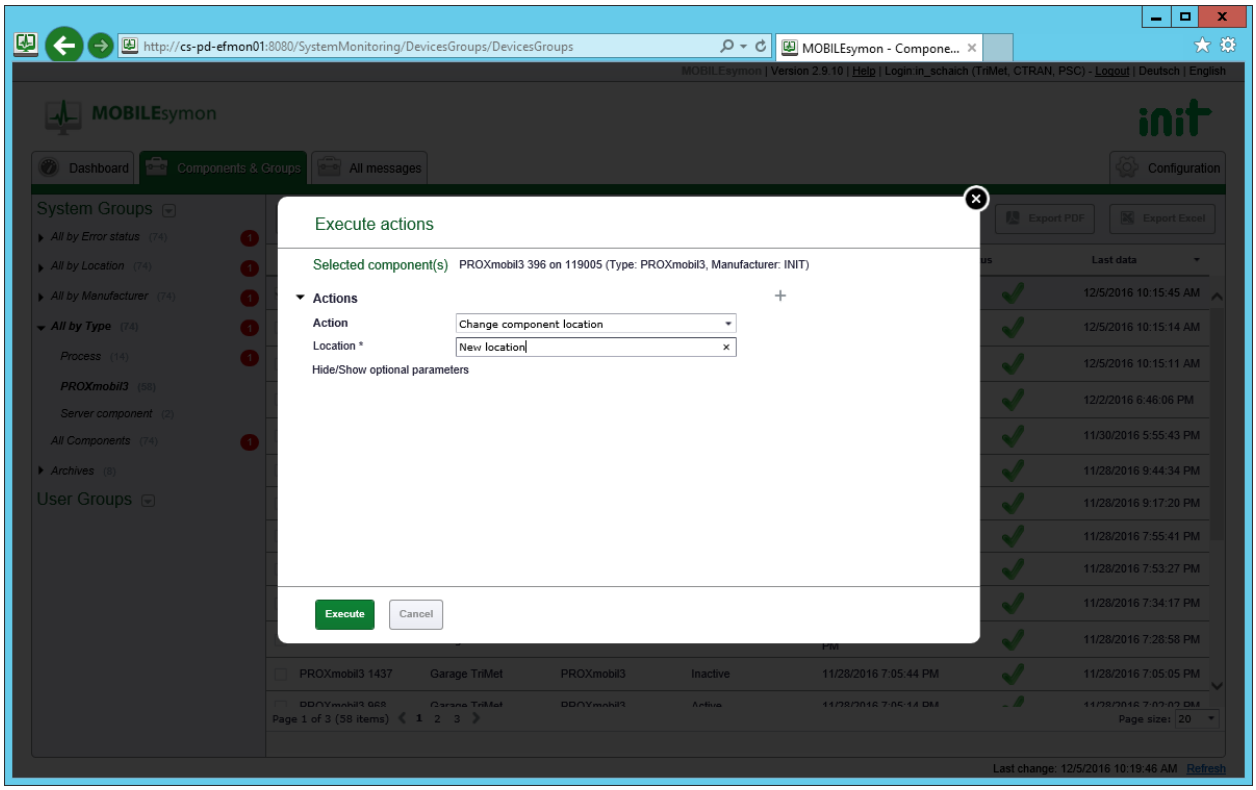


Location change - selecting a device



Location change - Entering a new location

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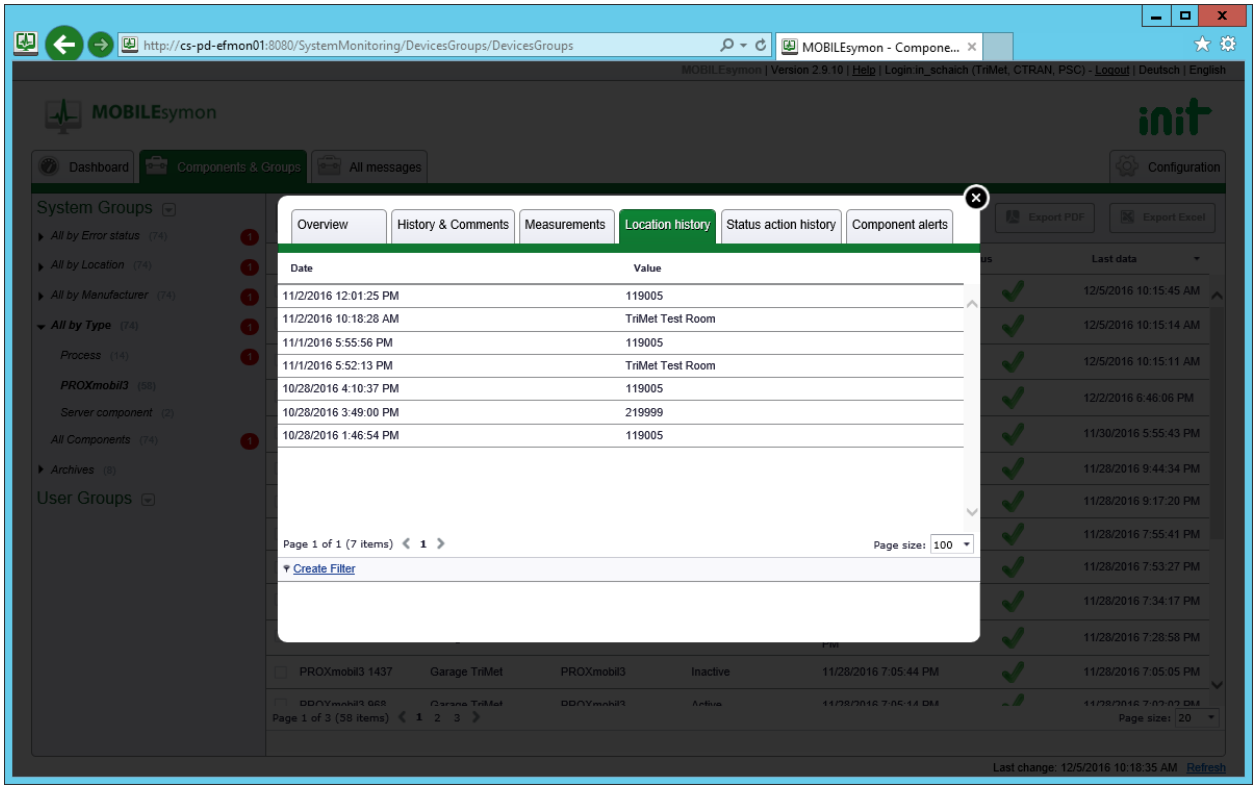

Location history

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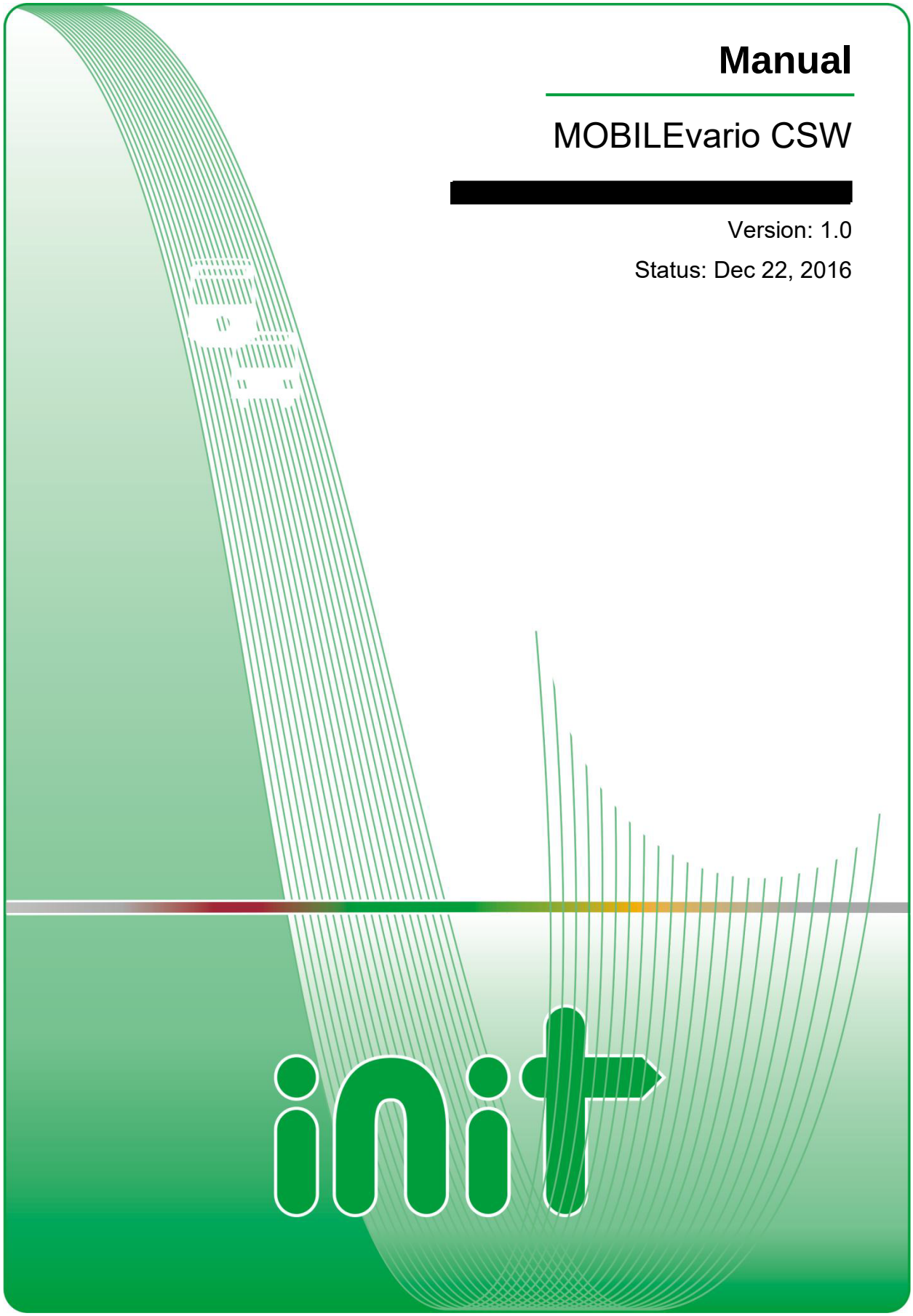
Manual

MOBILEvario CSW

[redacted]

Version: 1.0

Status: Dec 22, 2016



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Revision record

Version	Date	Author	Comments/modifications
1.0	Dec 22, 2016	Stephanie Kirchner	Initialversion

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1 Introduction

This manual is intended for users who want to learn how to use MOBILEvario CSW. It supports both functional descriptions and step-by-step instructions.

1.1 Symbols and conventions

In order to make the best use of this document, highlighted elements are located in several places.

The following support structures apply to this document:

Note
Indicates additional information.

Caution
Indicates warnings or other important information that have to be precisely followed.

The following conventions apply to this document:

Symbol	Explanation
✓	Indicates a condition that must be met before carrying out a step-by-step instruction.
1.	Indicates an action step.
a.	Indicates a sub step or an alternative action step.
▷	Indicates an intermediate result that can be seen after carrying out an action step.
▶	Indicates a result at the end of the step-by-step instruction.
Interface element	Indicates elements on the user interface, e.g. buttons.
1 Introduction →6	Indicates a cross-reference and shows the page where the corresponding chapter can be found.
Introduction	Indicates a cross-reference to another document.

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1.2 About MOBILEvario CSW

Note
Depending on the contractually agreed upon optional features, some table columns or functions described in this manual may differ from the current user interface.

MOBILEvario CSW (**C**ustomer **S**ervice **W**orkstation) enables you to process customer orders from the external website or the customer service. Tickets and cash values sold by CSW can be loaded onto cards either directly via a connected card reader or indirectly via the background system by the next usage of the card.

During card contact, the permissions on the card will be validated, checked and cancelled by the background system where applicable. Also, the available blocking and action list entries will be applied to the card.

A connected printer enables issuing paper tickets as well as receipts.

Note
The functions which access to the cards directly are only available on work stations that are equipped with a corresponding card encoder. The application only accepts cards that have been created by your transportation company; this is checked by a security mechanism.

MOBILEvario CSW consists of the following program groups:

Program group	Function
Smartcards	Enables you to manage all customer cards that are stored in the MOBILEvario system.
Contracts	Enables you to manage all customer and corporate accounts that have been registered in MOBILEvario or via the external website.
Work items	Enables you to manage all work items that must be manually processed by the customer service. Depending on your rights, you can either manage only your own work items or the all work items that have been registered in MOBILEvario.
Orders	Enables you to manage all orders that have been placed by customers via the website or by the customer service via CSW.
CRM	Enables you to manage card details and account details.

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2 Structure of the user interface

This chapter contains elements of the user interface.

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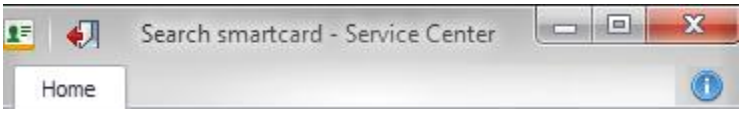
2.1 Toolbar

The toolbar can be used to perform general functions that are independent of the currently opened window. The displayed commands can be customized.



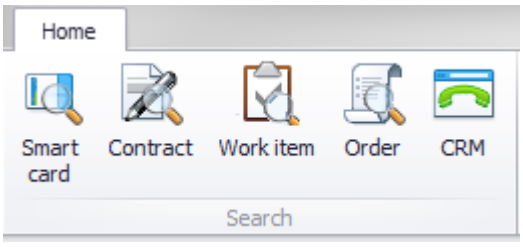
Toolbar

The following functions are available:

Element	Function
	Opens the system menu where you can restore, move, resize, minimize, maximize or close the application.
	Logs you out so you can log in another user or client.
	Opens the **Log in** dialog where you can log in. This button is only visible if you have logged out.
	Opens the about box where you can view credits and revision information about the software and its developer.
Drop-down menu **UI font size**	Indicates the font size in which texts are displayed on the user interface.

2.2 Navigation bar

The navigation bar can be used to select the available program groups and edit records. The program groups are always visible. The editing functions vary according to which window is opened and are described in the corresponding chapters.



Navigation bar

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If you have opened a function that contains exactly one table, the following functions are available in addition to the program groups:

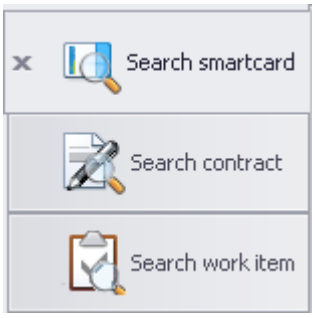
Element	Function
Button **Preview selected**	Opens all marked table entries in a print/export preview where you can further design and save, export or print the table entries.
Button **Preview all**	Opens the table in a print/export preview where you can further design and save, export or print the table.

If you have opened a function whose displayed data is not updated automatically, the following function is available in addition to the program groups:

Element	Function
Button **Refresh**	Updates the displayed data. If you have opened a function and some of the displayed details have been edited afterwards, the displayed data will not be updated until you refresh the data or re-open the function.

2.3 Window list

Each time you perform a function this function will be opened in a new window and added to the window list. The windows list can be used to switch between open windows and close them. Per drag & drop you can also arrange the open windows.



Window list

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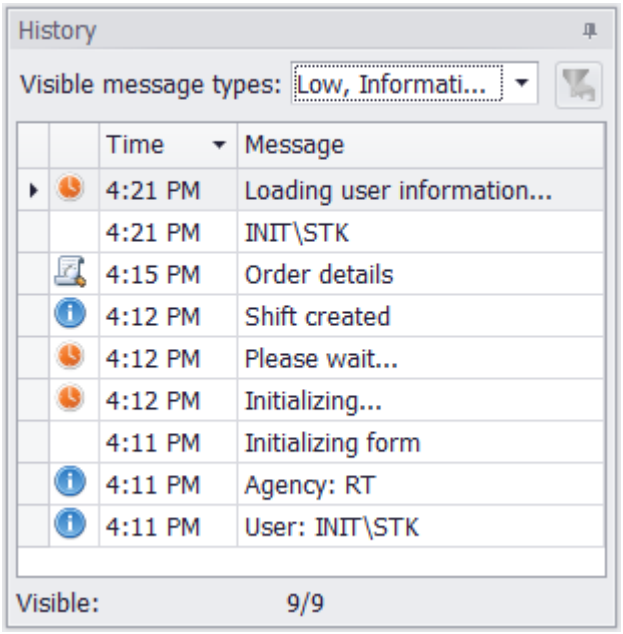
2.4 History

The history can be used to review each action you have performed during the current session.



History

In order to optimize the work area, the history can be shown and hidden. The following functions are available:

Element	Function
	Shows and hides the history dynamically. Clicking outside the history will hide the history. Moving the cursor over the **History** tab will show the history.
	Permanently shows the history.

The following functions are available:

Element	Function
Drop-down menu **Visible message types**	Limits the messages displayed in the table to one or several priorities: ▪ **Low**: Unimportant actions, e.g. update user interface ▪ **Information**: Informative actions, e.g. create shift, cancel, log in, log out ▪ **Warning**: Transactions regarding money or data changes, e.g. create, update, delete ▪ **Error**: Error due to user errors, e.g. fatal errors, connection problems, attempt to delete an already deleted file

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Element	Function
	Displays all available messages in the table, regardless of their priority. This button is only selectable if you have limited the messages displayed in the table to one or several priorities.

The following columns are available:

Column	Function
[Status]	Displays the priority of the action as symbol.
Time	Displays the time of the action.
Message	Displays a description of the action.

By right-clicking a table entry, the table context menu will be opened. The following functions are available in the table context menu:

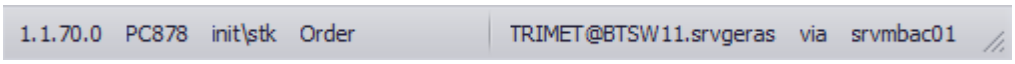
Entry	Function
Copy selected to clipboard	Copies the currently clicked entry to the clipboard from where it can be pasted e.g. into an email for error documentation purposes.
Copy all to clipboard	Copies the whole table to the clipboard from where it can be pasted e.g. into an email for error documentation purposes.
Clear history	Removes all displayed messages from the table.

Note

You can also use the key combinations <Ctrl+A> to select all table entries and <Ctrl+C> to copy selected table entries to the clipboard.

2.5 Status bar

The status bar can be used to perform general functions.



Status bar

The following functions are available:

Element	Function
1.1.70.0	Displays the software version.
PC878	Displays the name of the workstation the application is running.

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Element	Function
Init\stk	Displays the token of the logged-in user. Clicking the token opens the **User information** dialog where you can view common information and application relevant rights of the logged-in user.
Order	Displays the last performed action.
TRIMET@BTSW11.srvgeras	Displays the WebService (ServiceHost/Server) that has access to the target database.
via srvmbac01	Displays the target database whose data are accessed.

2.5.1 User information

On the **User information** dialog you can view common information and application relevant rights of the logged-in user.

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The following functions are available:

Element	Description
Field **User short name**	Displays the token with which the user logs on to the operating system.
Field **First name**	Displays first name of the user.
Field **Last name**	Displays the last name of the user.
Field **Belongs to client**	Displays the name of the client the user belongs to.
Field **Created by**	Displays the token of the administrator who created the user.
Field **Creation time**	Displays the date the user was created.
Field **Description**	Displays additional information about the user.
Field **Rights for clients**	Displays all clients the user has the right to work with.

The **Application relevant rights** table displays all available user rights for this application. The following columns are available:

Column	Description
User resource ID	Displays the unique ID assigned by the system.
Client company name	Displays the client the right is valid for.
Write	Indicates which permissions are available, e.g. show or write data.
Execute	

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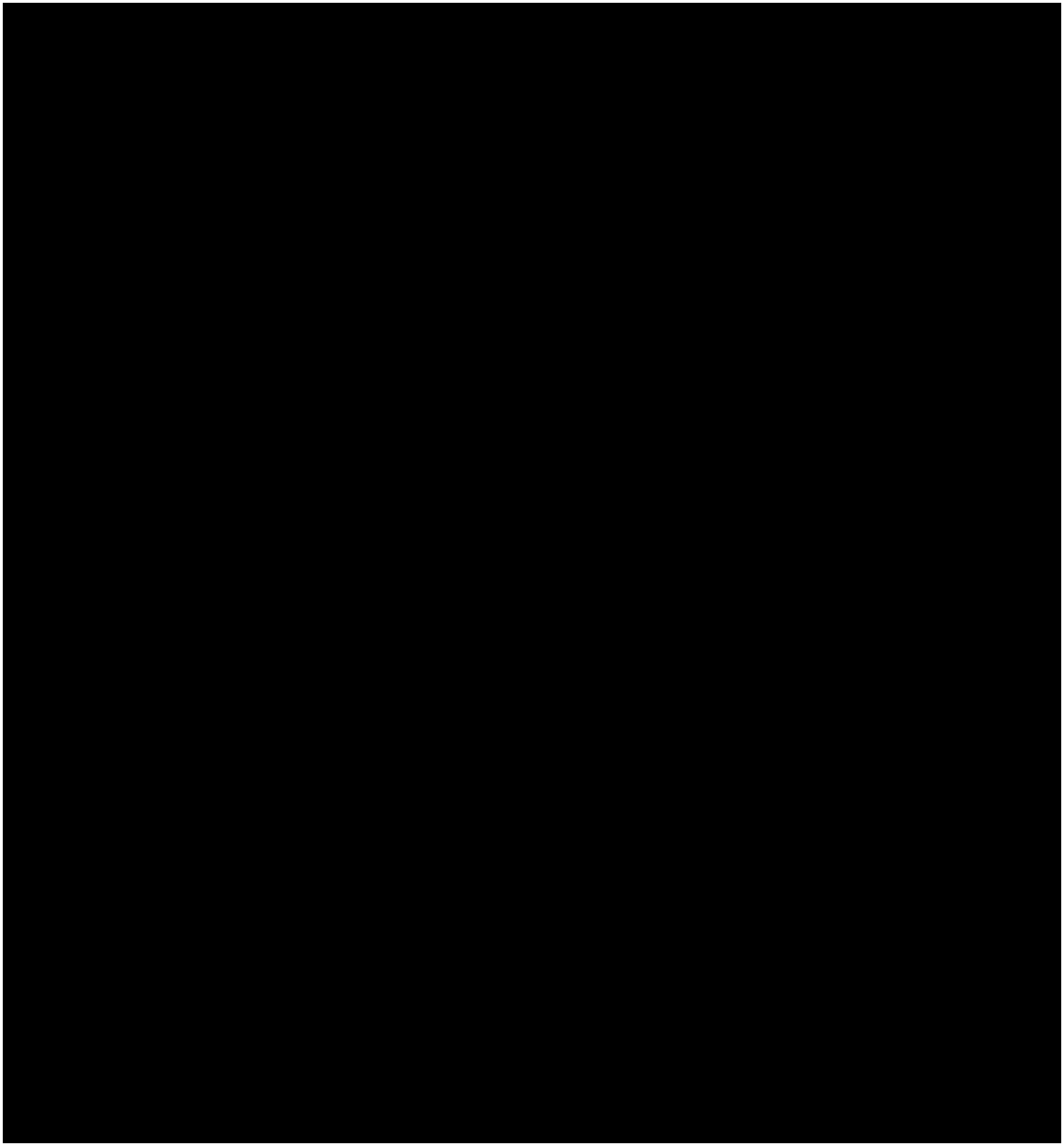
3 First steps

3.1 Start MOBILEvario CSW



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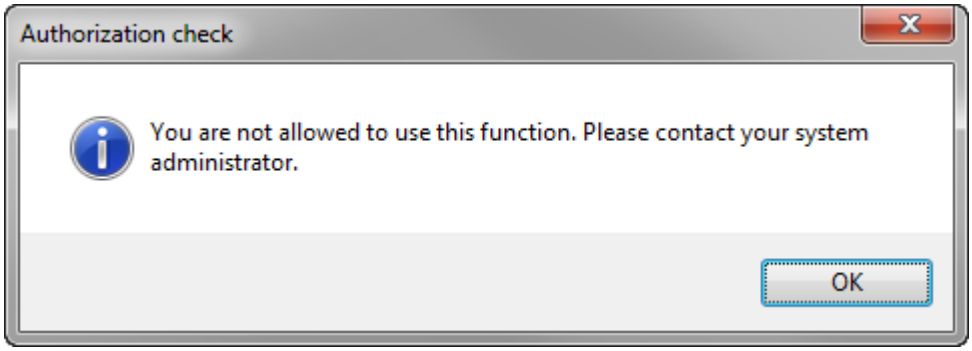

Login - Authorization check

Note
If only single access rights are missing, starting the application will cause the corresponding program groups and buttons to be disabled or hidden where applicable.

- You have started MOBILEvario CSW.

3.2 Open table entries in print/export preview

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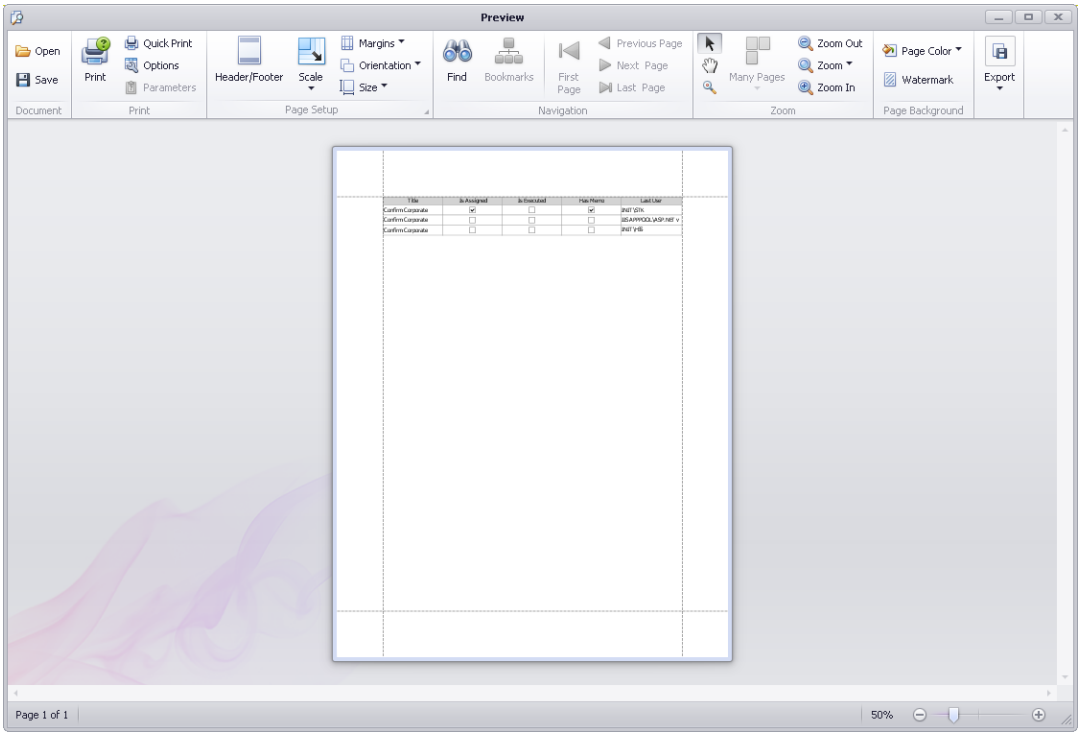


Preview - Selected entries (example)

- ▶ You have opened individual entries of a table in the print/export preview.

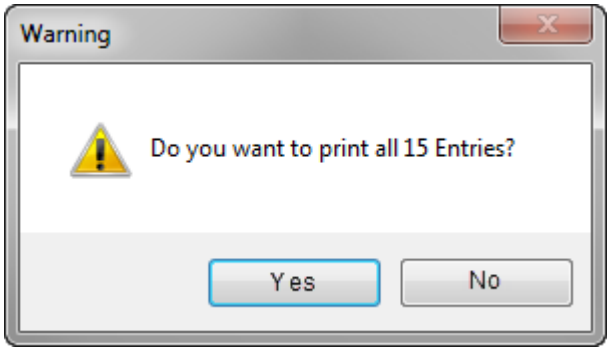
3.3 Open table in print/export preview

Condition:

- ✓ You have opened a table.

To open a table in the print/export preview, follow these steps:

1. Right-click a table entry and select **Preview all**.
2. Click **Preview all** in the navigation bar.
   - ▷ A message will be opened and will ask you if you want to print all entries.



Preview all

3. Click **Yes**.

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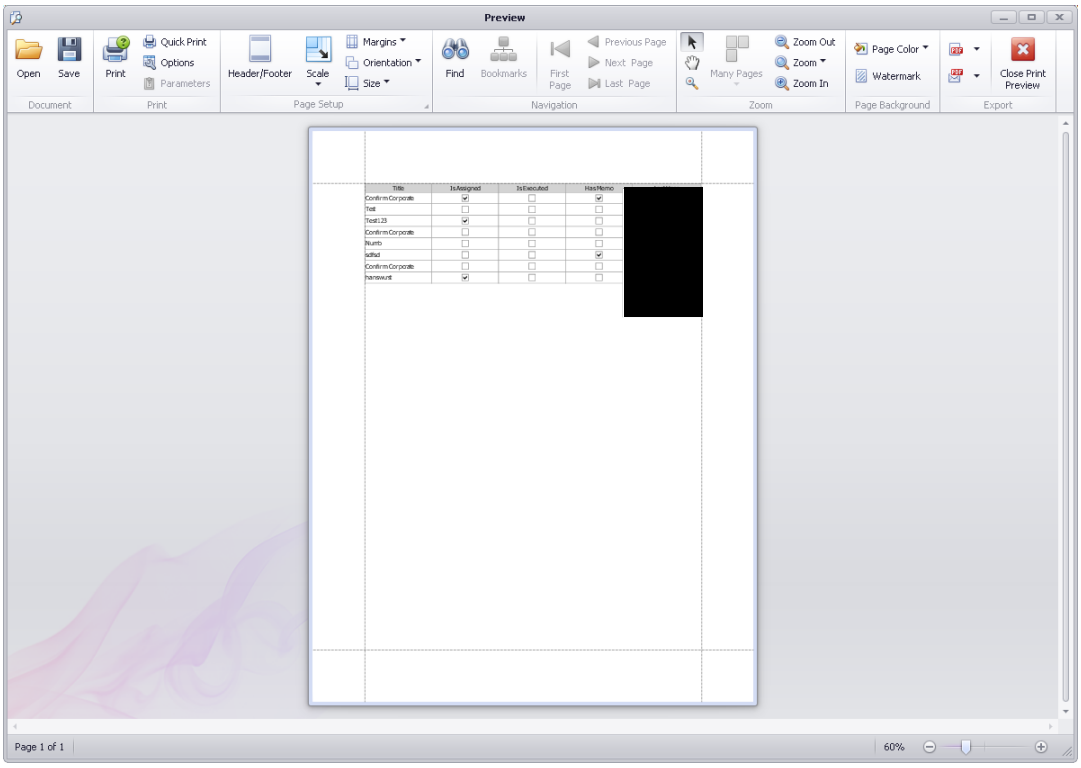
▷ The table entries will be loaded; depending on the number of entries this may take some time. Afterwards, the **Preview** window will be opened and will display all table entries in a print/export preview.



Preview - All entries (example)

▶ You have opened a table in the print/export preview.

3.4 Update displayed data

Condition:

✓ You have opened a function whose displayed data is not updated automatically.

To update the displayed data, follow these steps:

1. Click **Refresh** in the navigation bar.
   ▷ The data of all displayed information will be updated.
   ▶ You have updated the displayed data.

3.5 Close MOBILEvario CSW

To close MOBILEvario CSW, follow these steps:

1. To log out, click in the toolbar.
   ▷ The logged-in user will be logged out and all open windows will be closed.
   ▷ The button changes to which can be used to log in another user.

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2. To completely close the application, click on the upper-right corner of the application window.
   ▷ The application will be closed.
   ▶ You have closed MOBILEvario CSW.

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4 Smartcards

Caution

If you have opened this function and some of the displayed details have been edited afterwards, the displayed data will not be updated until you refresh the data or re-open the function.

The **Smartcards** program group enables you to manage all customer cards that are stored in the MOBILEvario system. Customer cards can be anonymous without an account attached or personalized with an account attached.

Note

Double-clicking a card will load the card in the call center.

Card overview

The following functions are available in the navigation bar:

Element	Function
Card	

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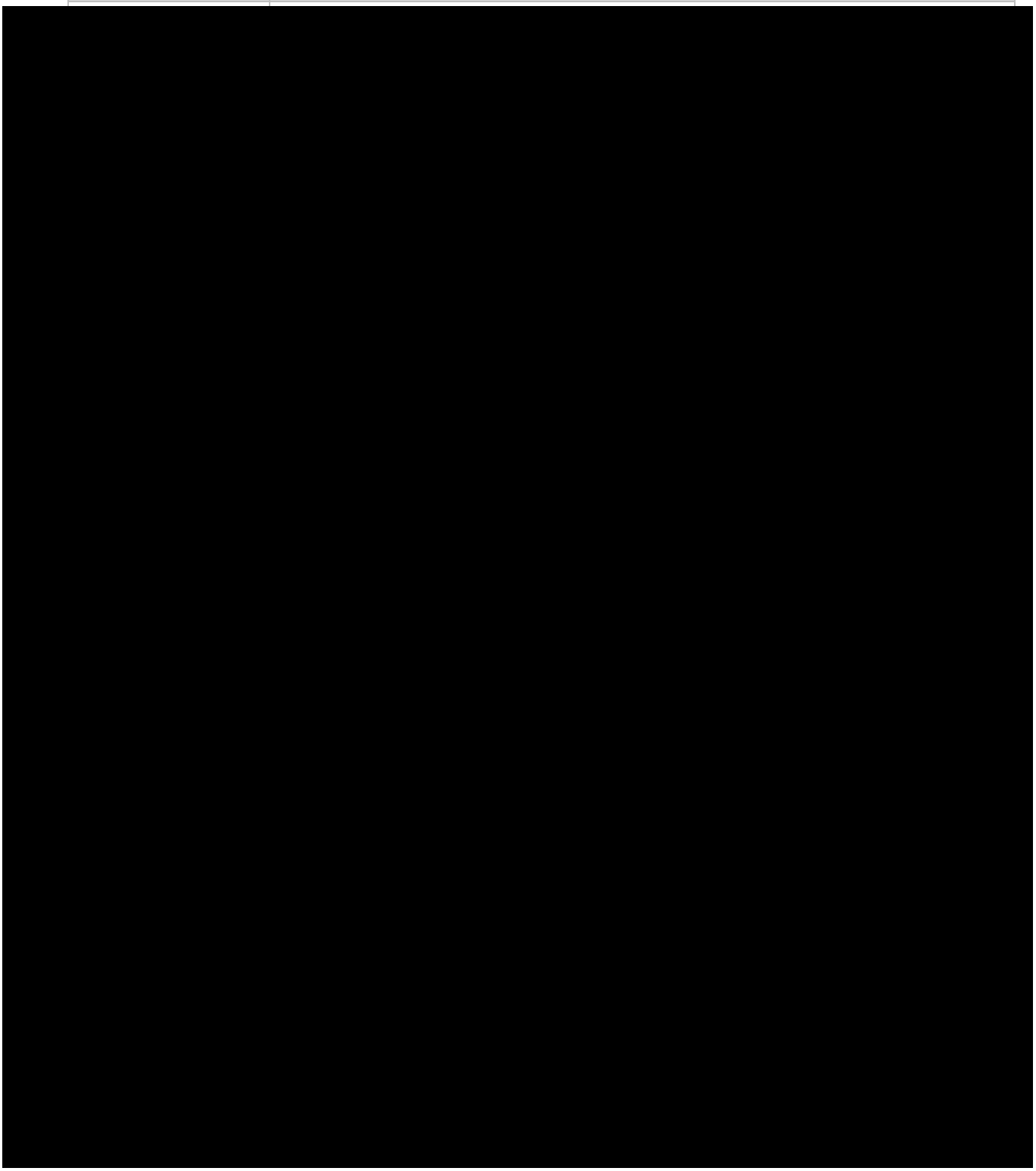
The following search criteria are available at the top of the table:

Element	Function



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The following columns are available:

Column	Function
[redacted]	

[redacted]

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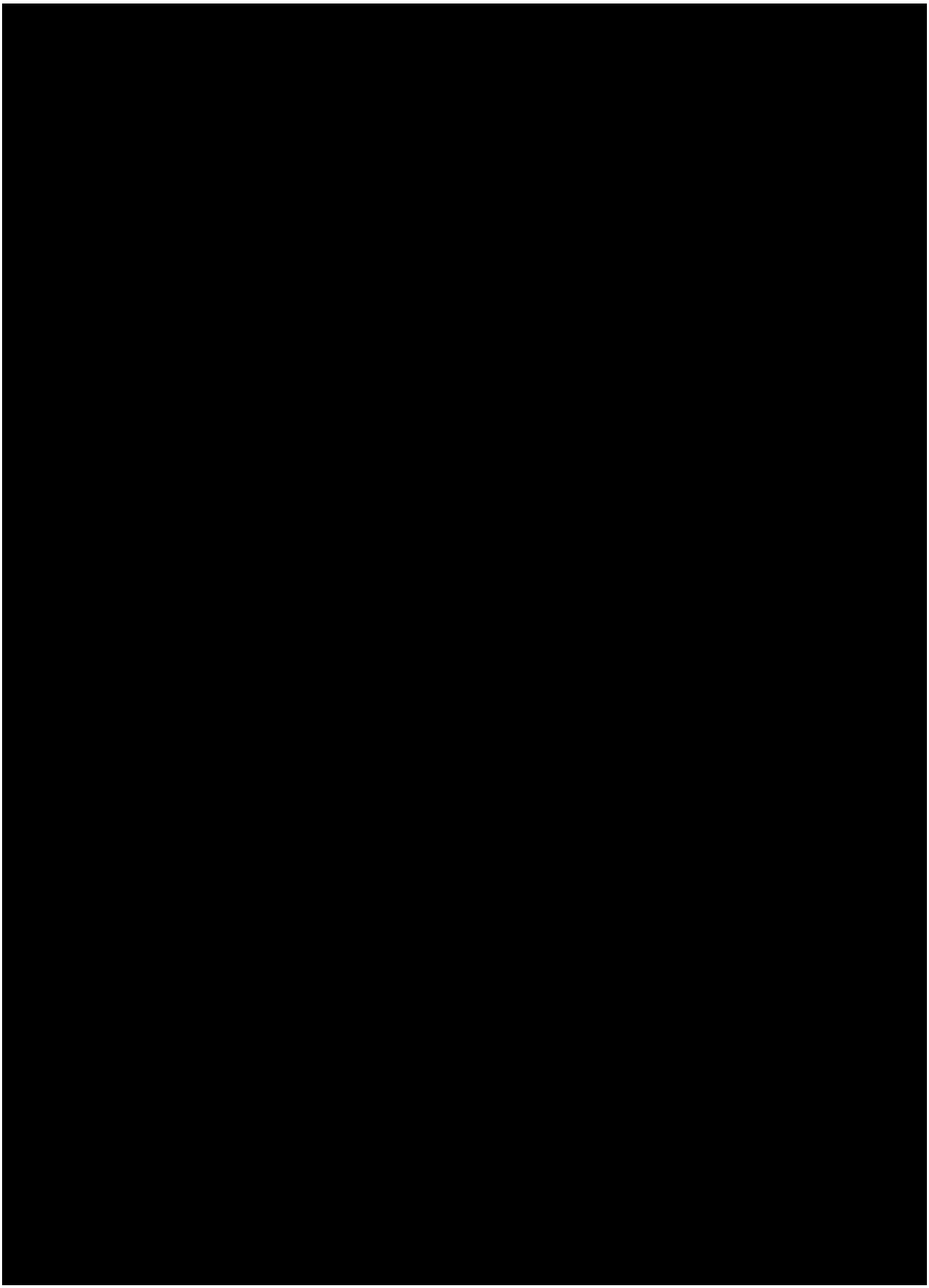

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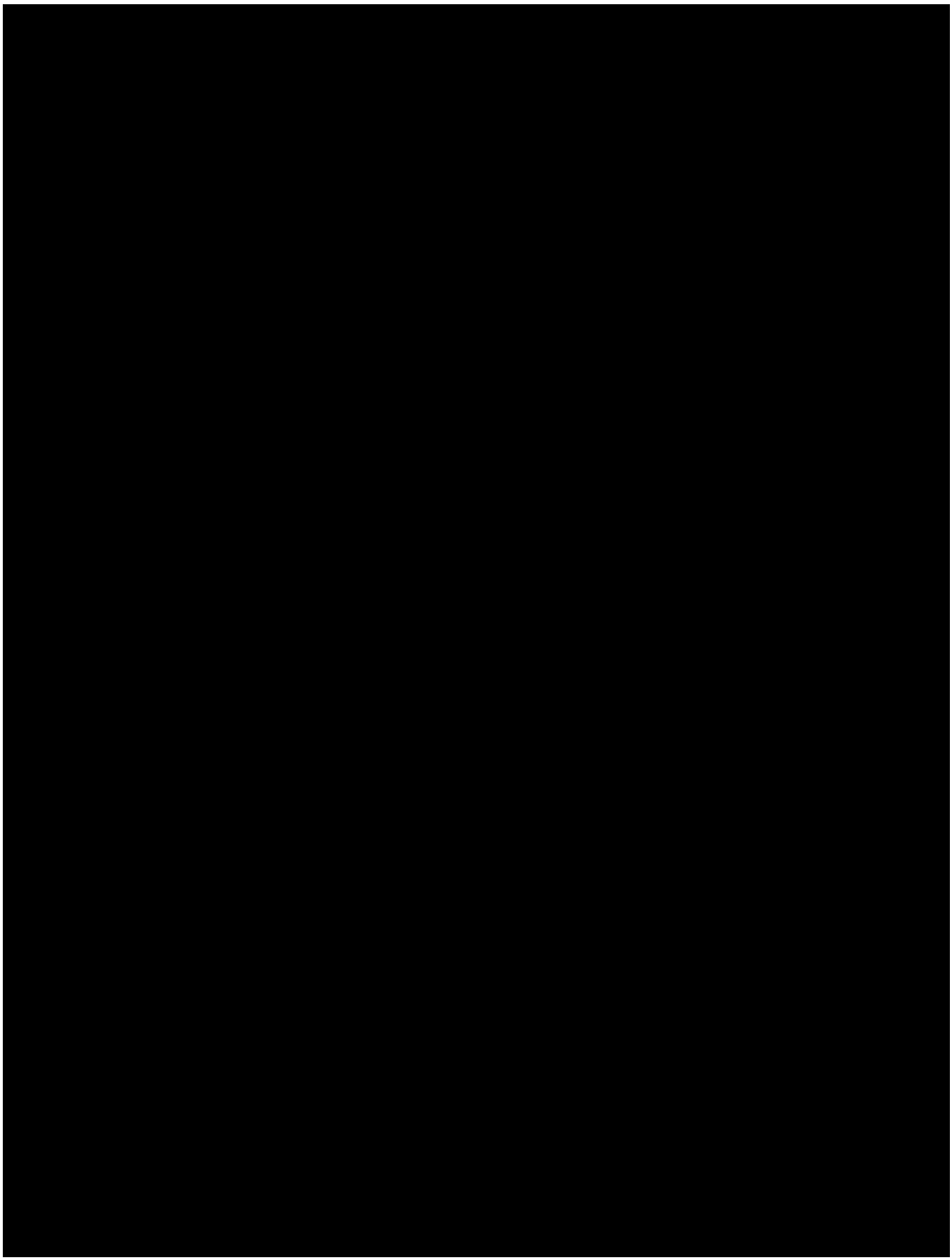
5 Contracts



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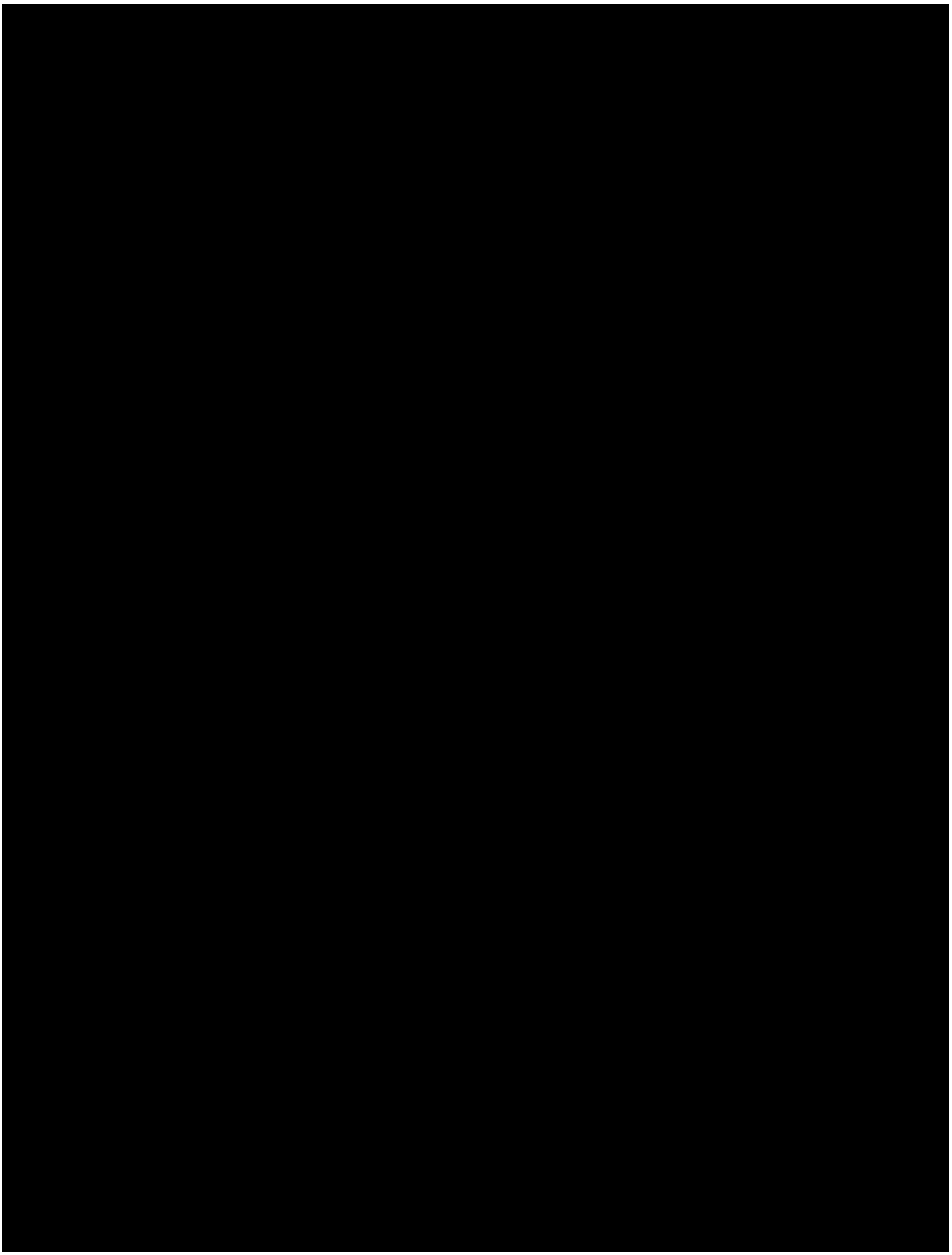

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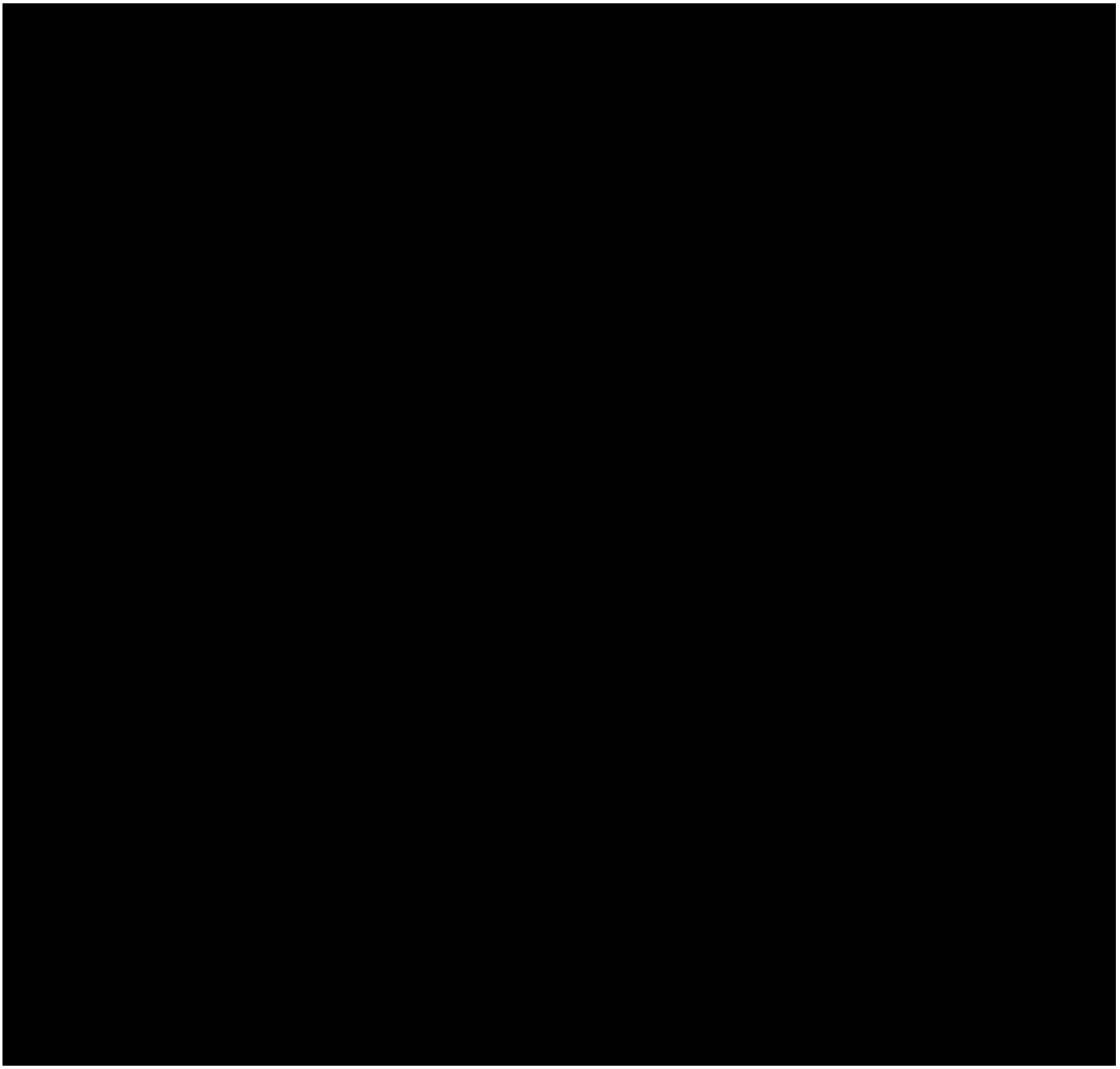

5.1 Search account

To search for an account, follow these steps:

1. Click **Contract** in the navigation bar.
   ▷ The **Search contract** window will be opened and will display all customer and corporate accounts that are stored in the system.
2. Enter the search criteria in the fields at the top of the table.
3. If you want to filter addresses:
   a. Click **Address**.
   ▷ The **Address selector** dialog will be opened.

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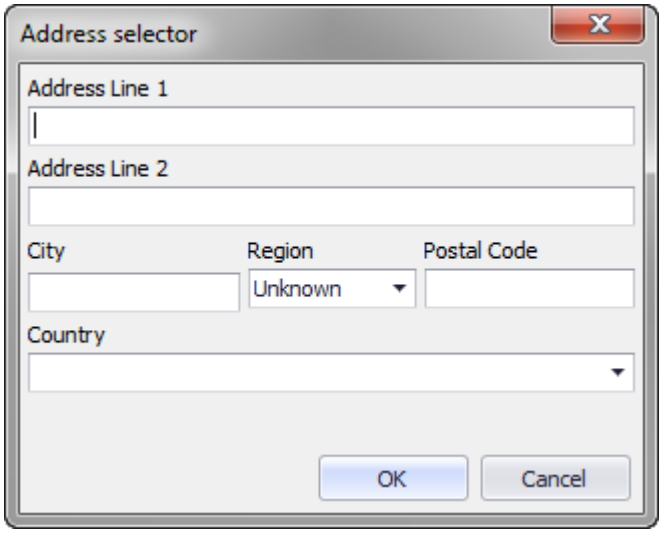

Account overview - Address selector

b. Enter the search criteria in the fields.

c. Click **OK**

4. Click **Search**.

▷ The records matching the given search criteria will be displayed in the table.

5. If you want to open the details of an account, double-click the account in the table.

▷ The account details of the selected account will be opened.

▶ You have searched for an account.

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6 Work items

Caution

If you have opened this function and some of the displayed details have been edited afterwards, the displayed data will not be updated until you refresh the data or re-open the function.

Work item overview

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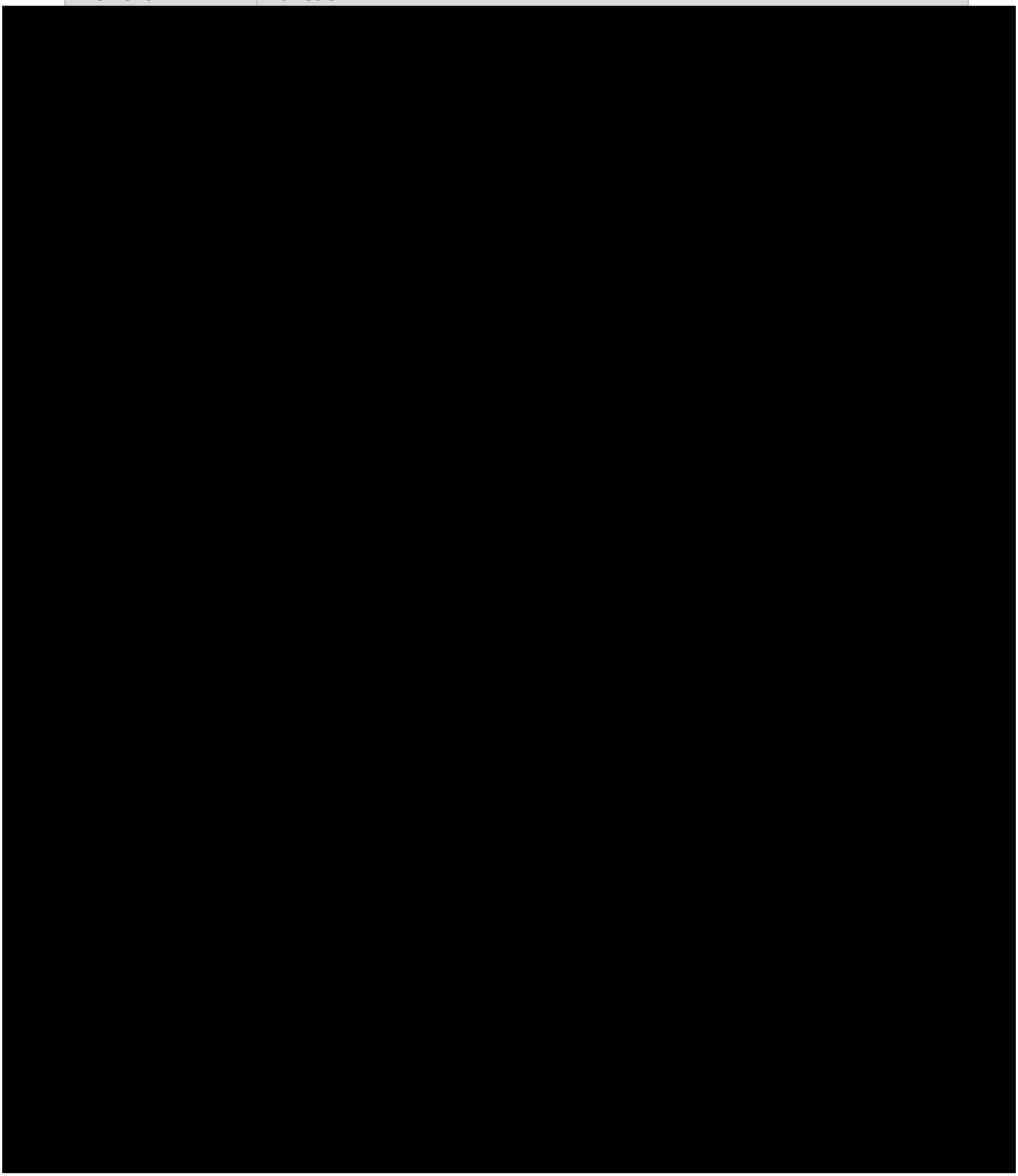
The following functions are available in the navigation bar:

Element	Function



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Element	Function

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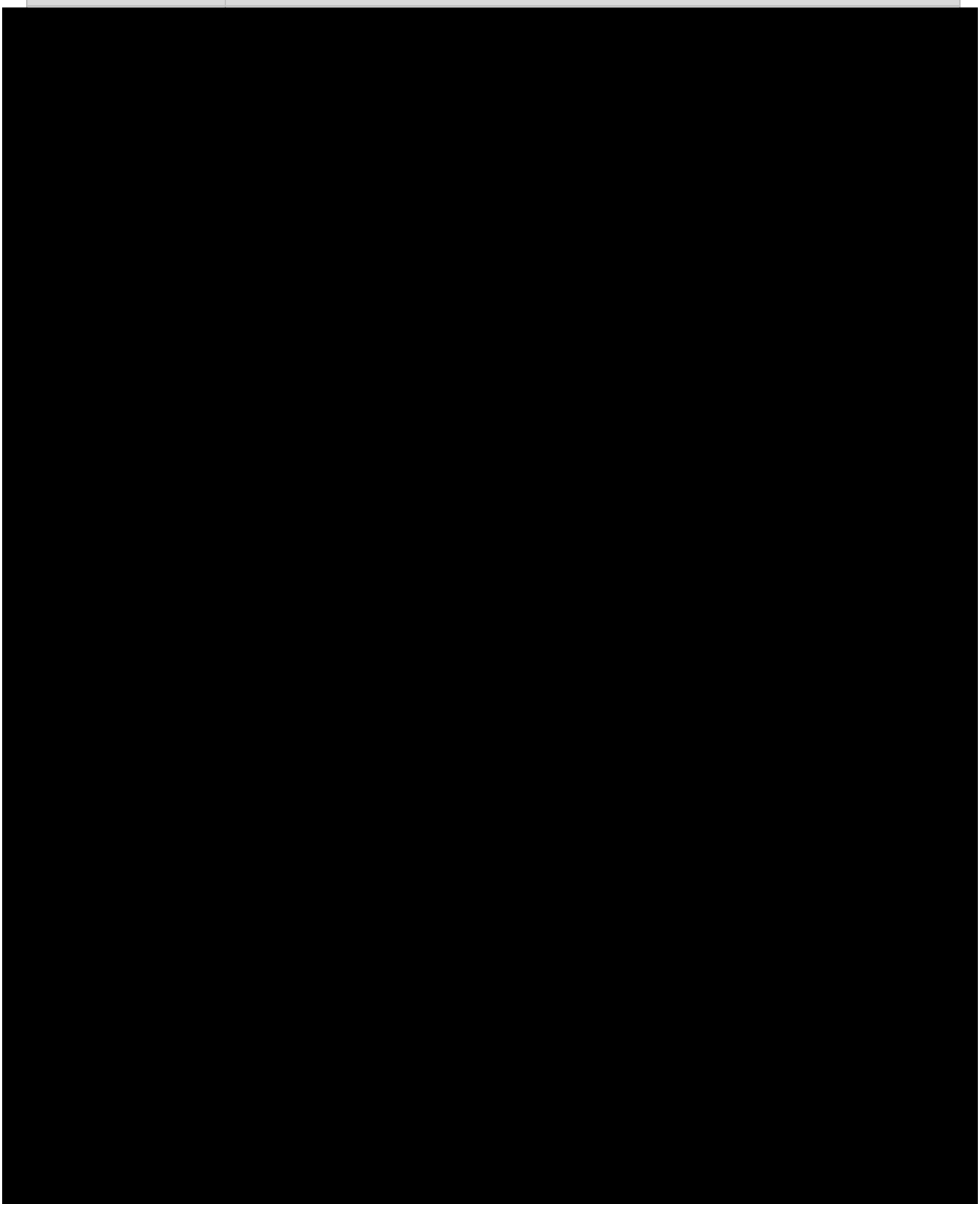
Element	Function



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Element	Function

The following columns are available:

Column	Function

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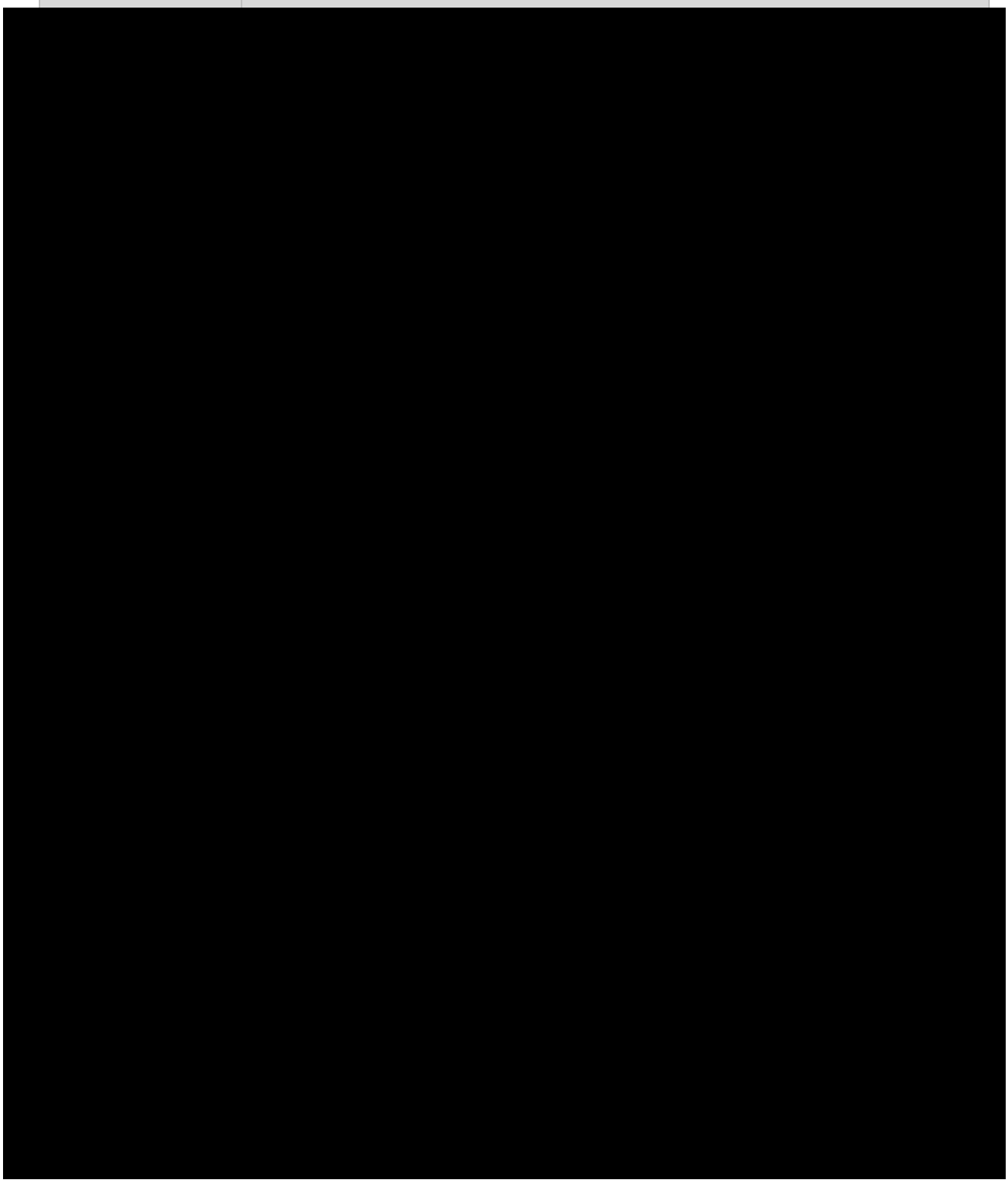
Column	Function



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Column	Function

6.1 Search work item

To search for a work item, follow these steps:

1. Click **Work item** in the navigation bar.
   ▷ The **Search work item** window will be opened and will display all work items that must be manually processed by the customer service. Depending on your rights, the window displays either only your own work items or all work items that have been registered in MOBILEvario.
2. Enter the search criteria in the fields at the top of the table.
3. Click **Search**.
   ▷ The records matching the given search criteria will be displayed in the table.
4. If you want to open the details of a work item, double-click the work item in the table.
   ▷ The work item details will be opened.
   ▶ You have searched for a work item.

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6.2 Work item details

Caution

If you have opened this function and some of the displayed details have been edited afterwards, the displayed data will not be updated until you refresh the data or re-open the function.

In the work item details you can view information about a work item.

The following functions are available in the navigation bar:

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Element	Function
[redacted]	
Process state	
[redacted]	

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Element	Function
[redacted]	

The following functions are available:

Element	Function
Work item properties	
[redacted]	

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Element	Function
[redacted]	
Linked account	
[redacted]	
Linked card	
[redacted]	
Linked order	
[redacted]	

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Element	Function
[redacted]	
Progress	
[redacted]	

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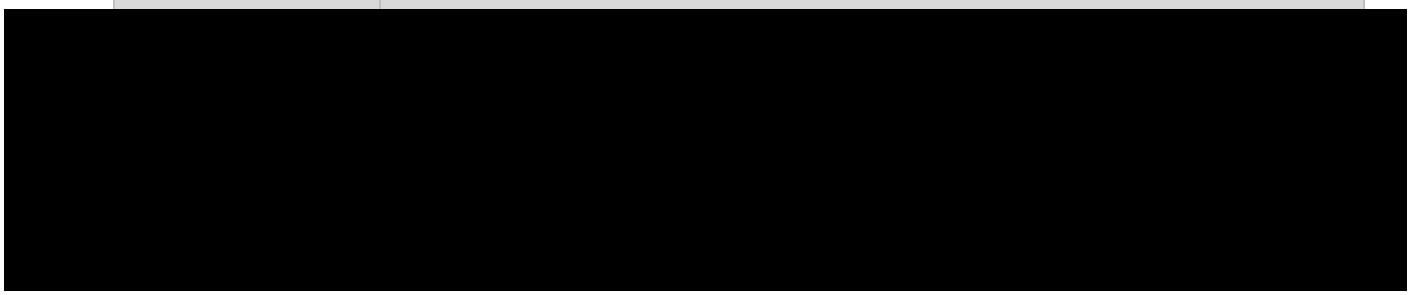
Element	Function
Description	

The **History** table displays all changes that have been made to the work item. The following columns are available:

Column	Function



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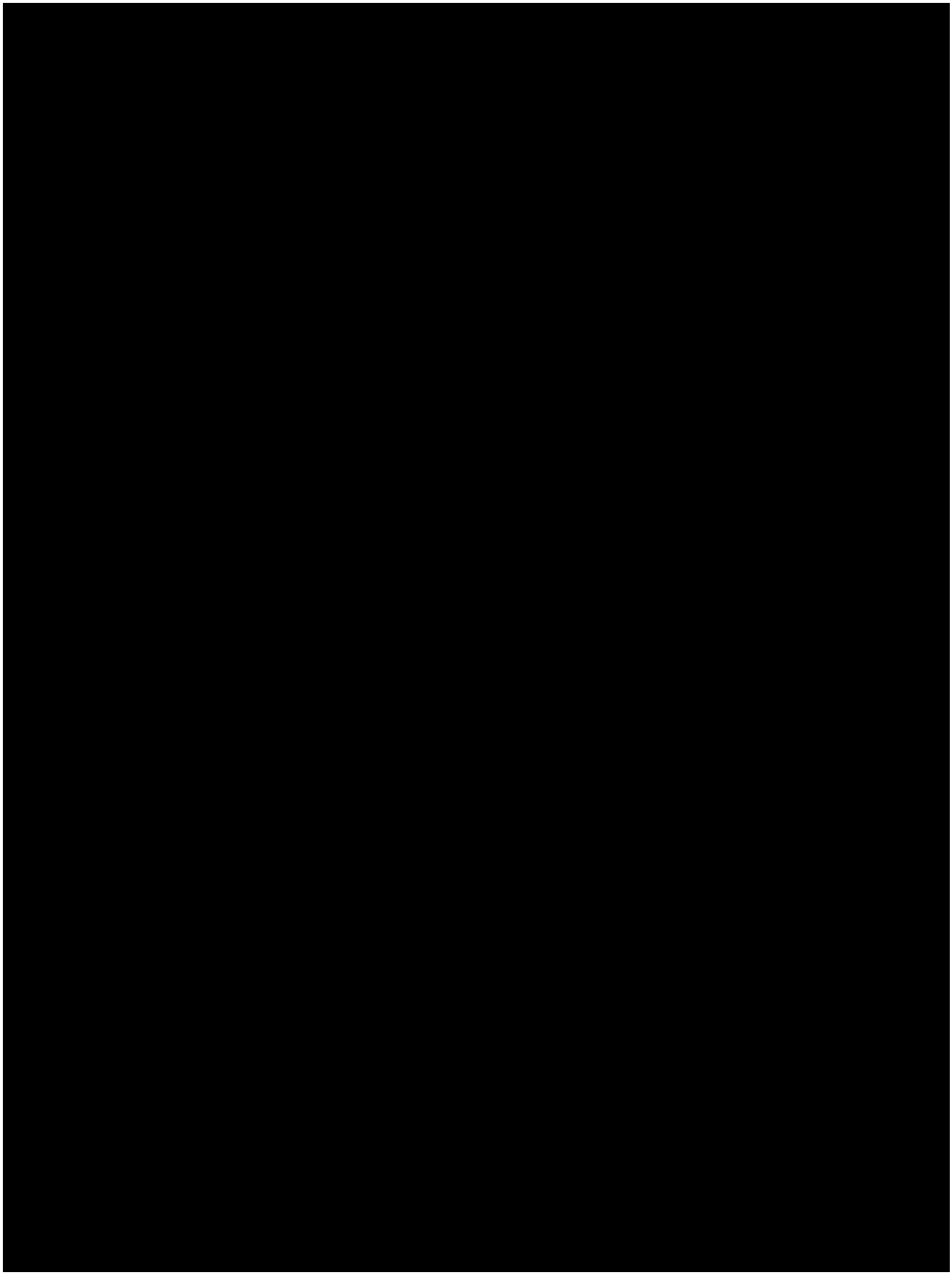
6.2.1 Create work item



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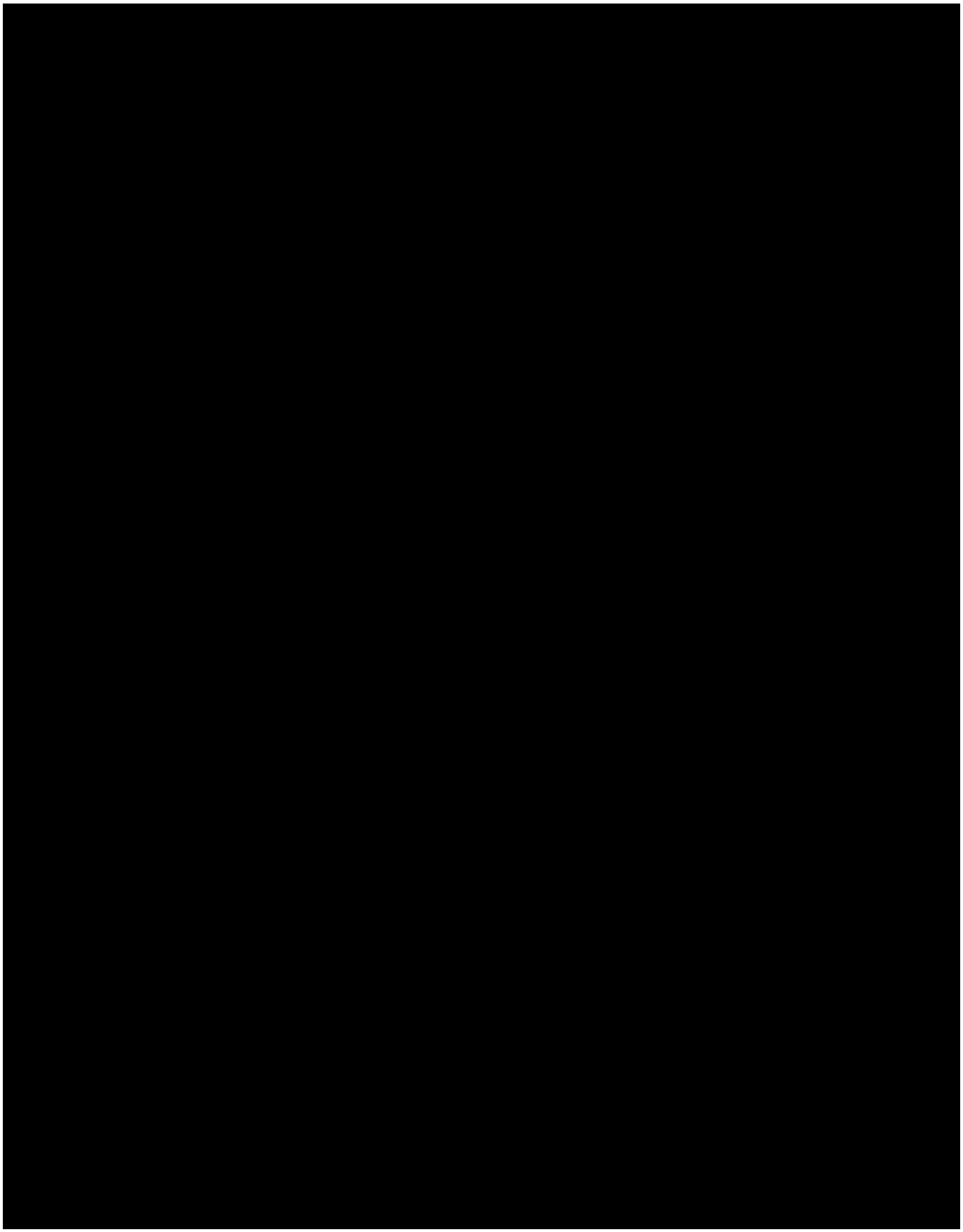

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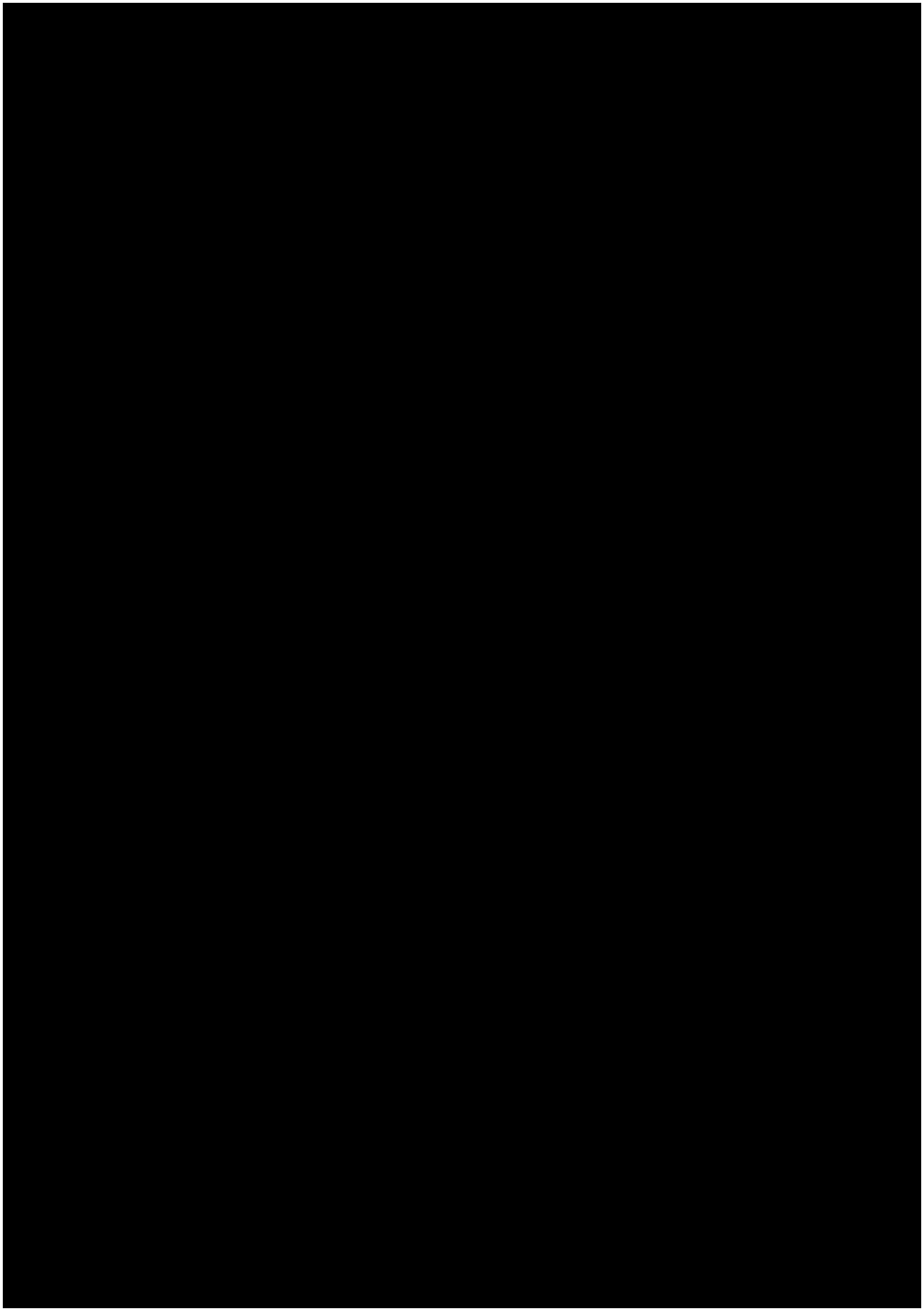

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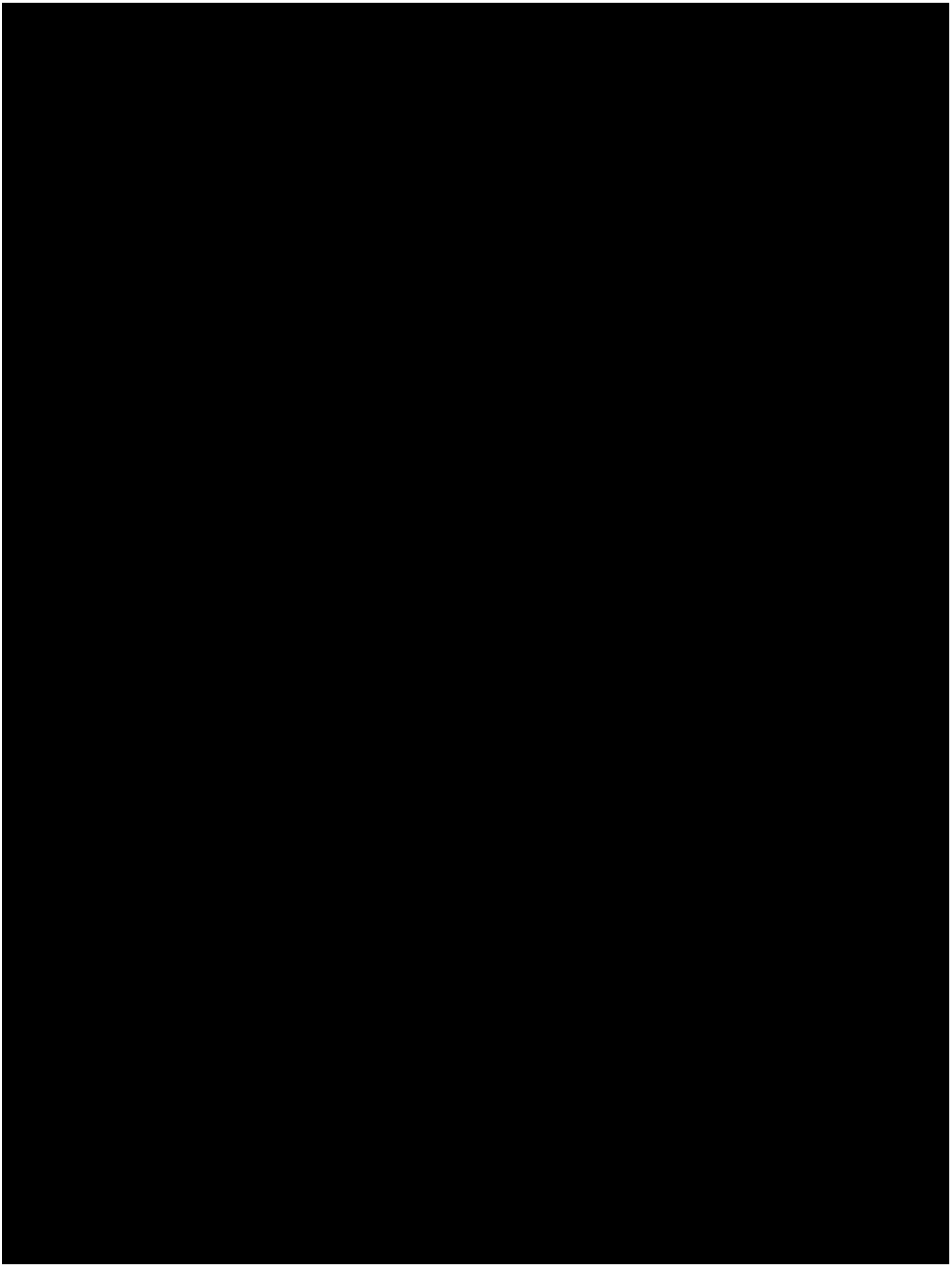

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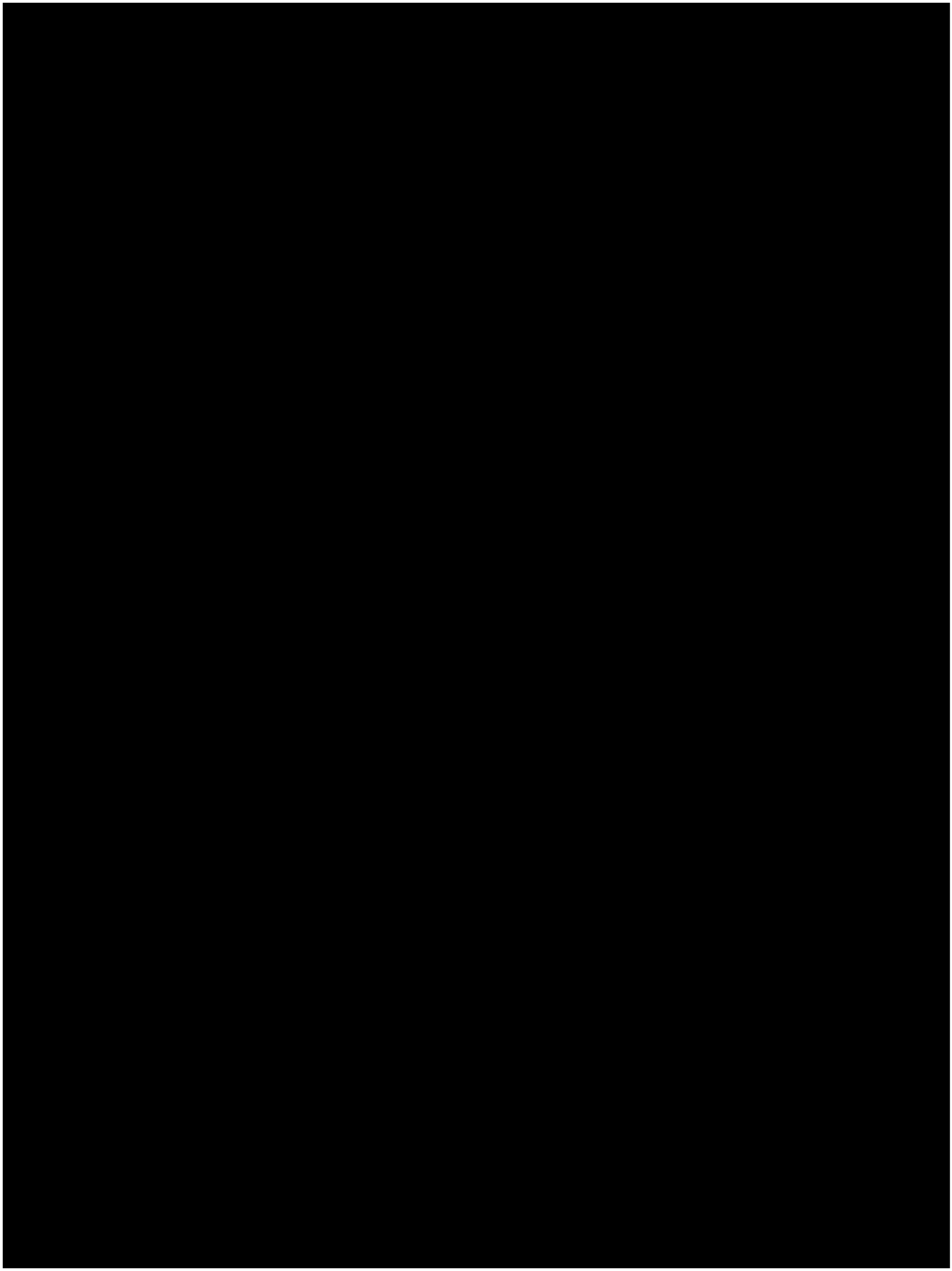

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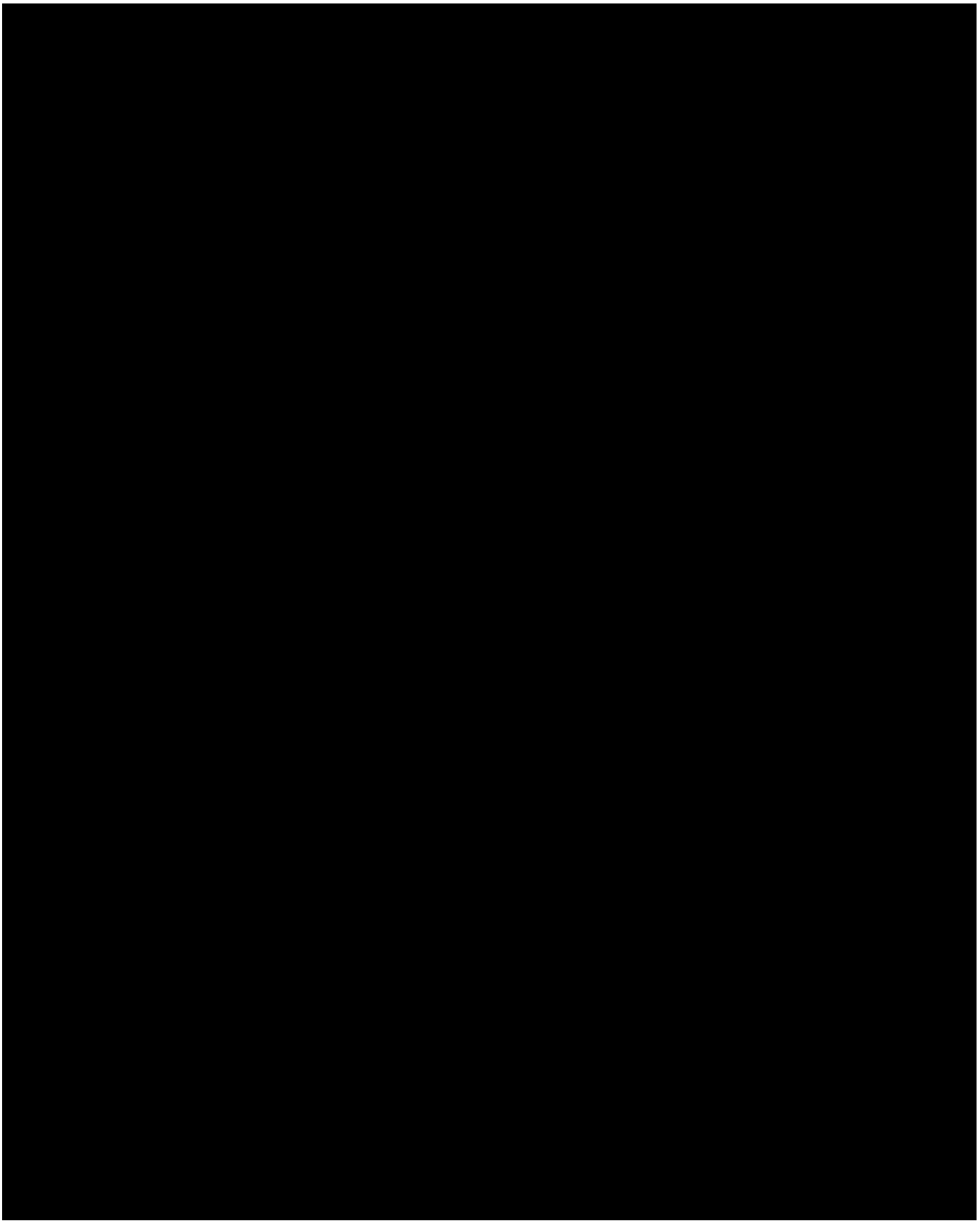

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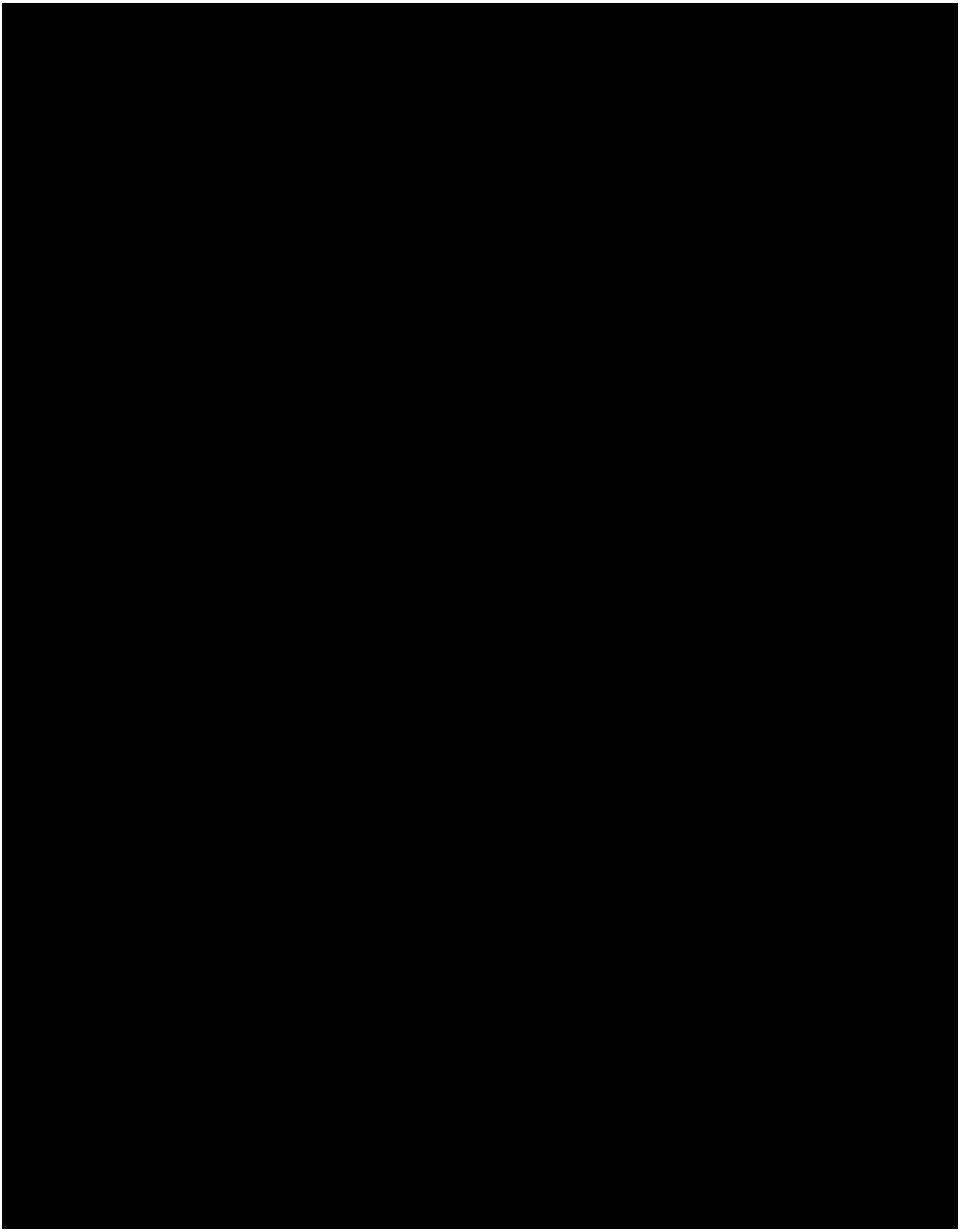

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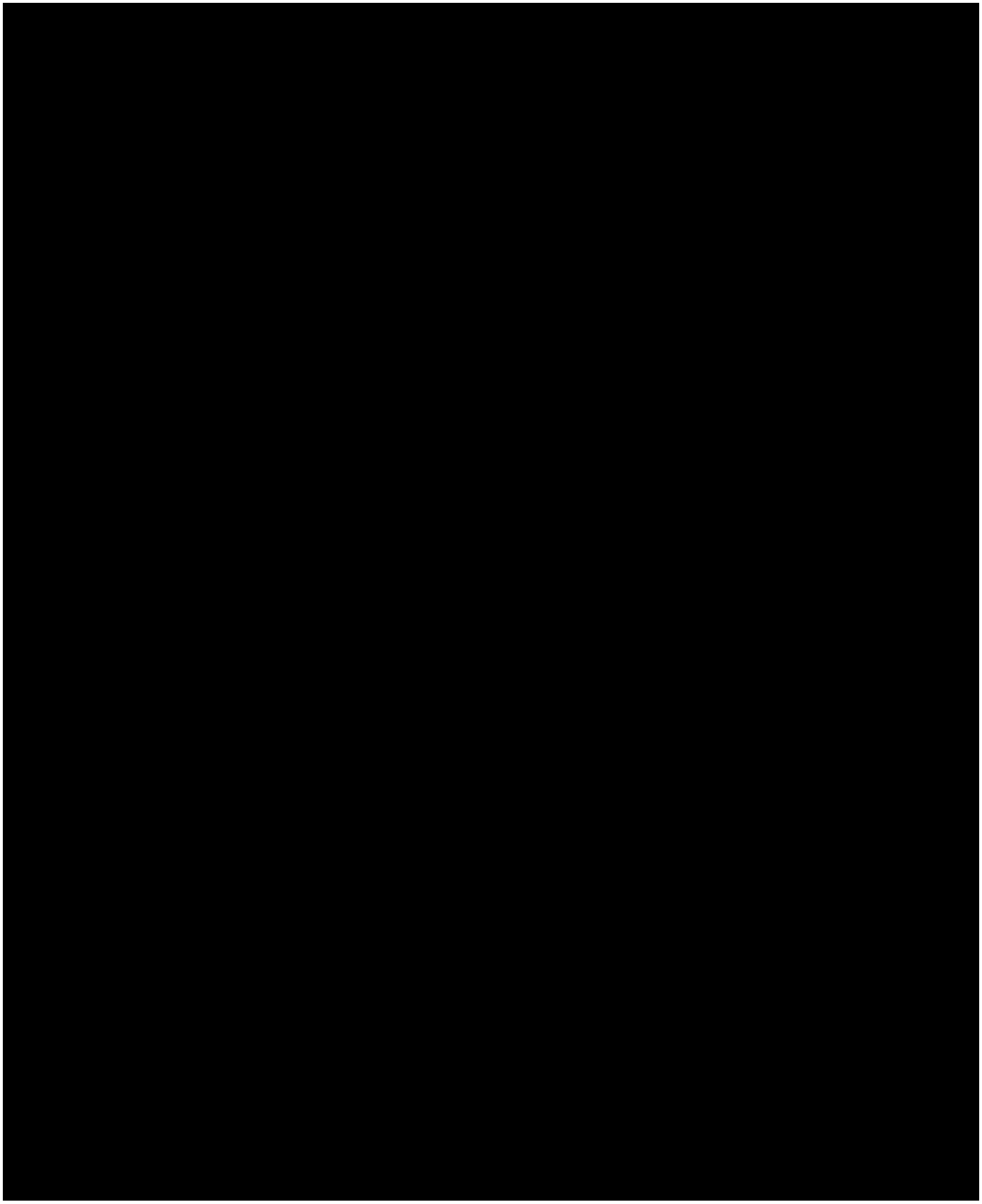

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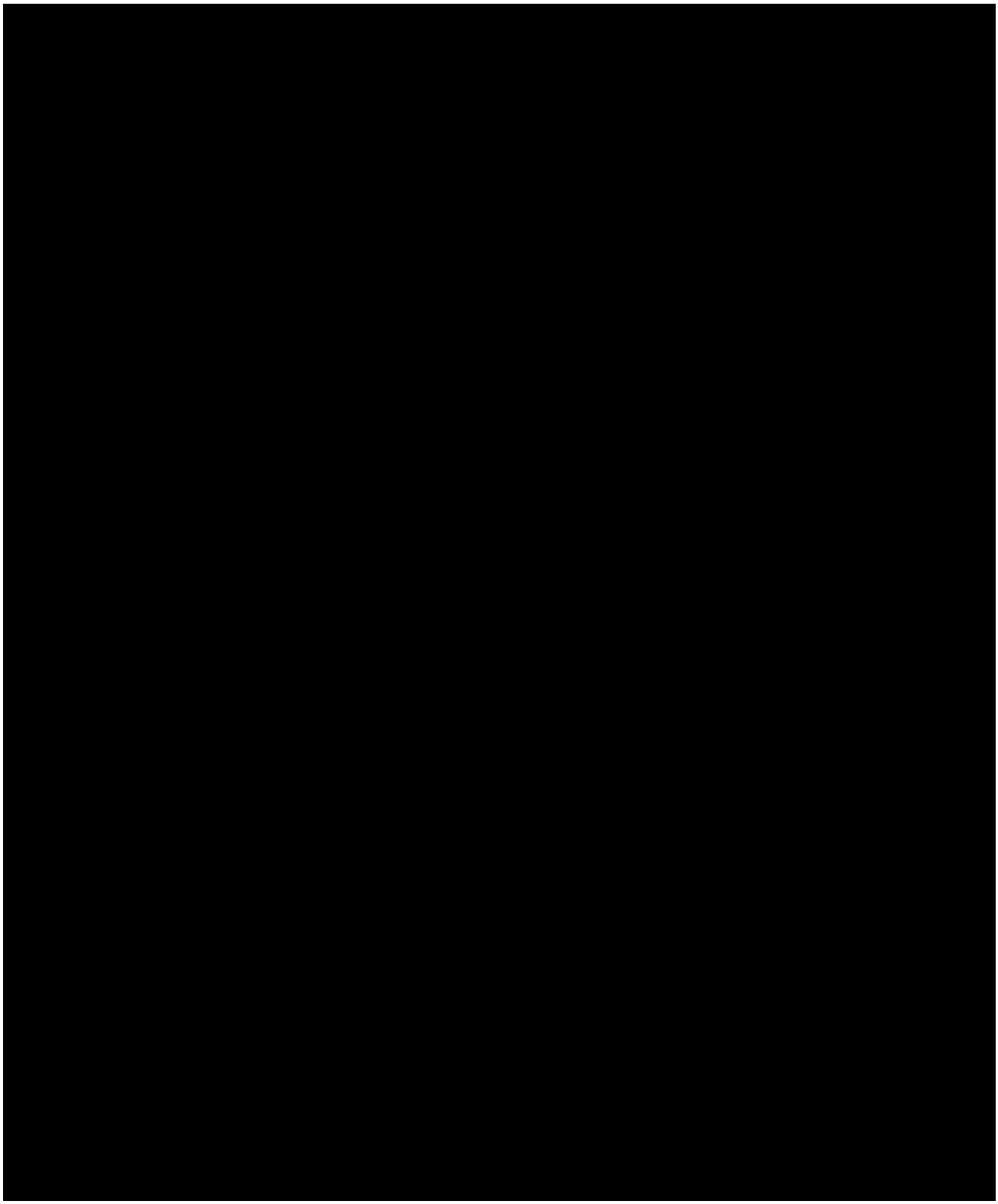

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7.1 Search order

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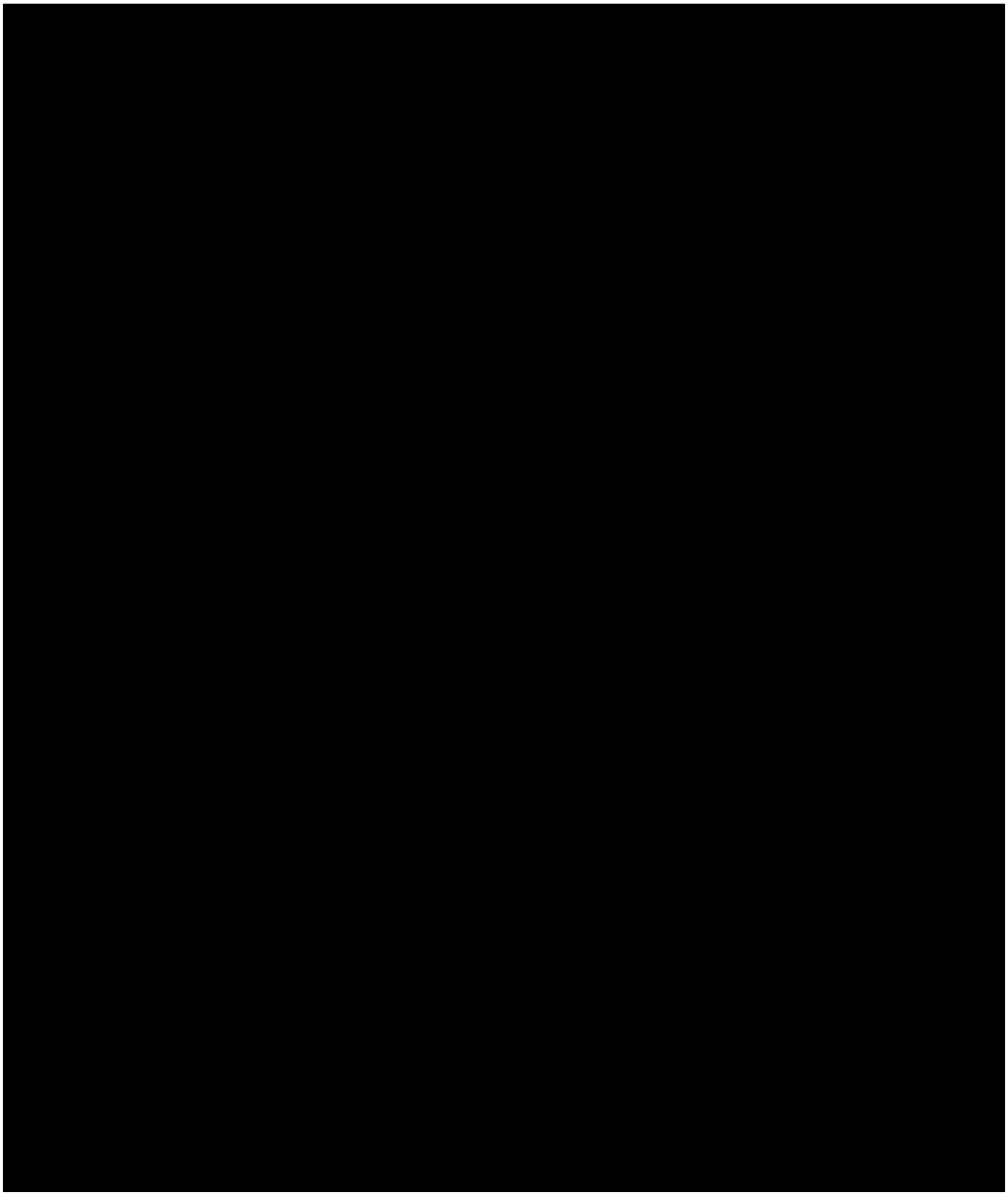
7.2 Order details



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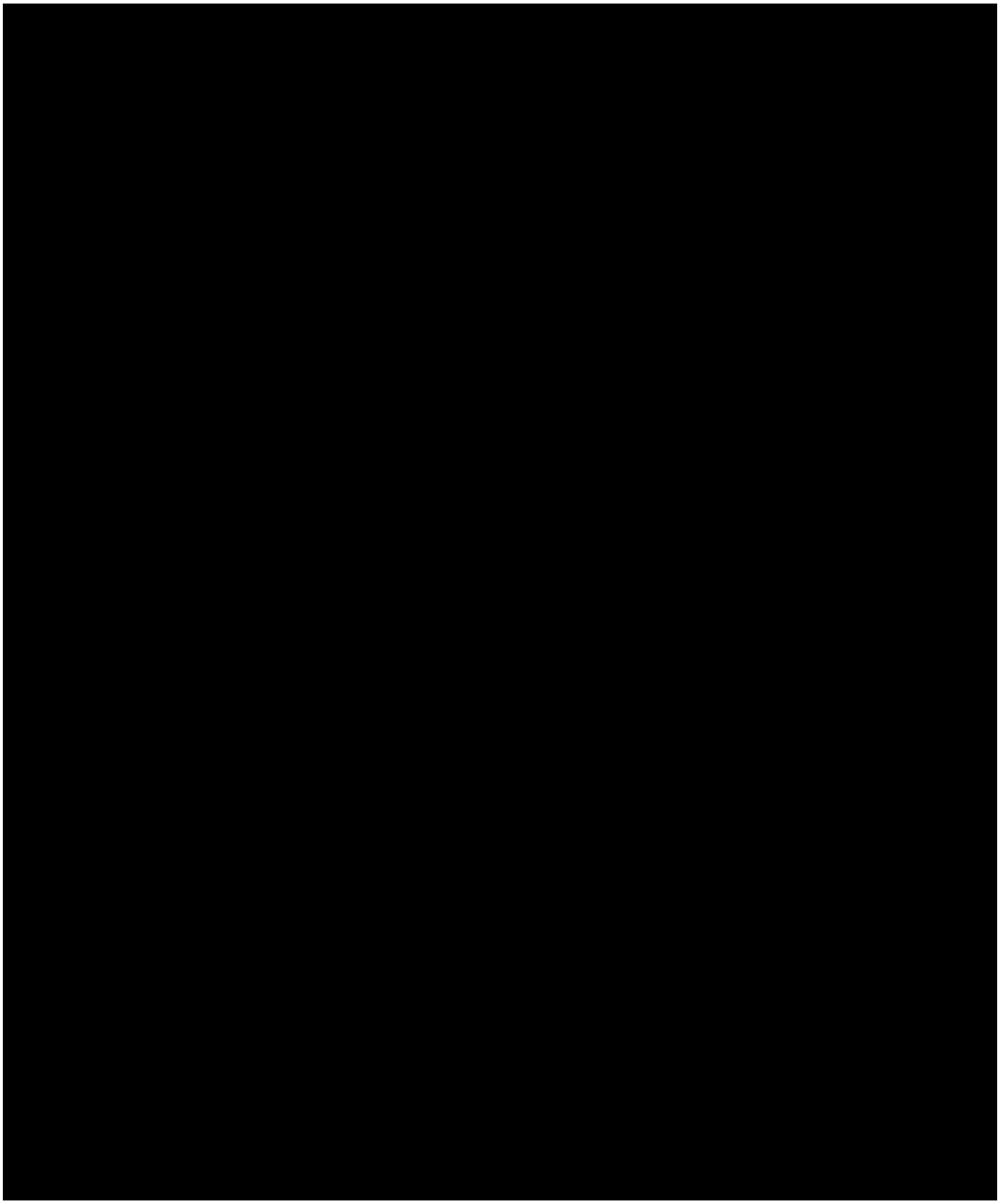

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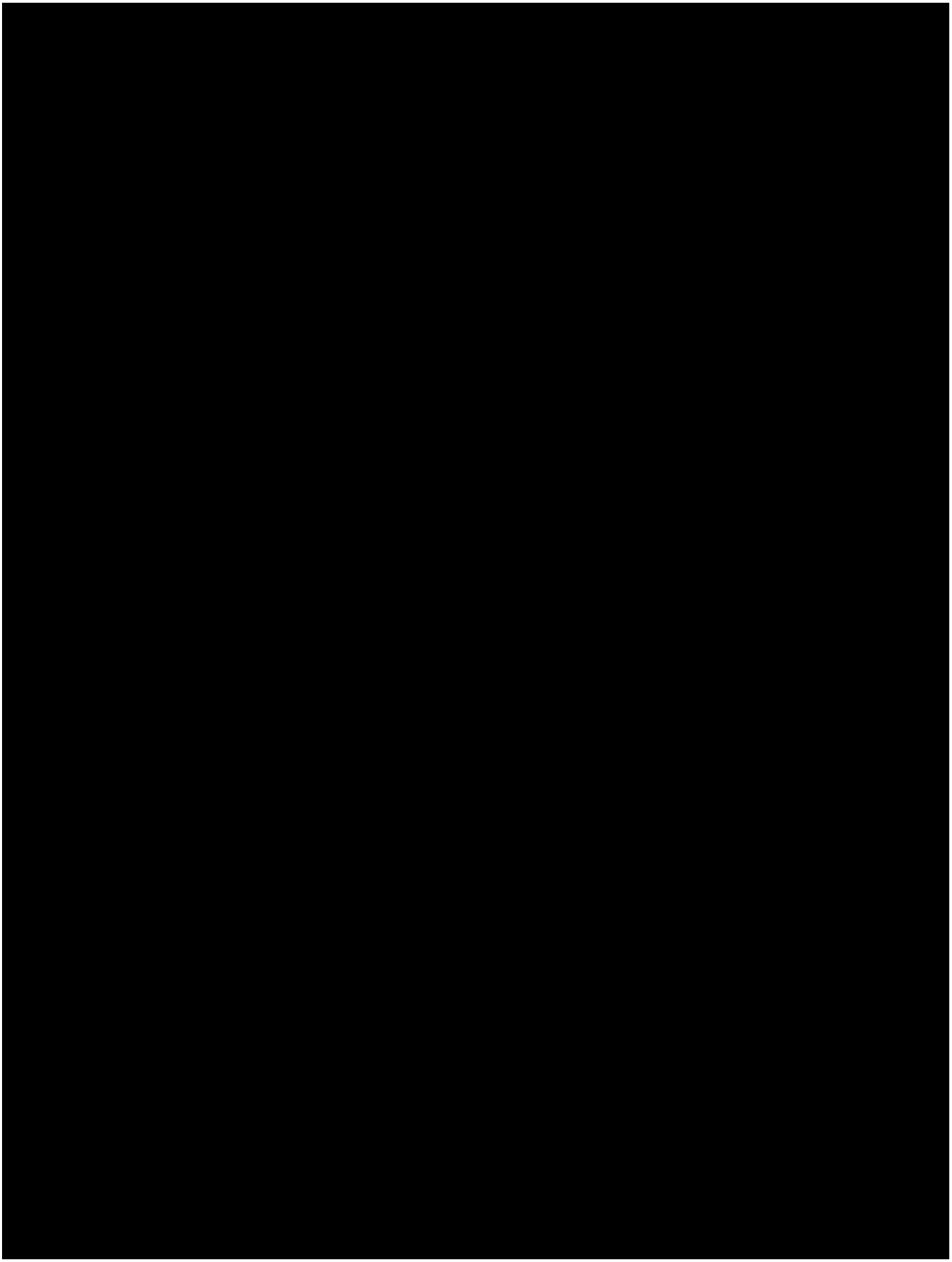

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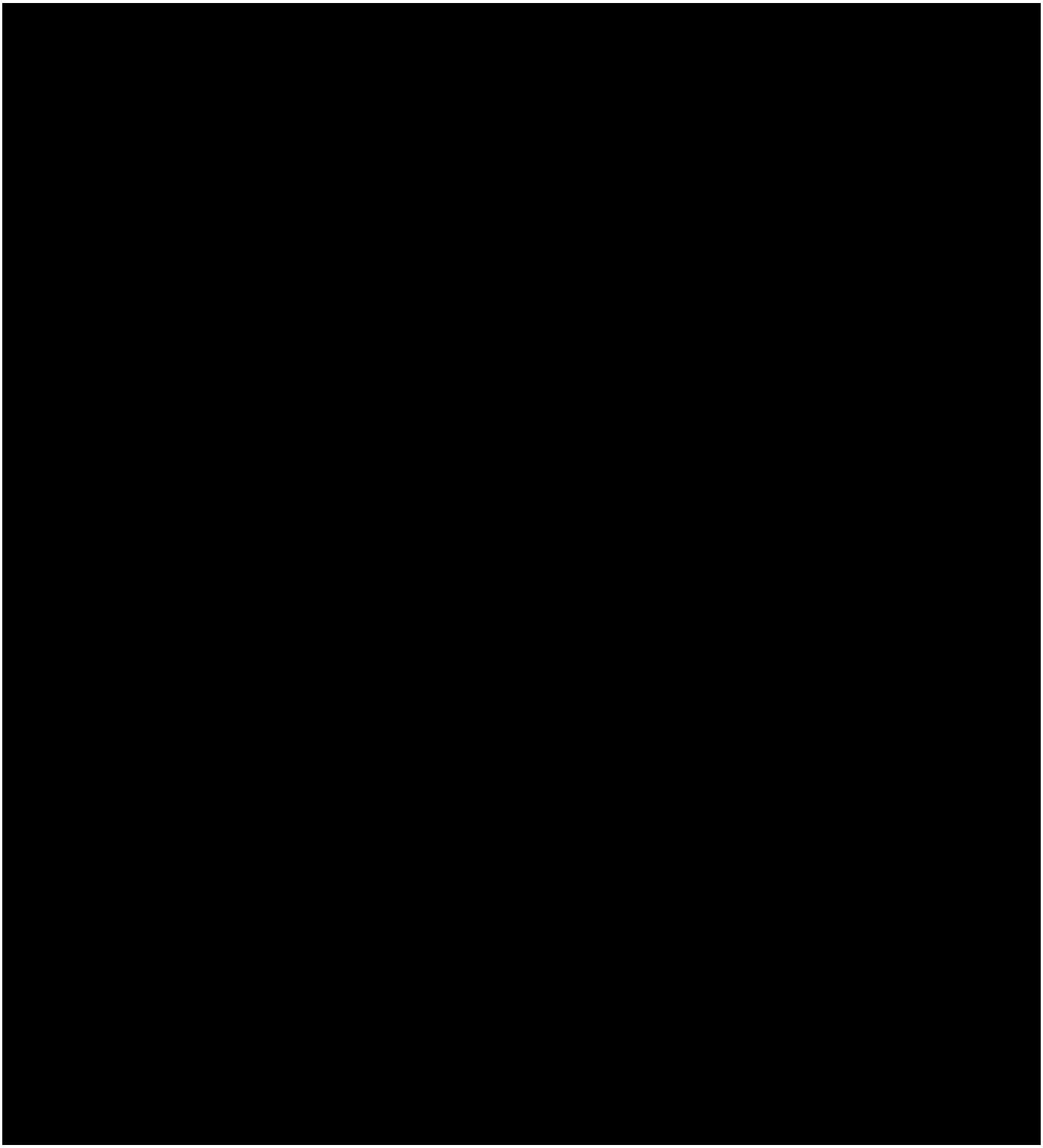

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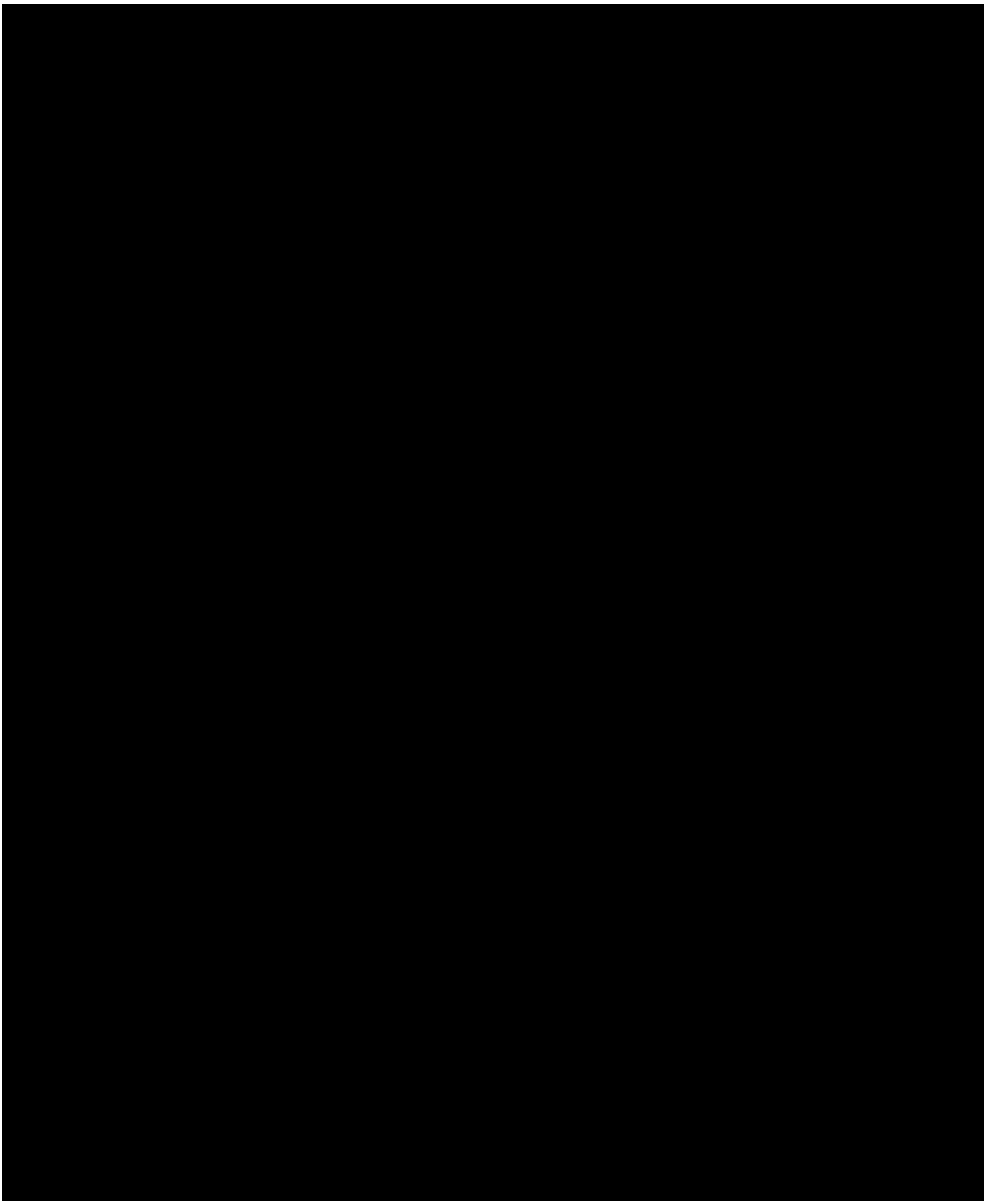
7.2.1 Order details

The **Order details** tab displays all items that have been ordered.



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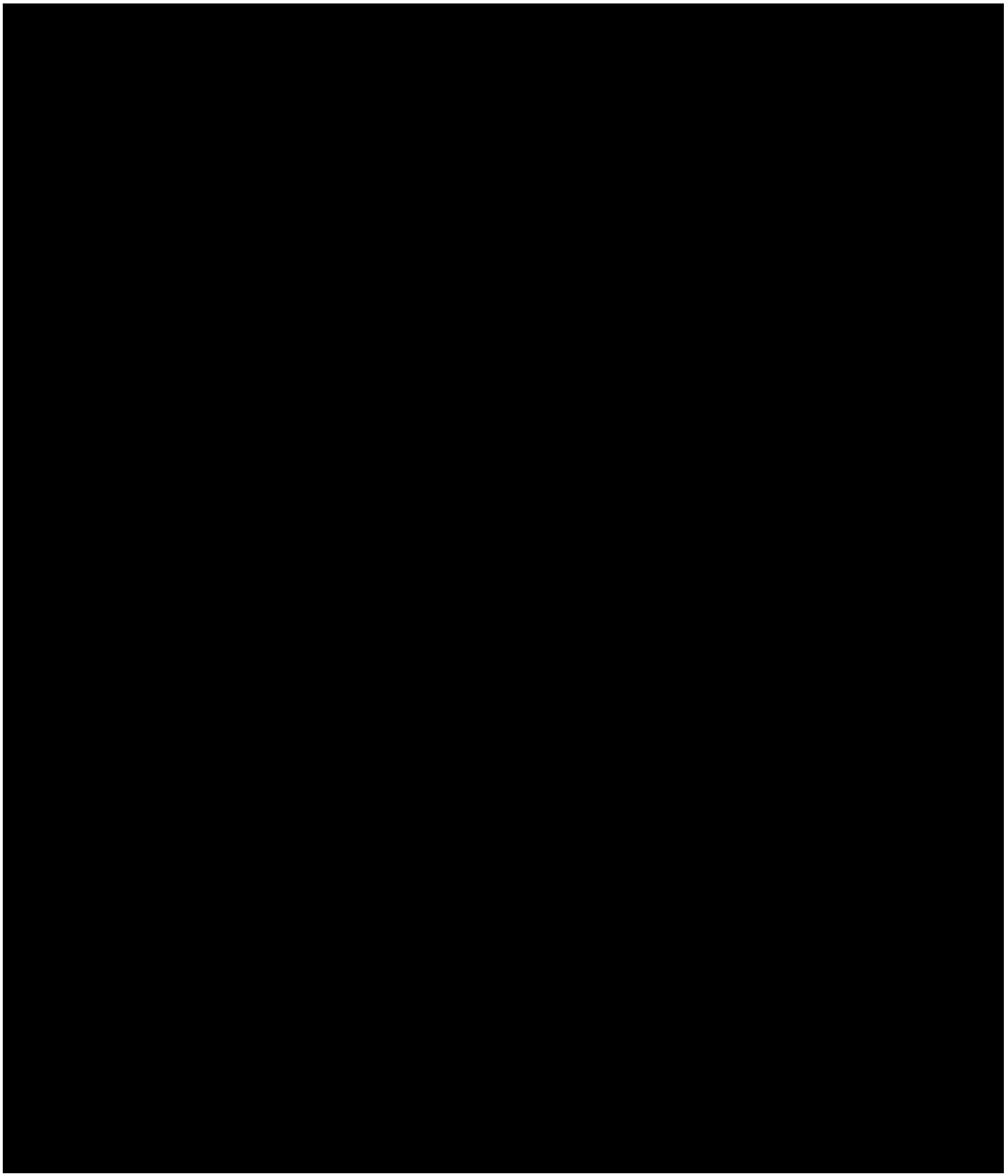

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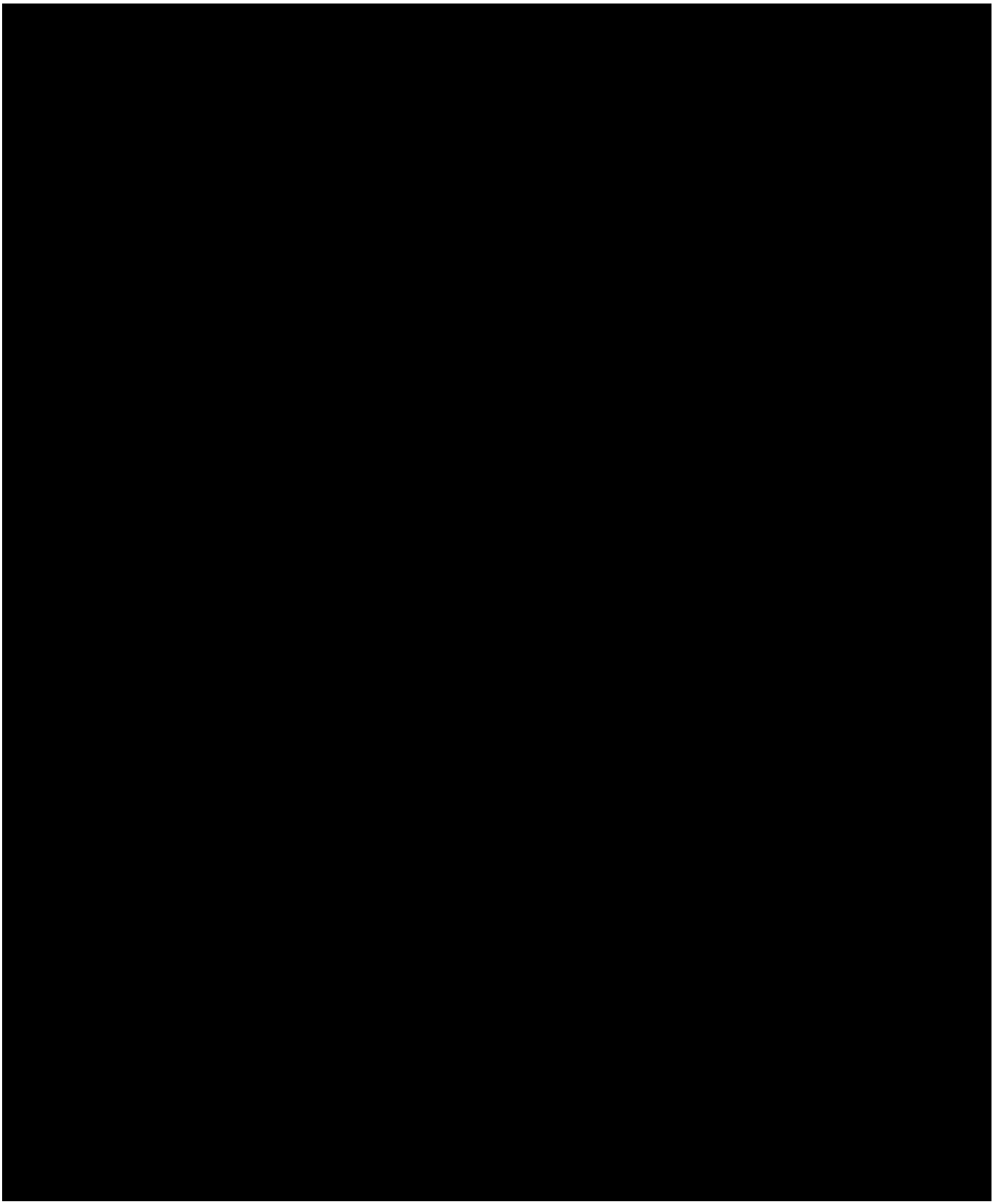

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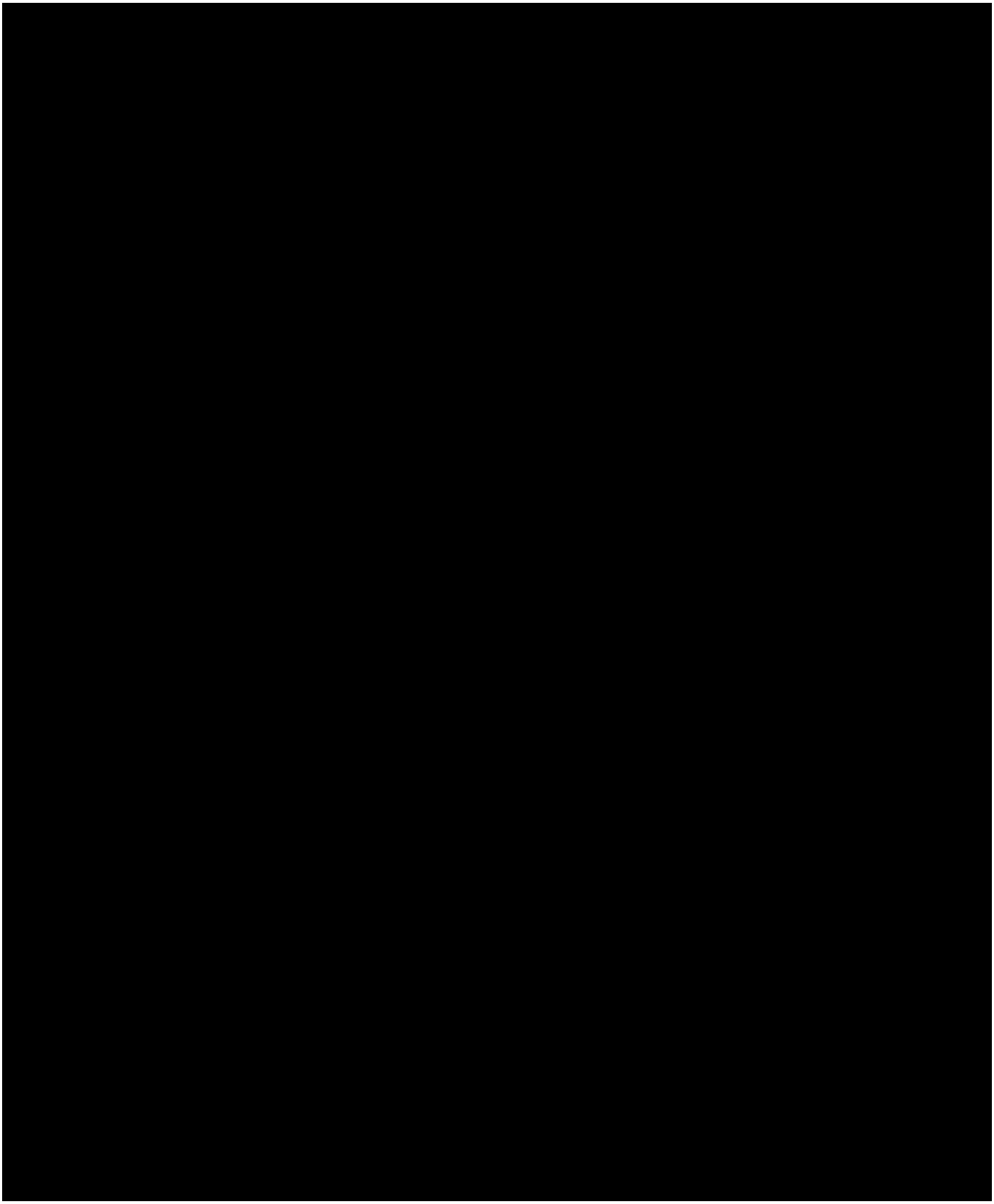

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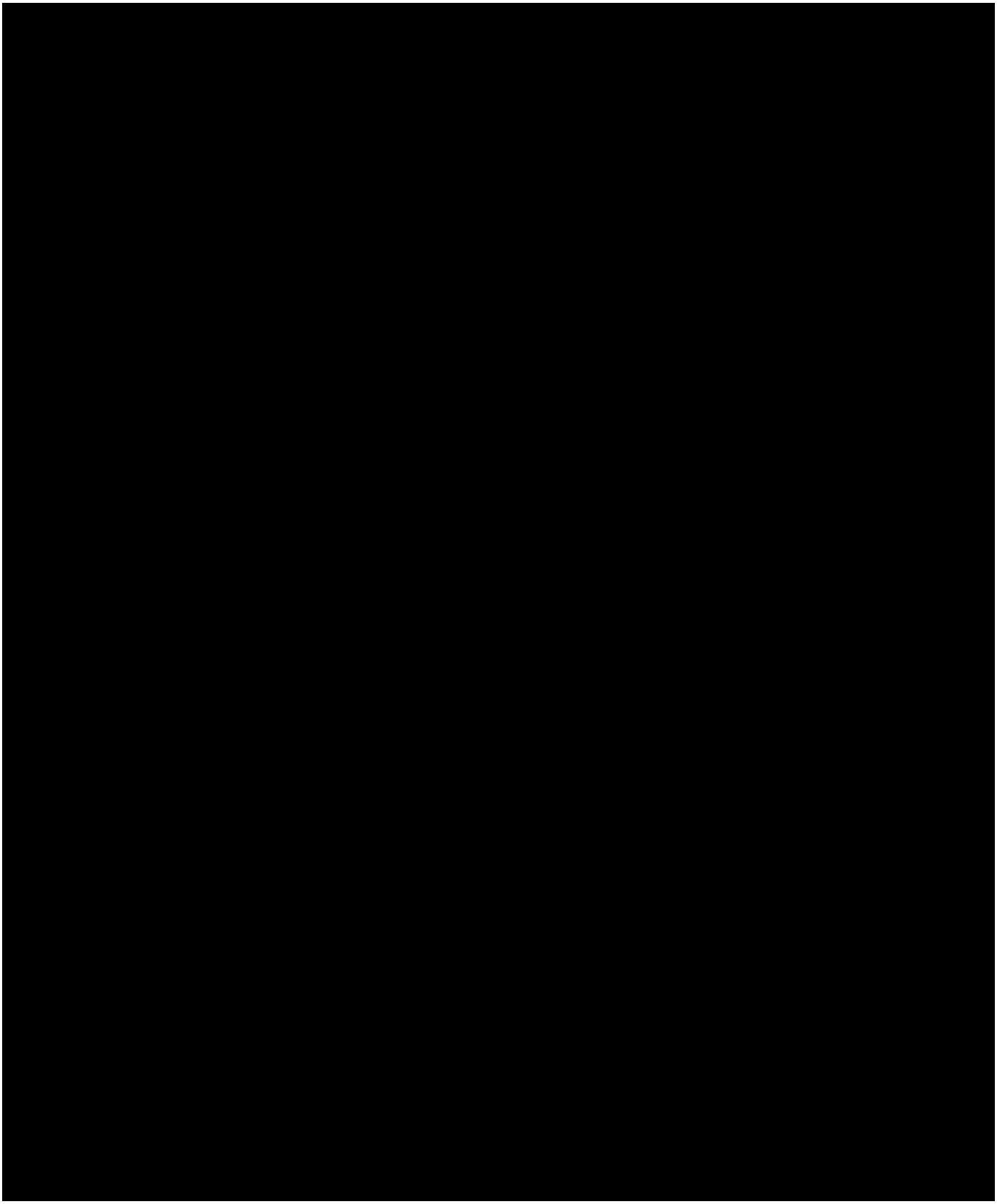

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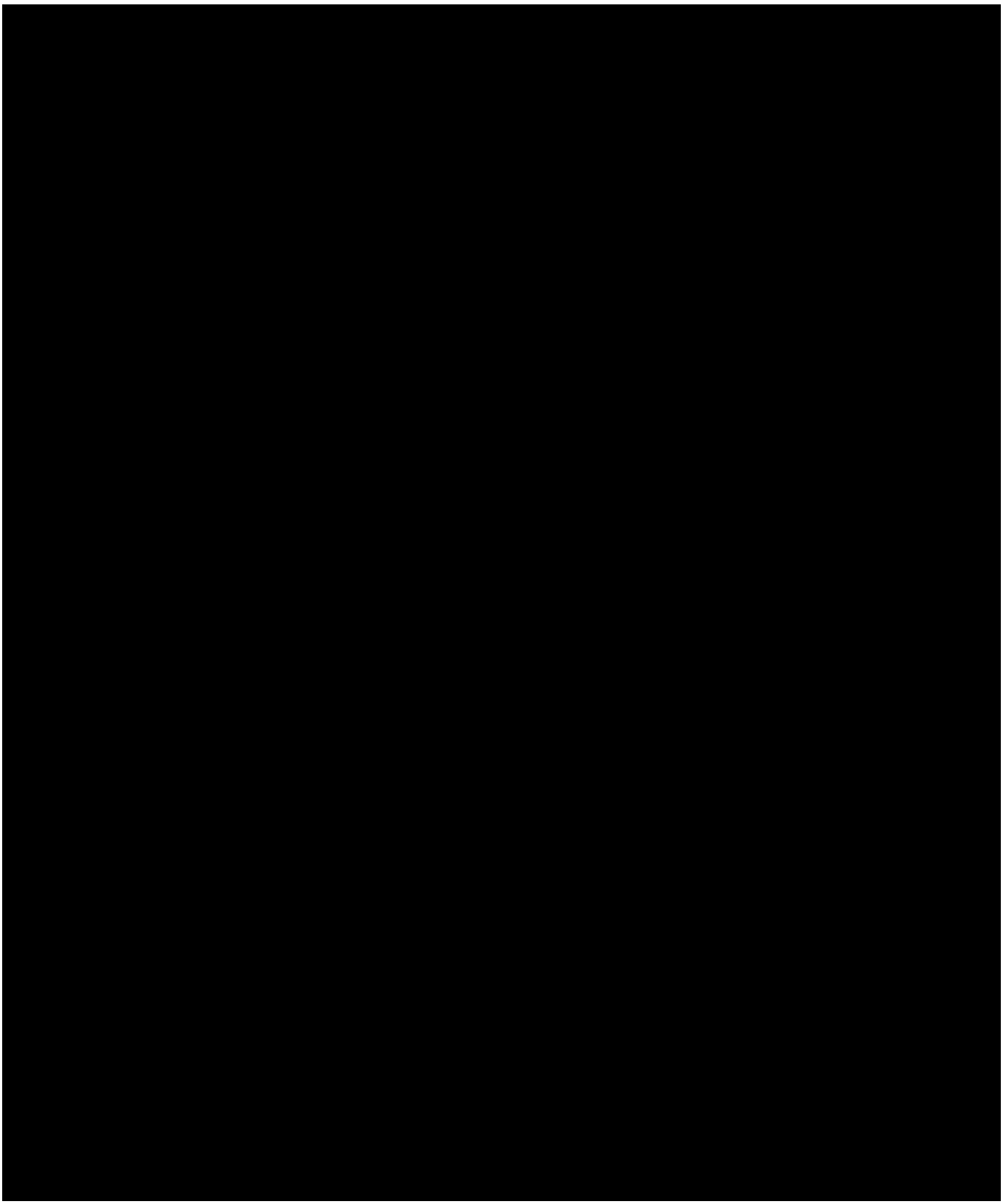

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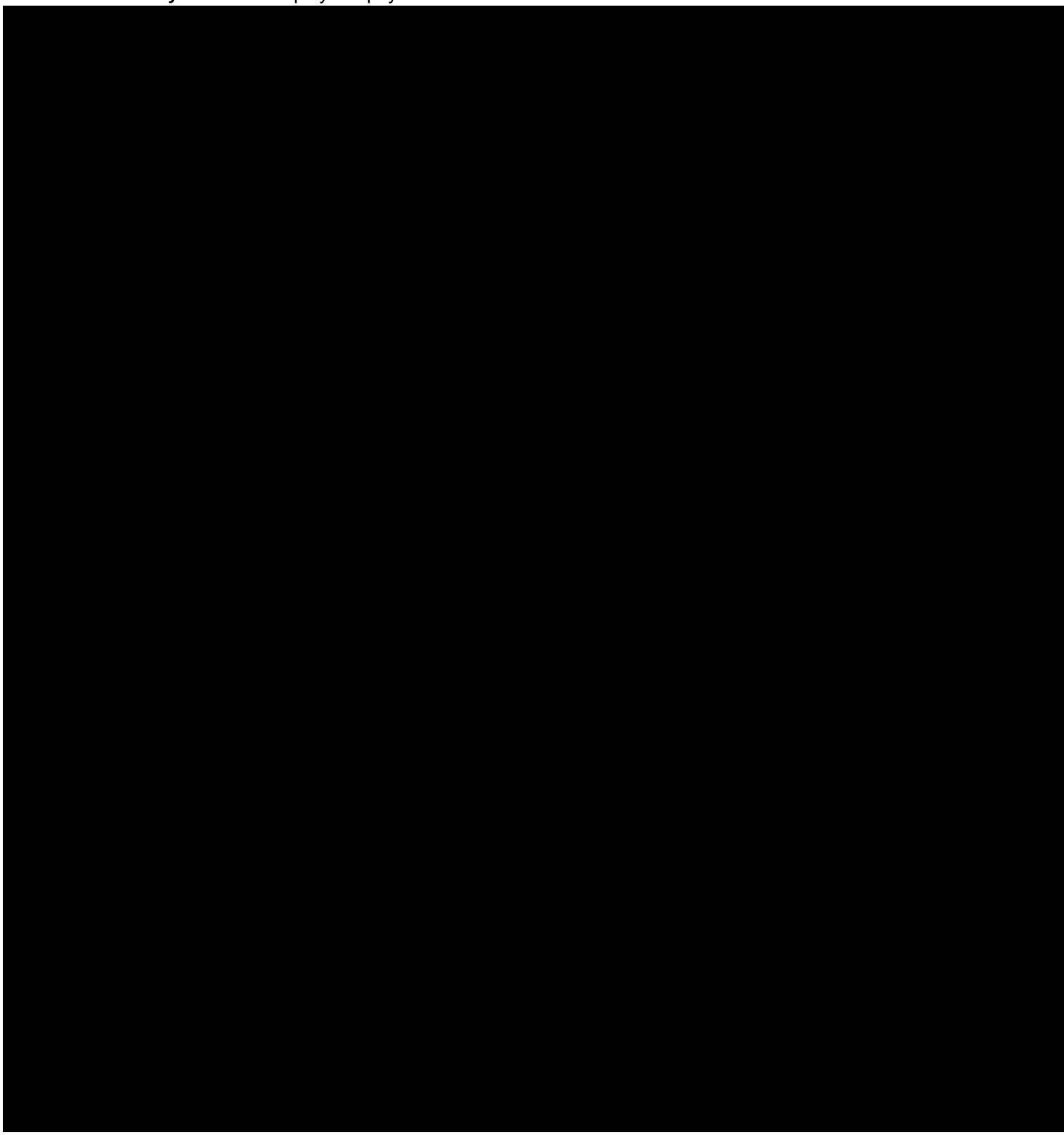
7.2.3 Payments

The **Payments** tab displays all payments that are attached to the order.



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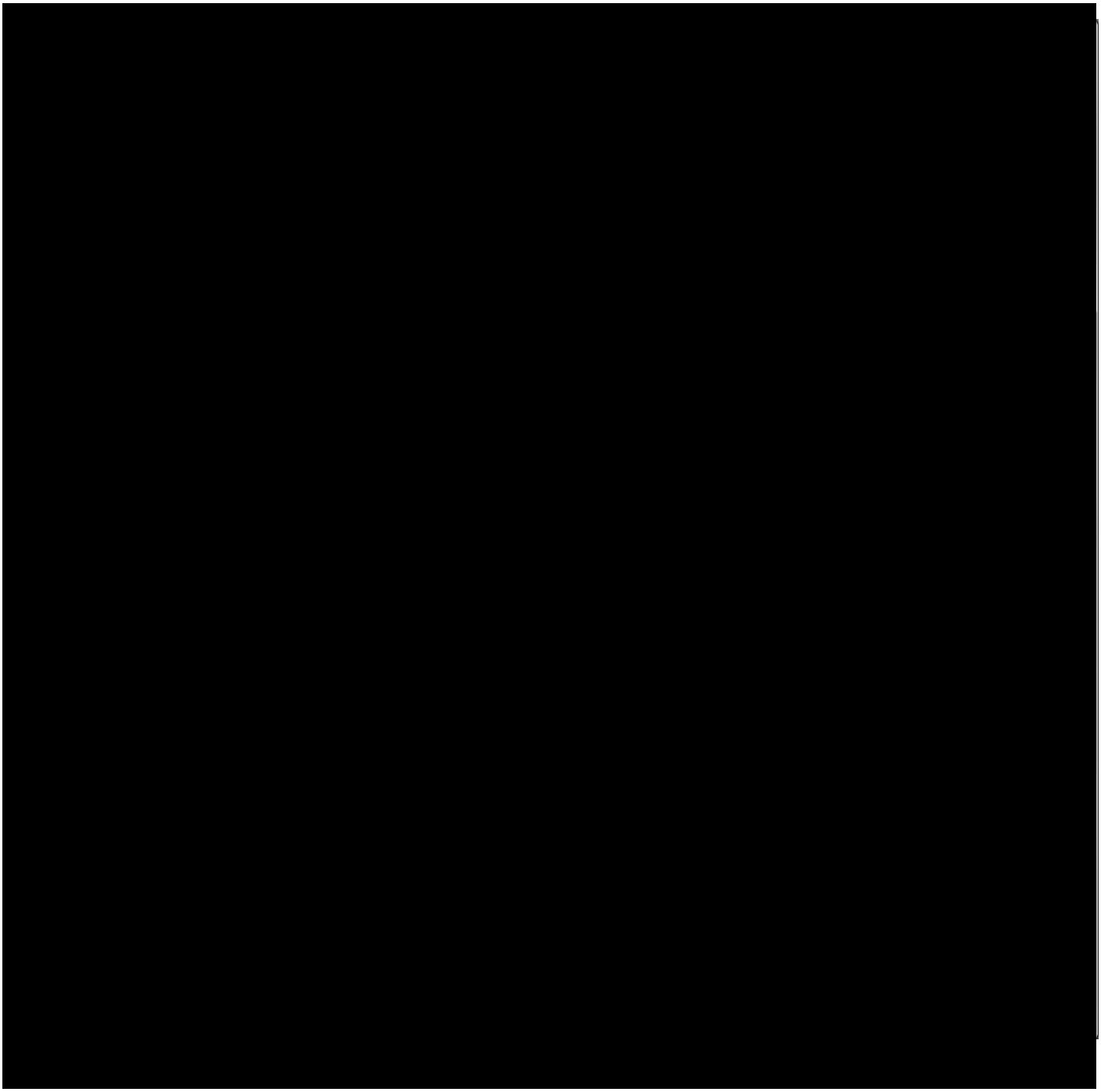
8 CRM

Caution

If you have opened this function and some of the displayed details have been edited afterwards, the displayed data will not be updated until you refresh the data or re-open the function.

The **CRM** program group enables you to manage card details and account details.

In the call center you can manage card details and account details.



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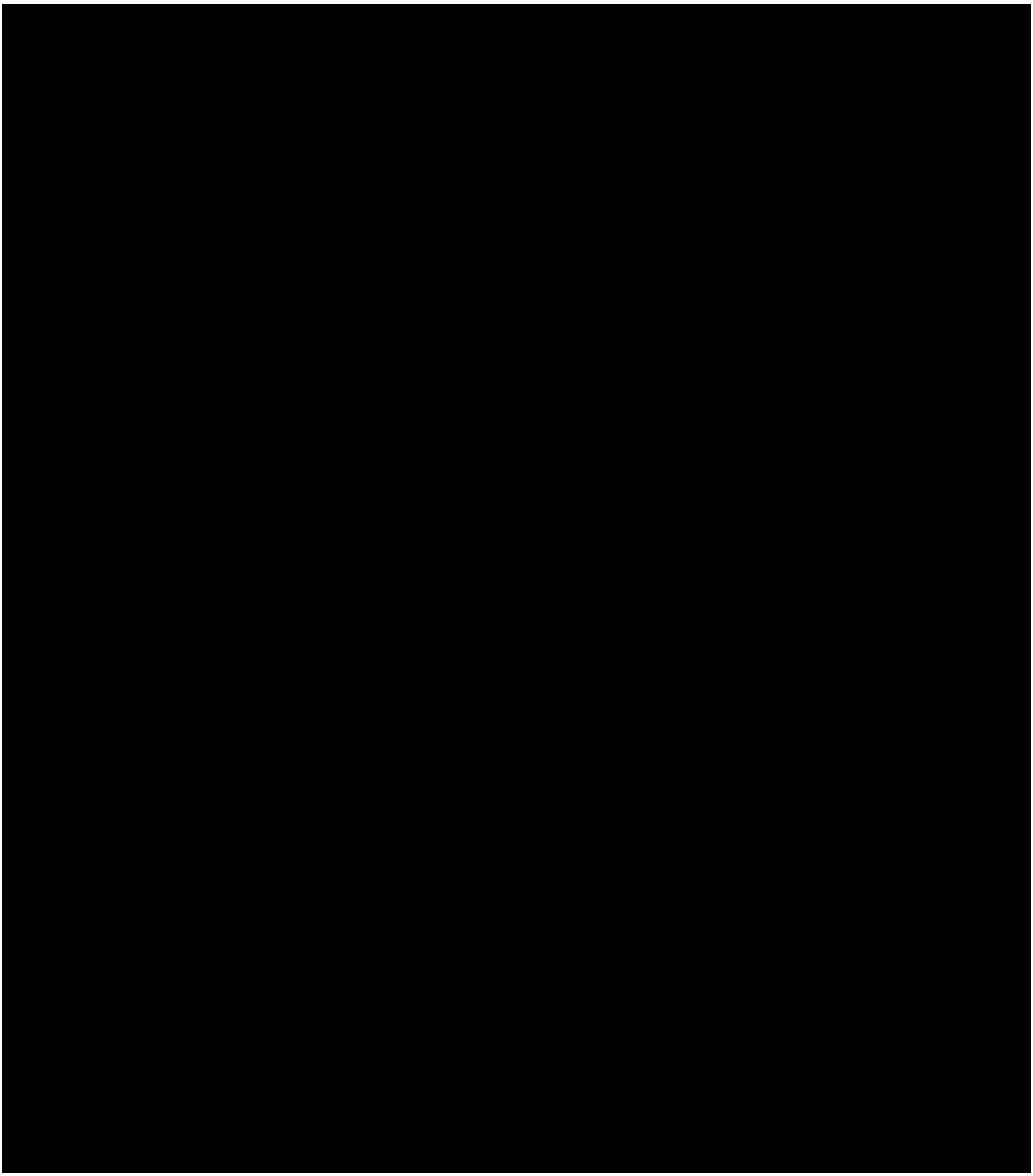

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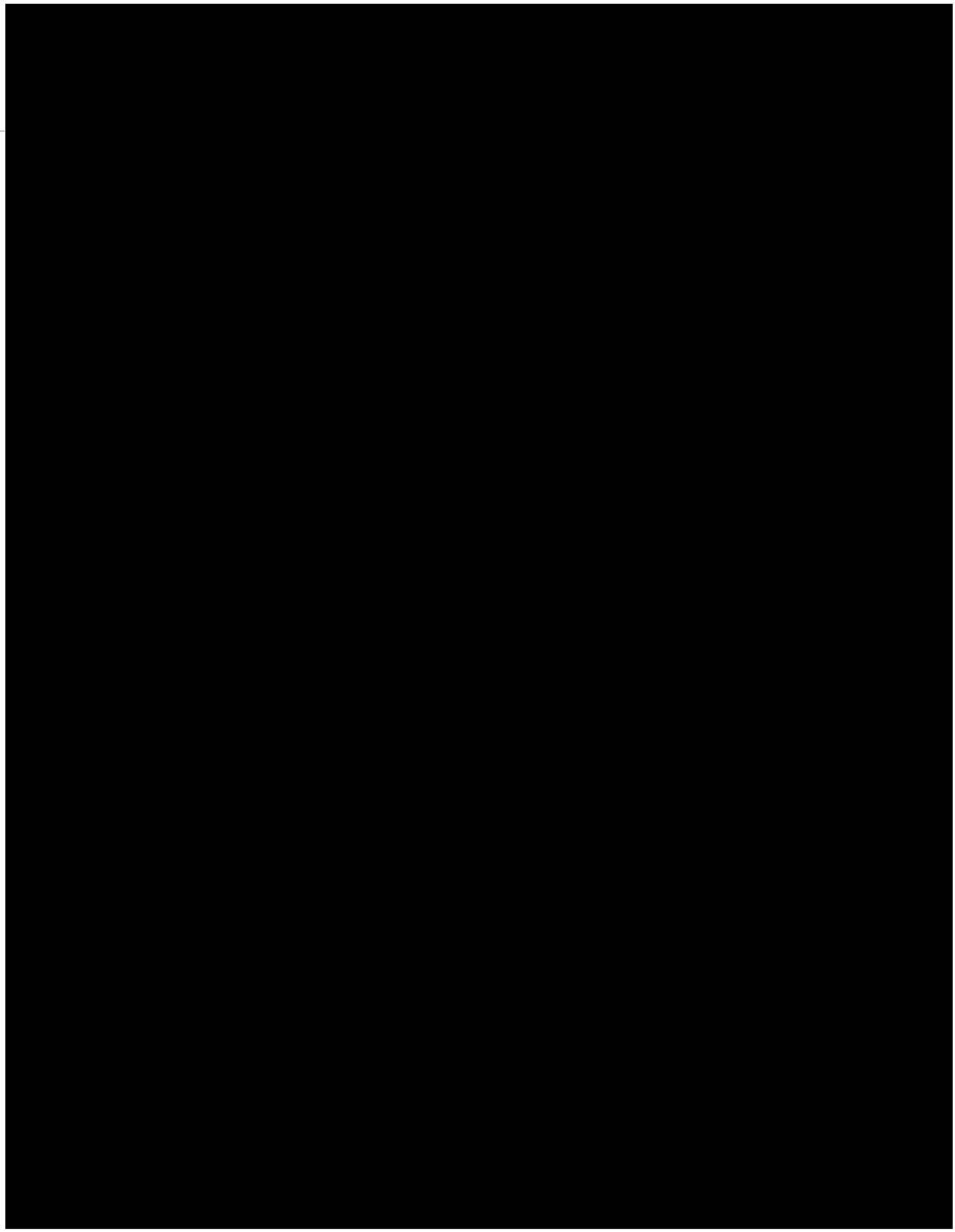

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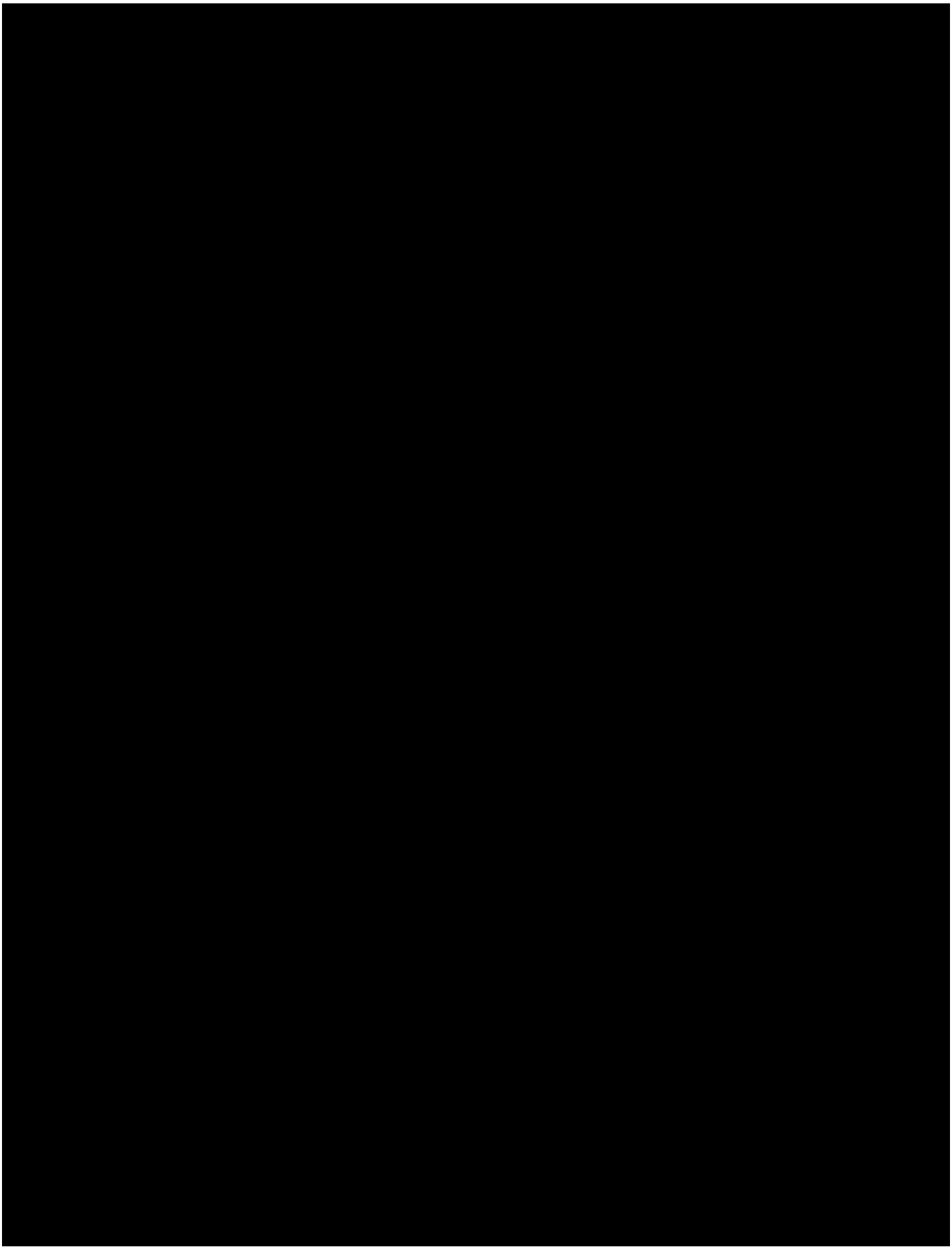

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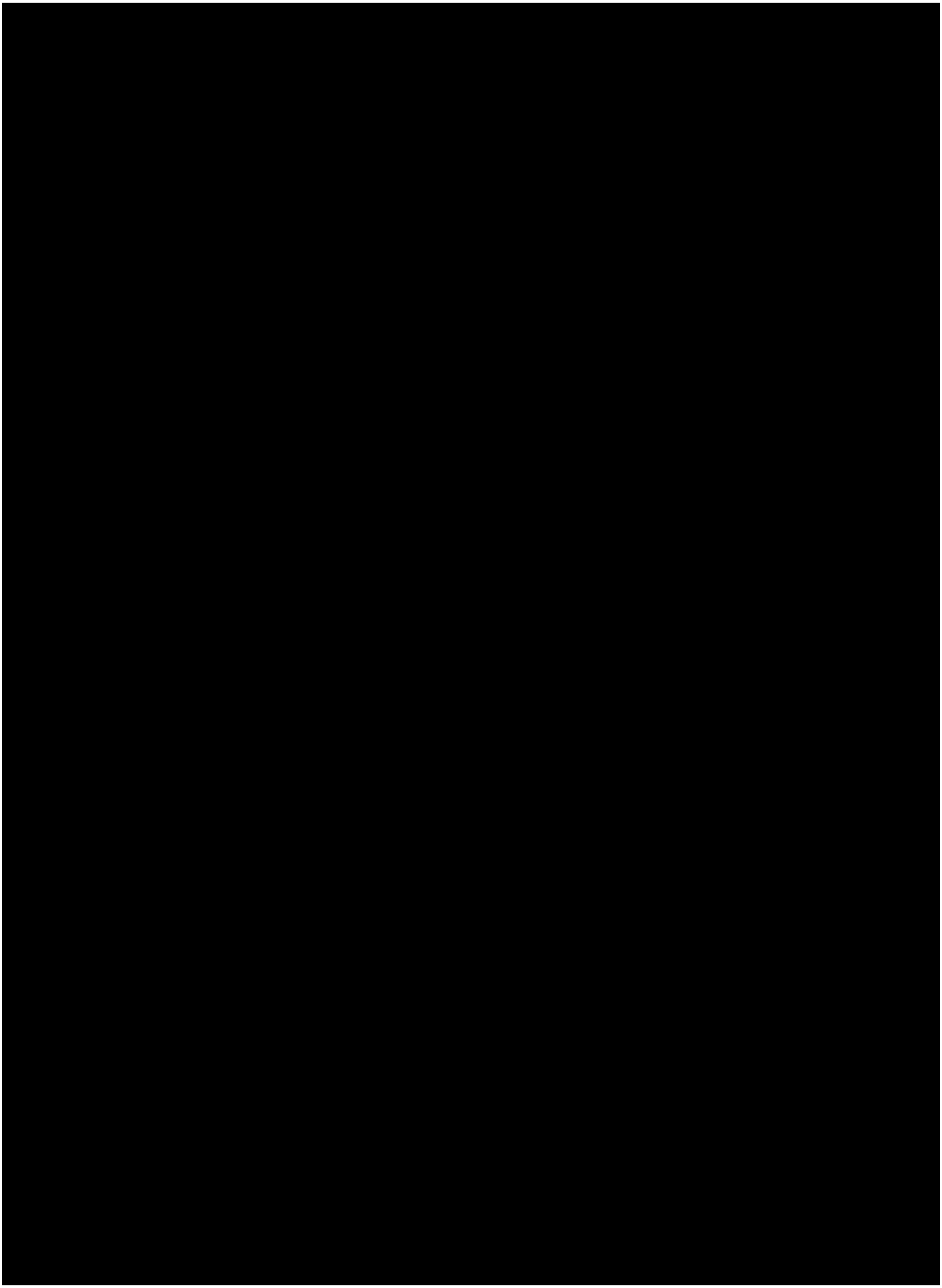

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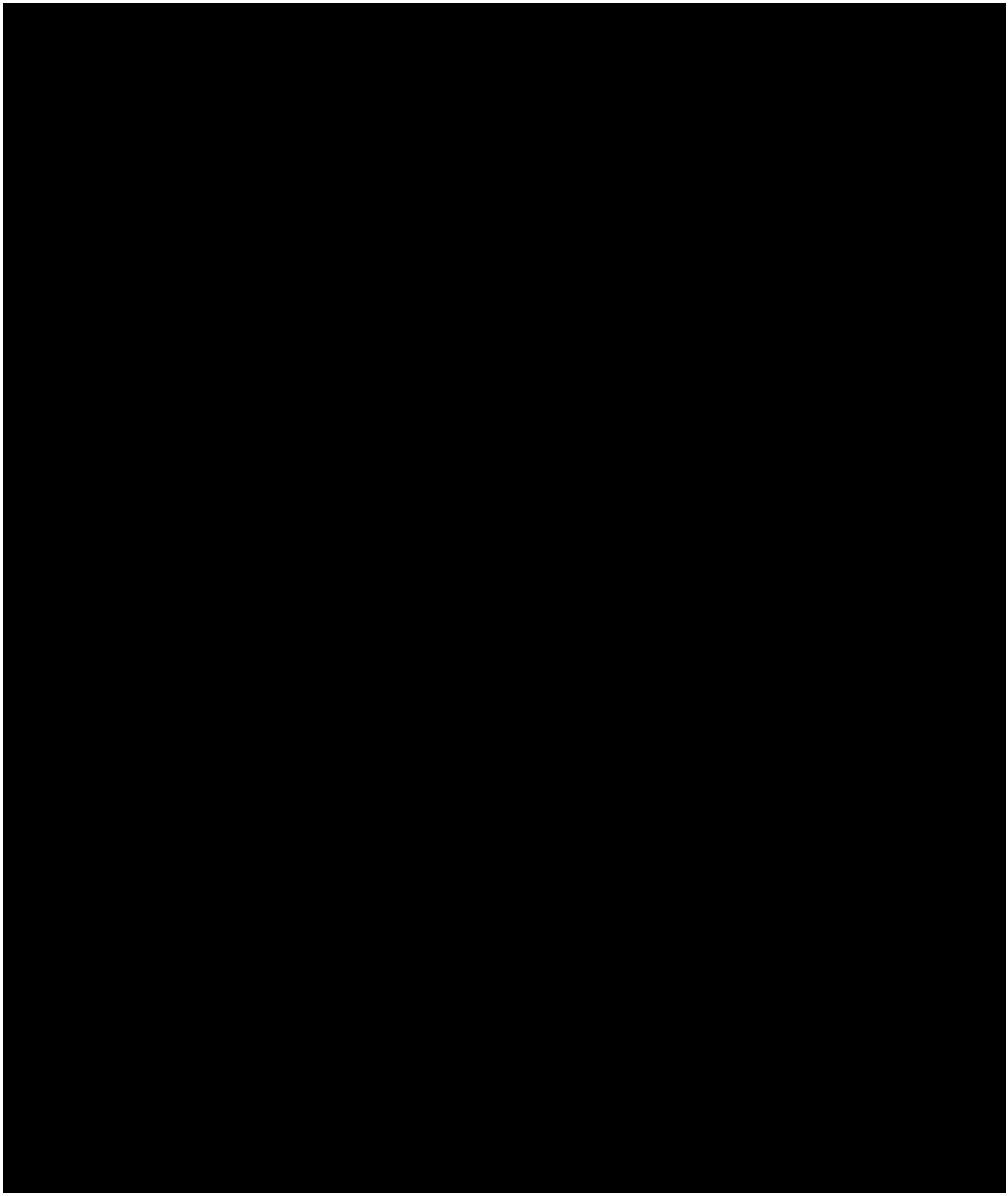

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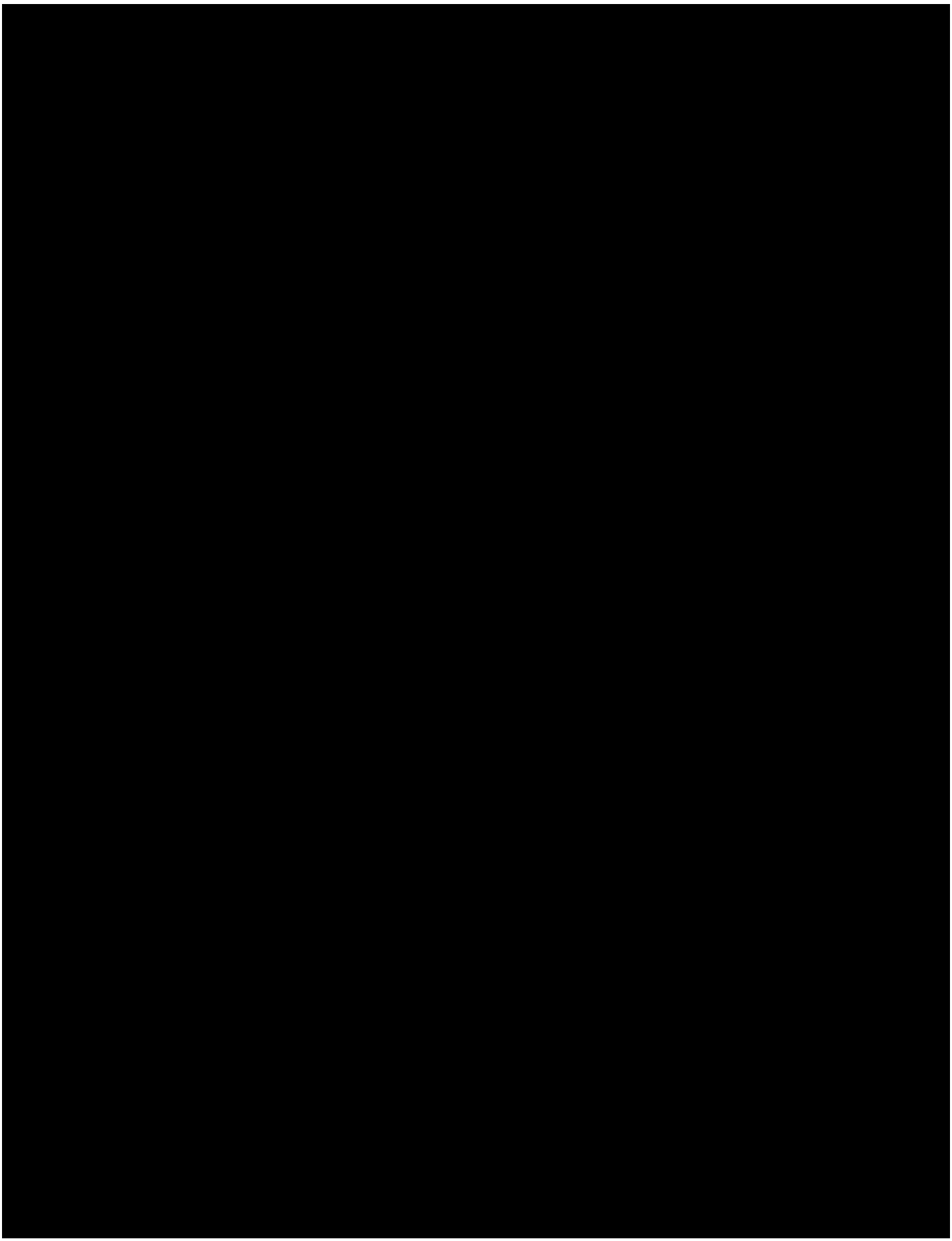

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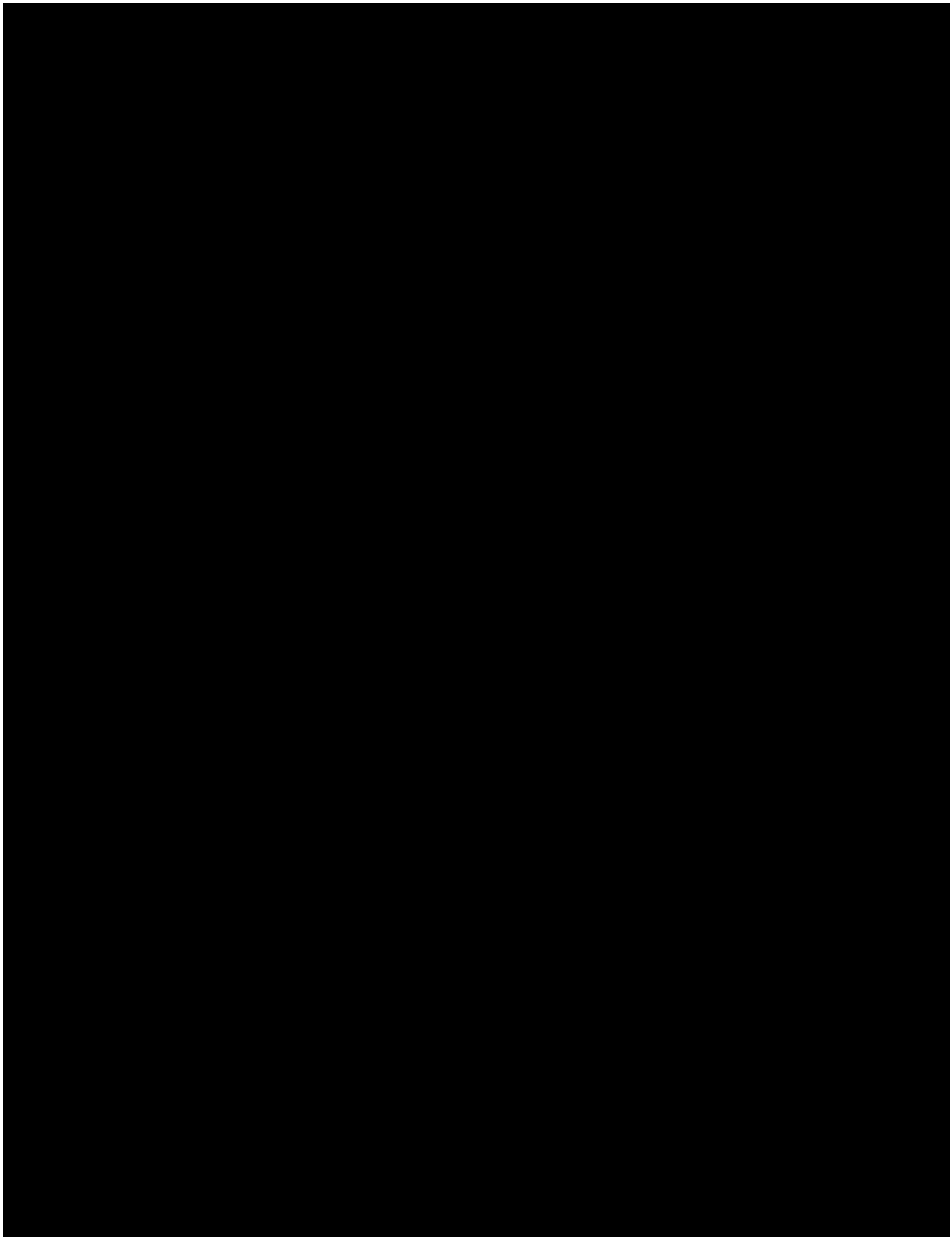

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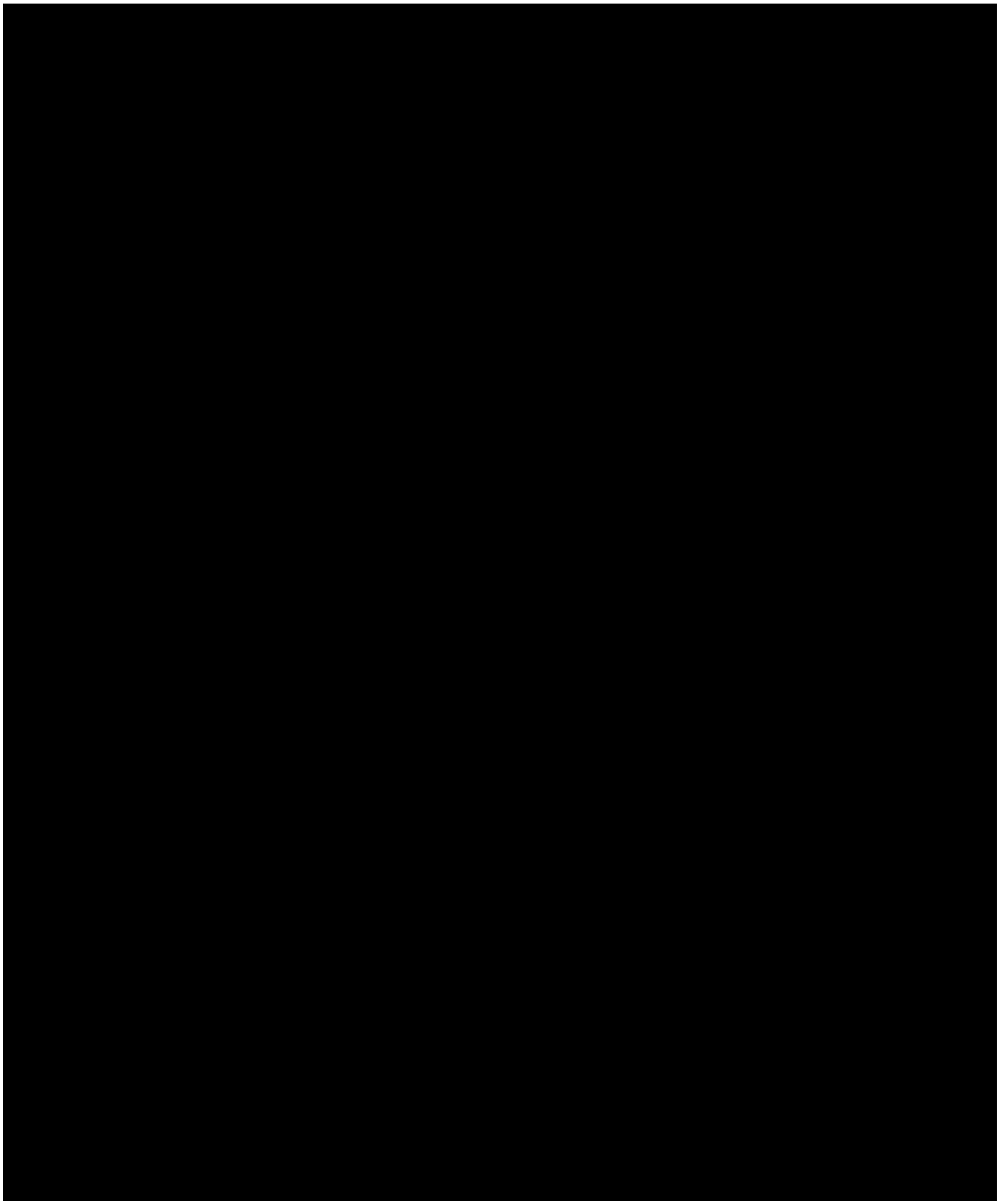

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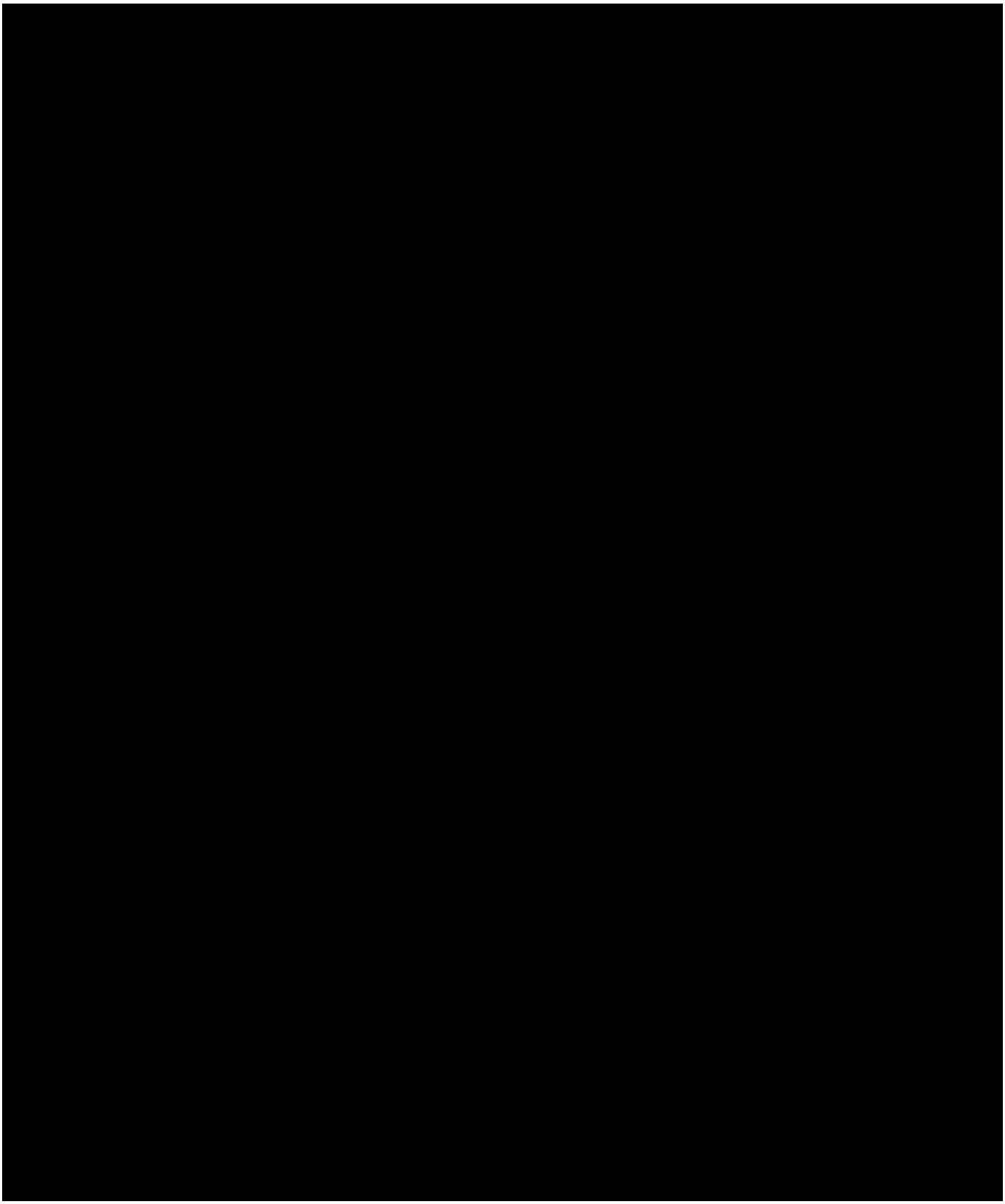

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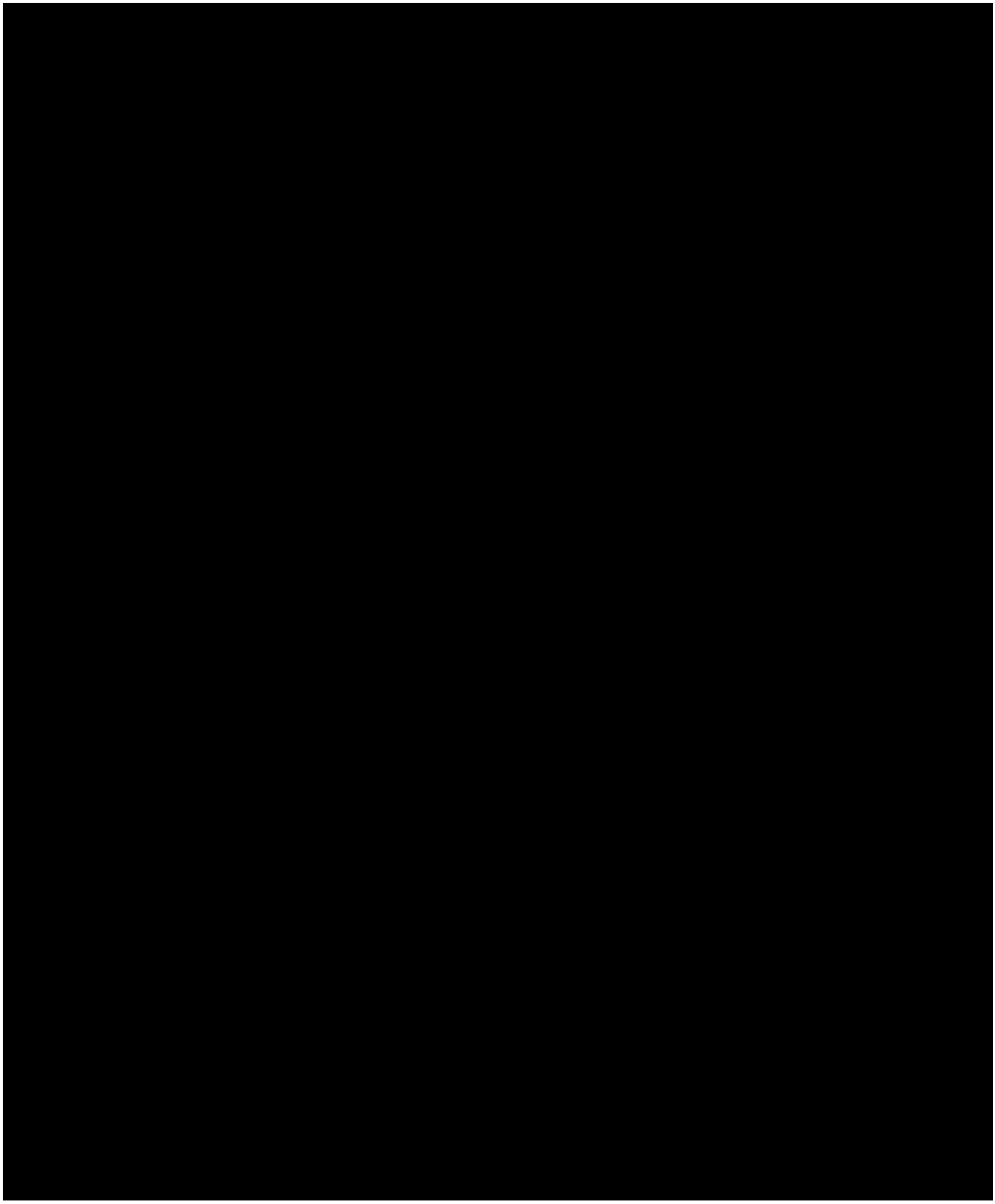

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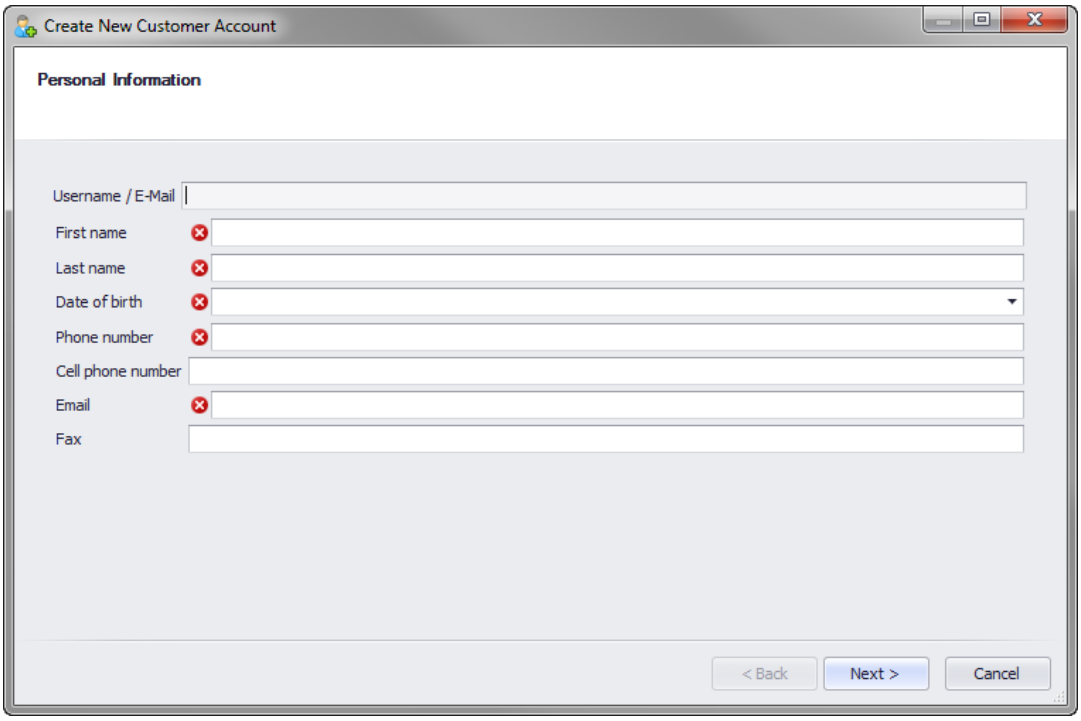

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4. Click **Next**.
   ▷ The **Address** window will be opened.

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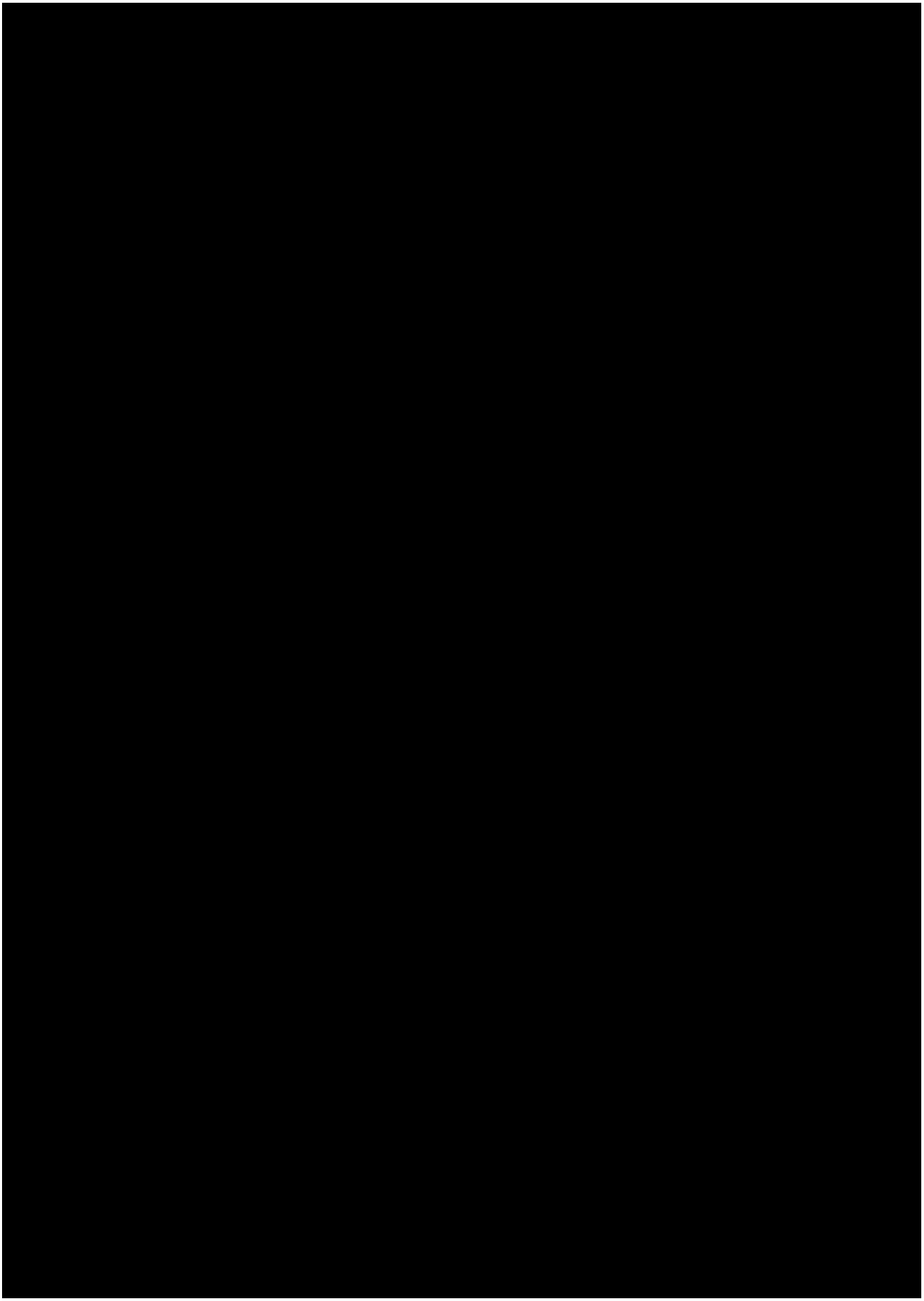

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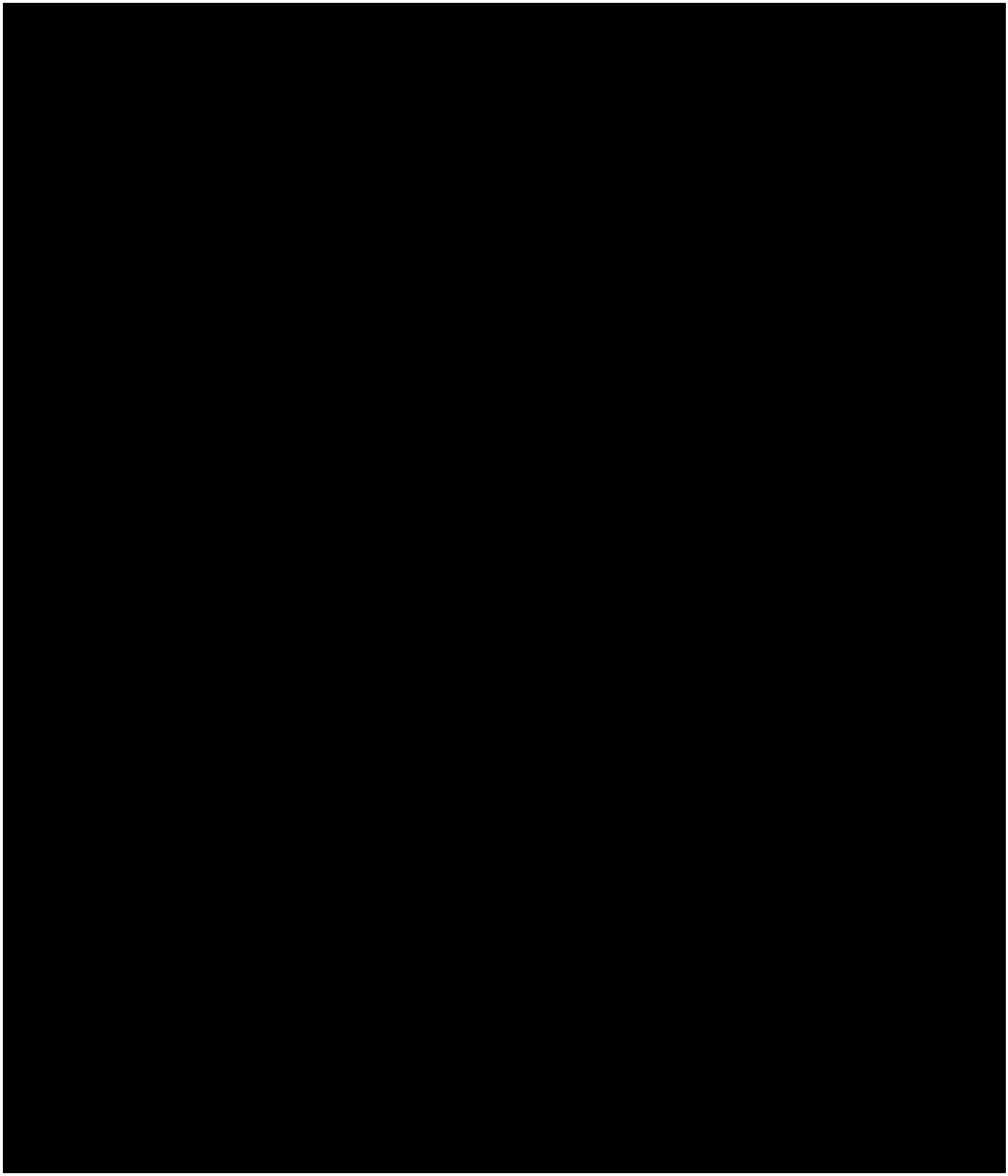

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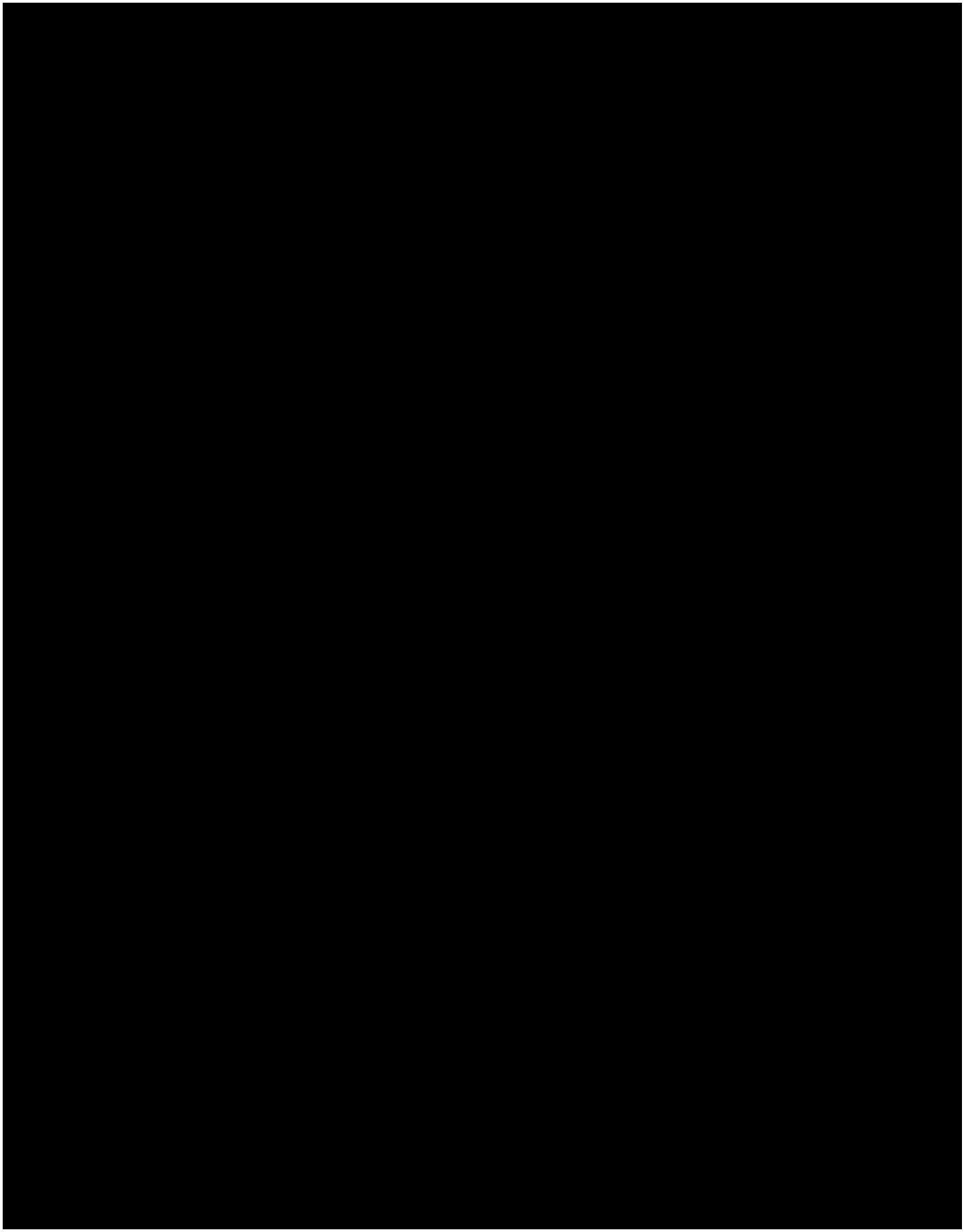

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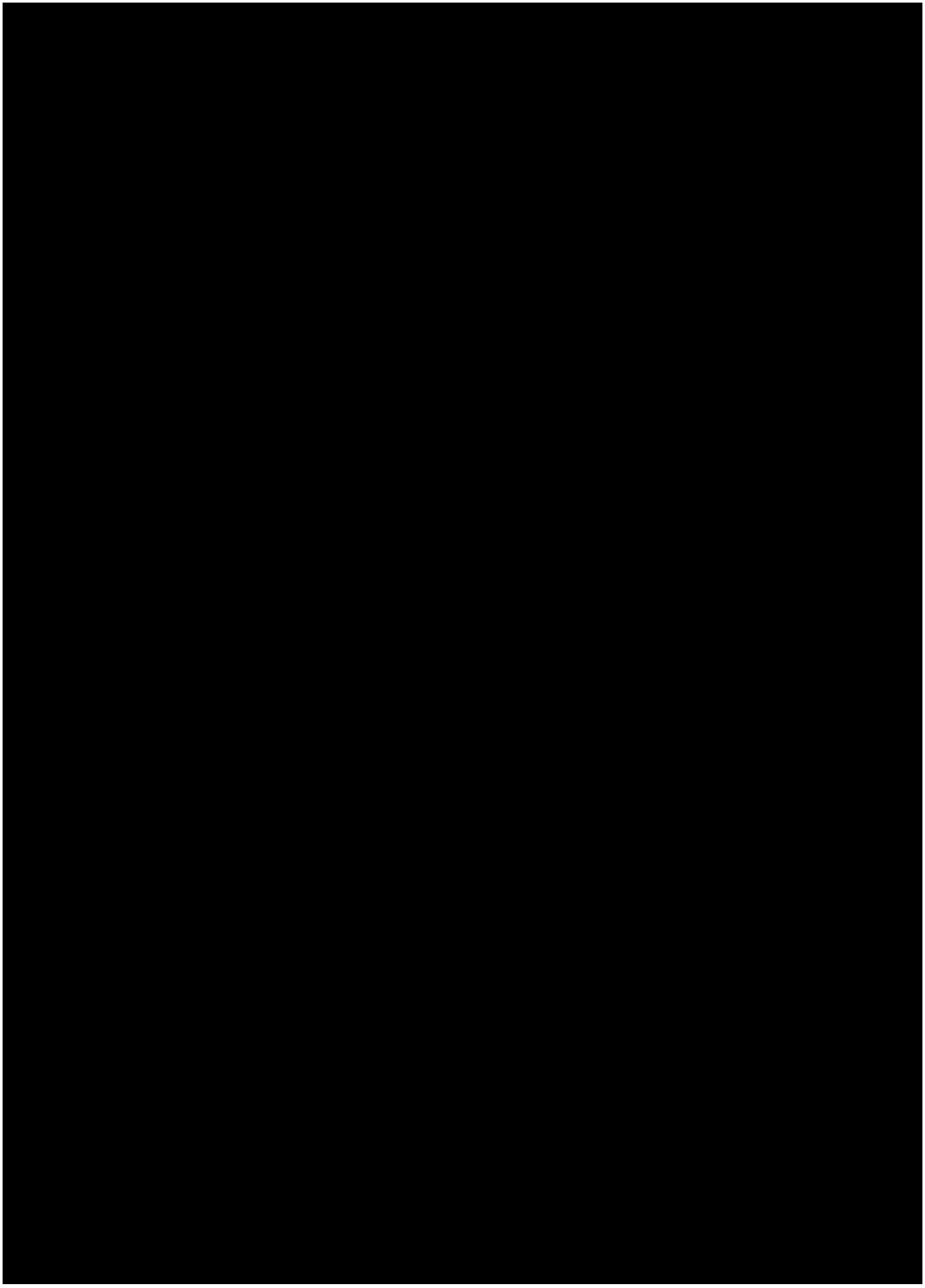

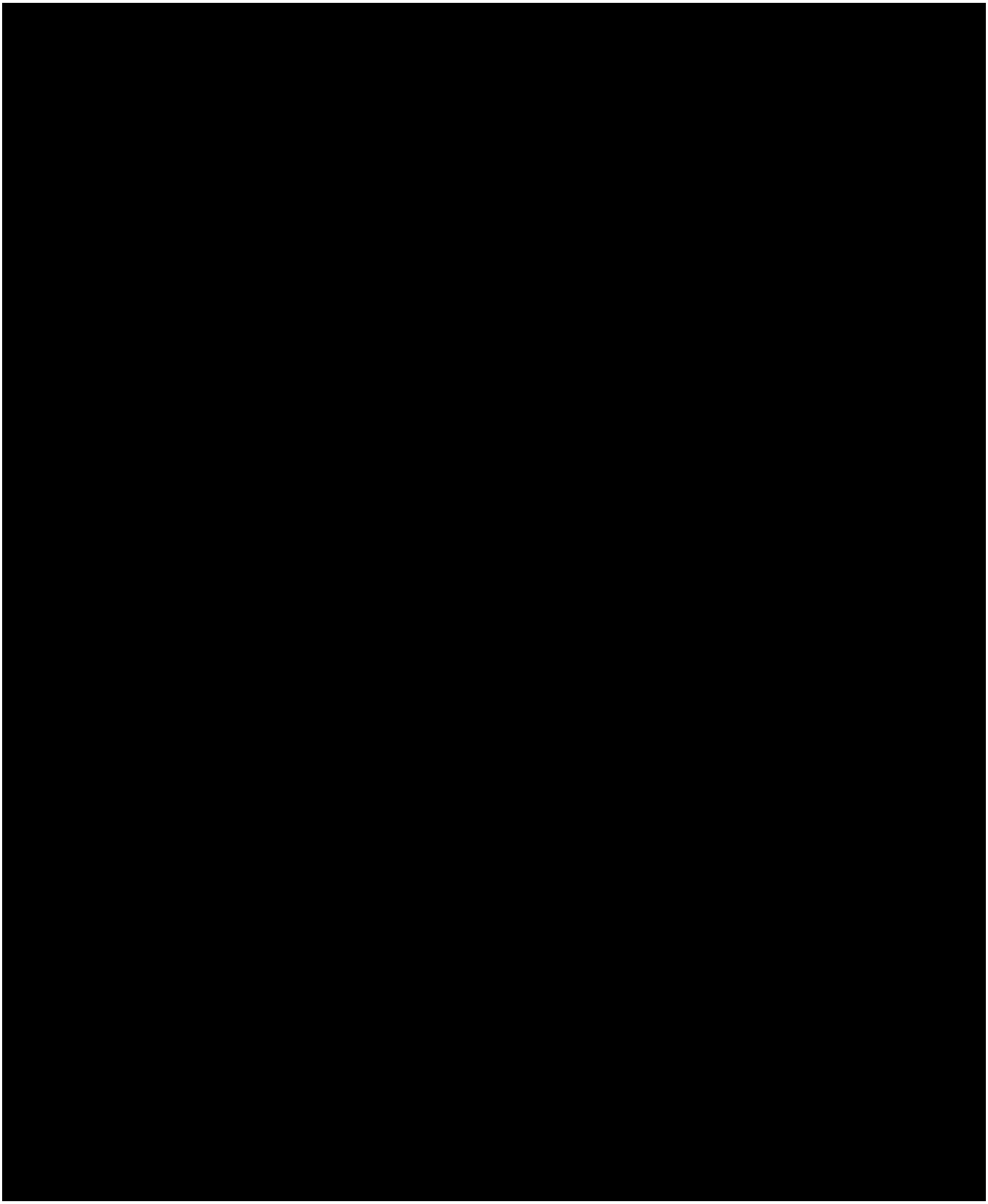

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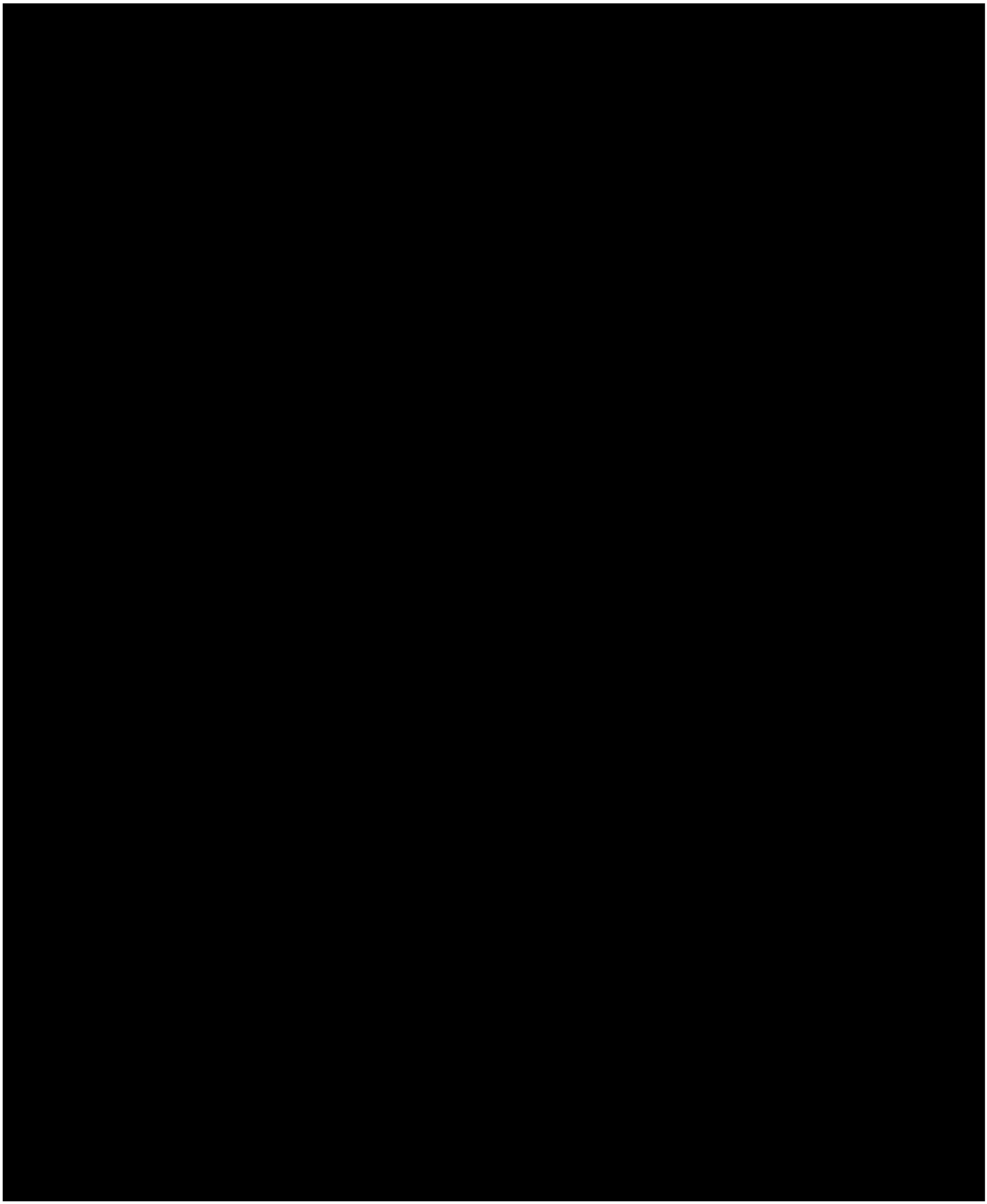

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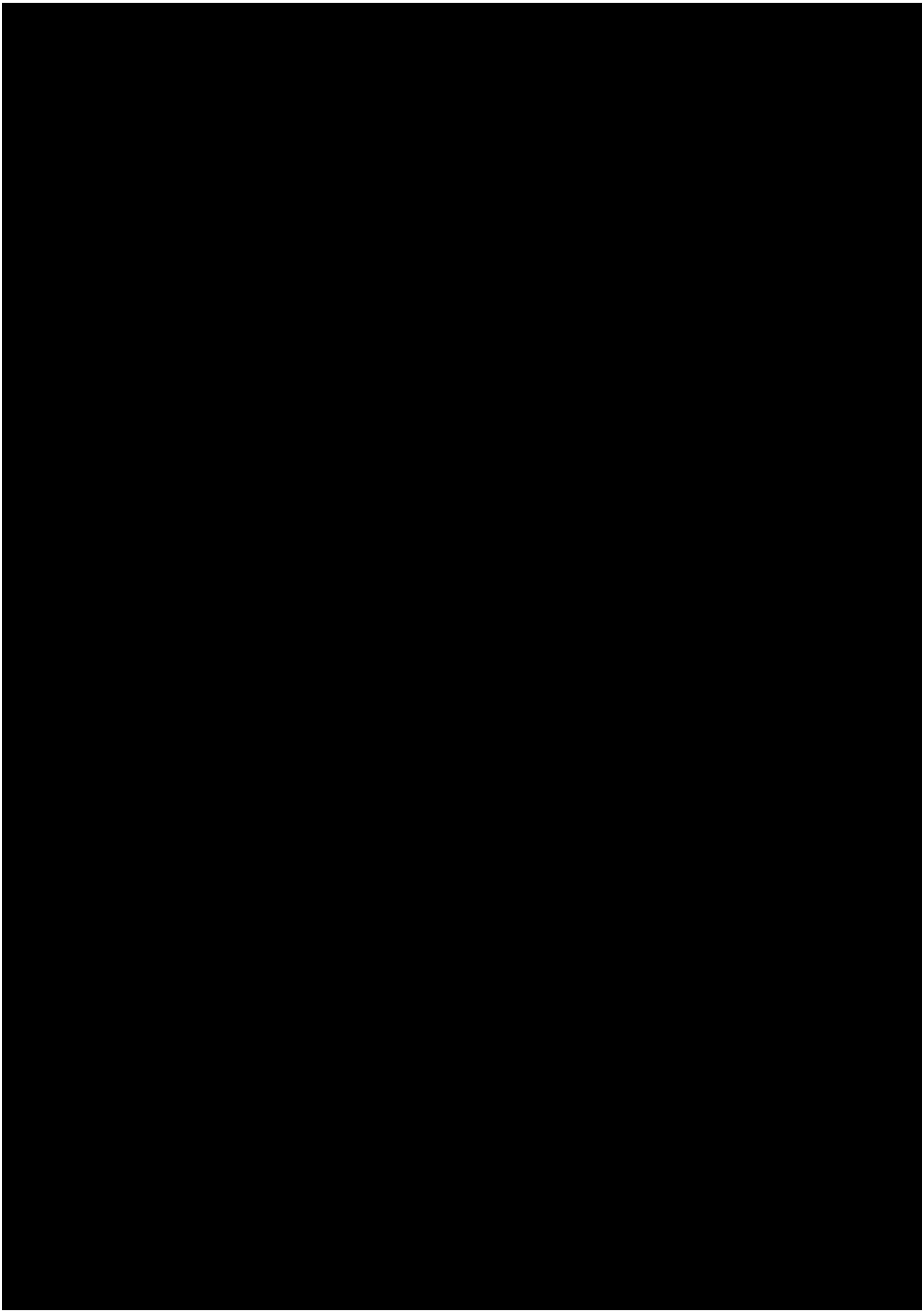

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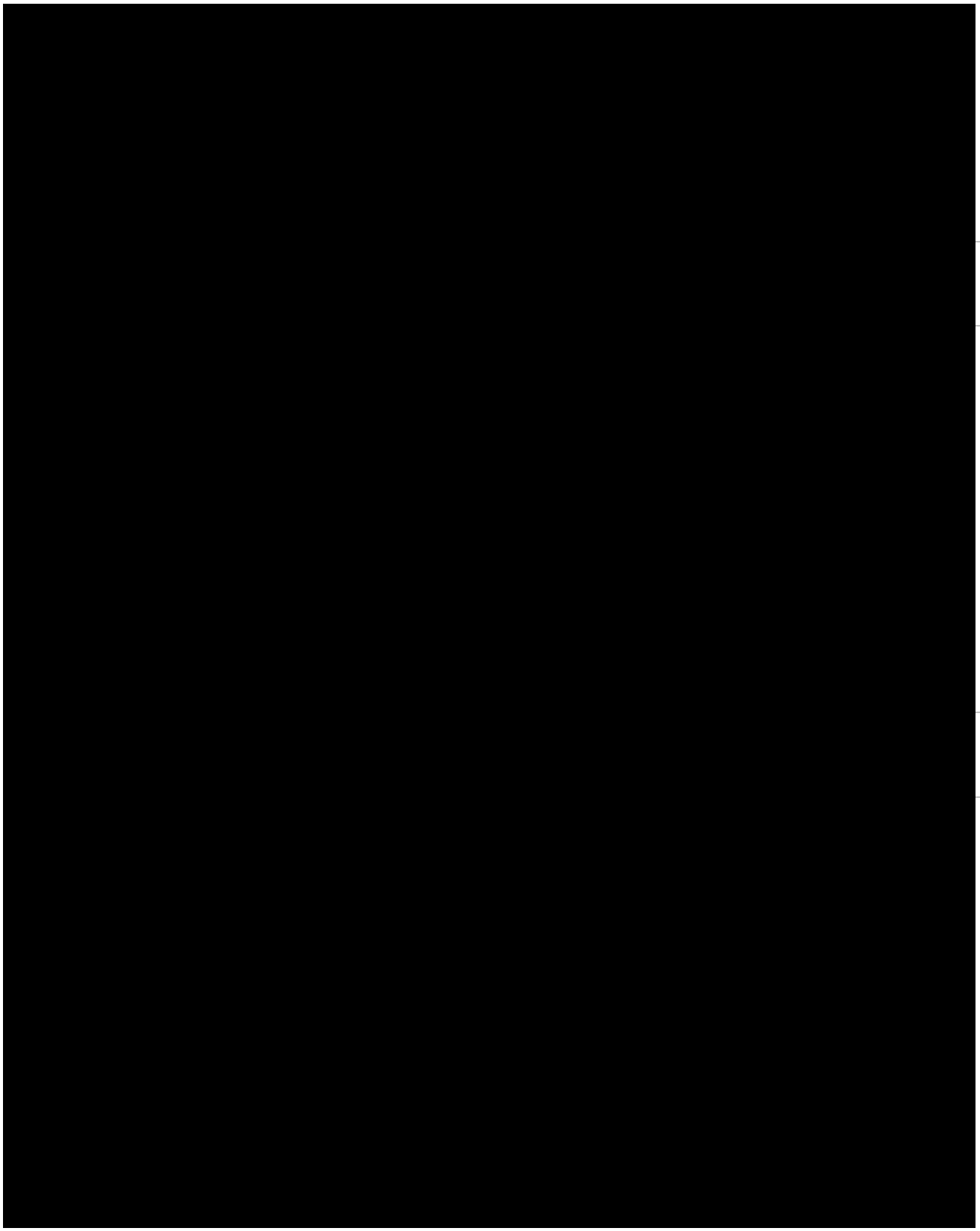

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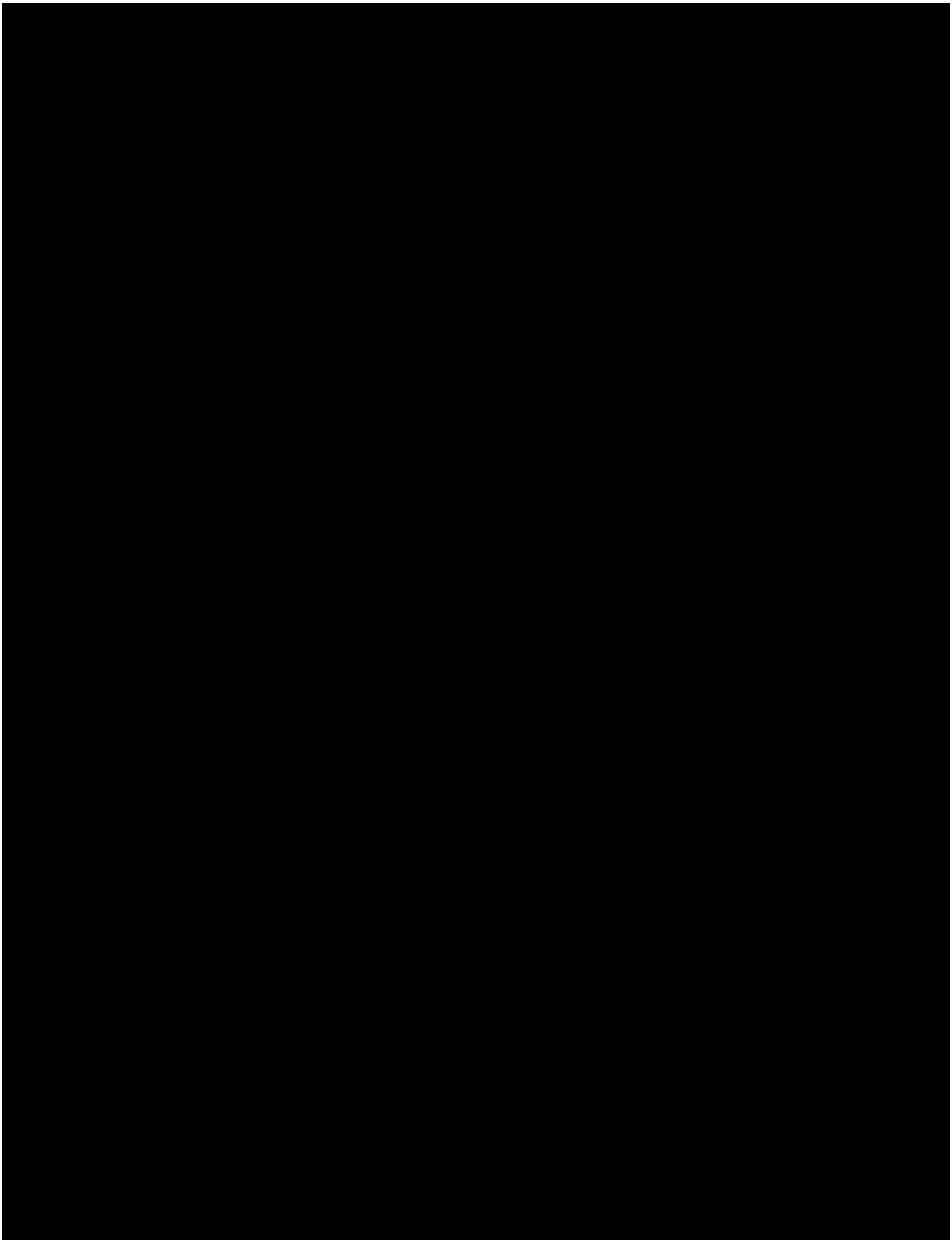

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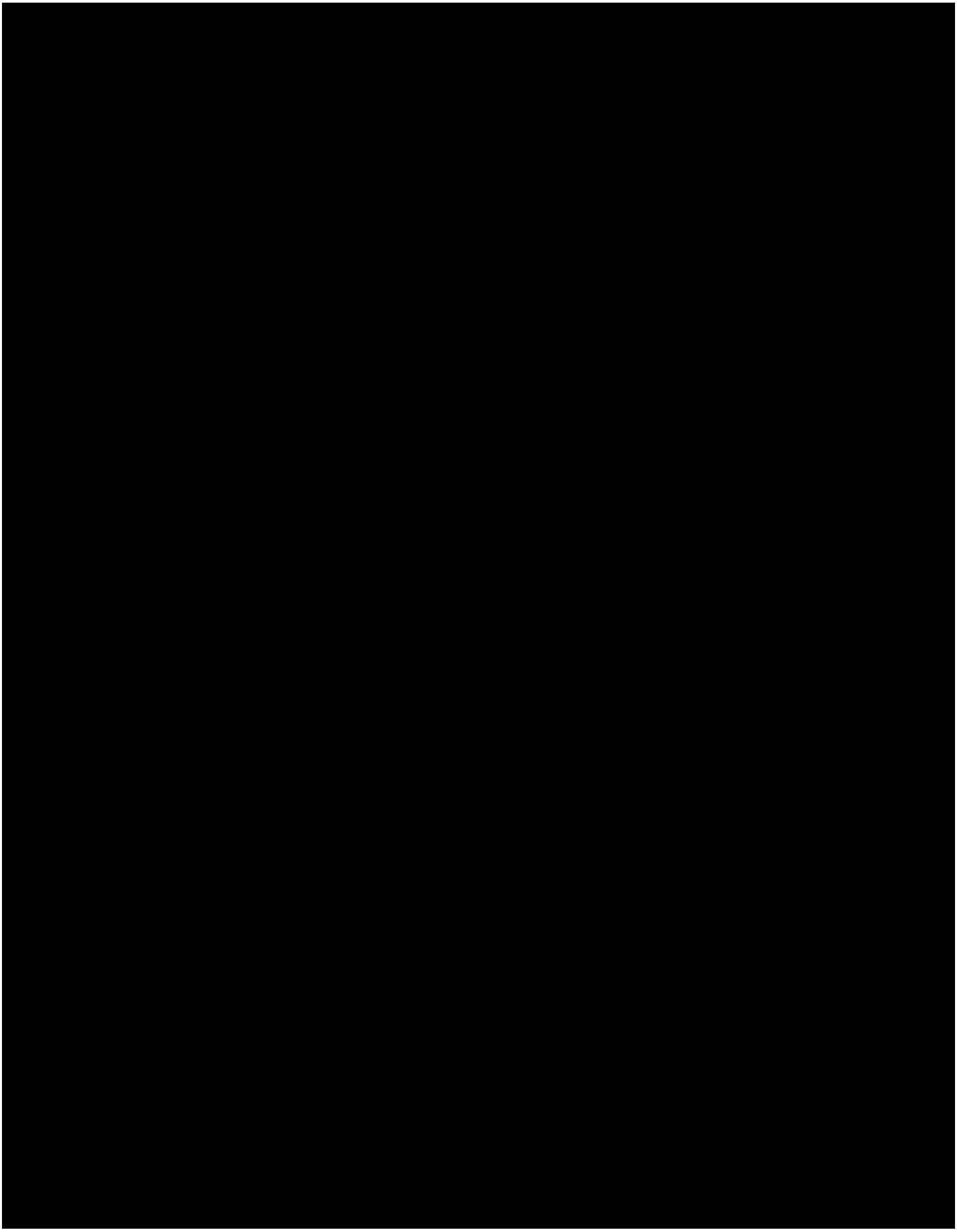

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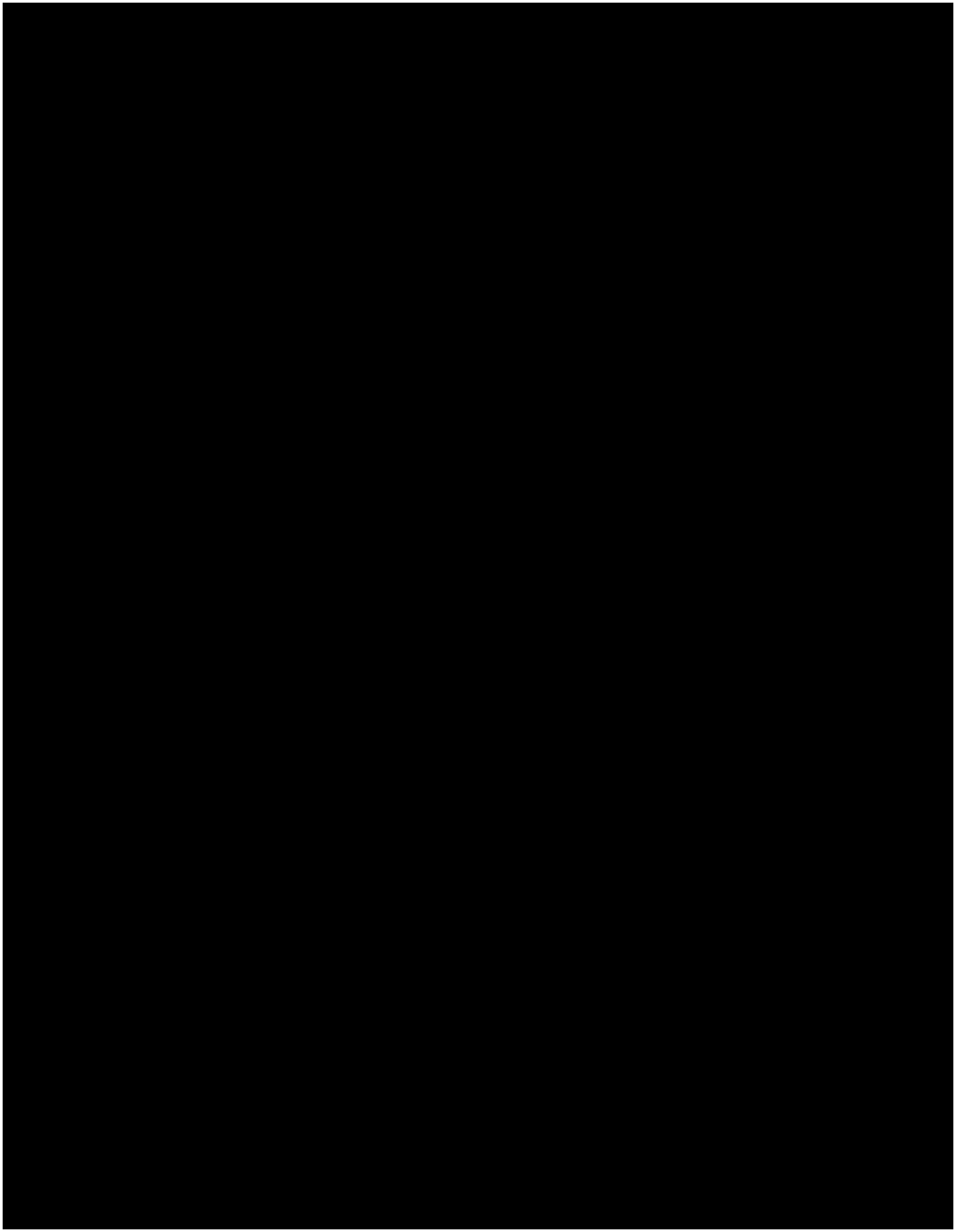

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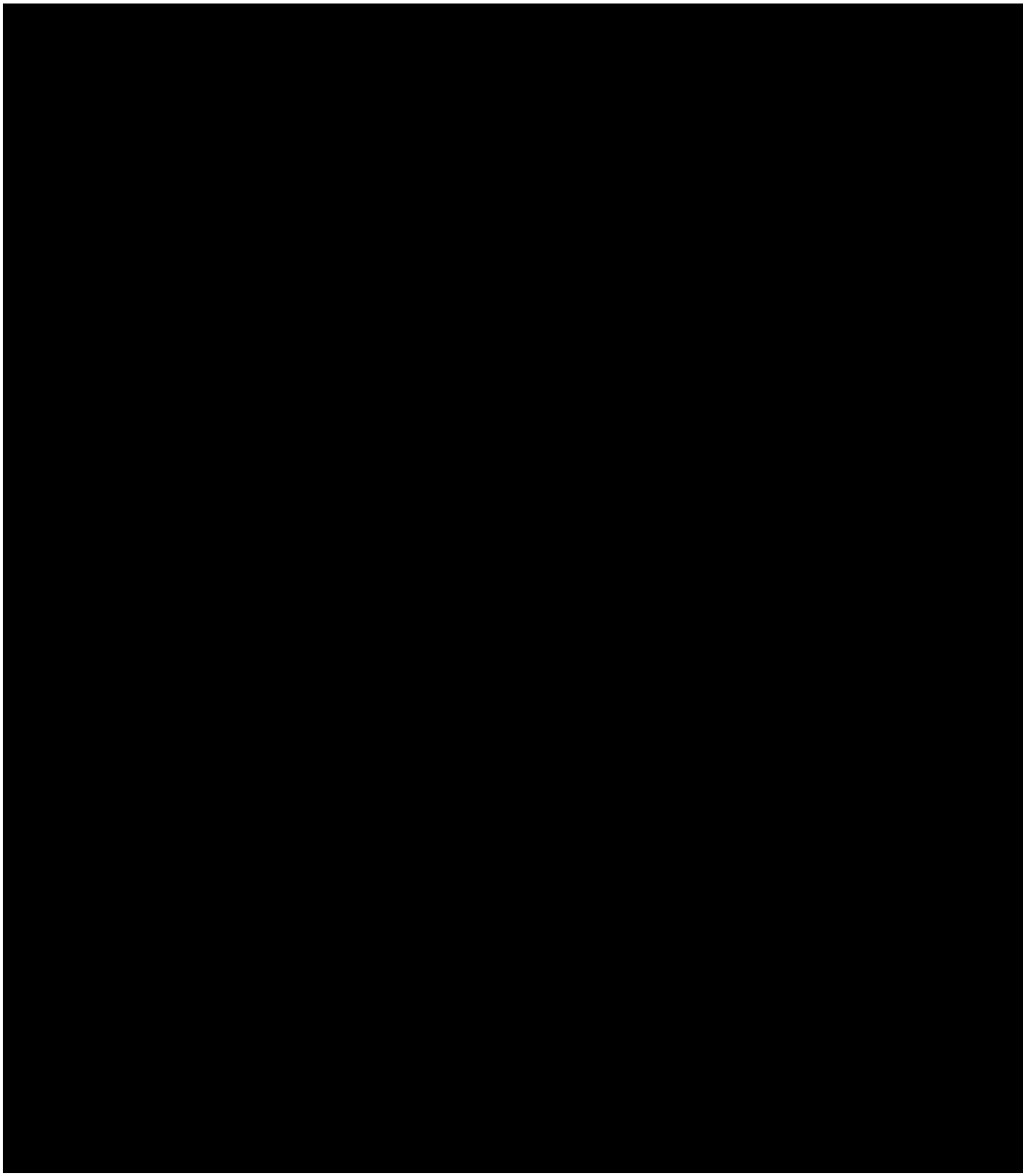

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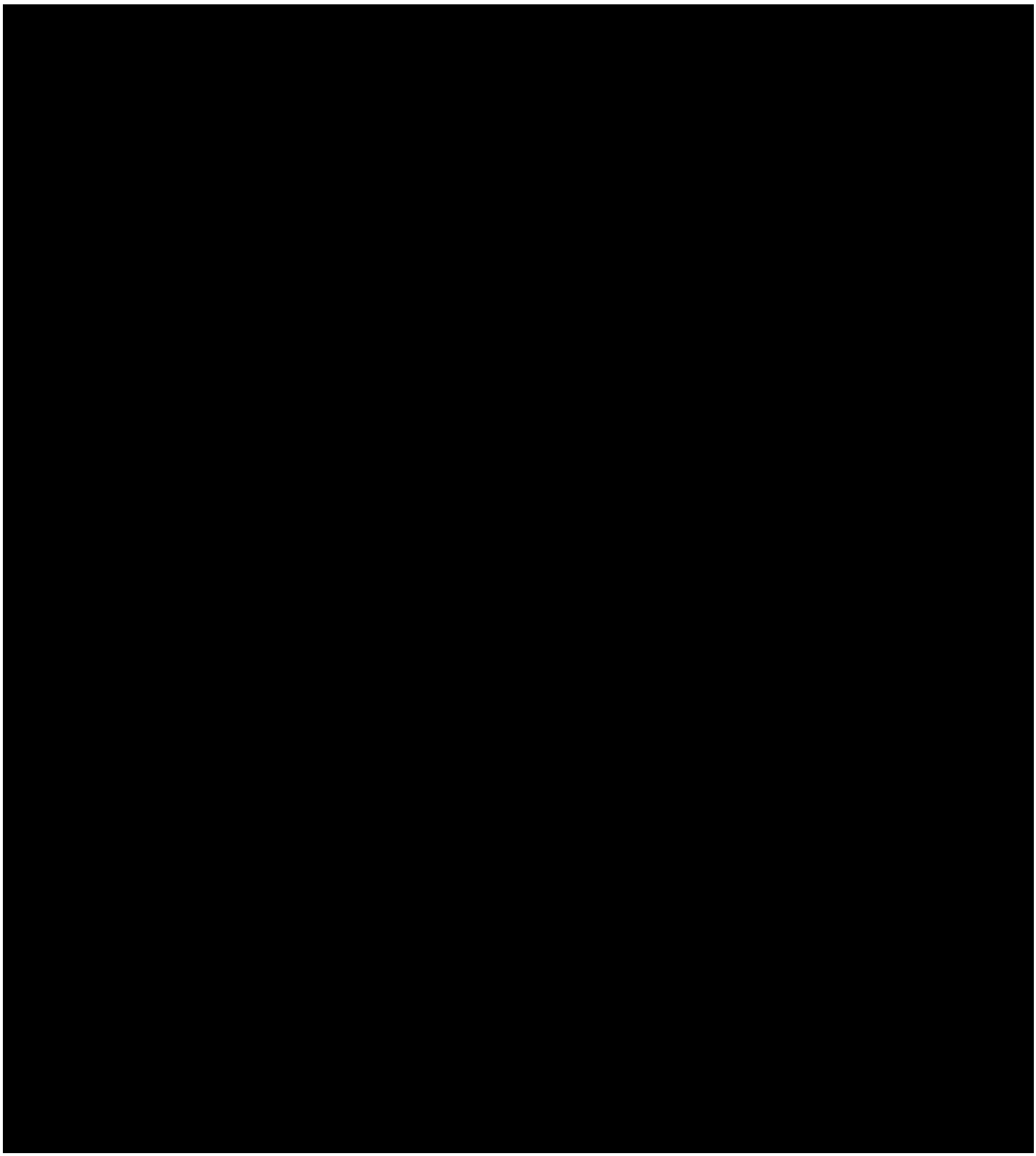

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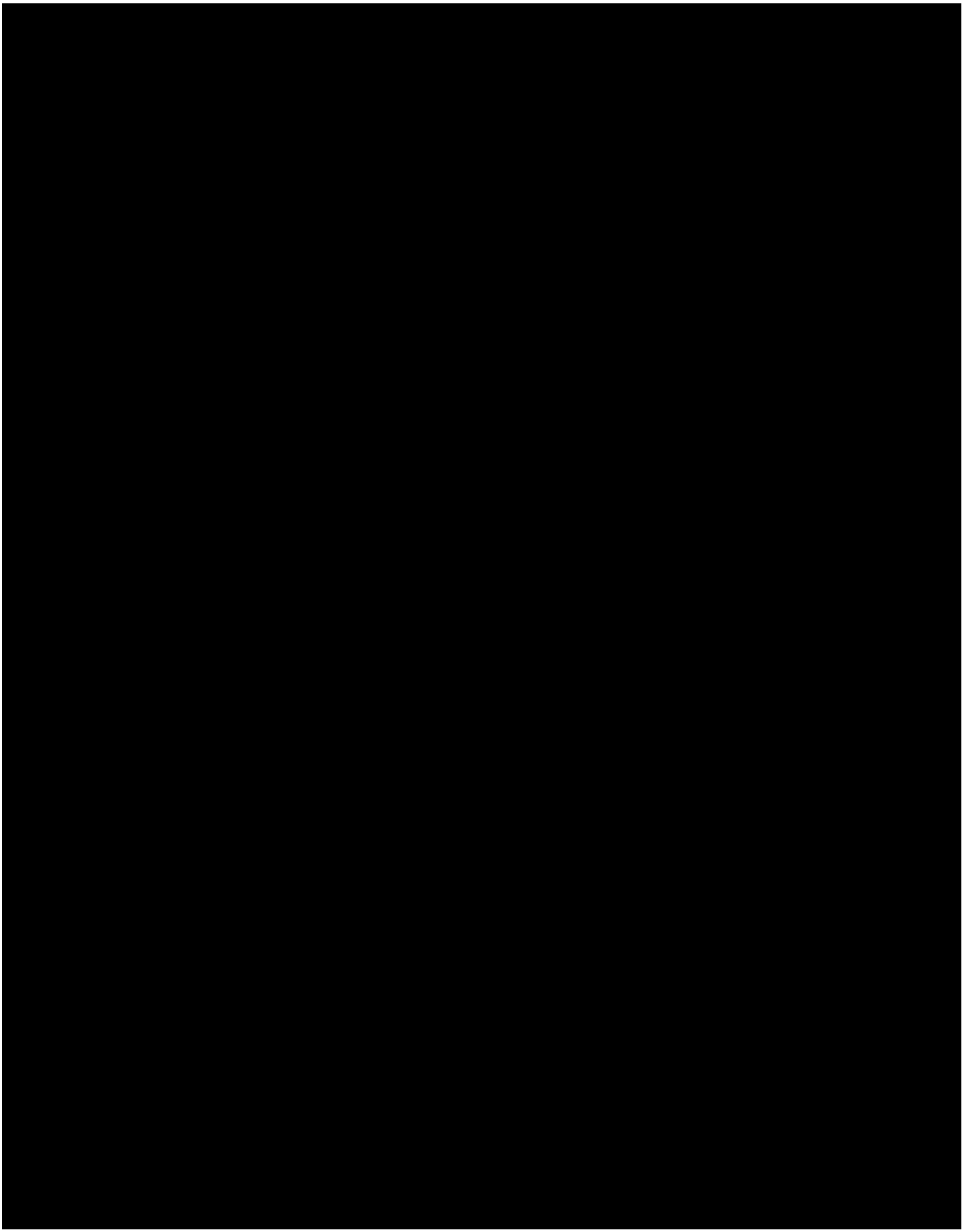

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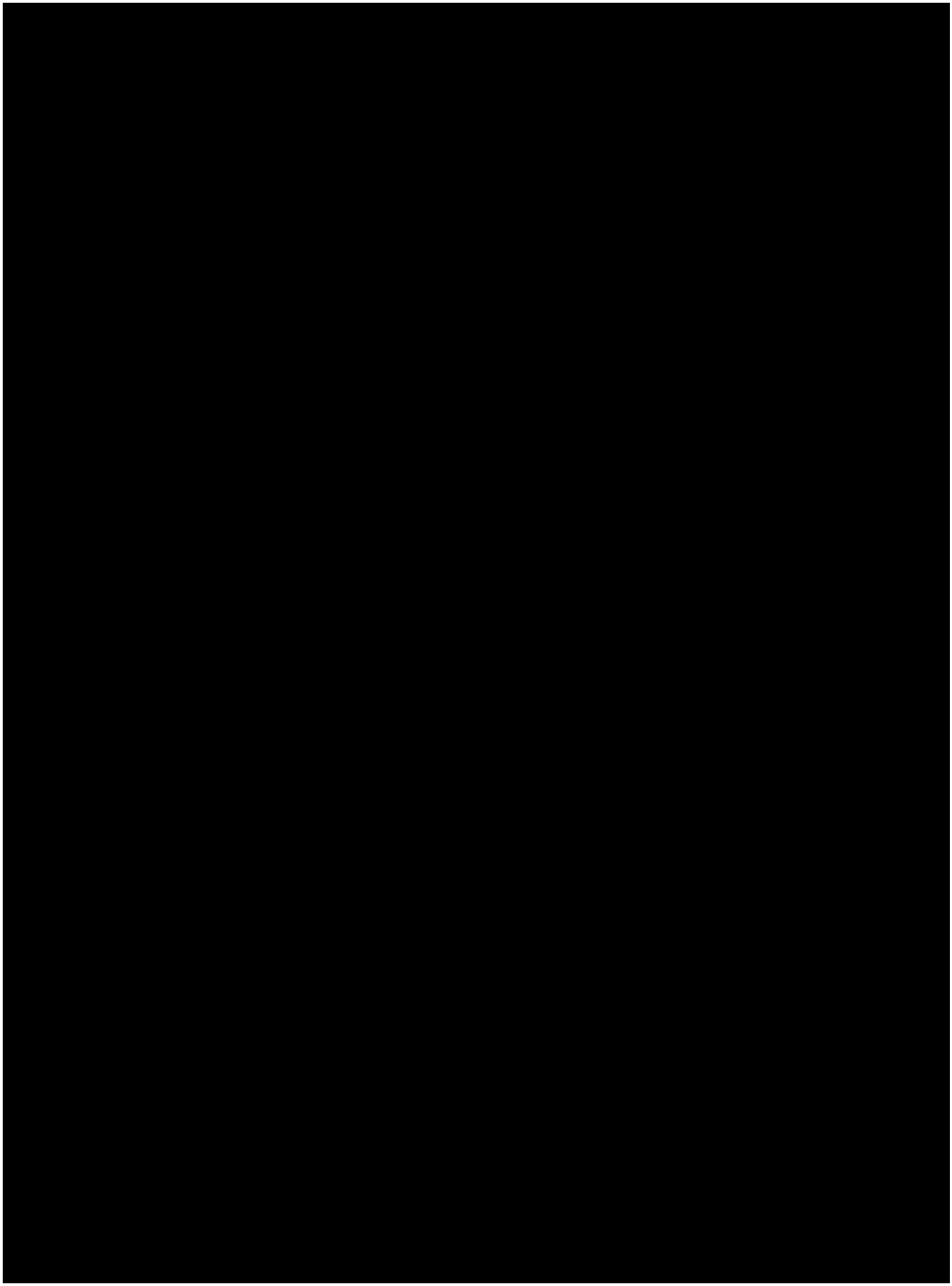

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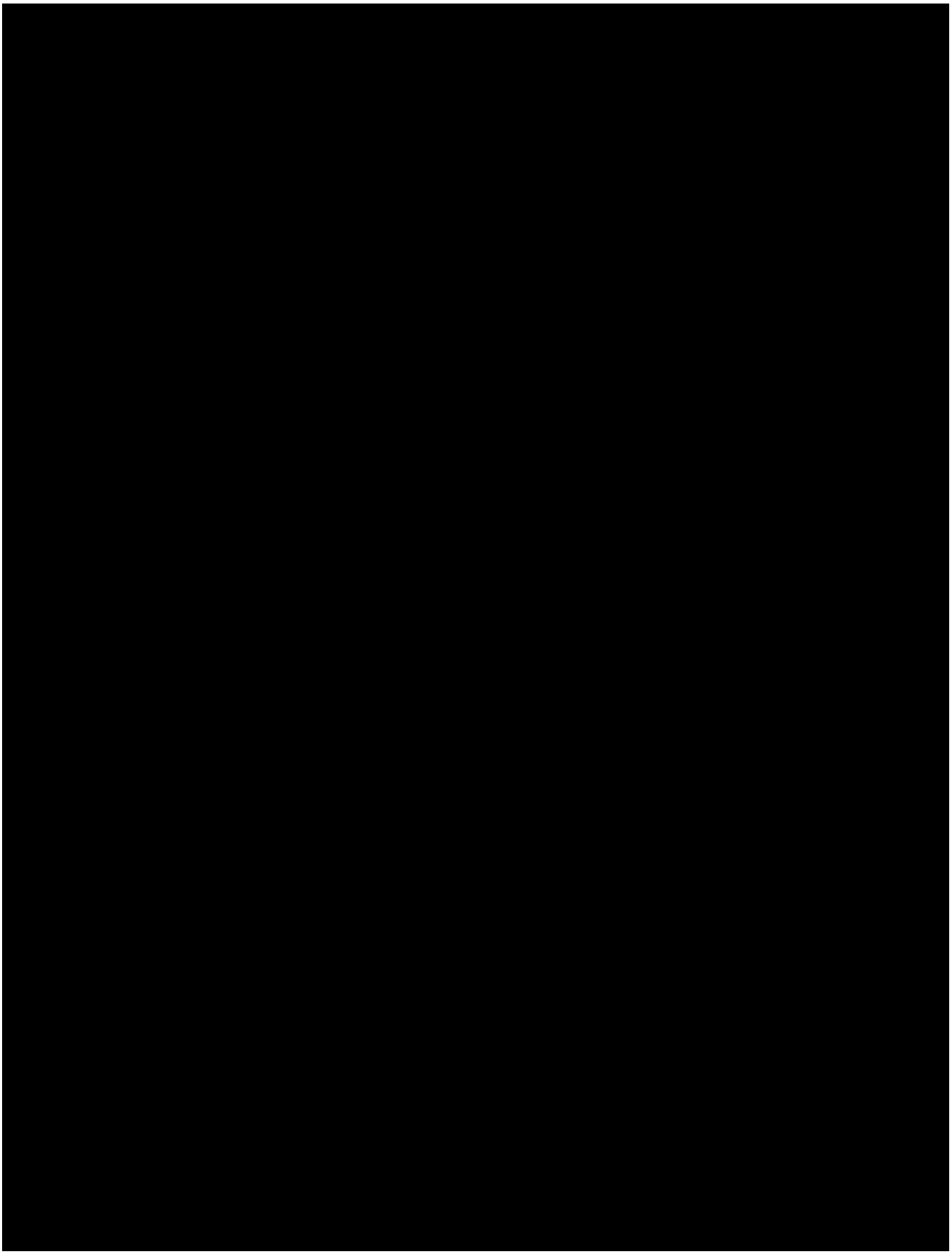

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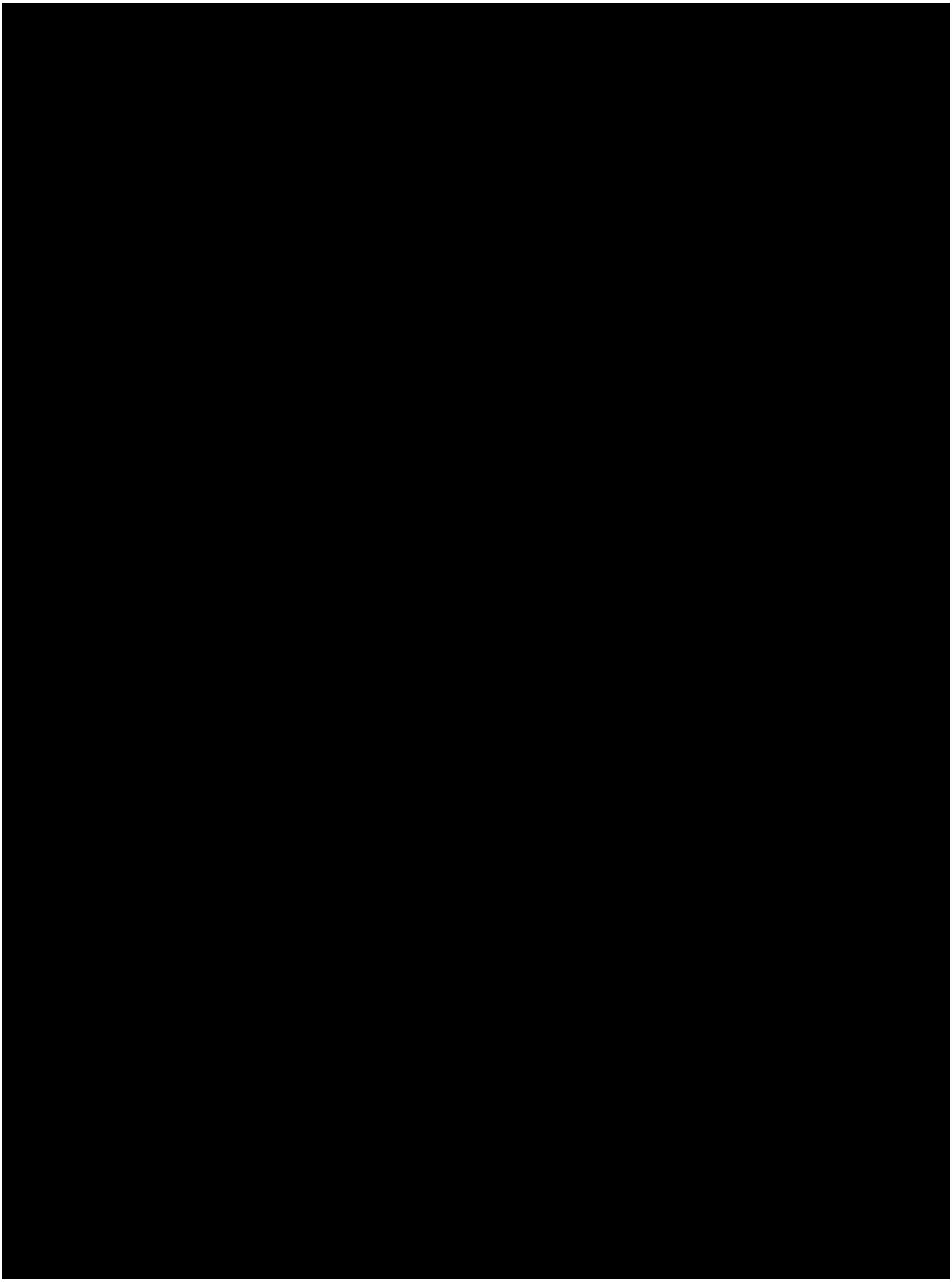

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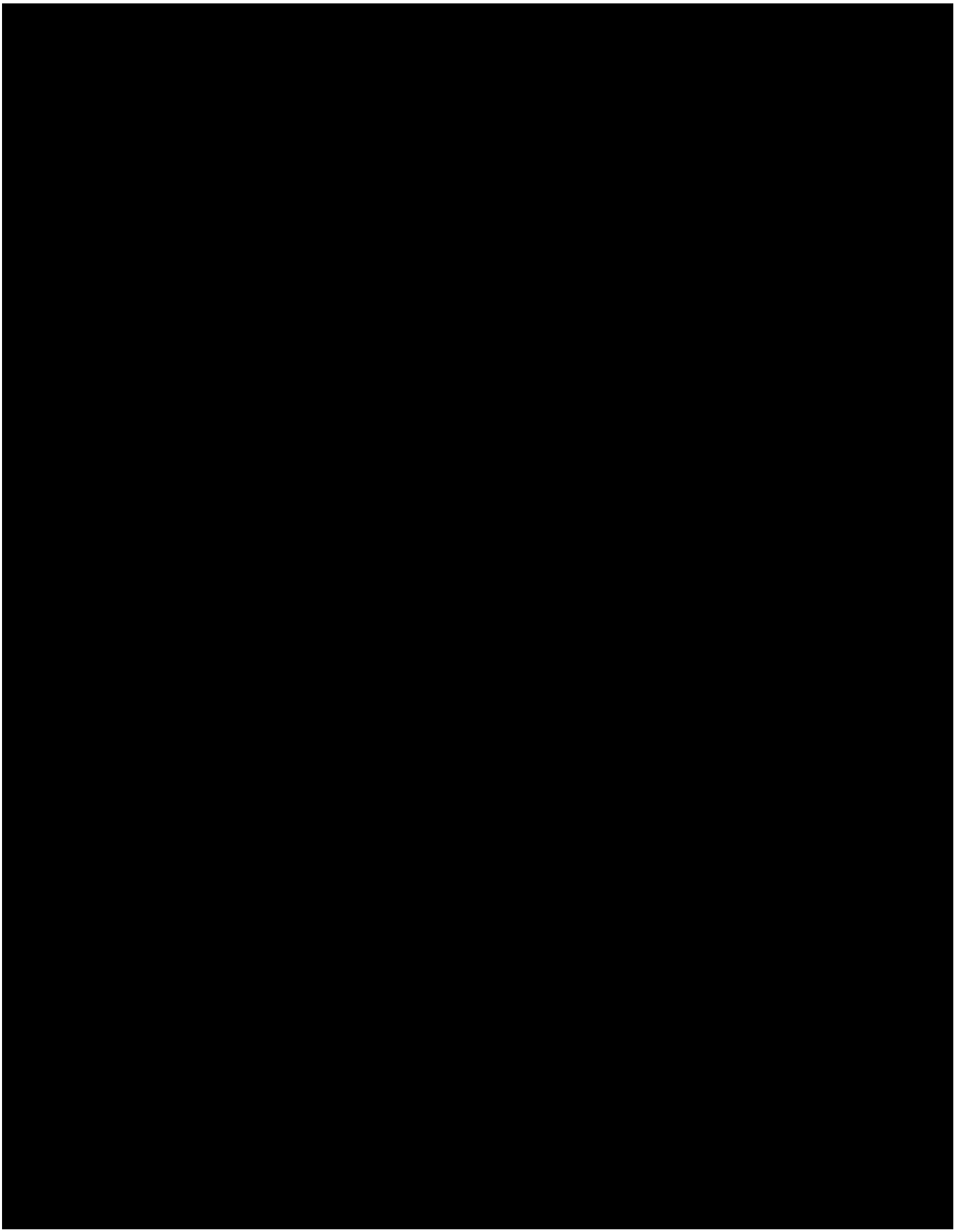

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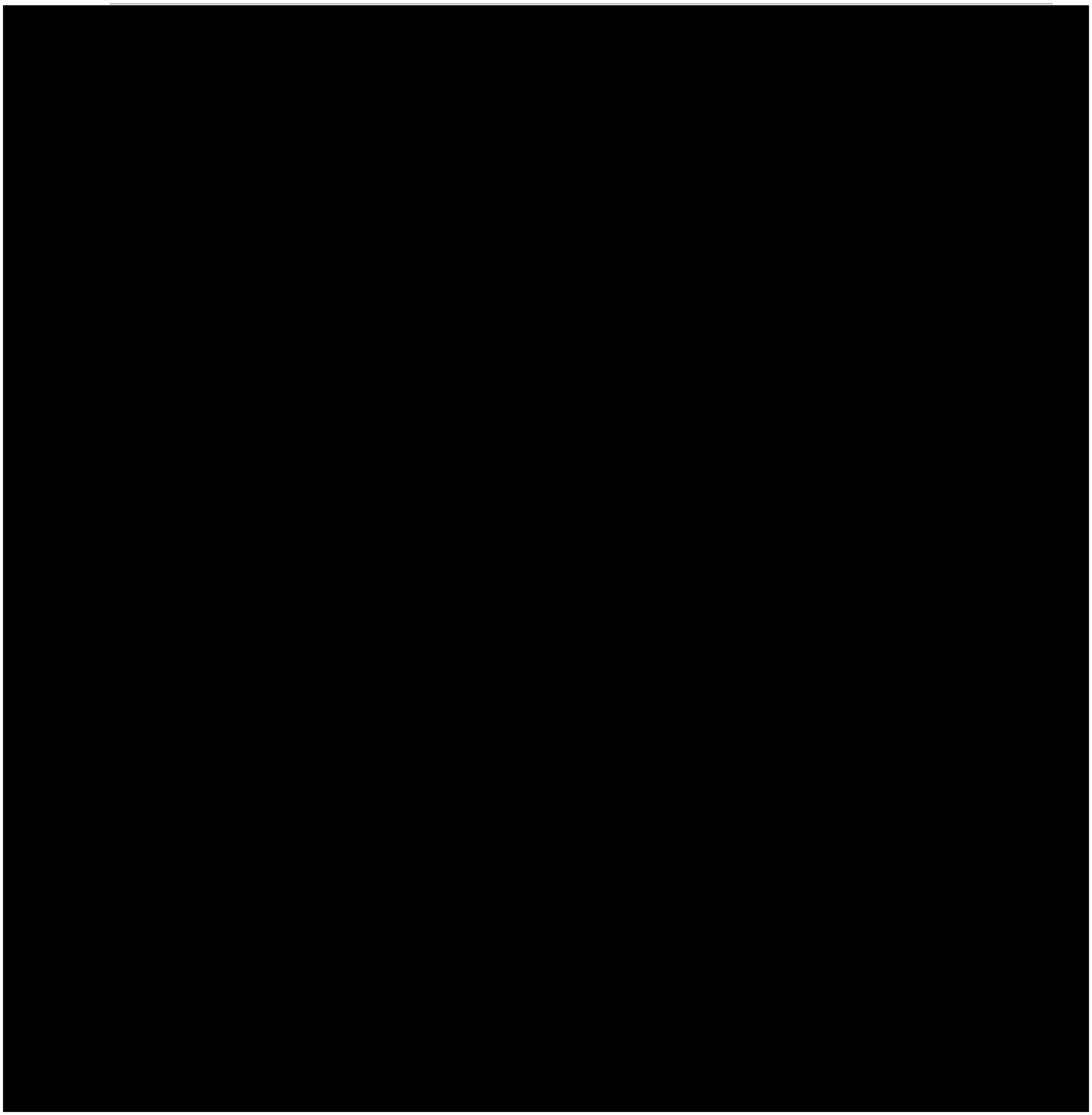

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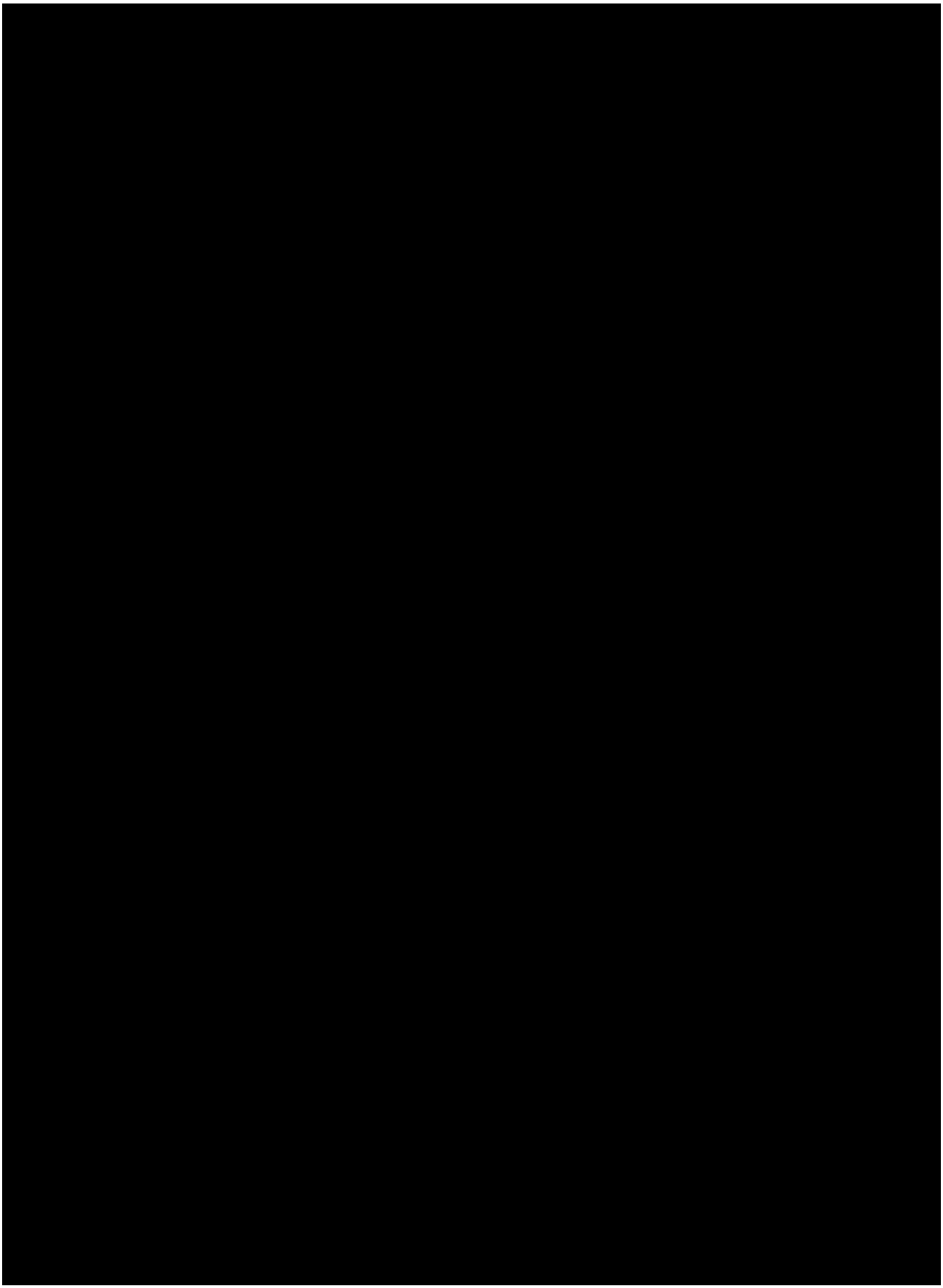

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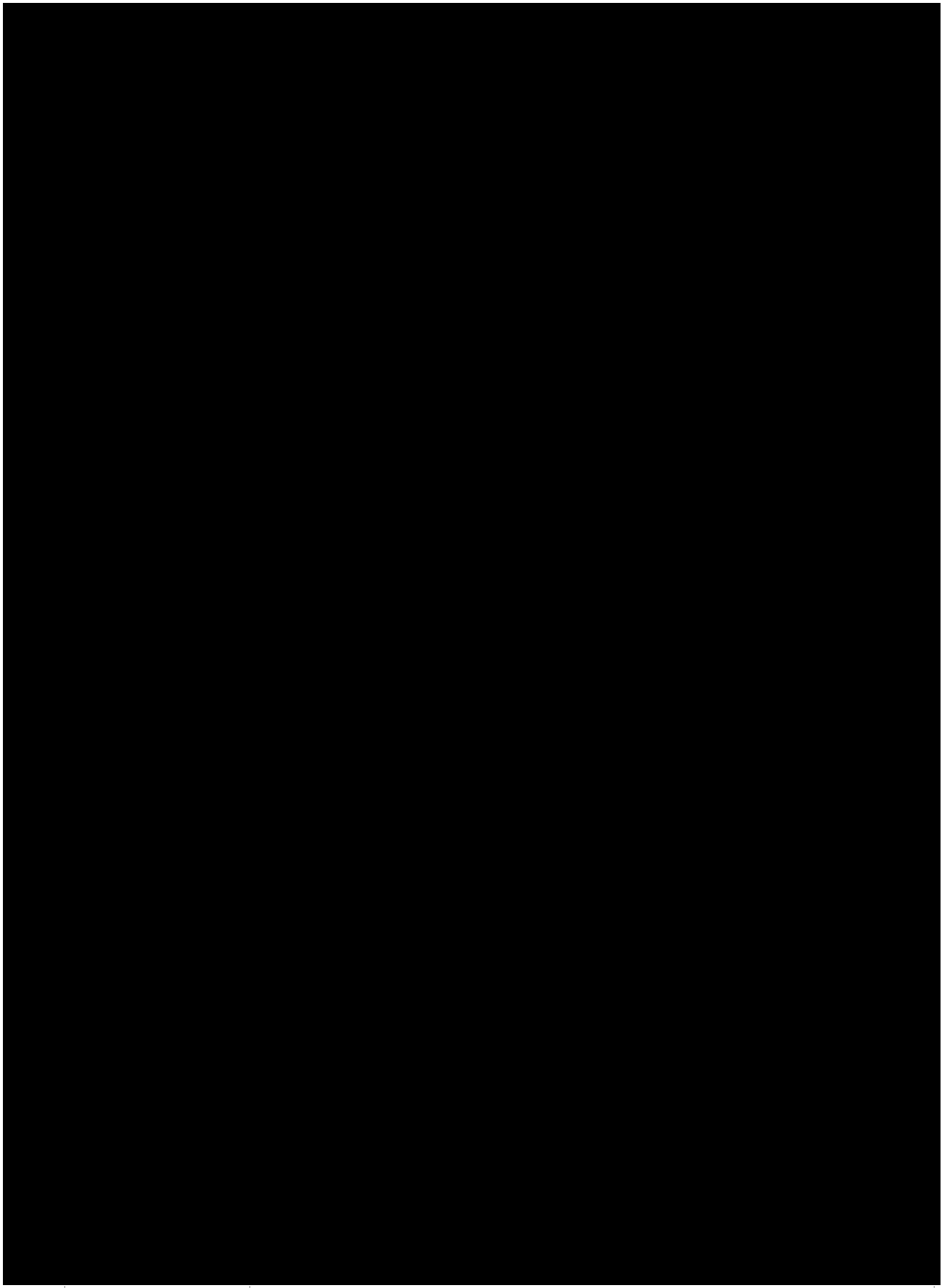

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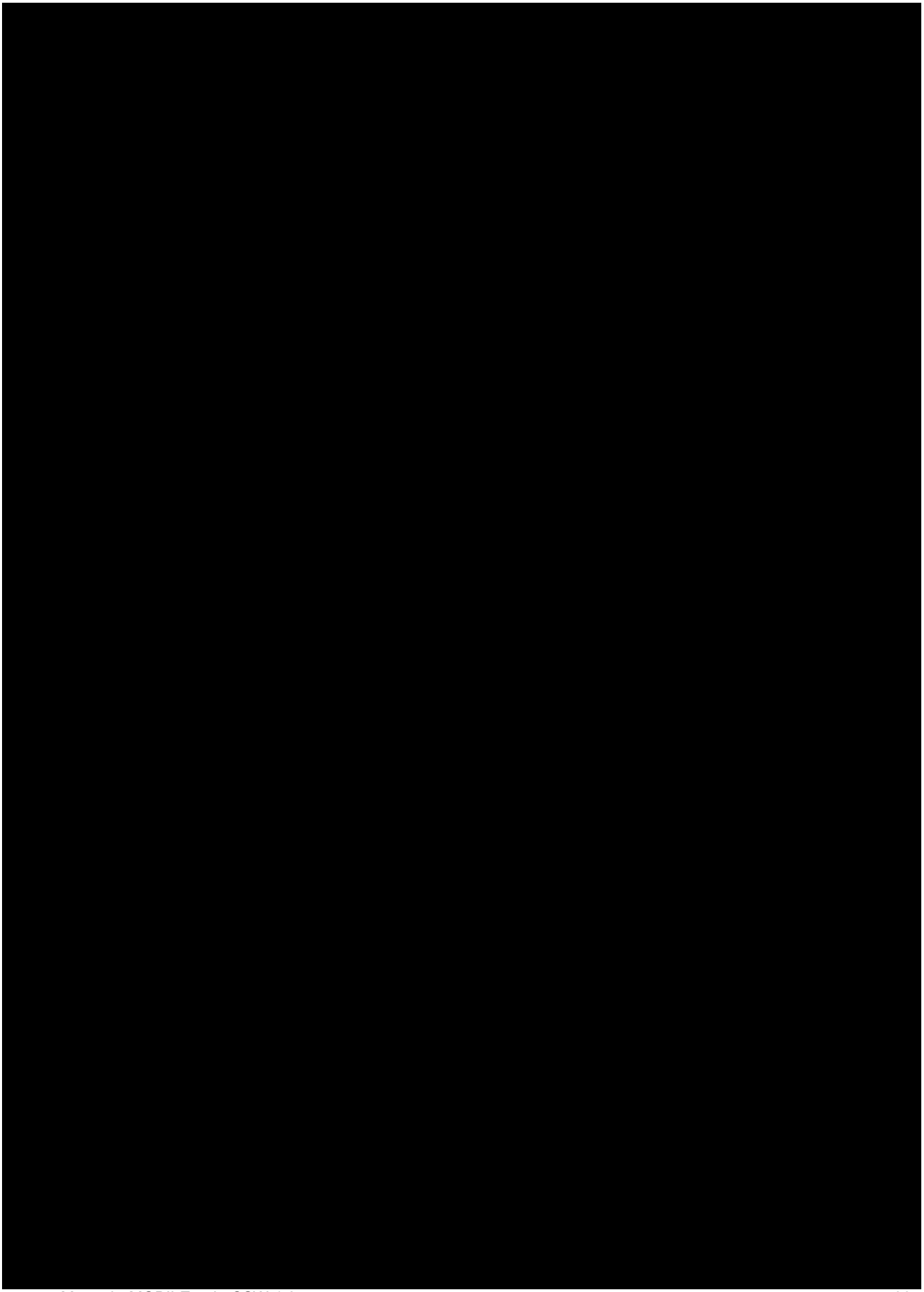

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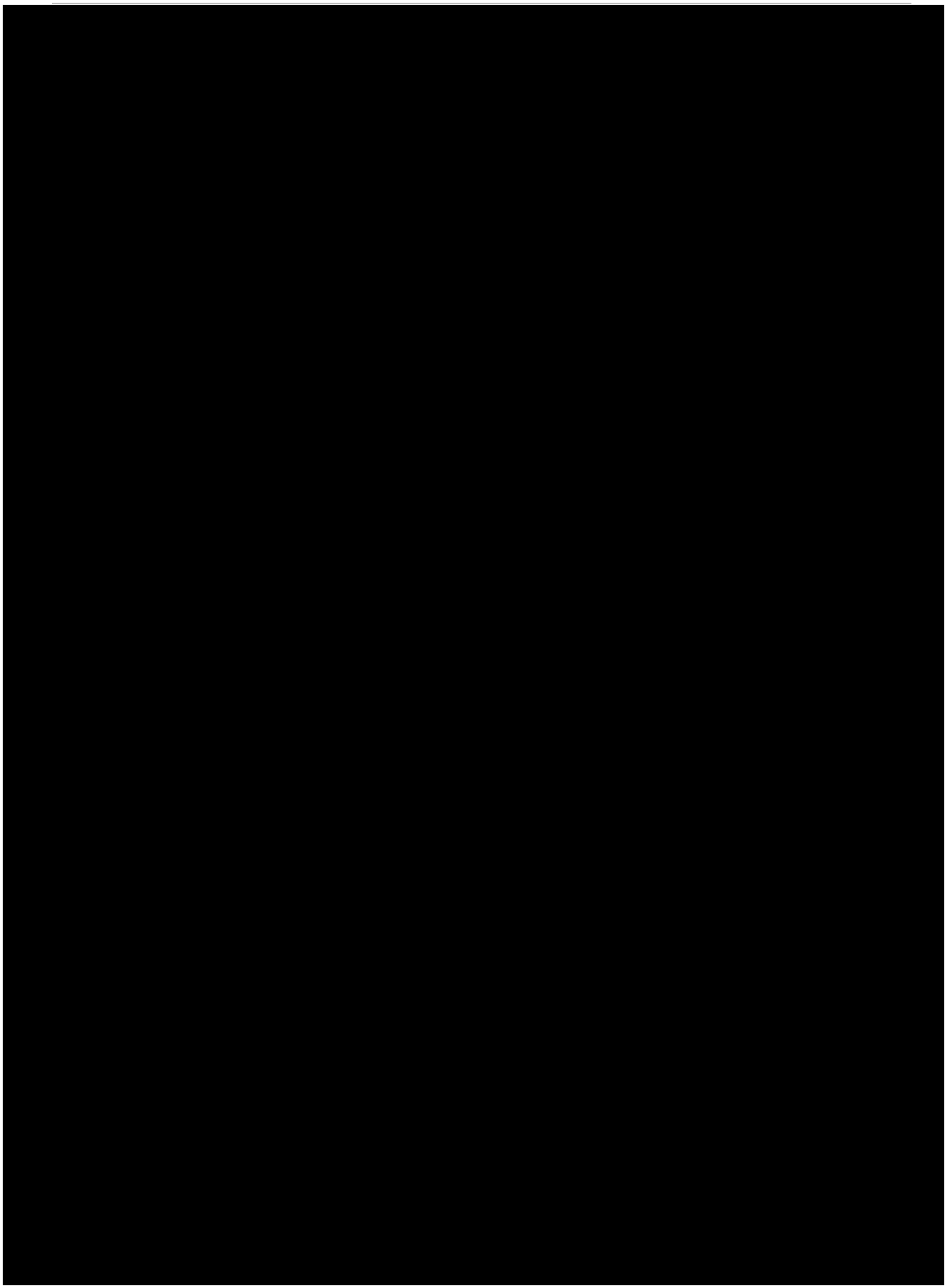

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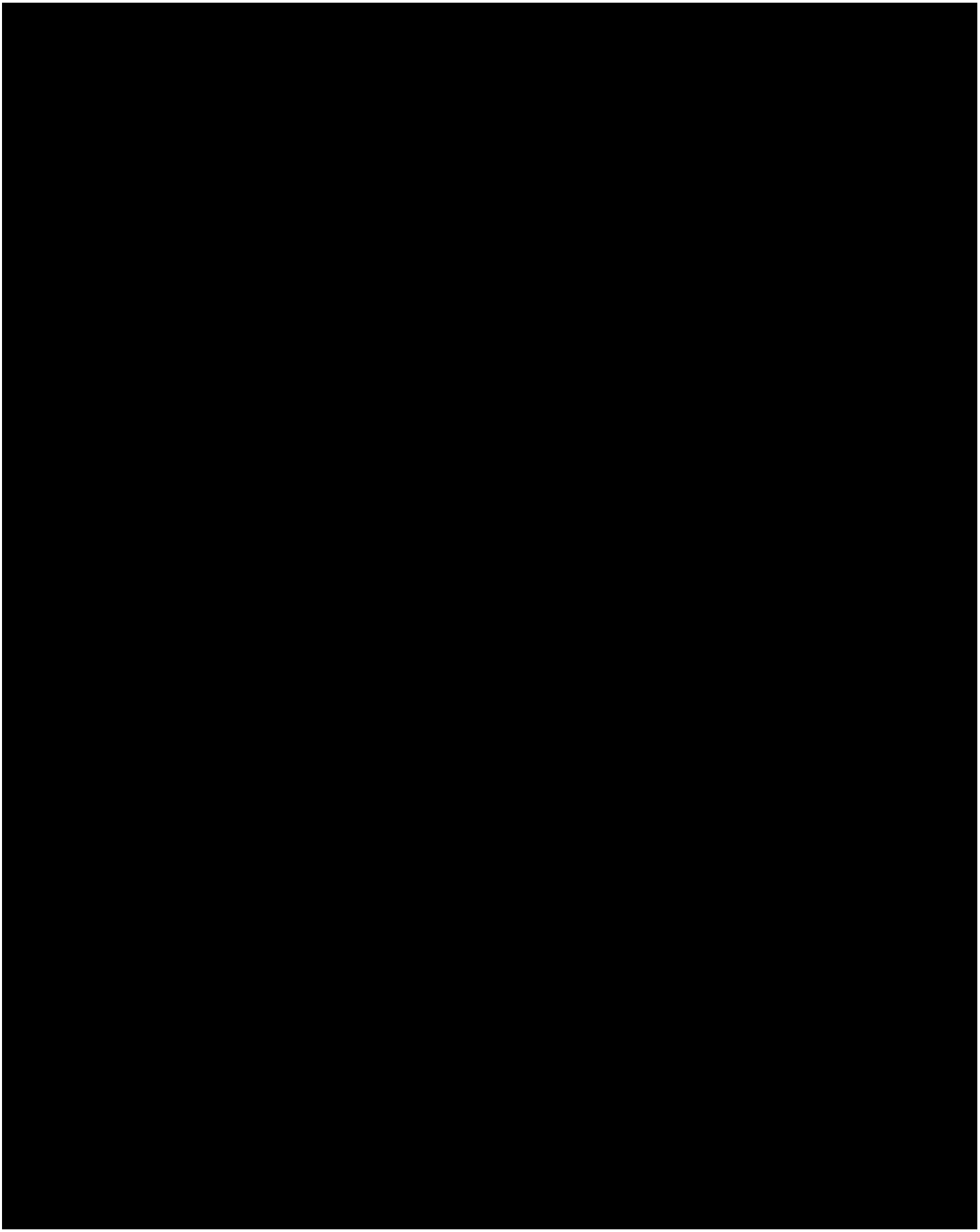

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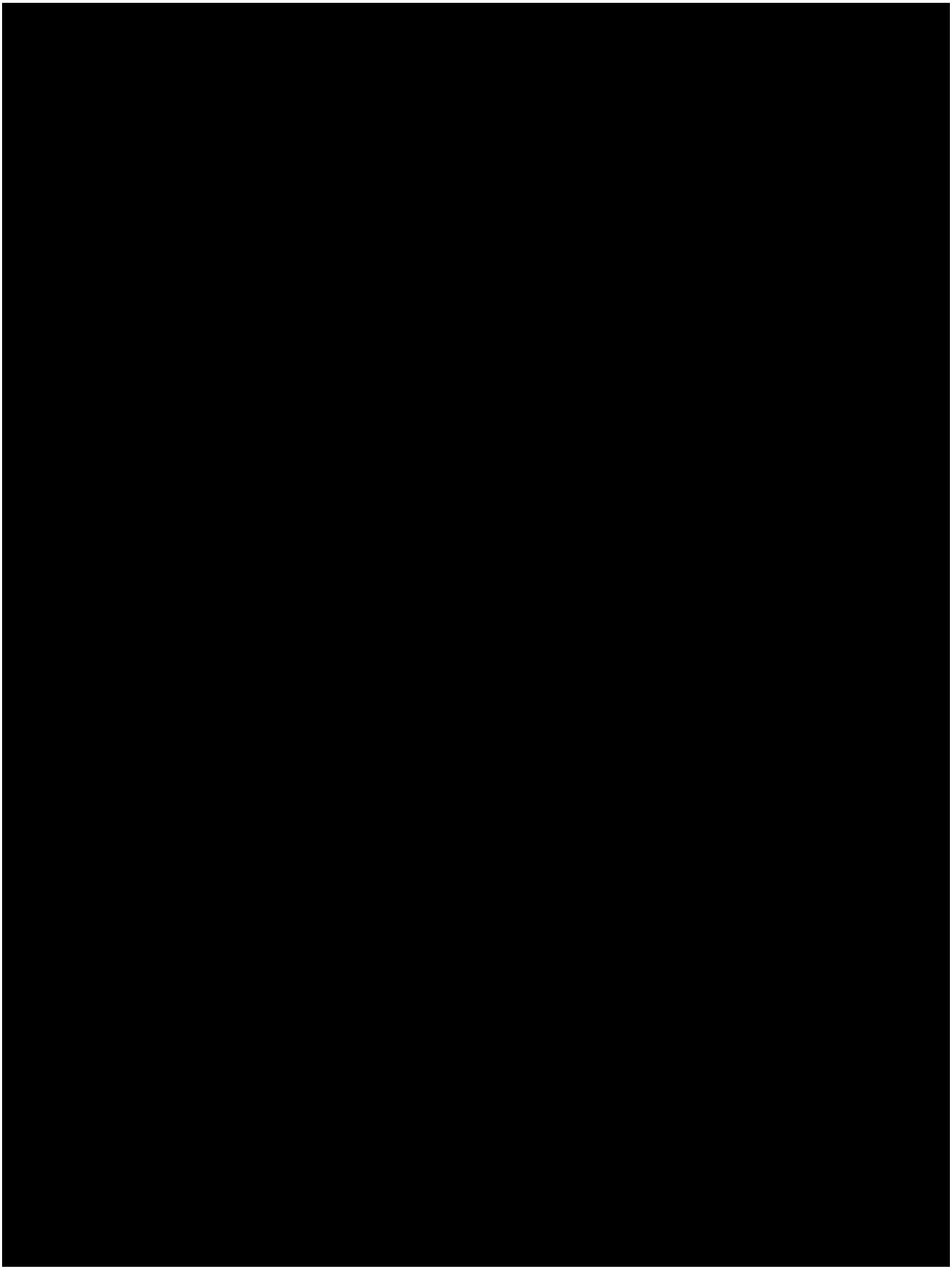

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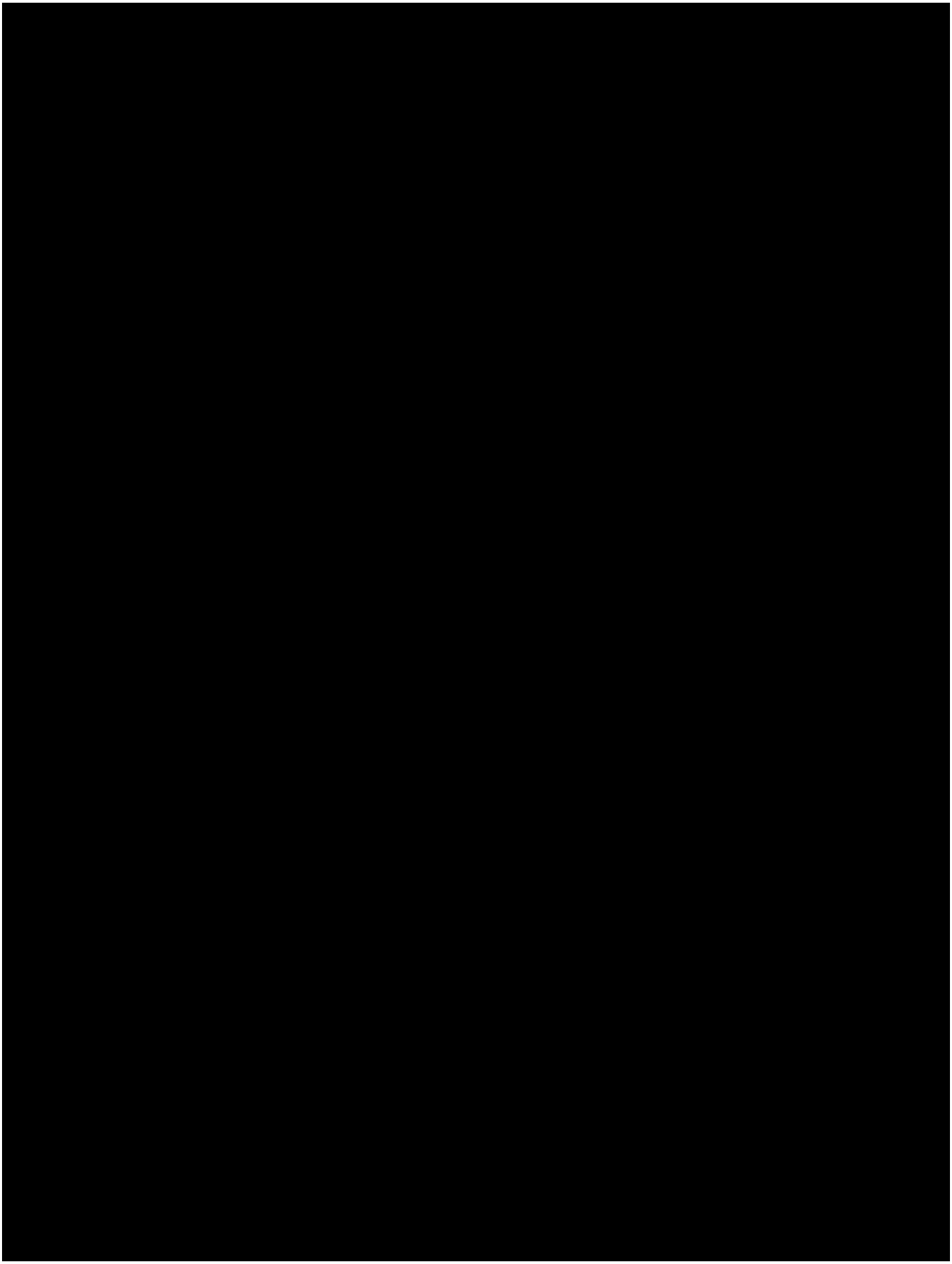

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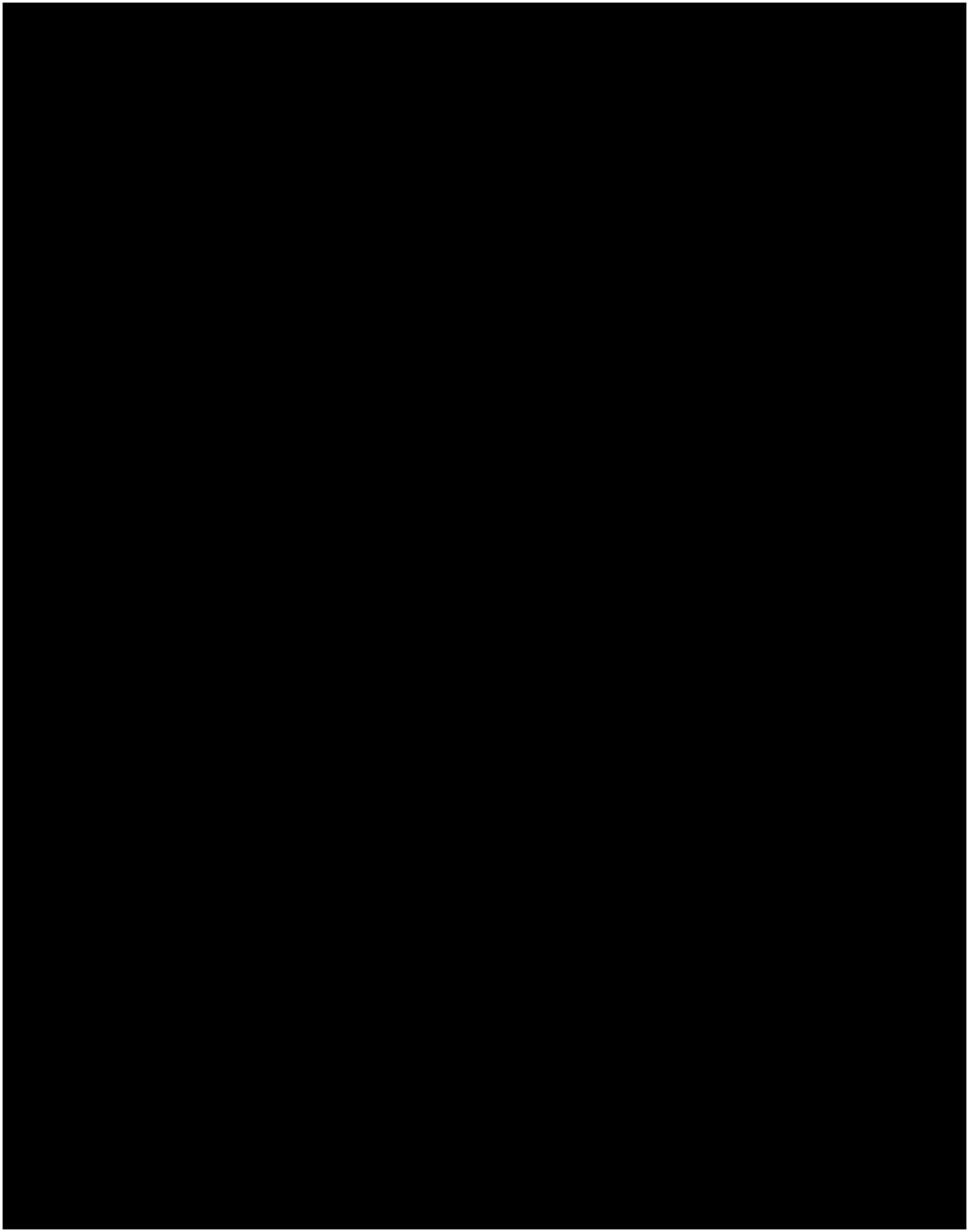

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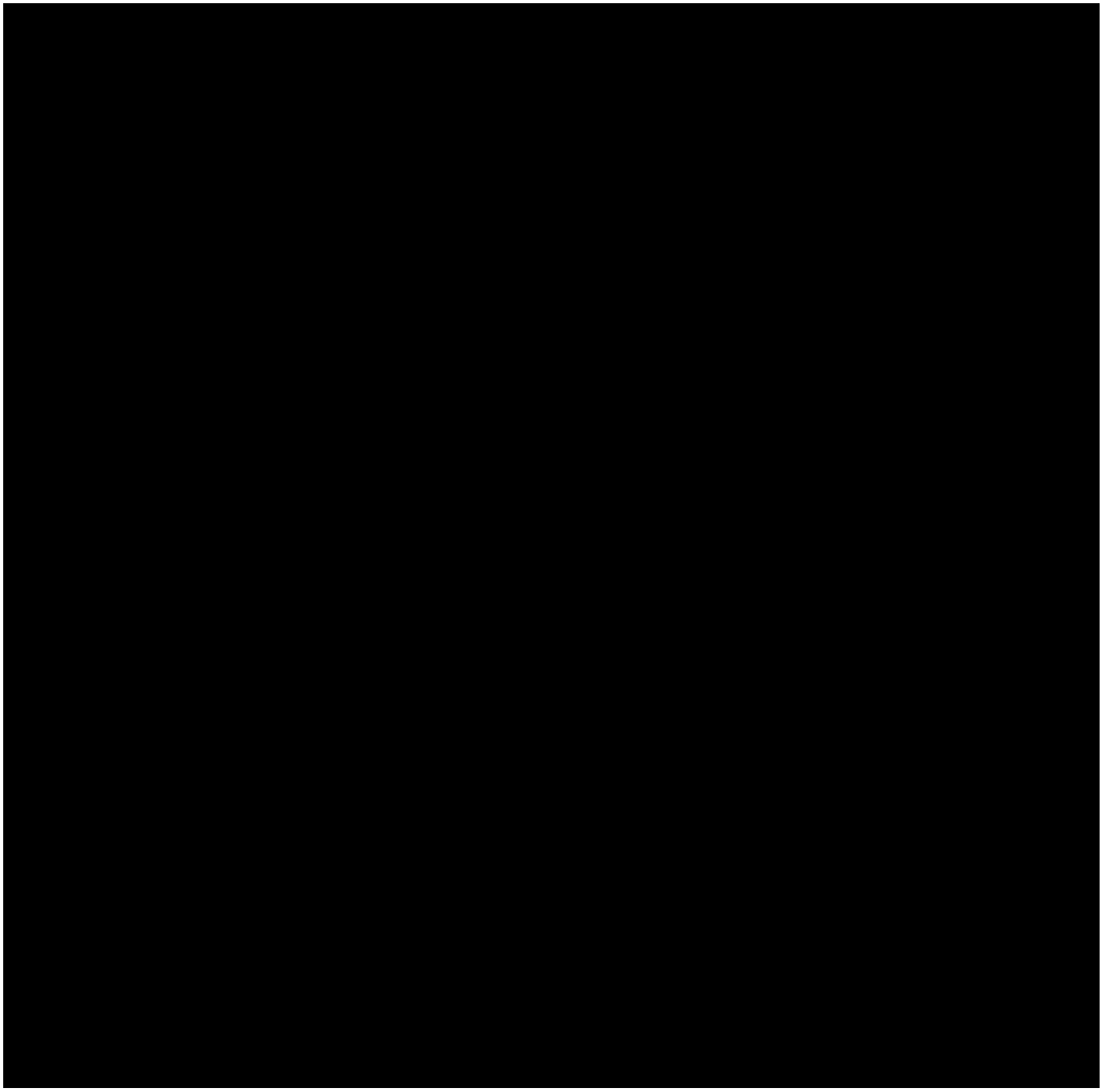

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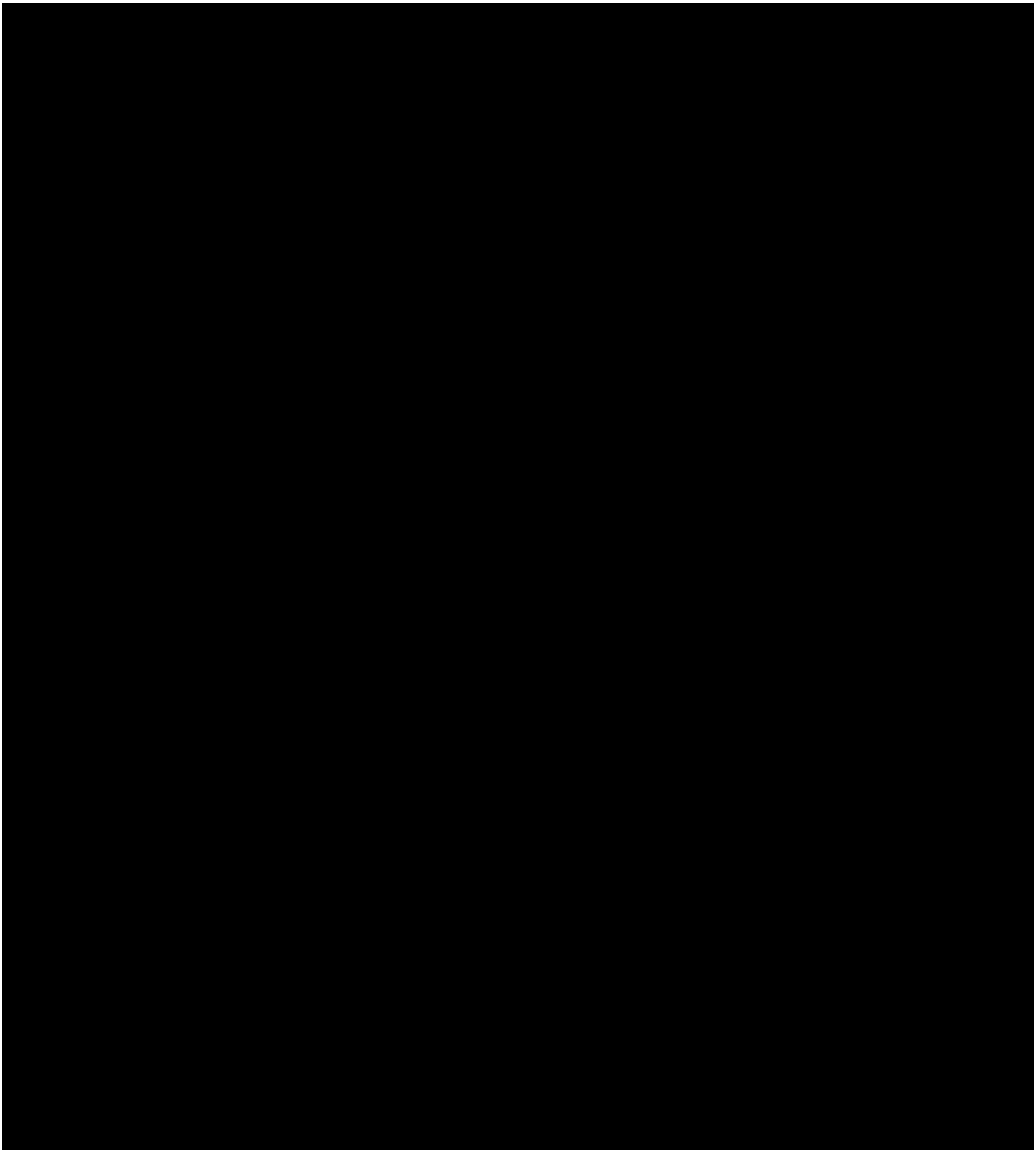

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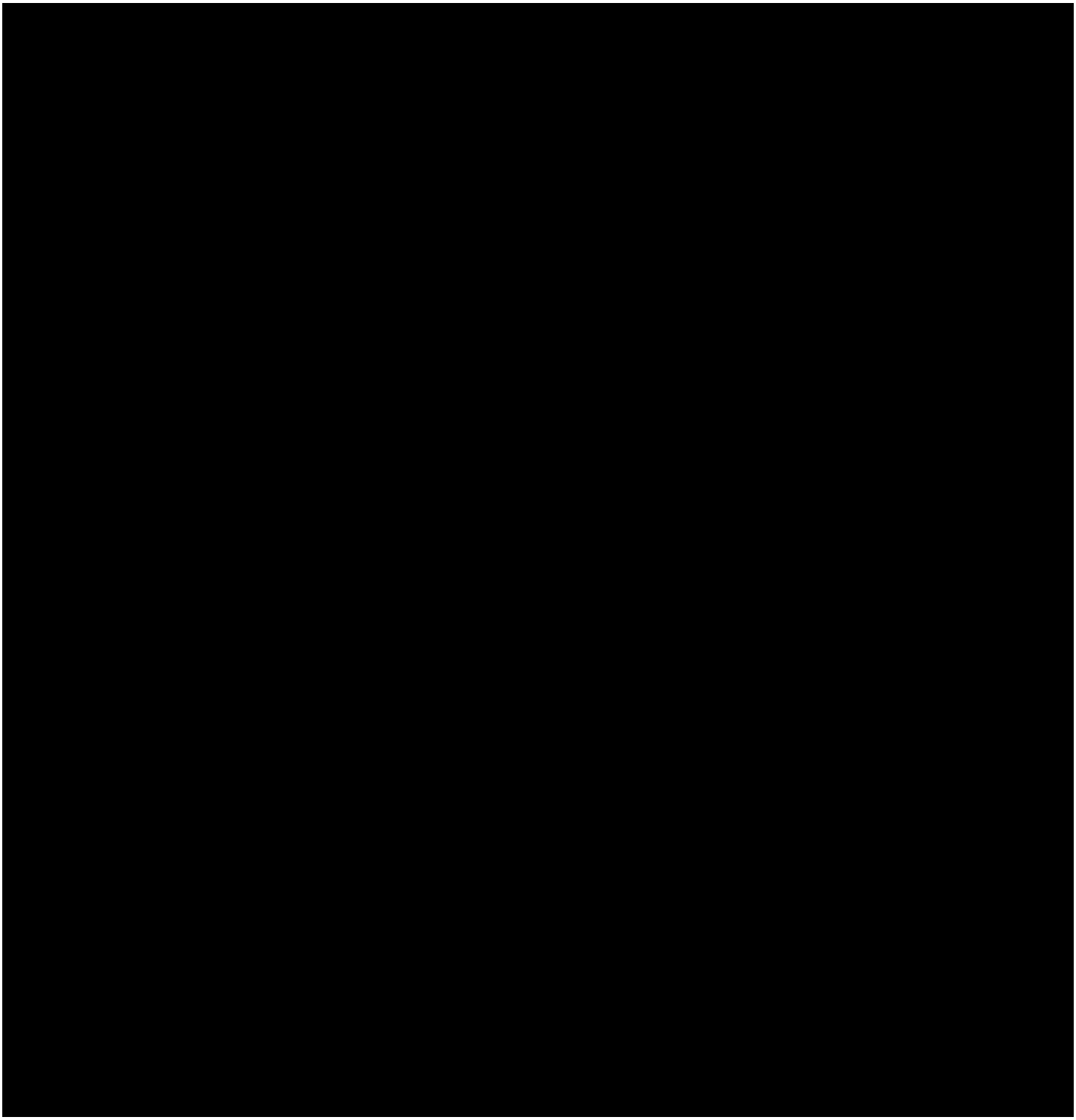

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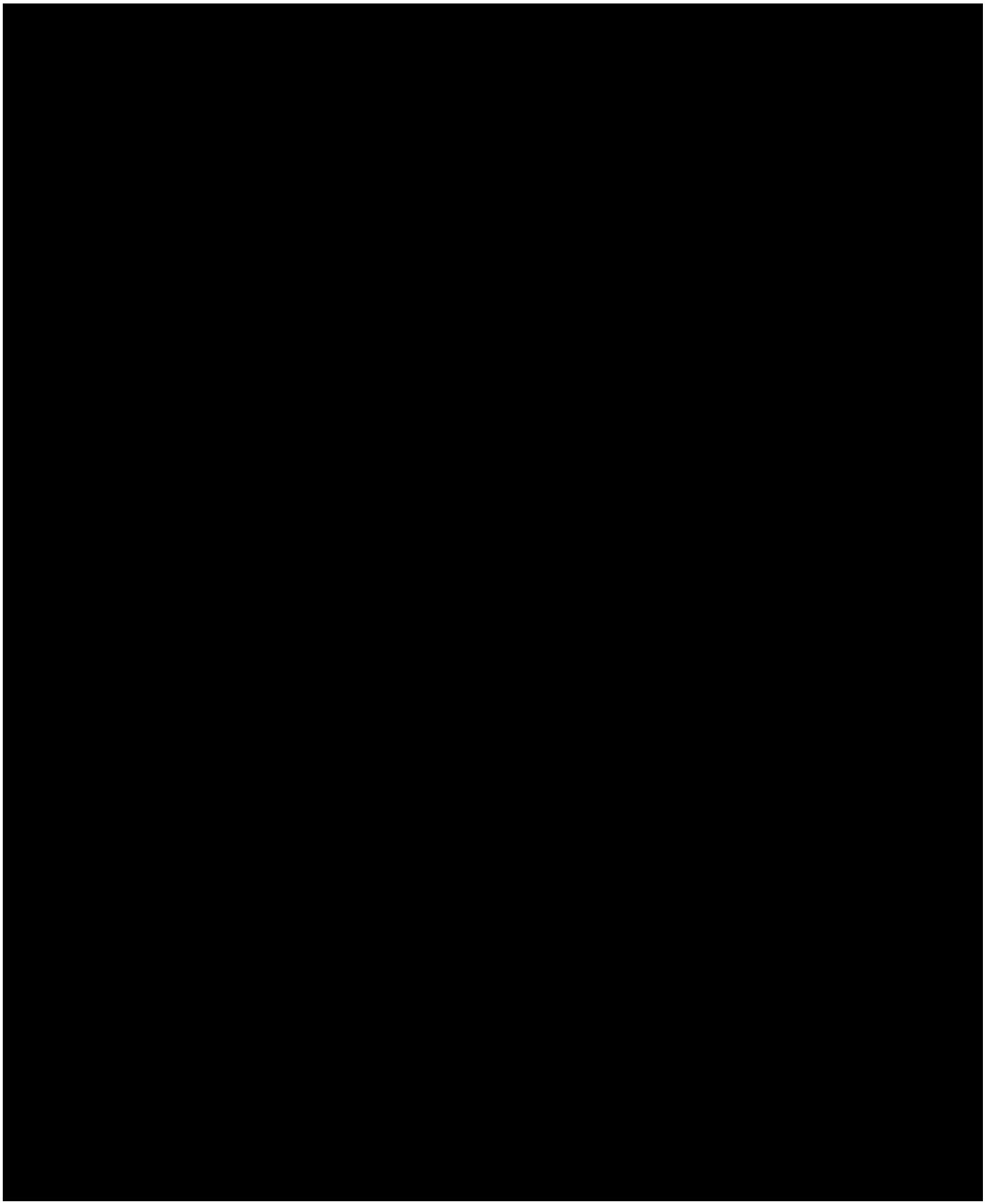
8.4.13 Sales



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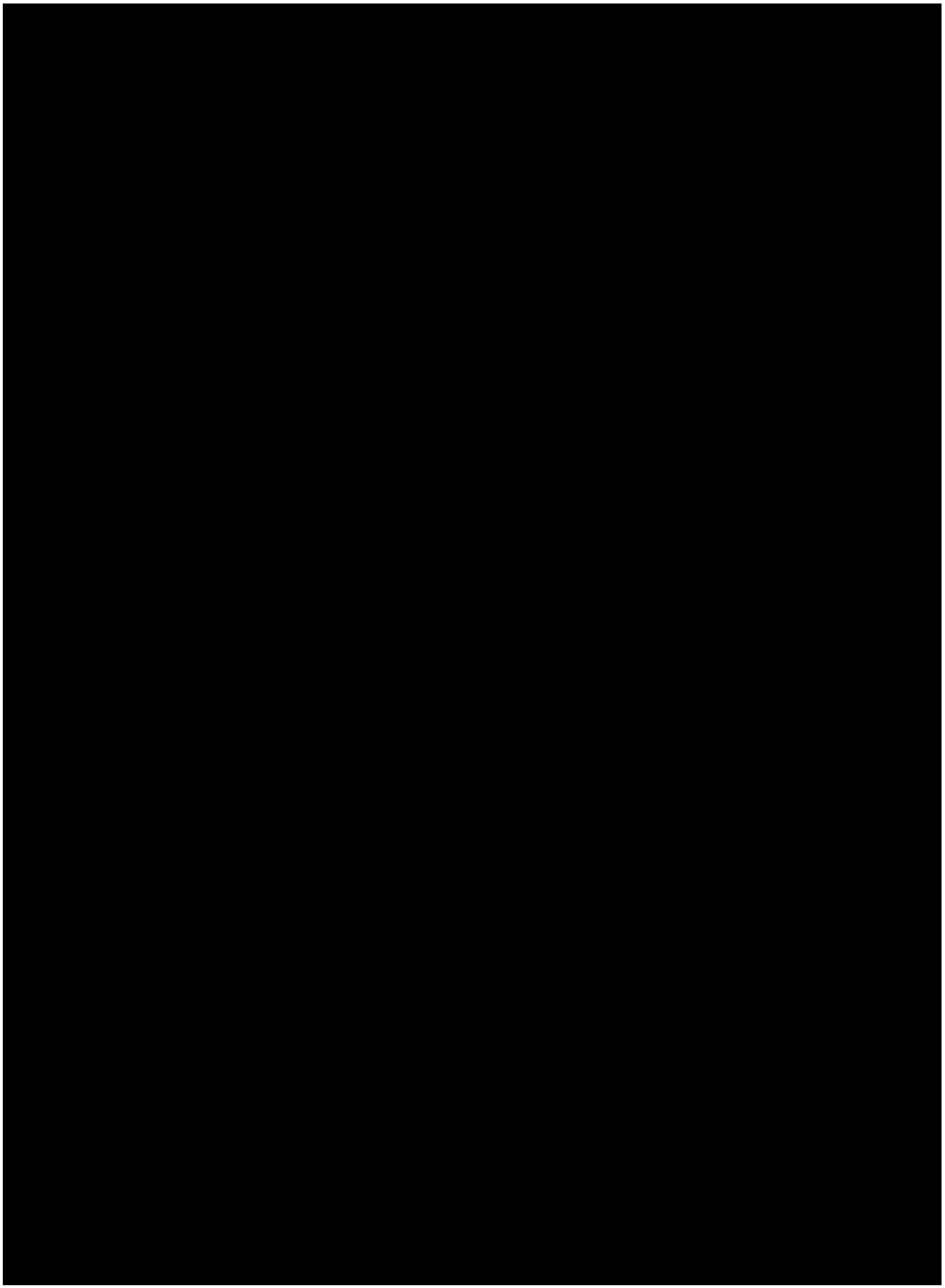

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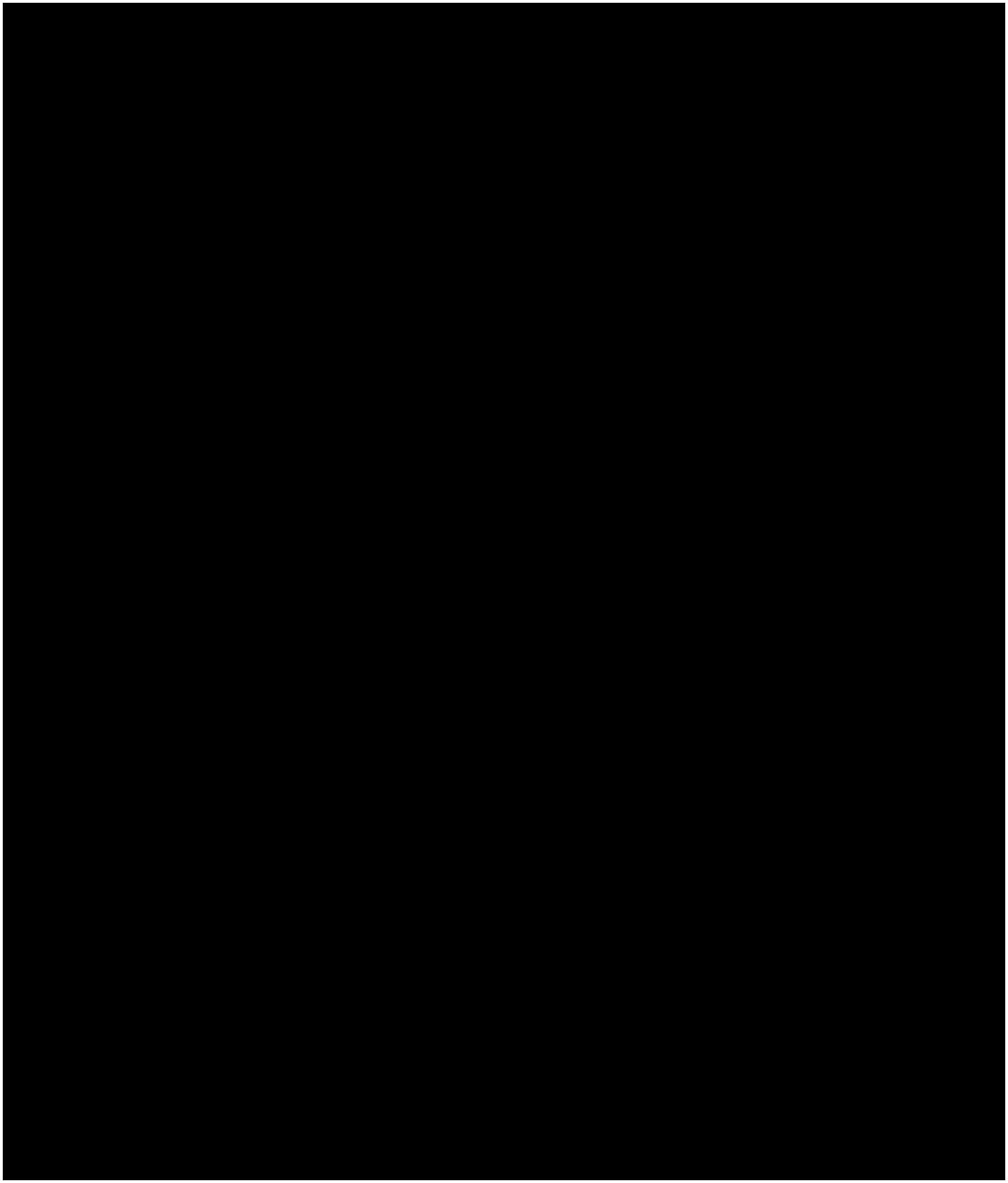

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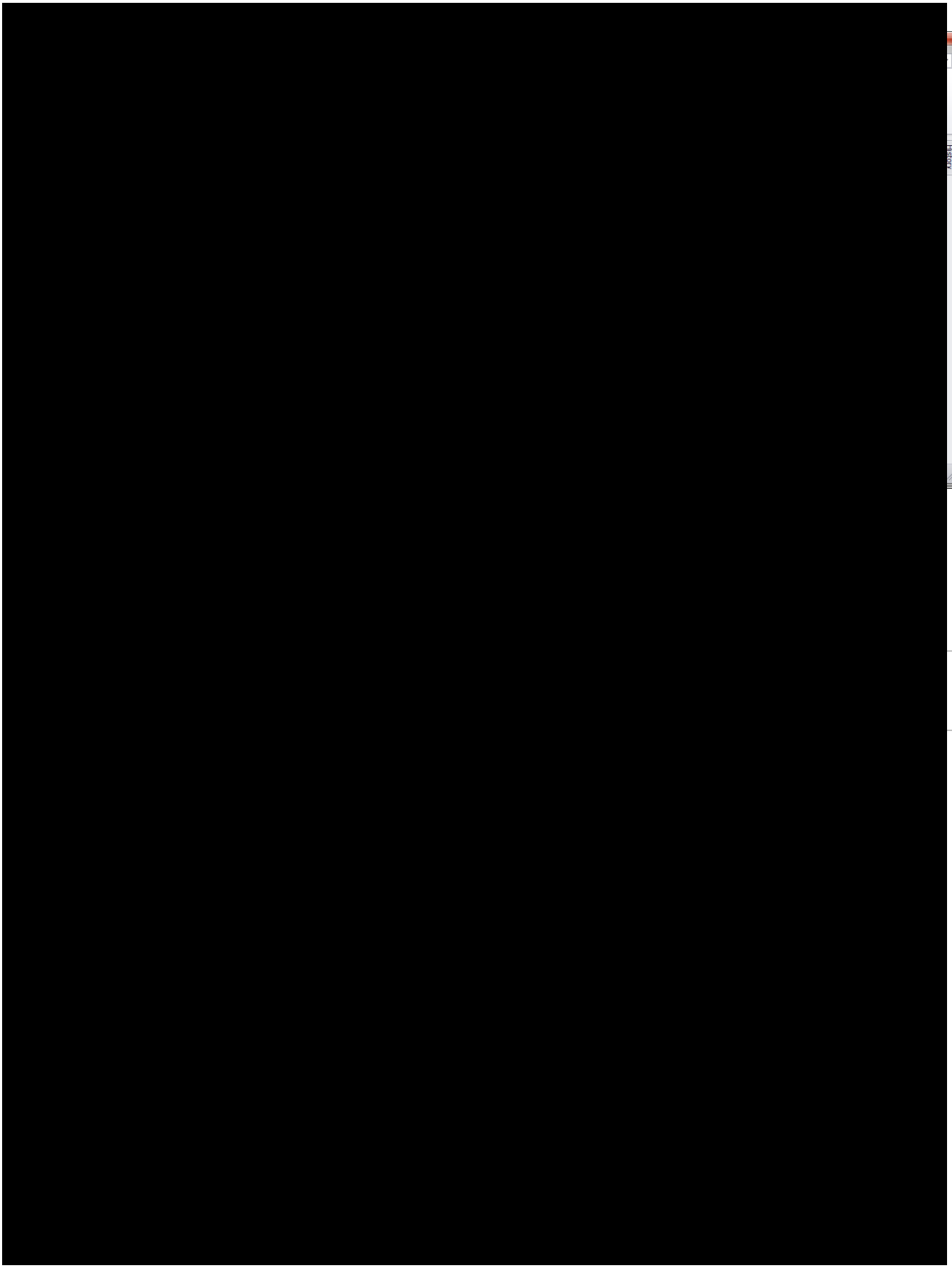

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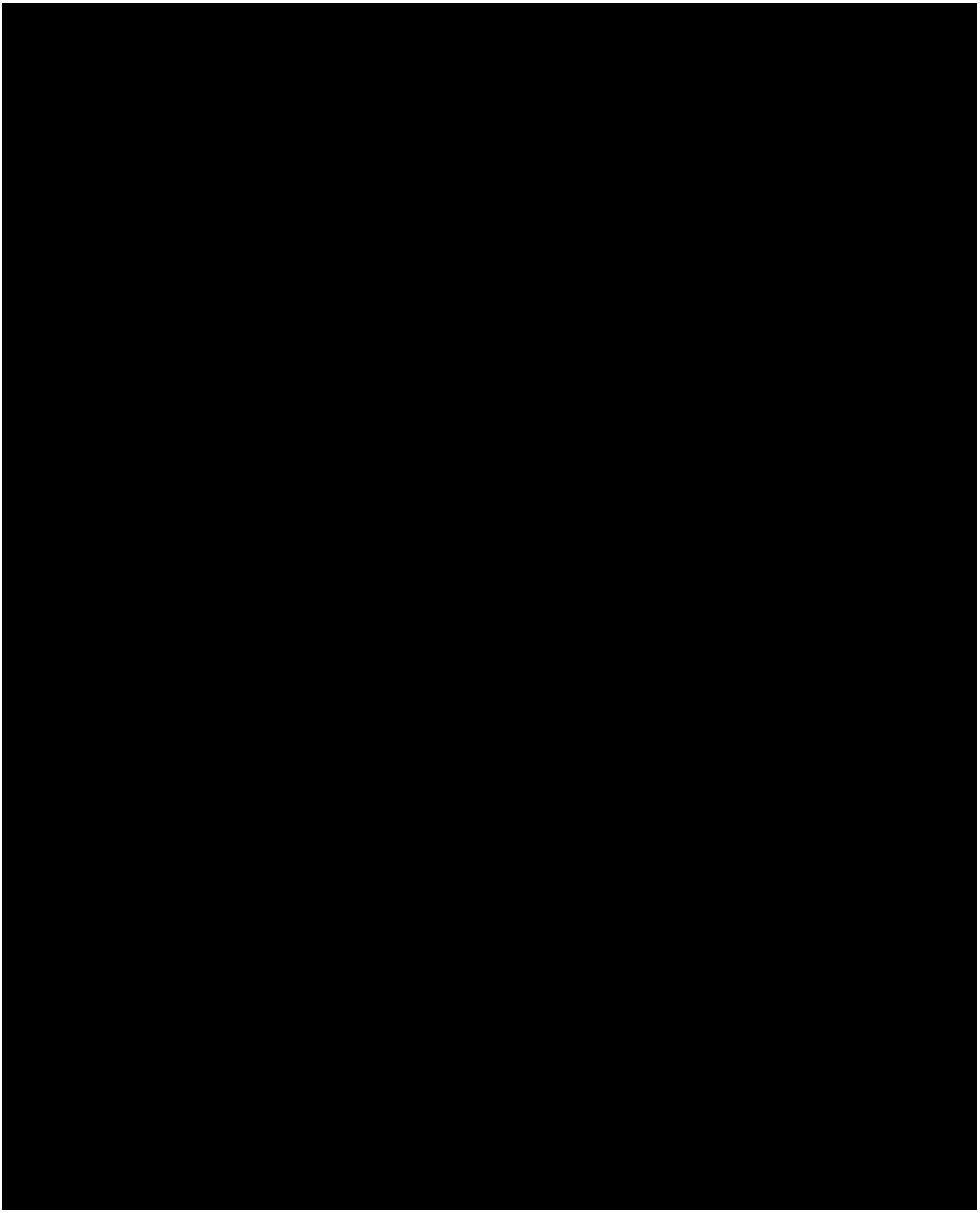

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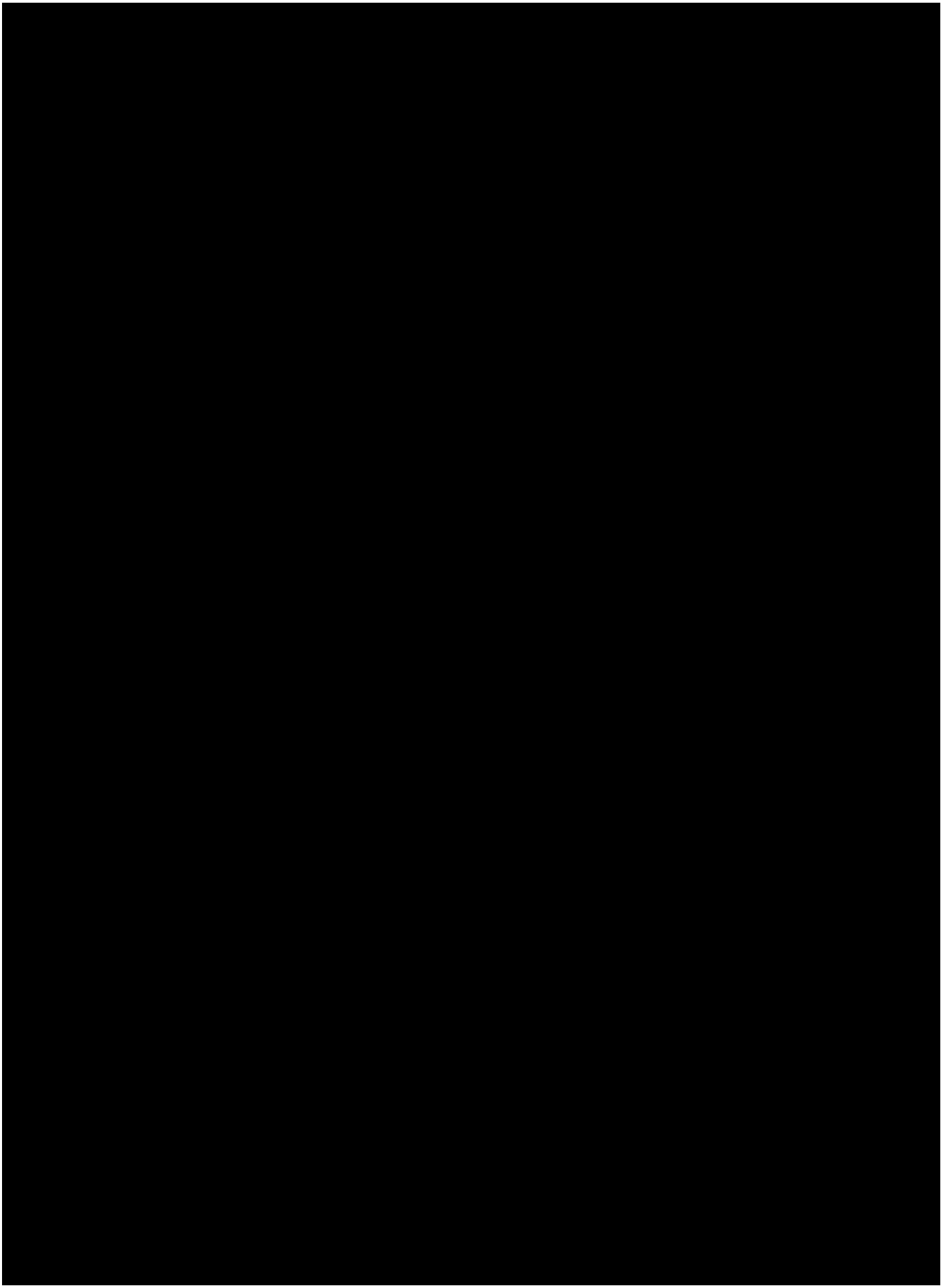

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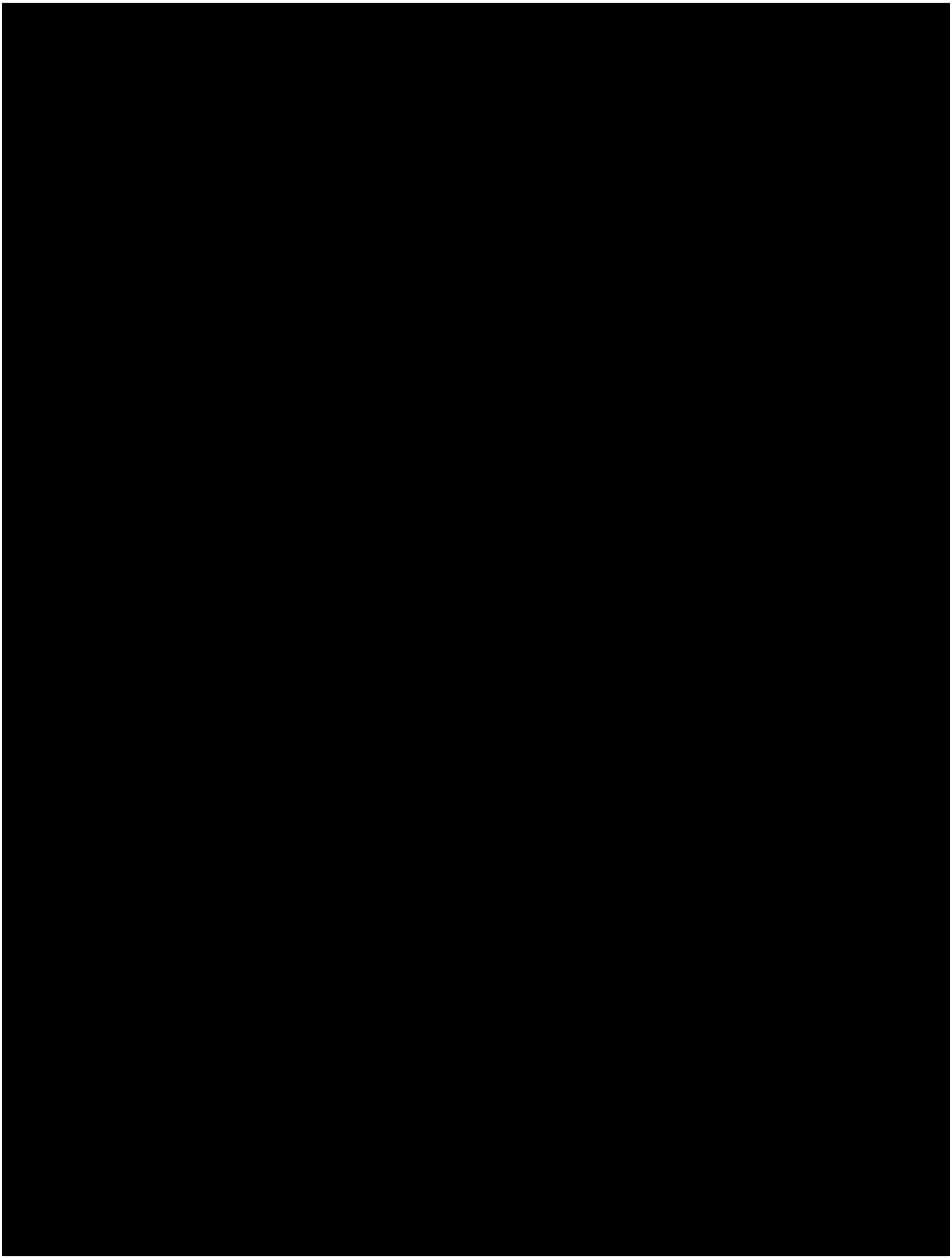

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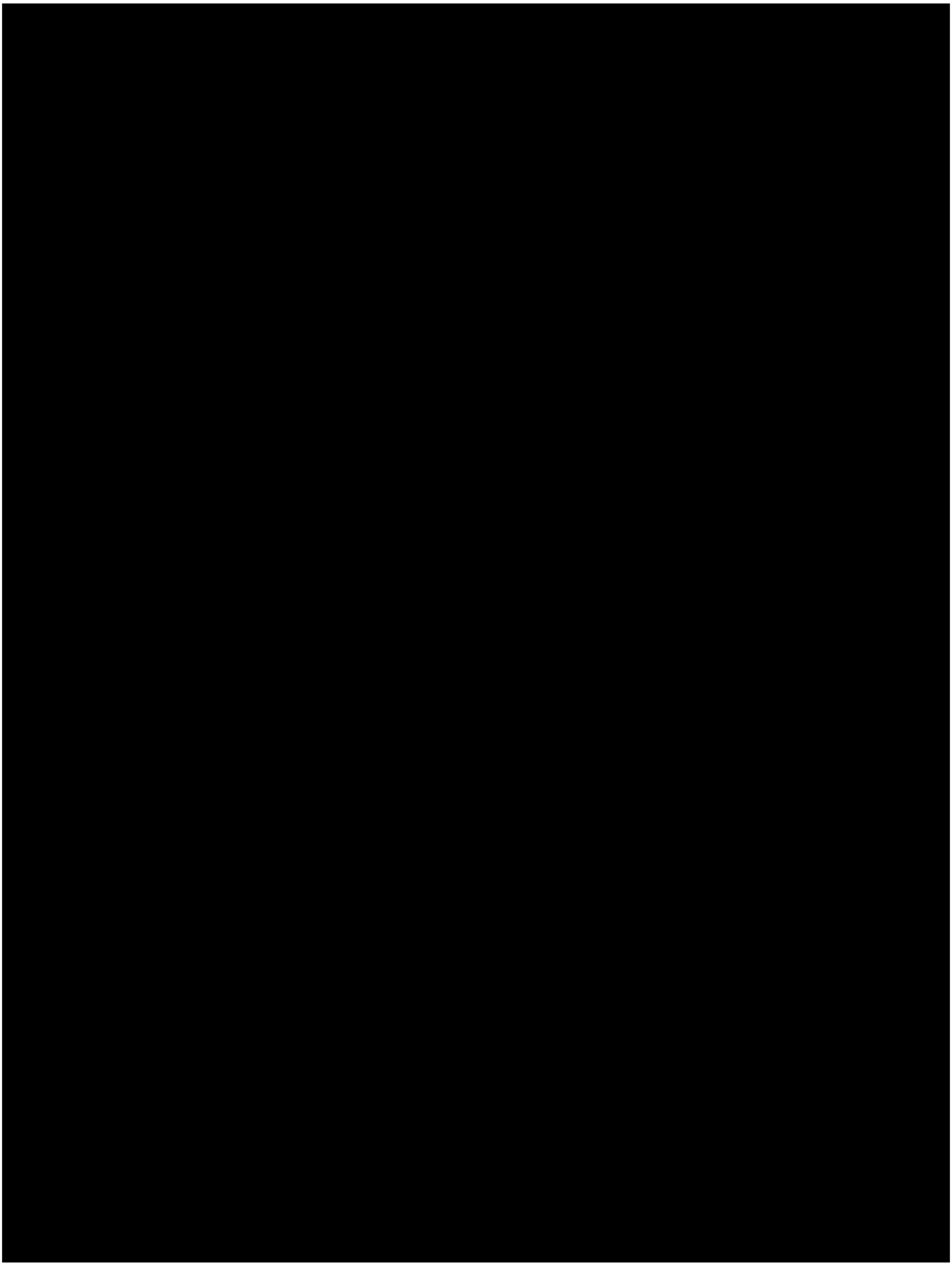

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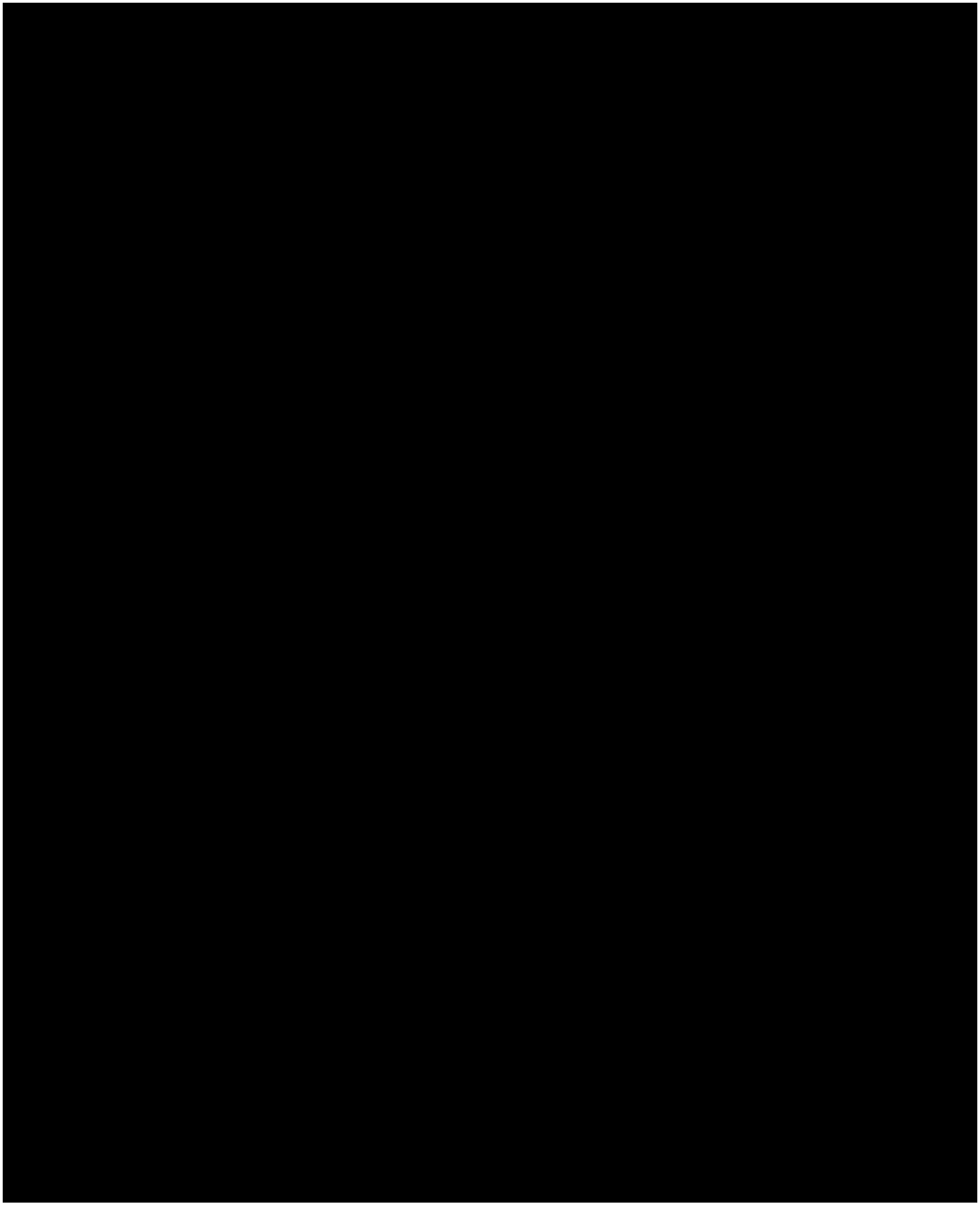

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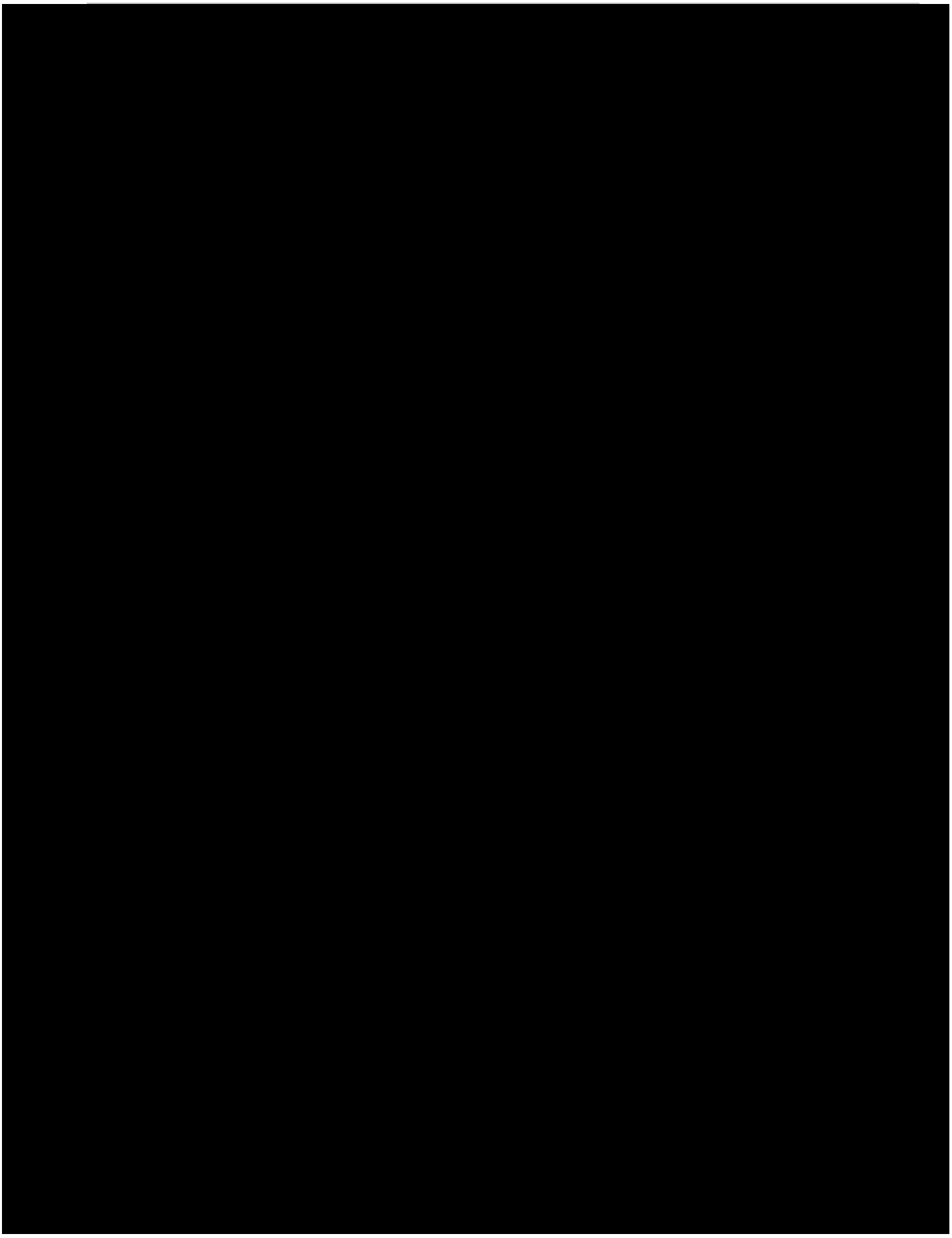

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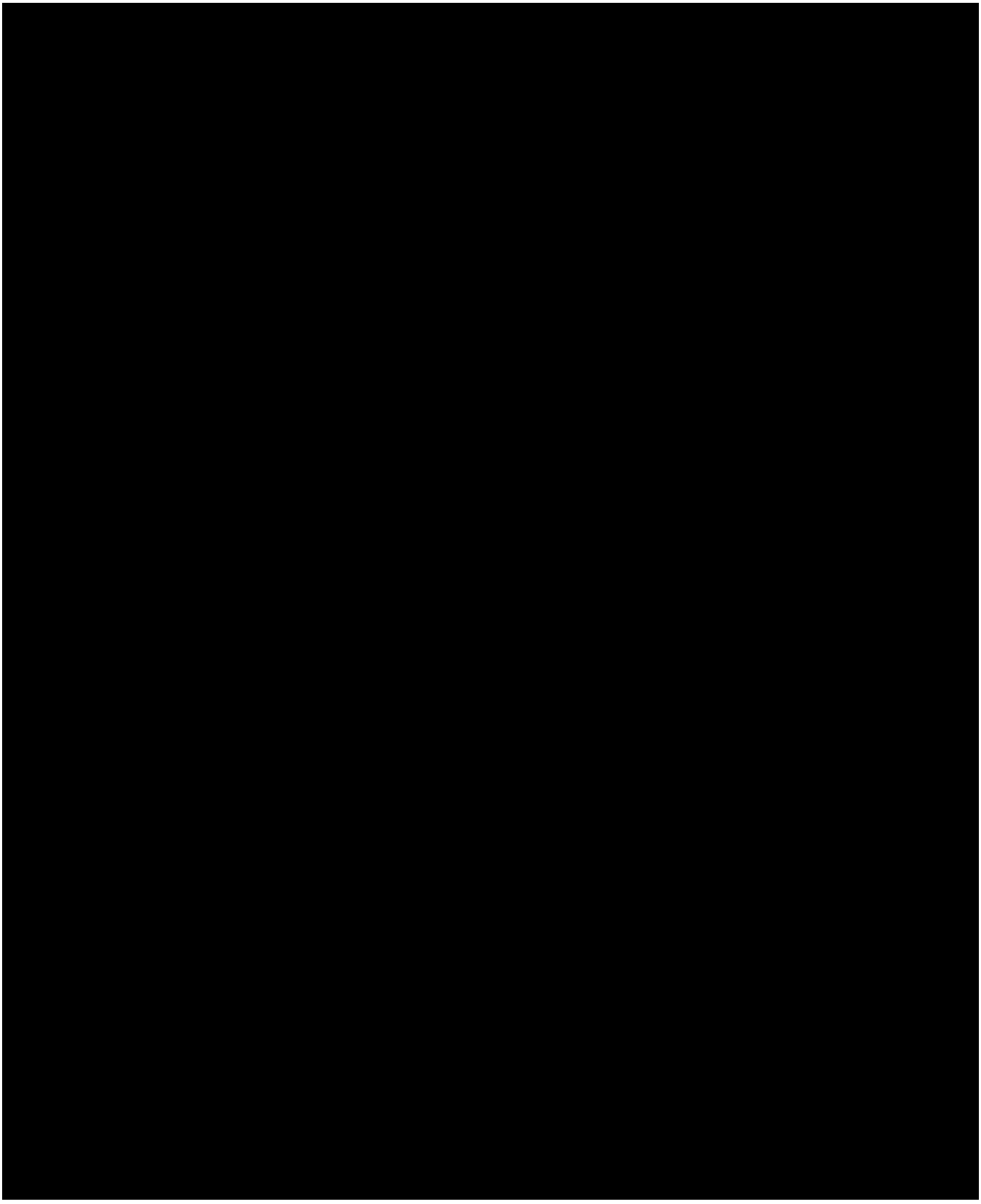

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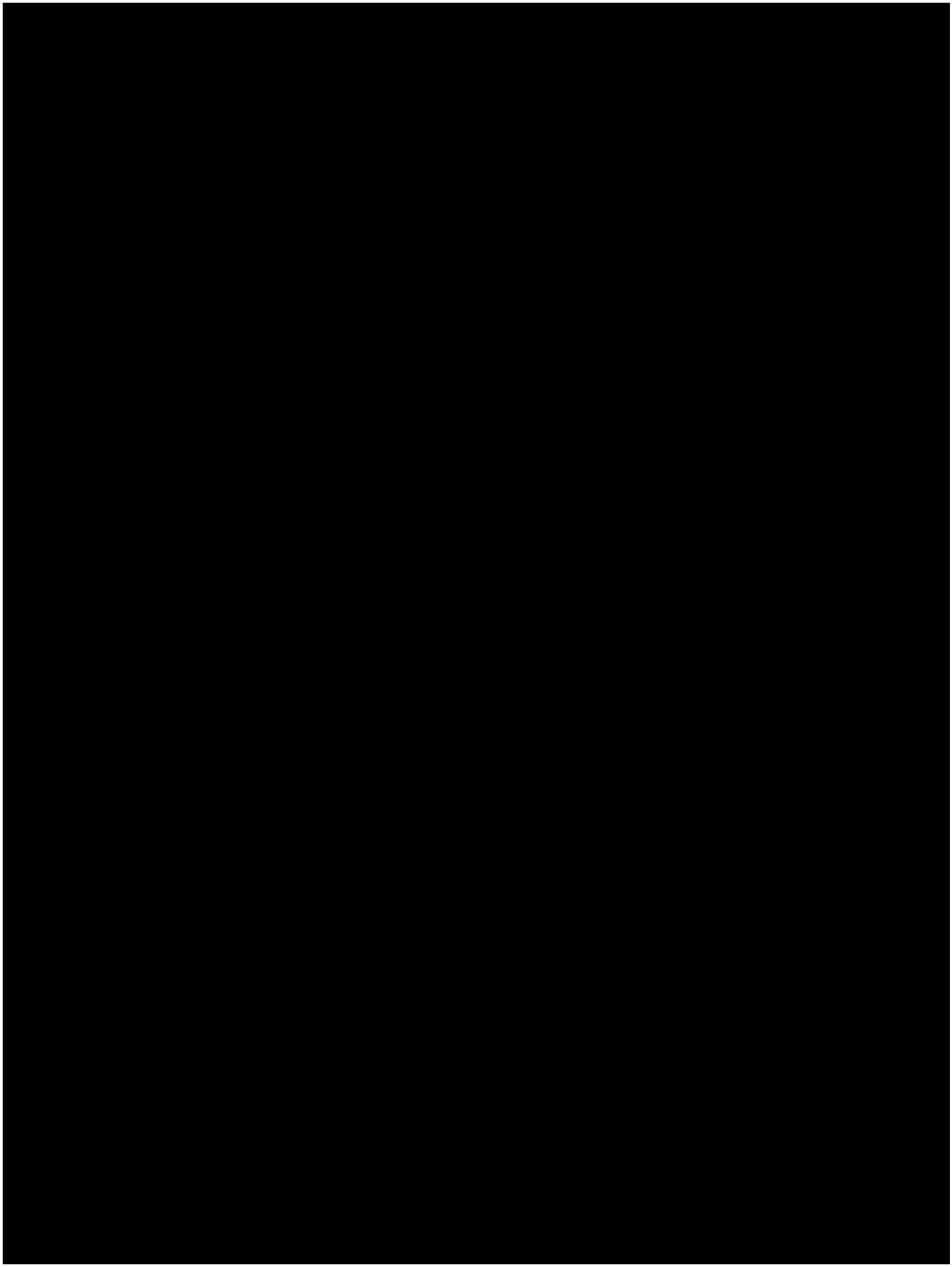

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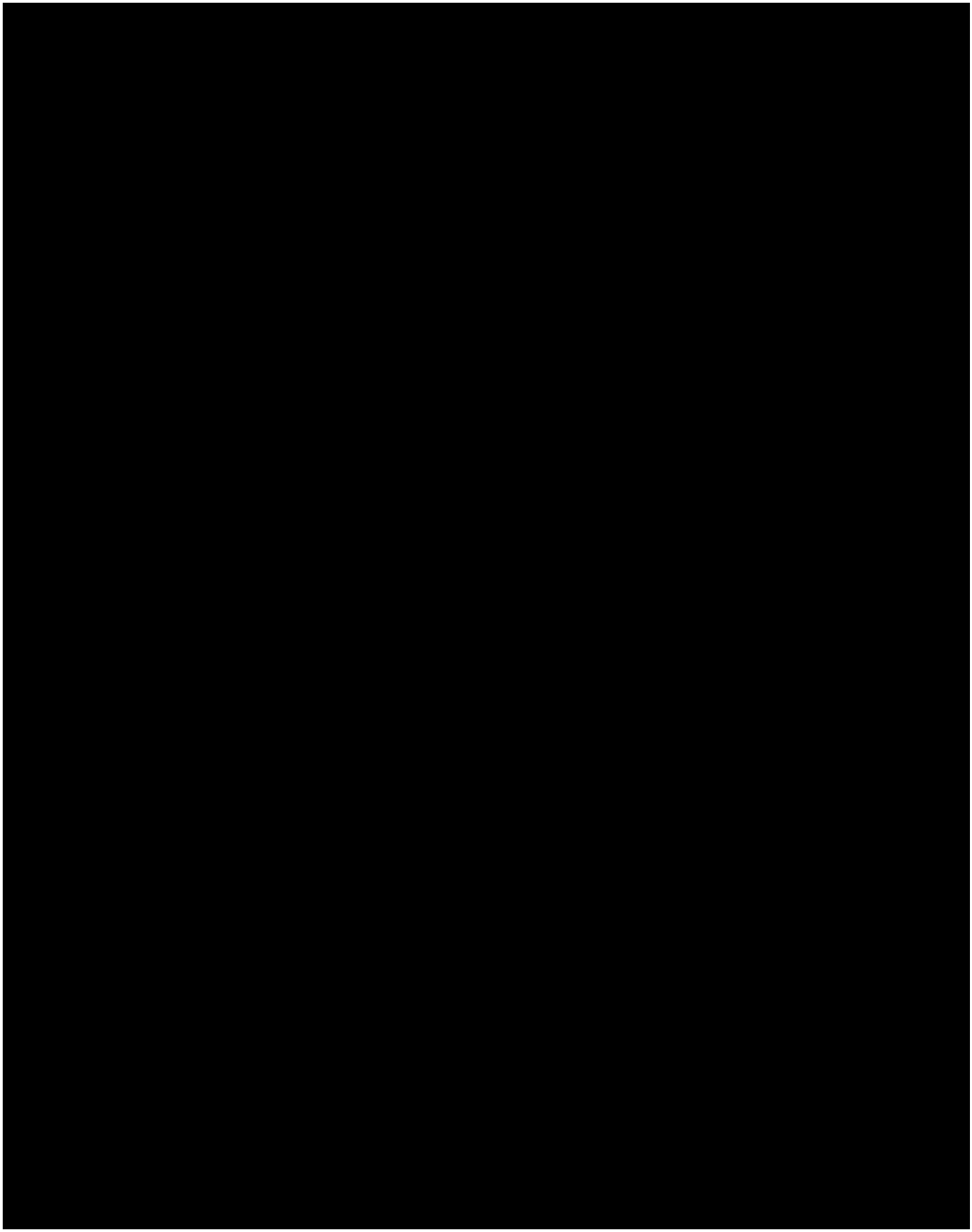

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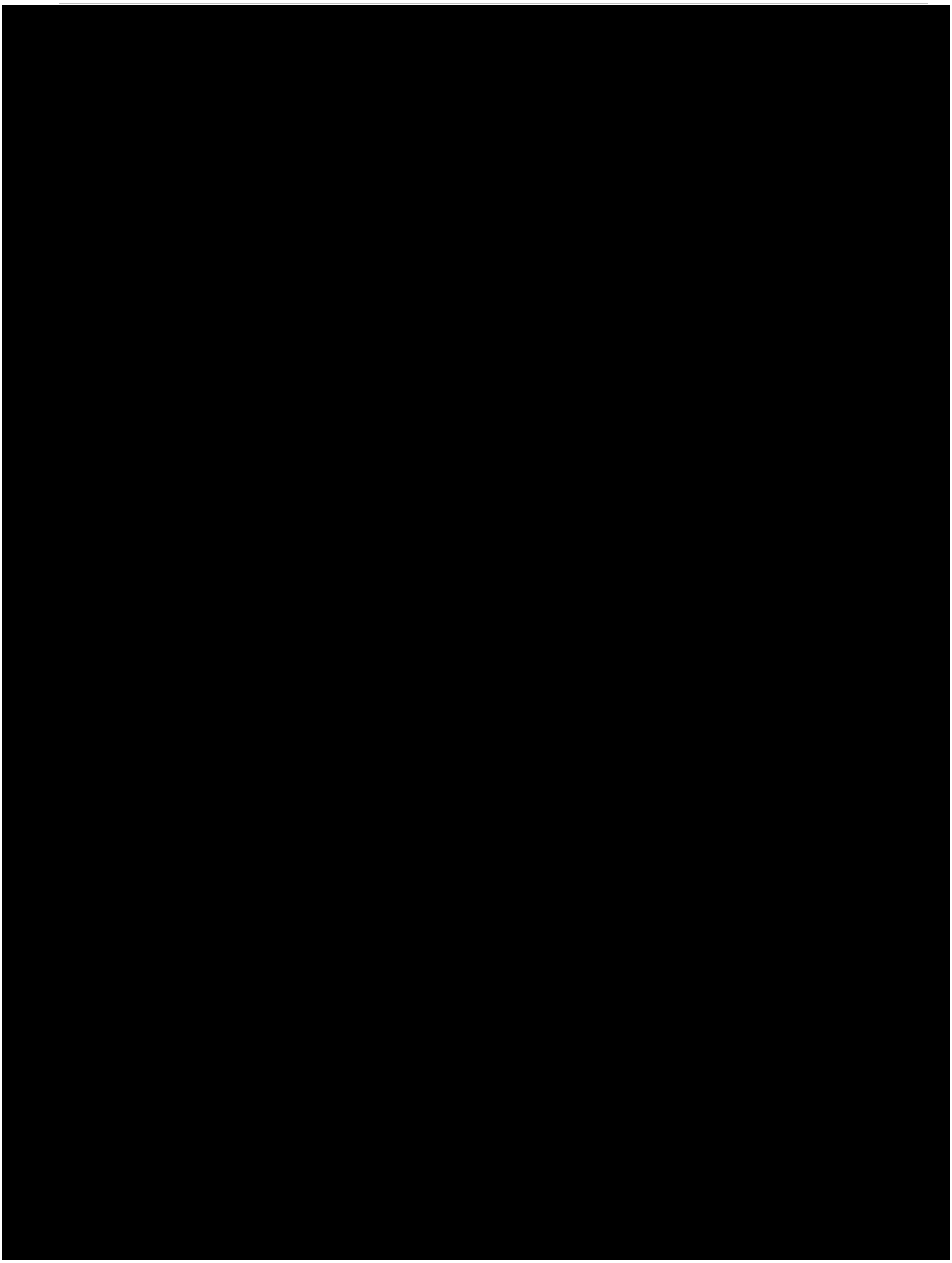

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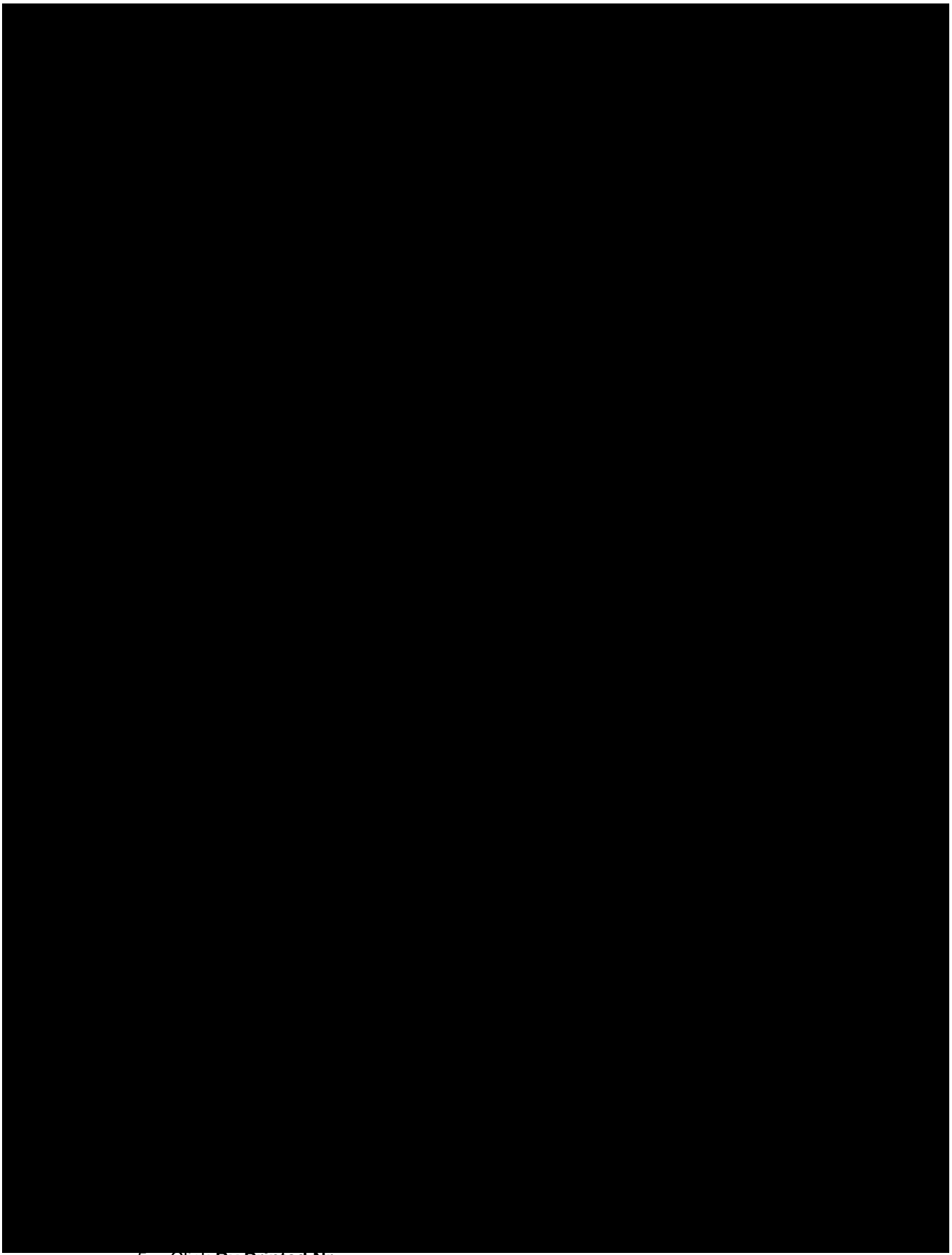

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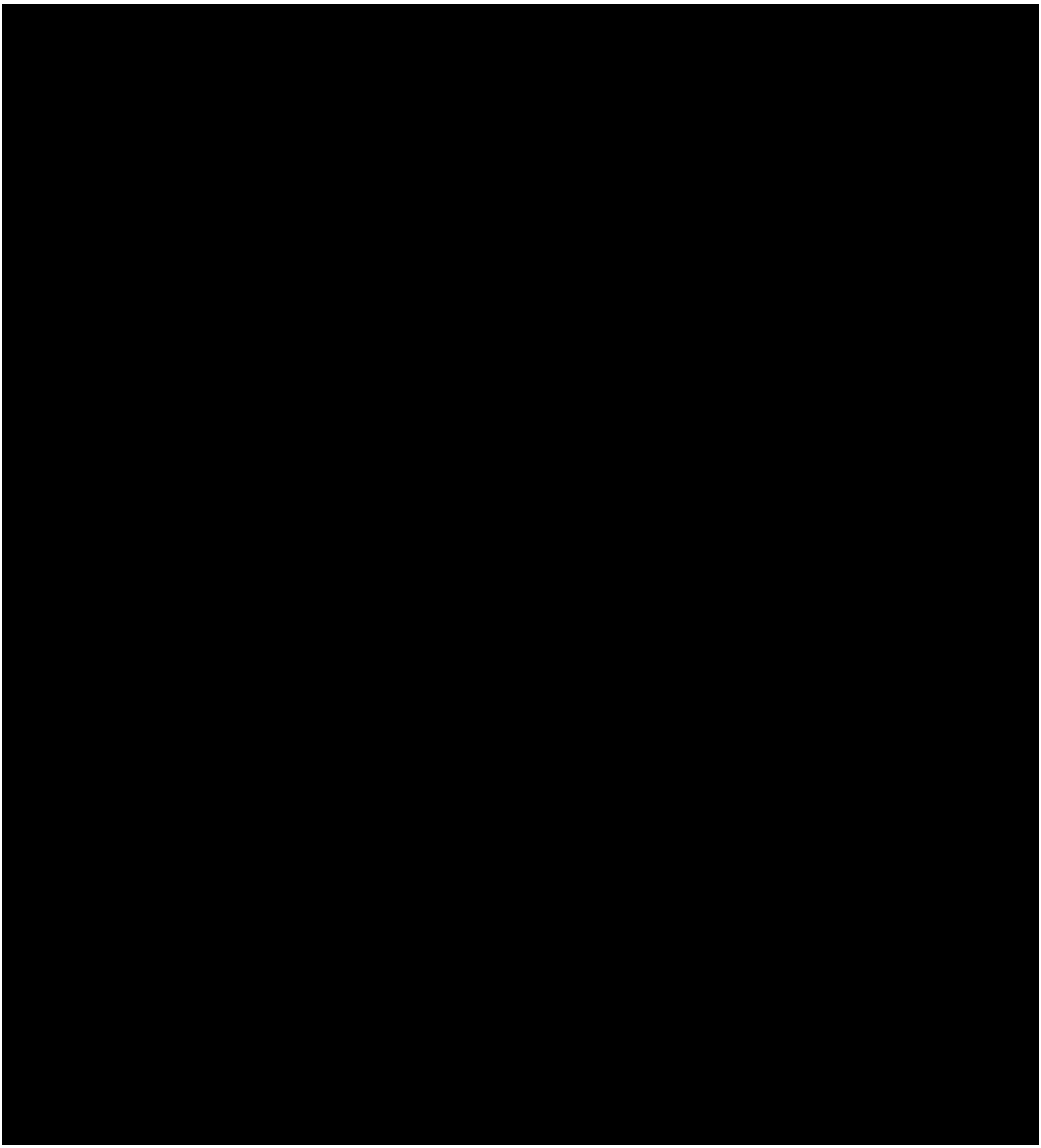

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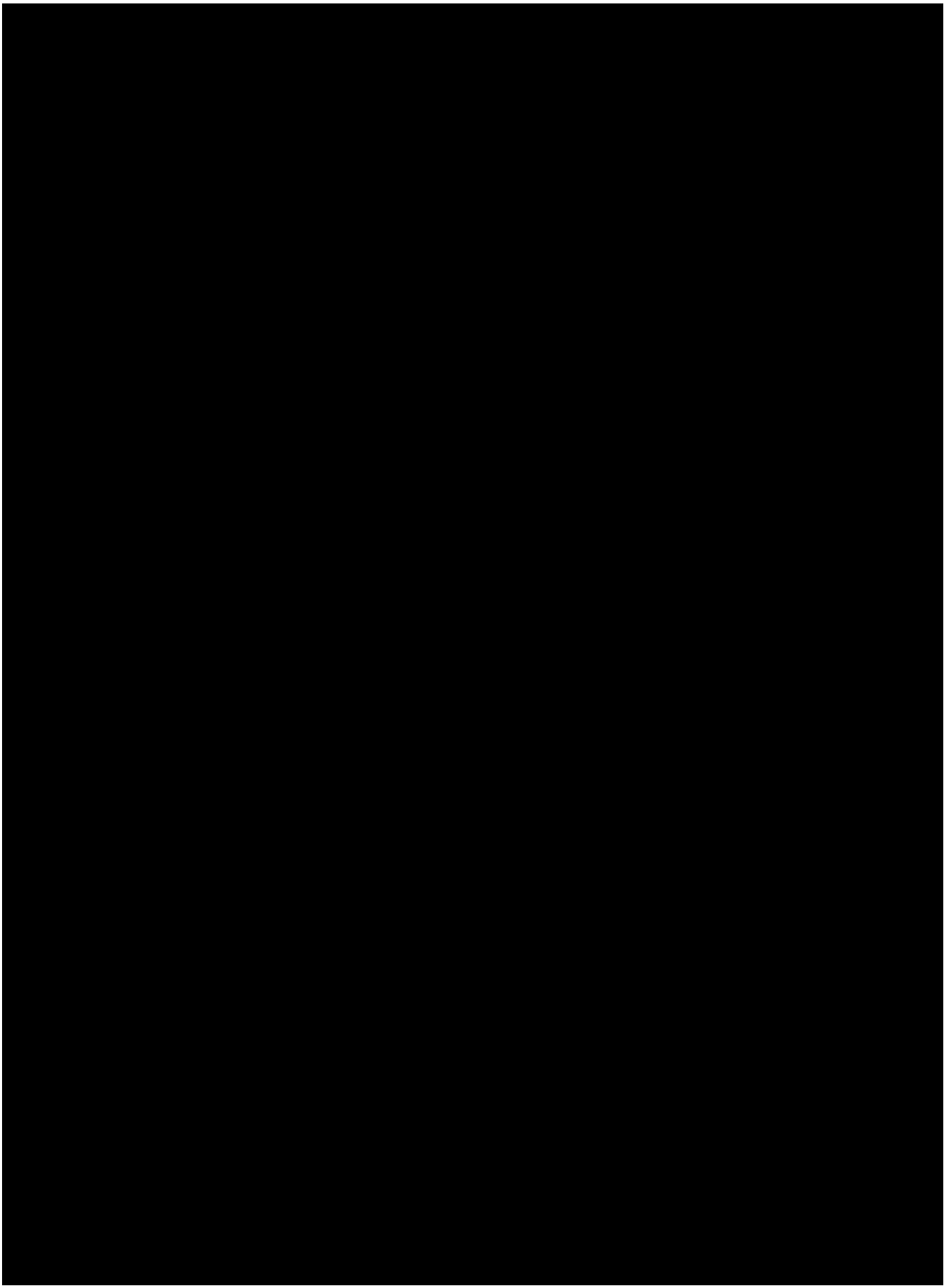

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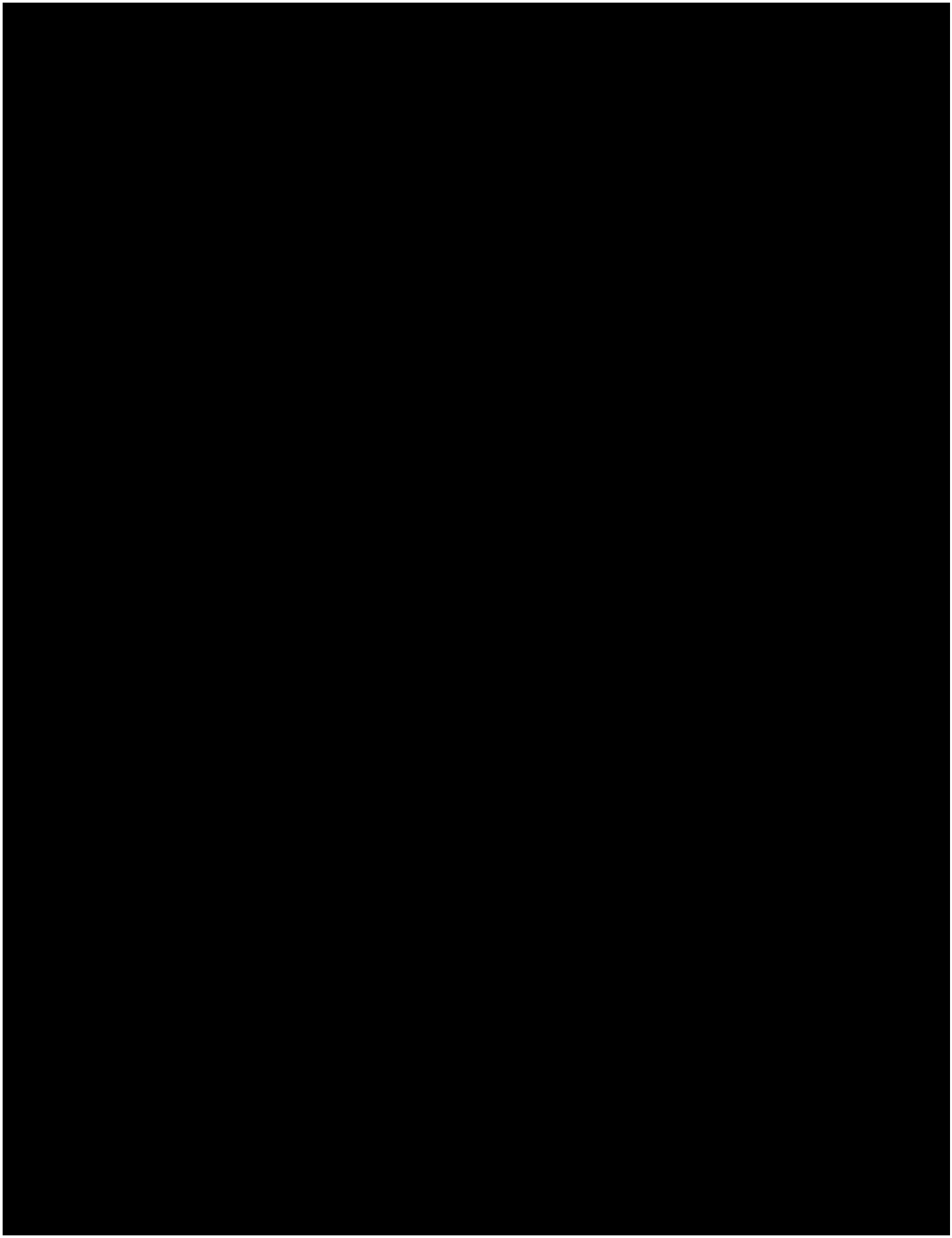

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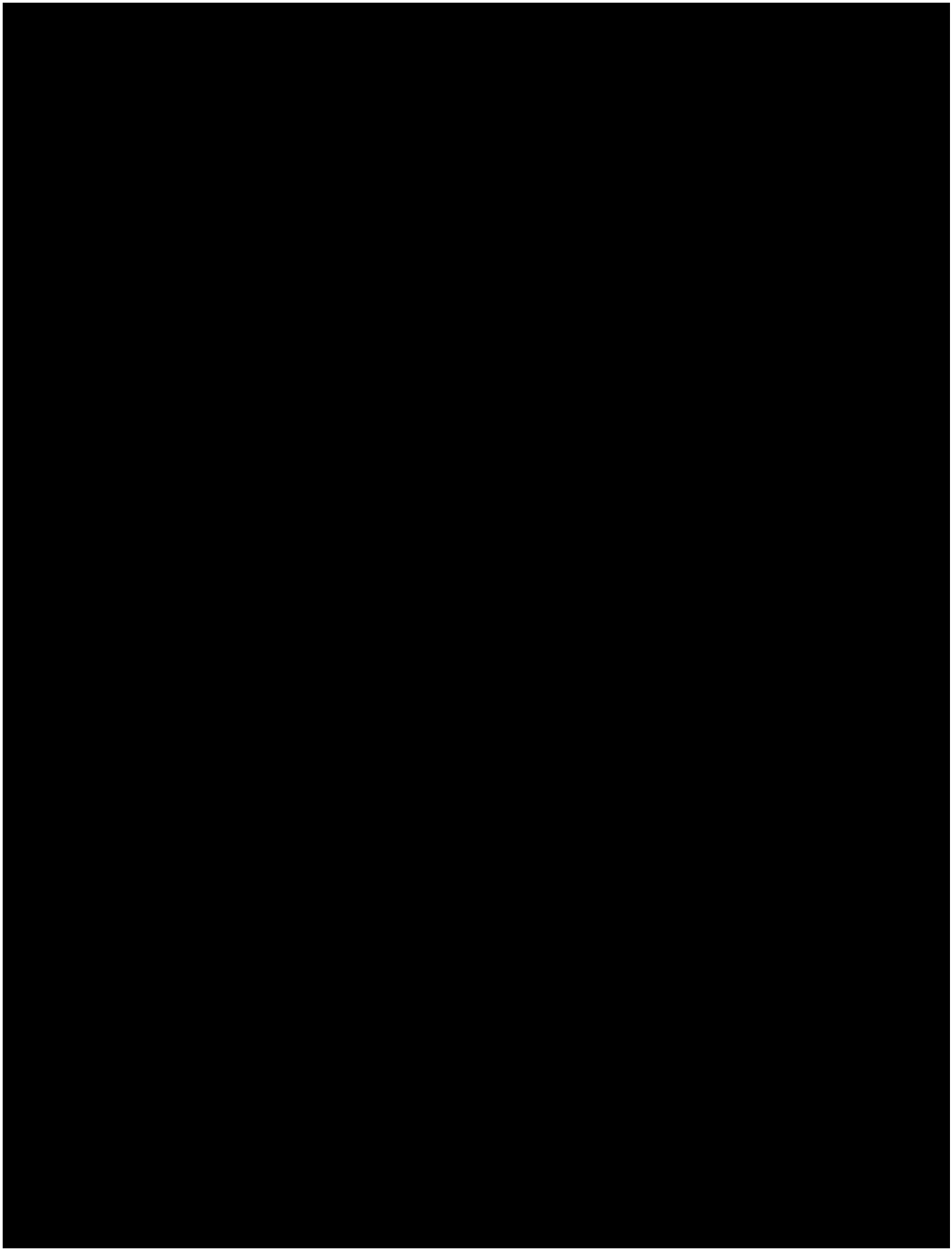

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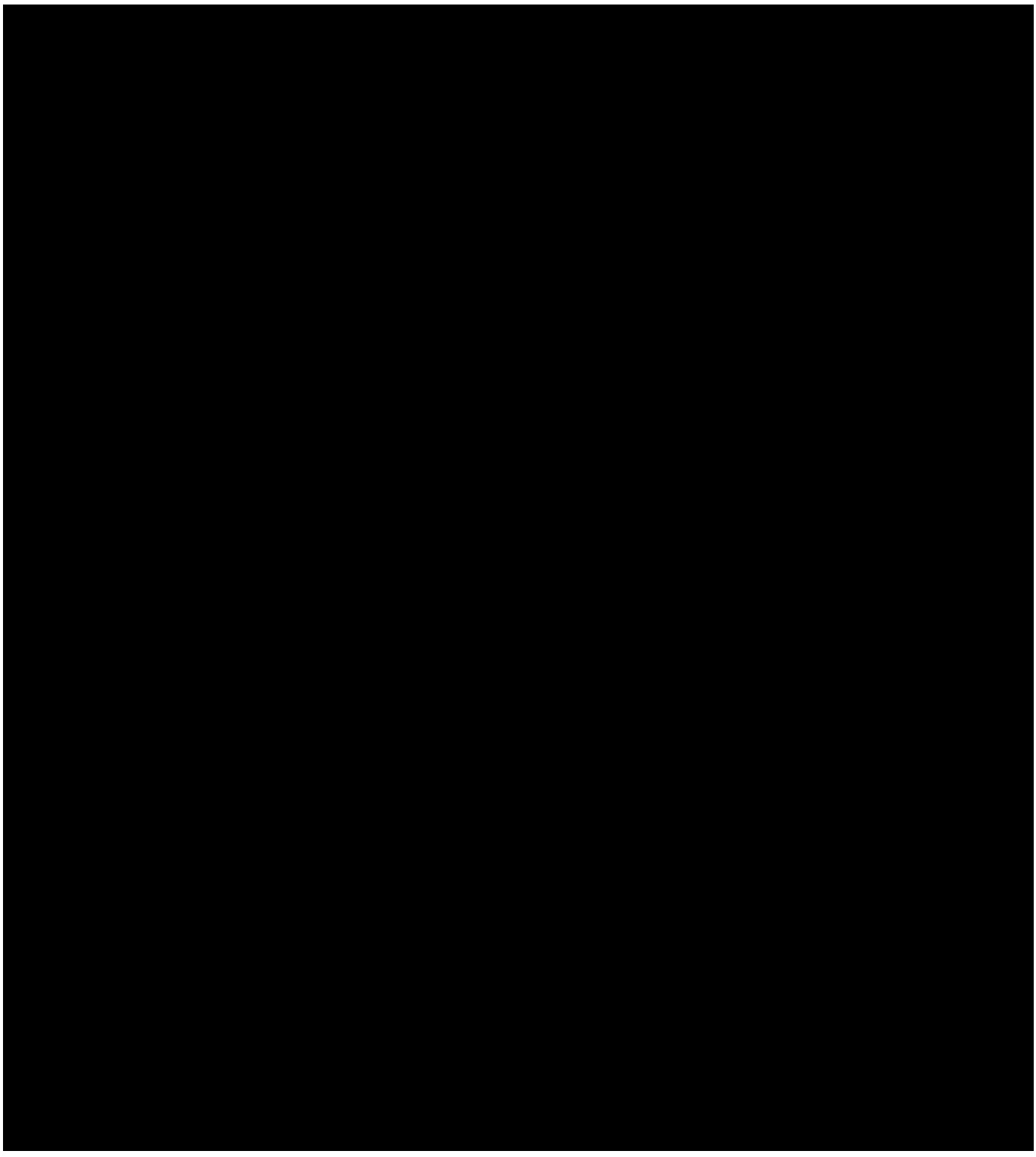

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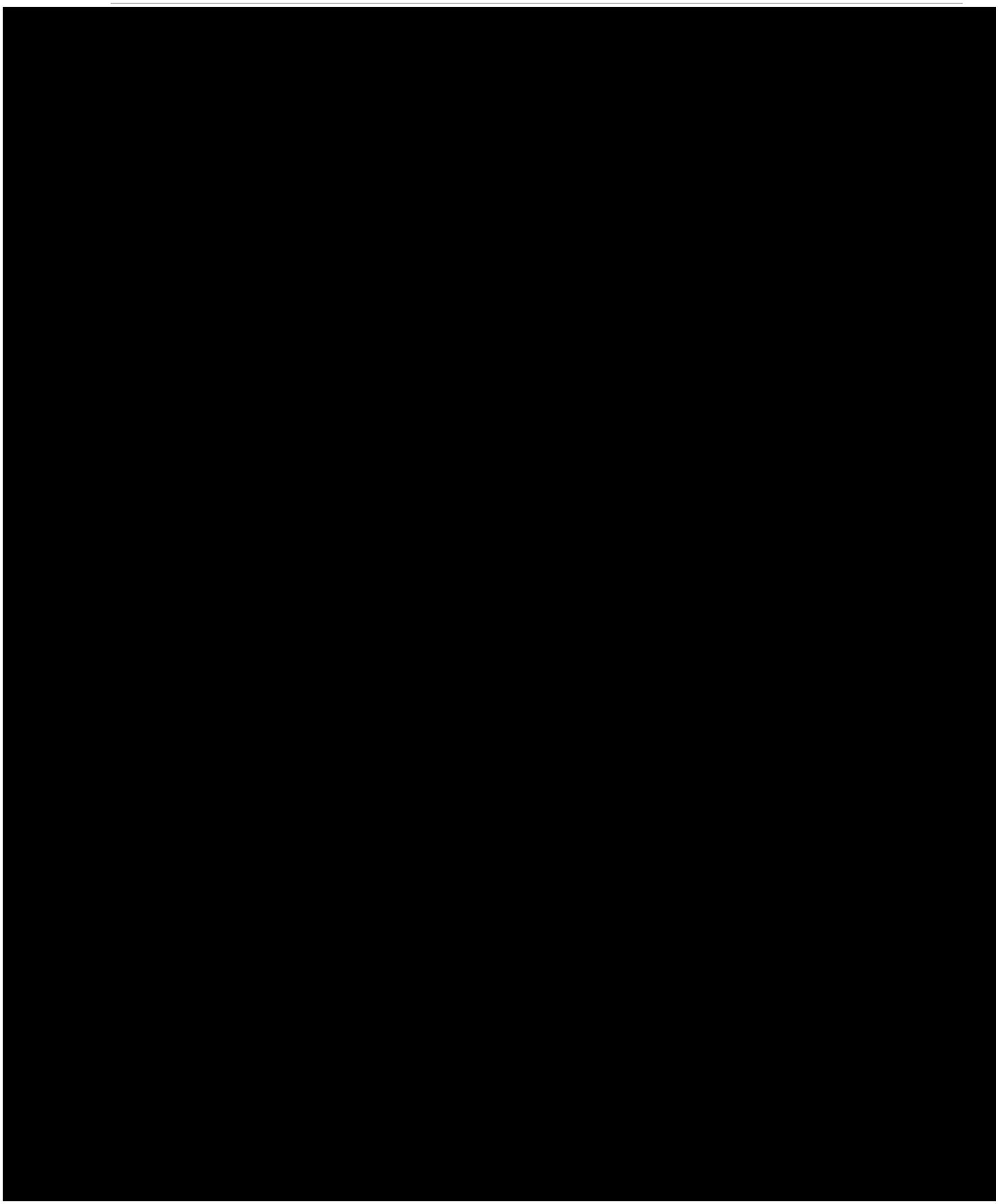

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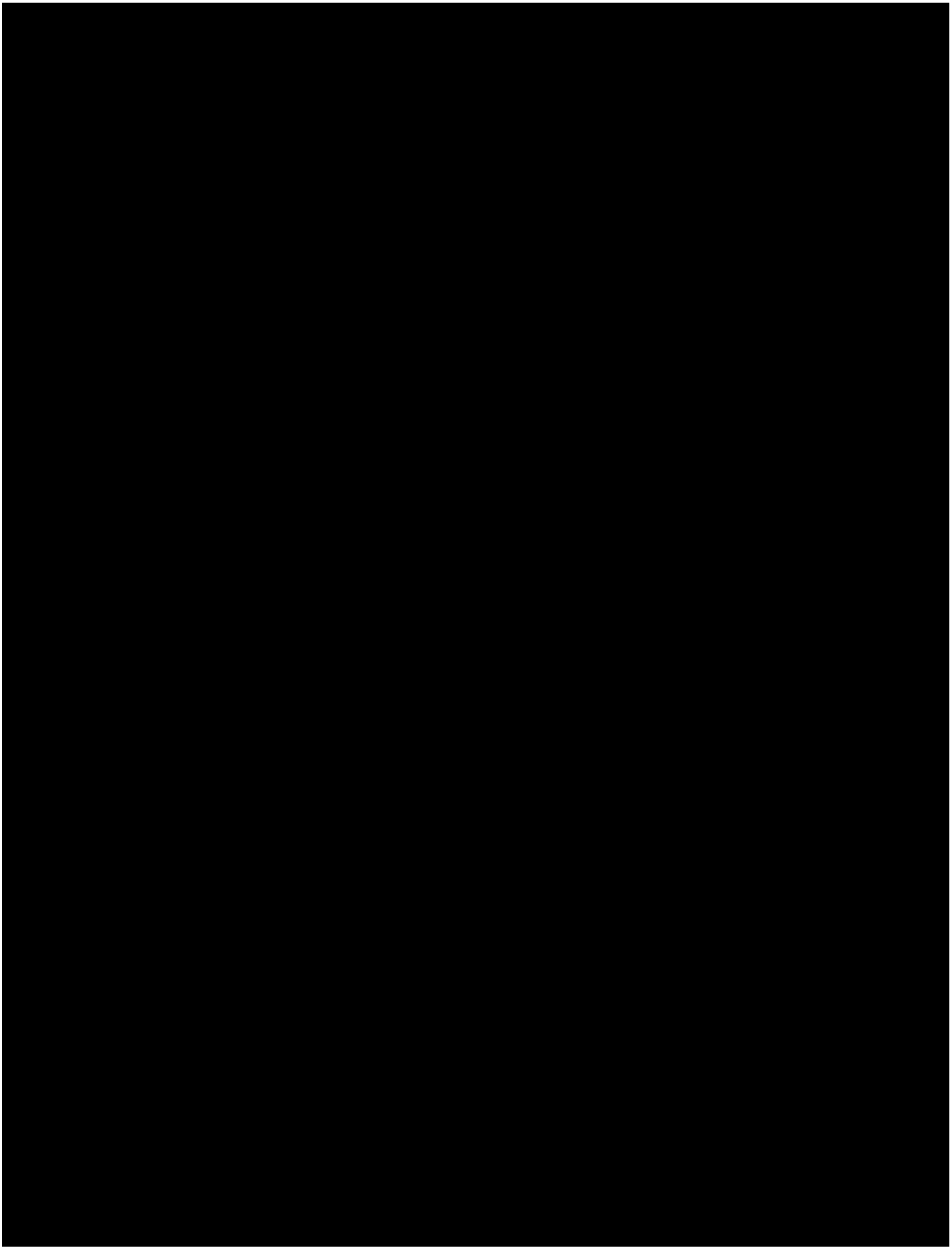

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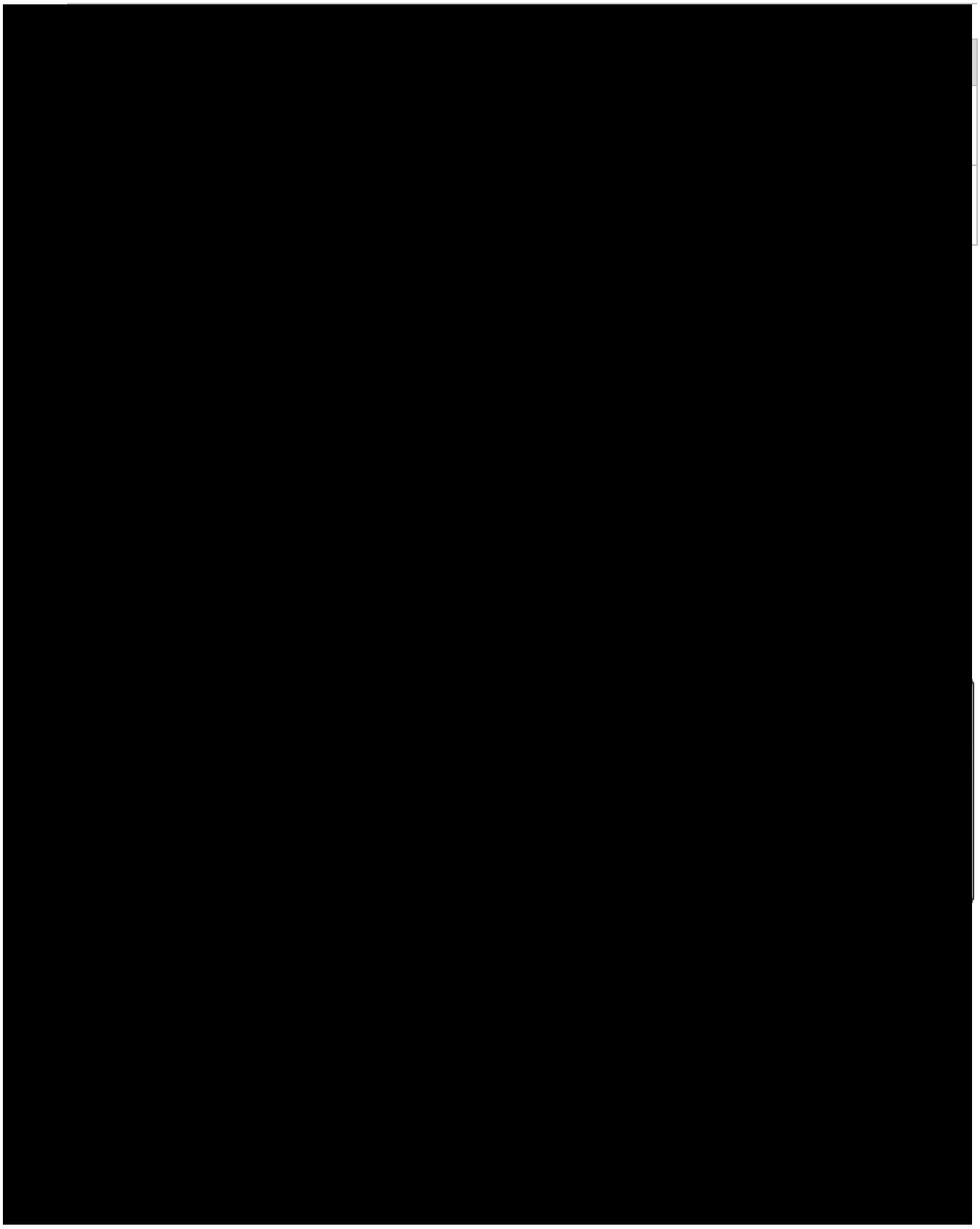

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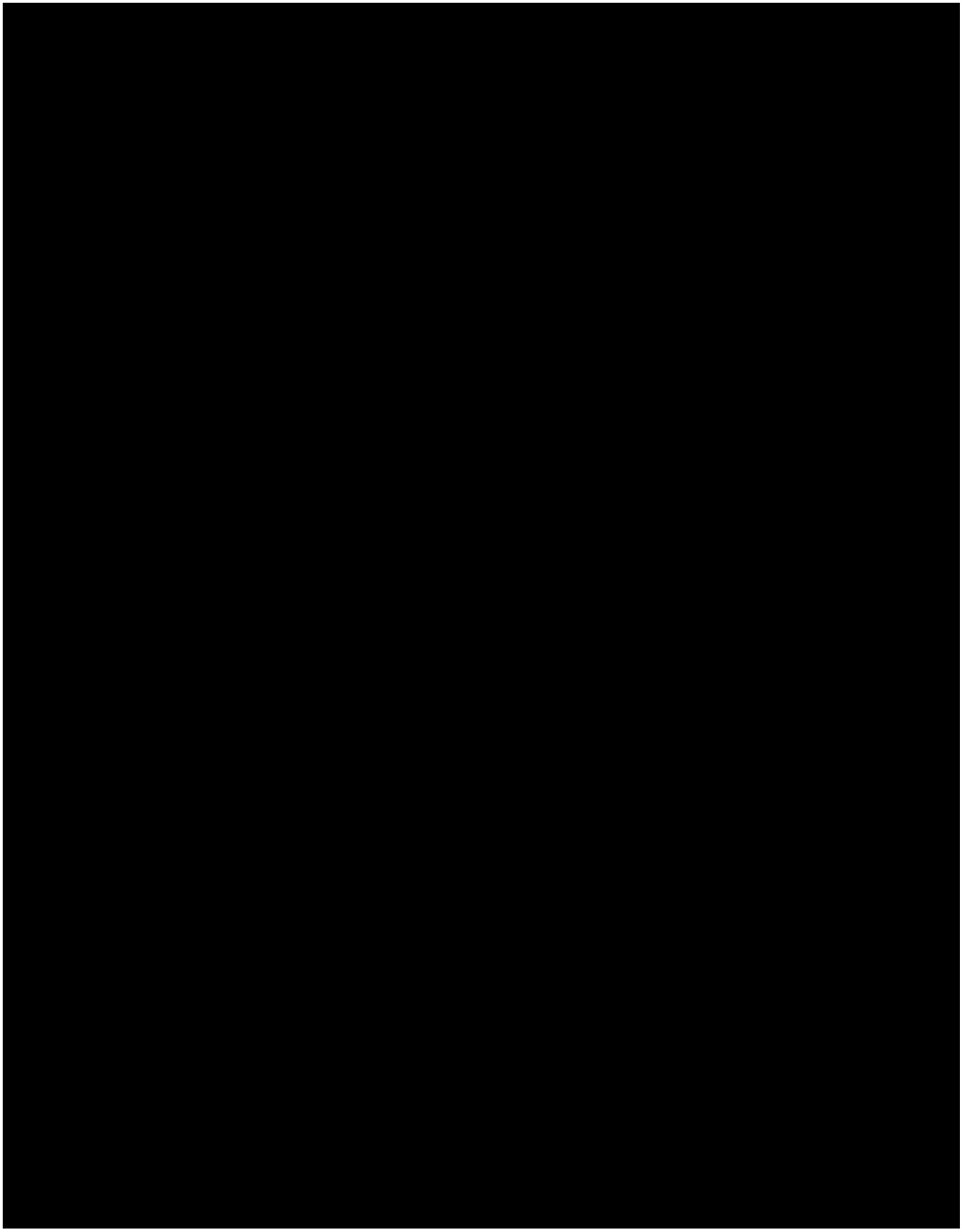

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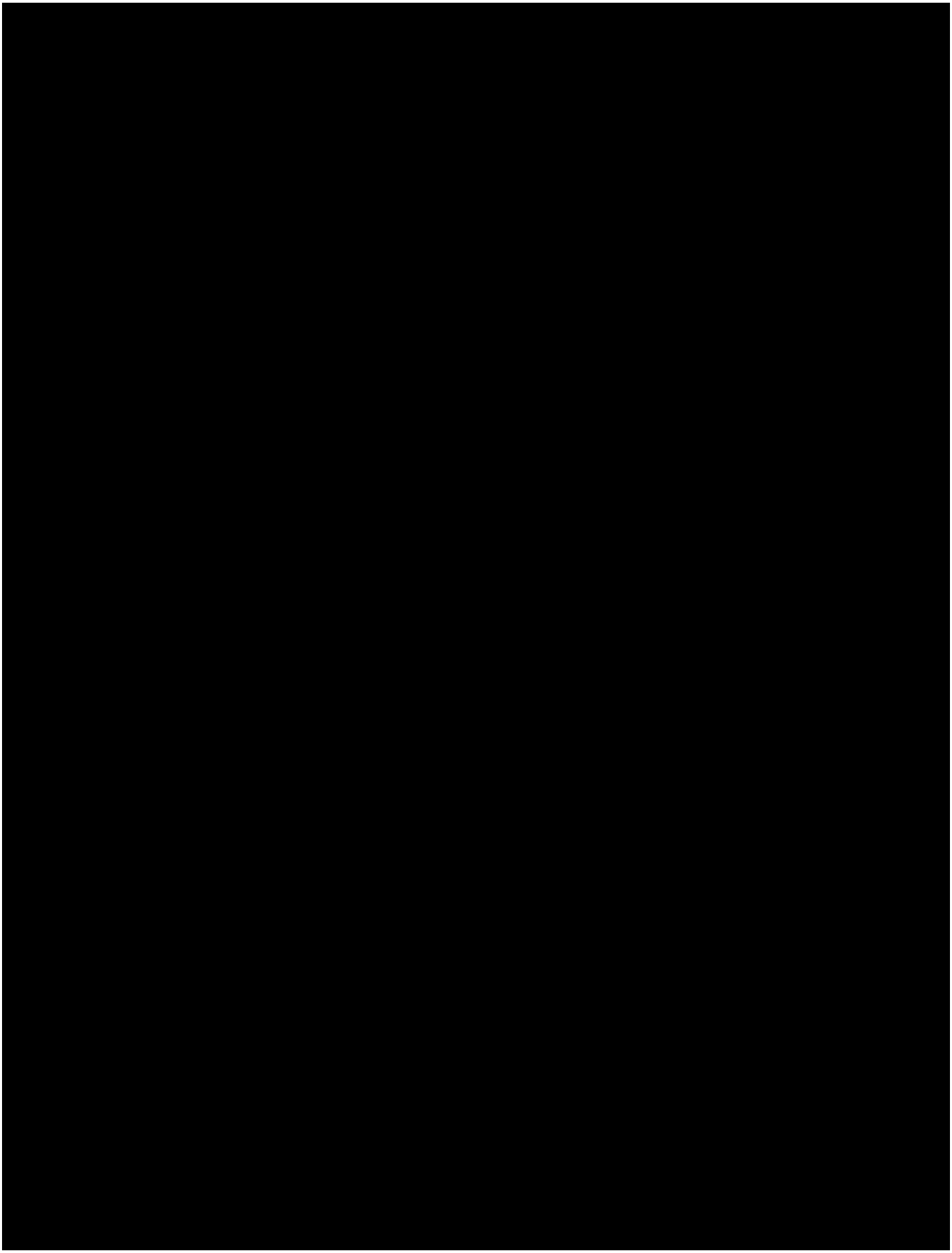

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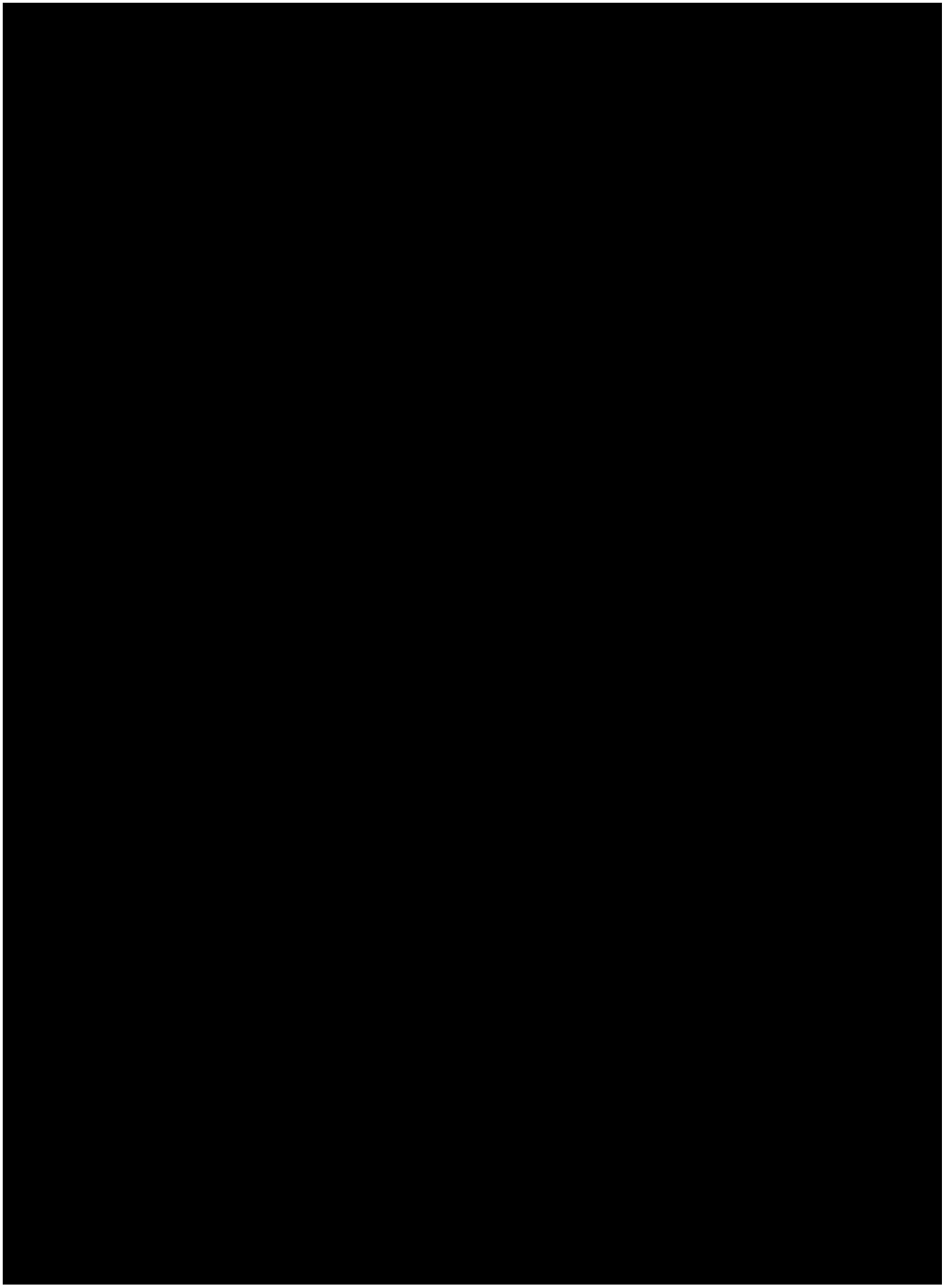

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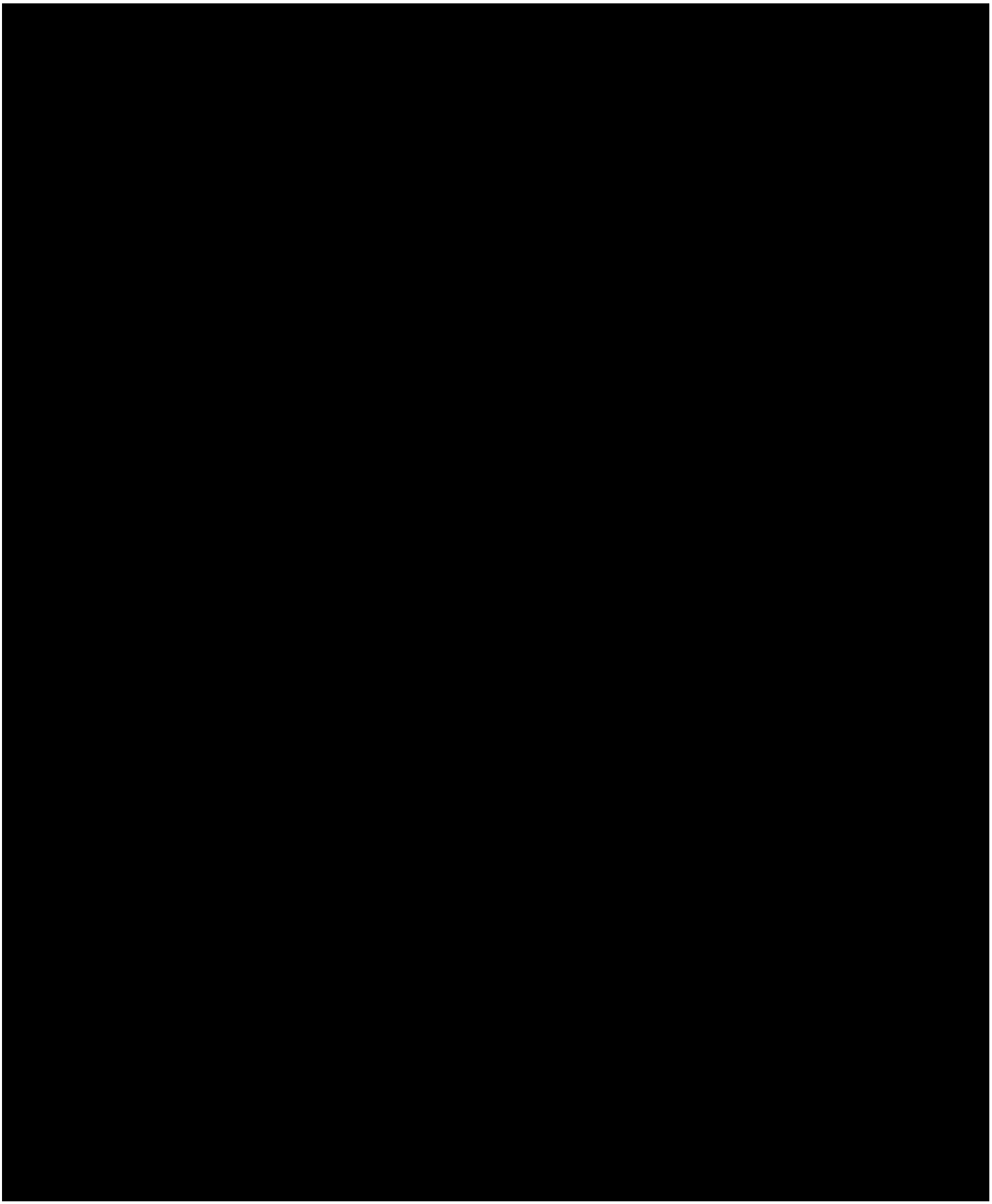

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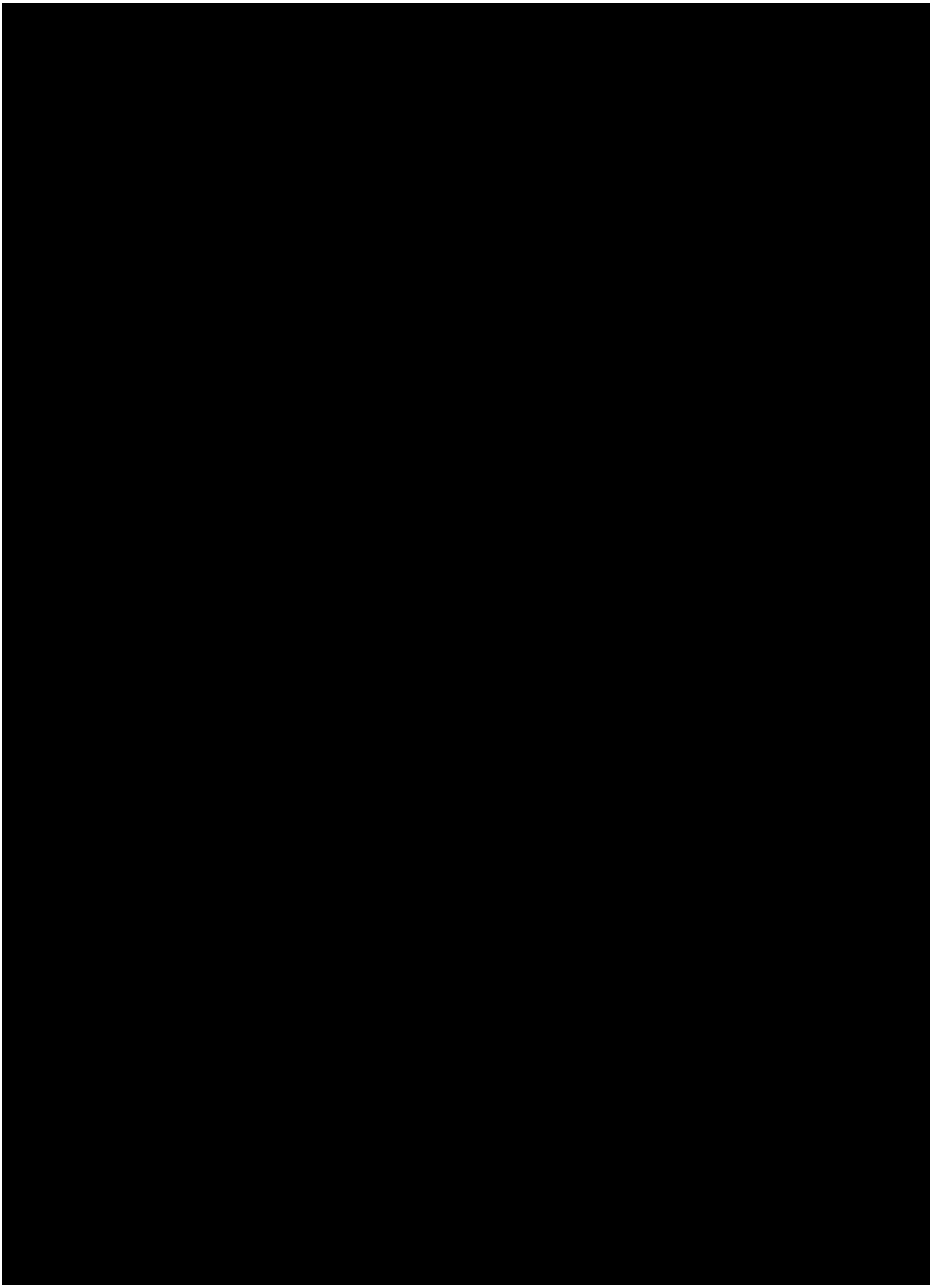

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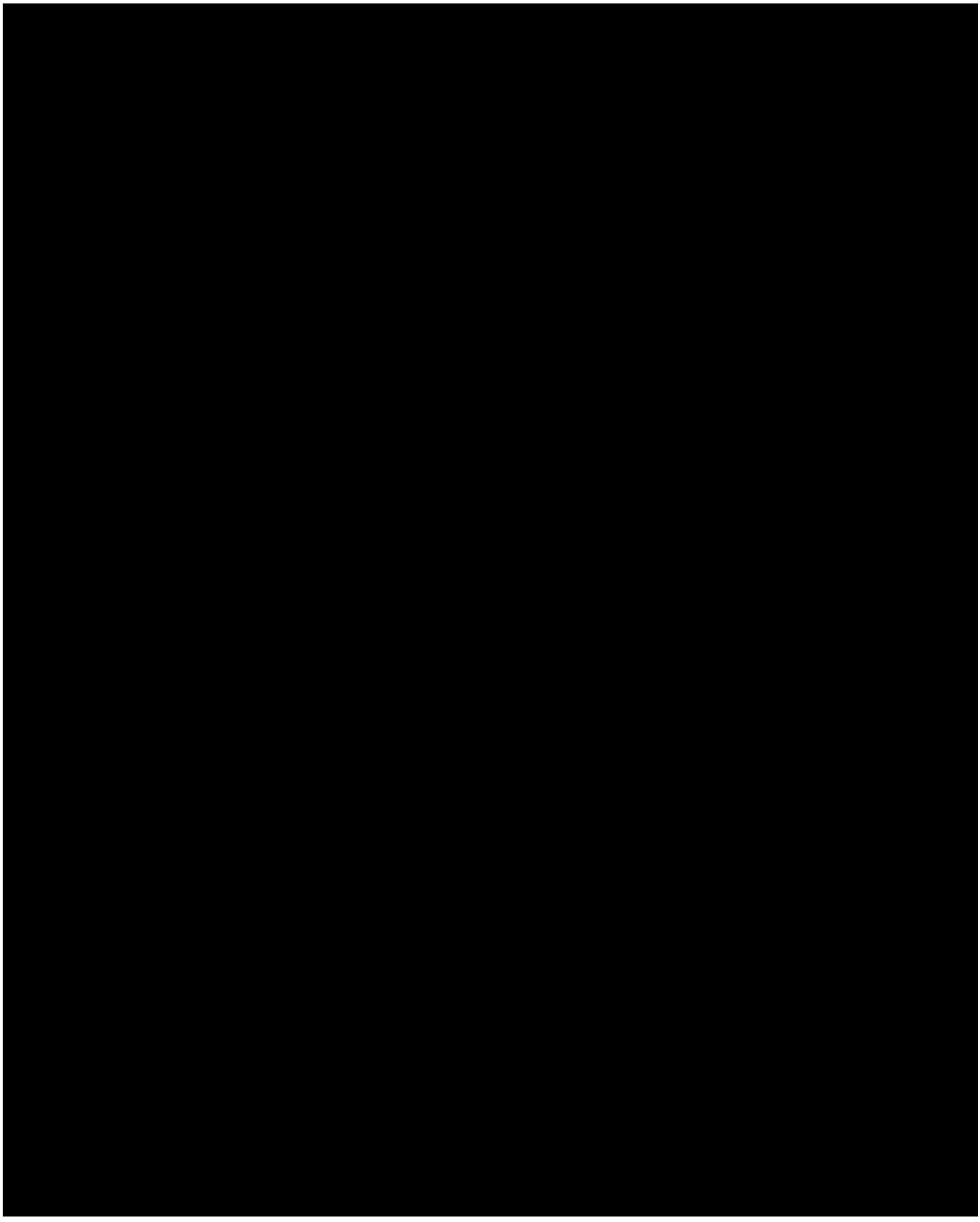

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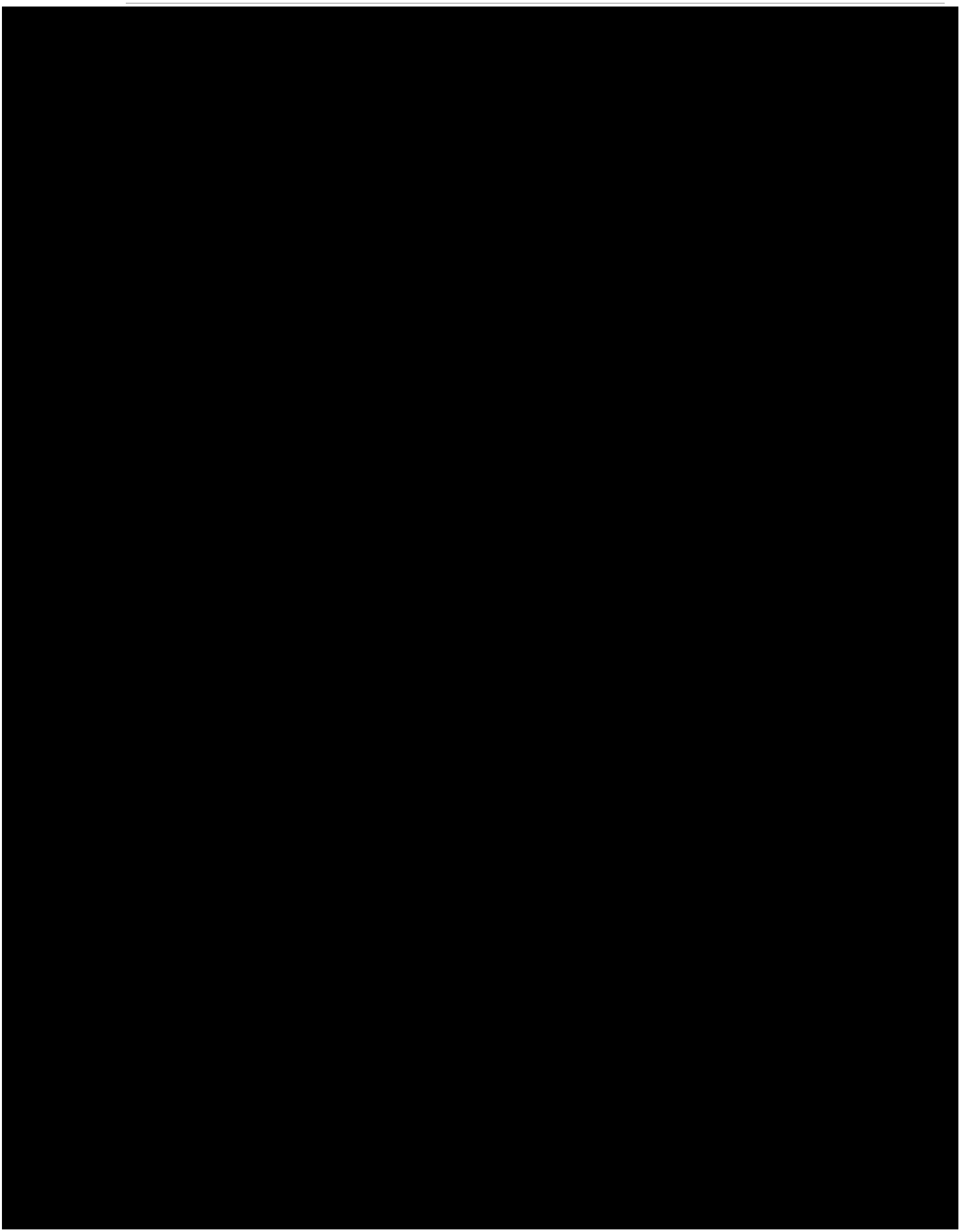

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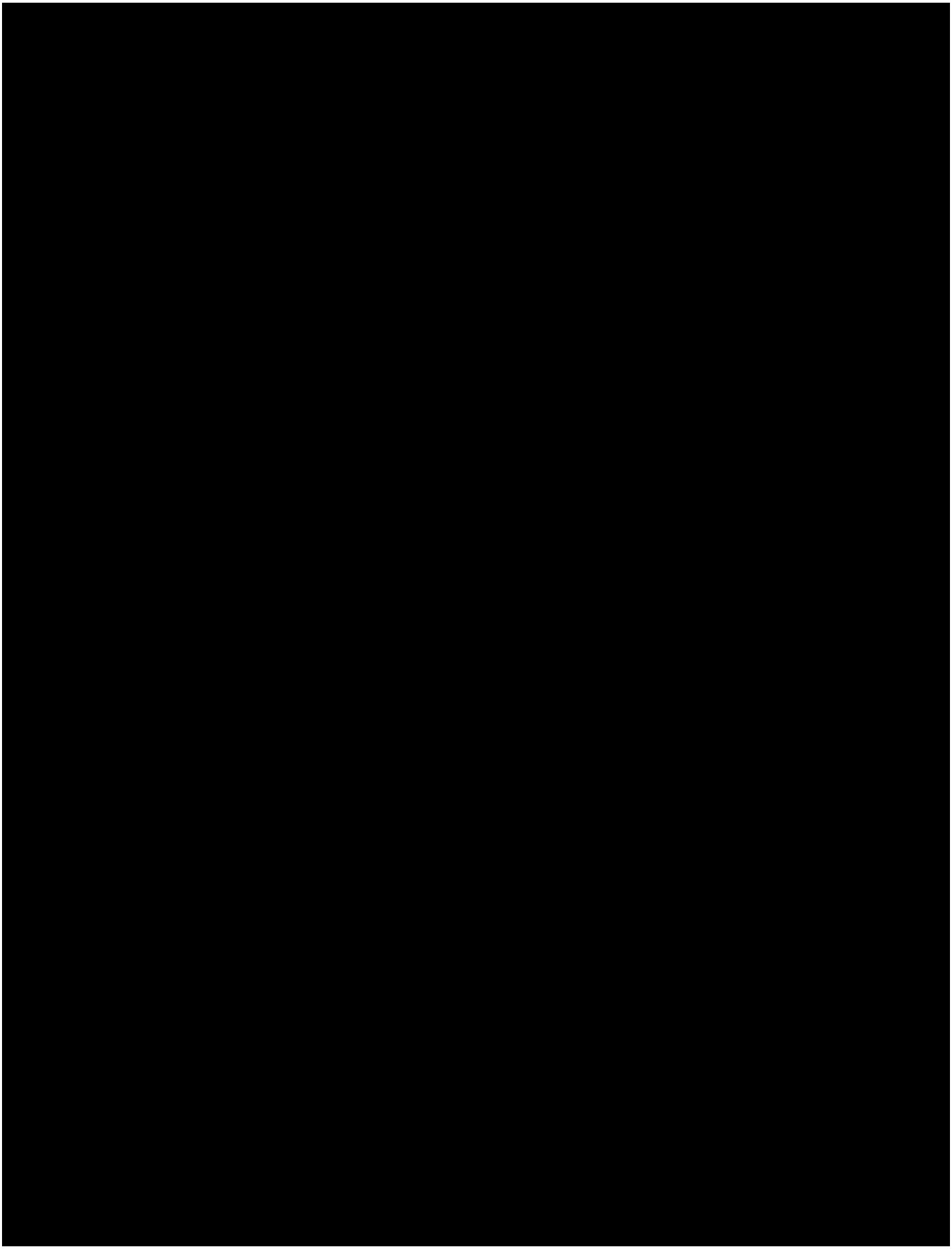

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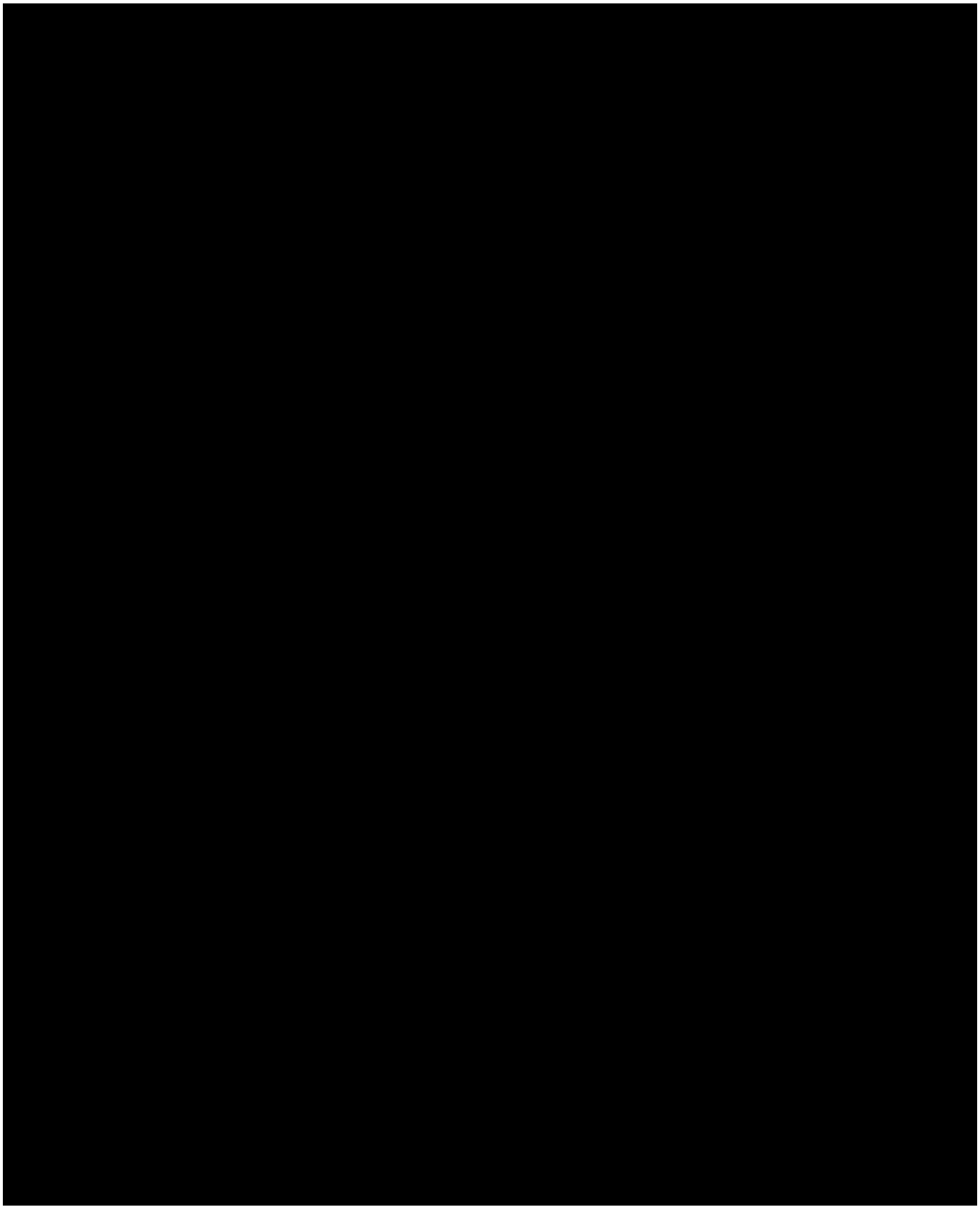

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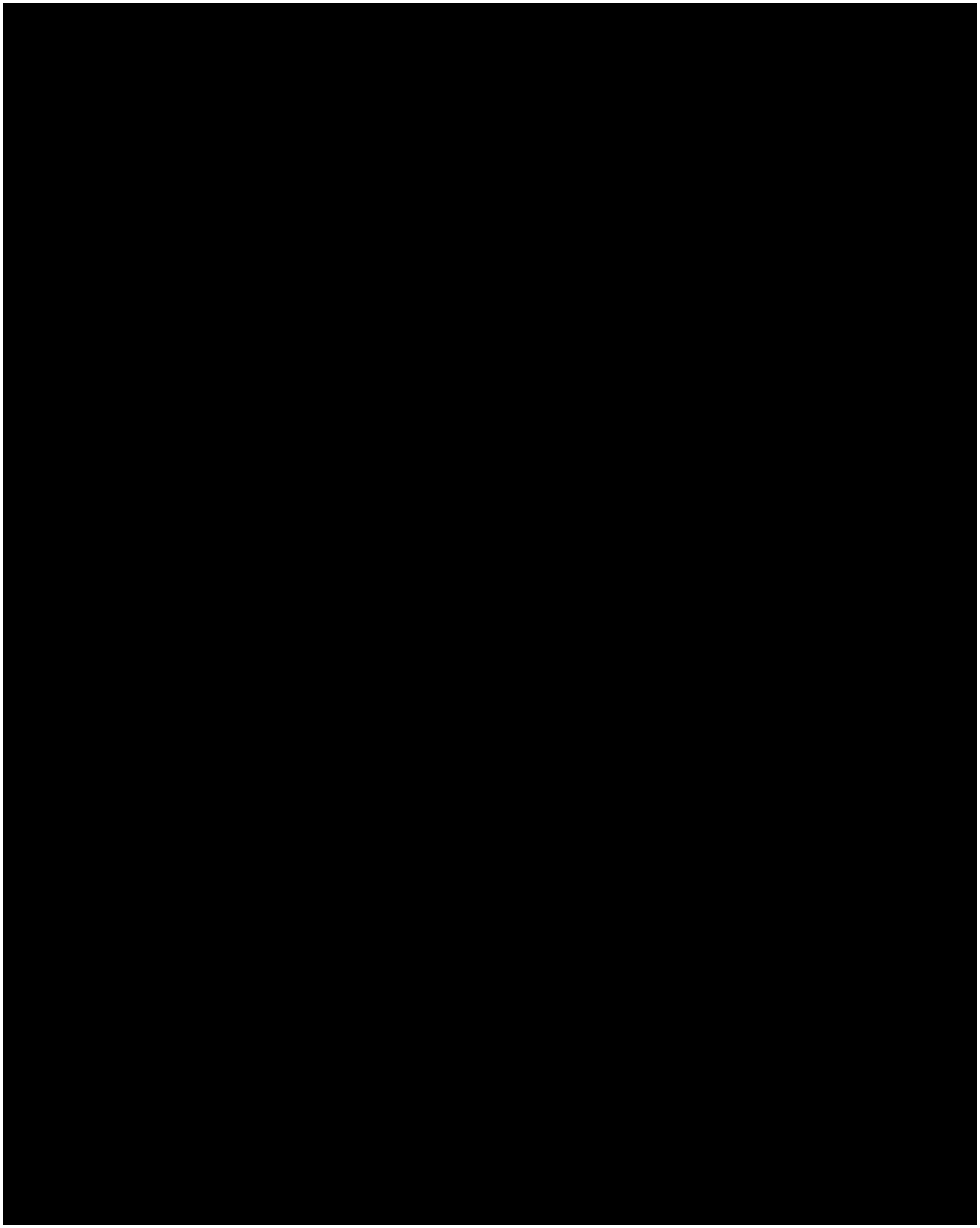

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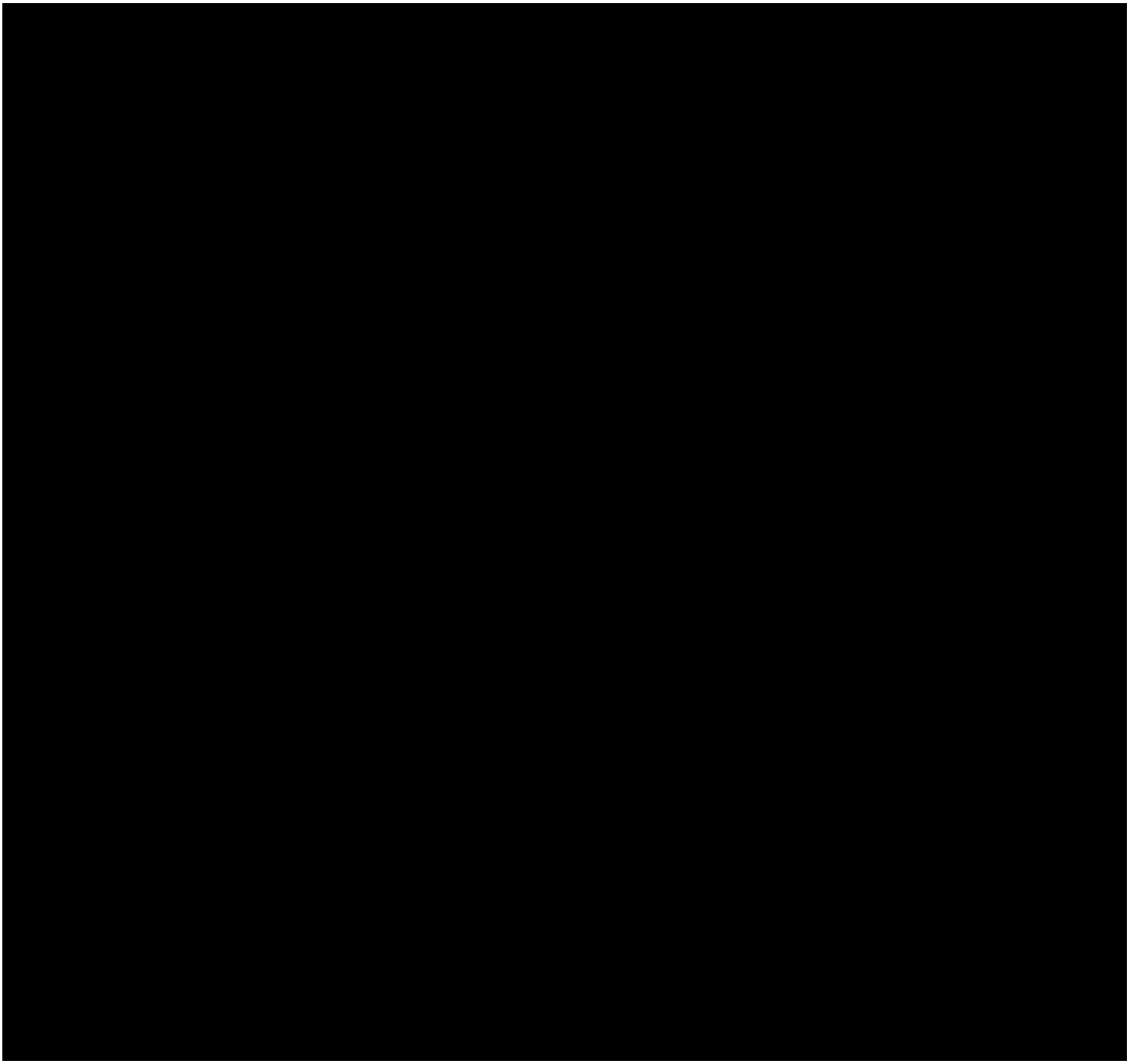

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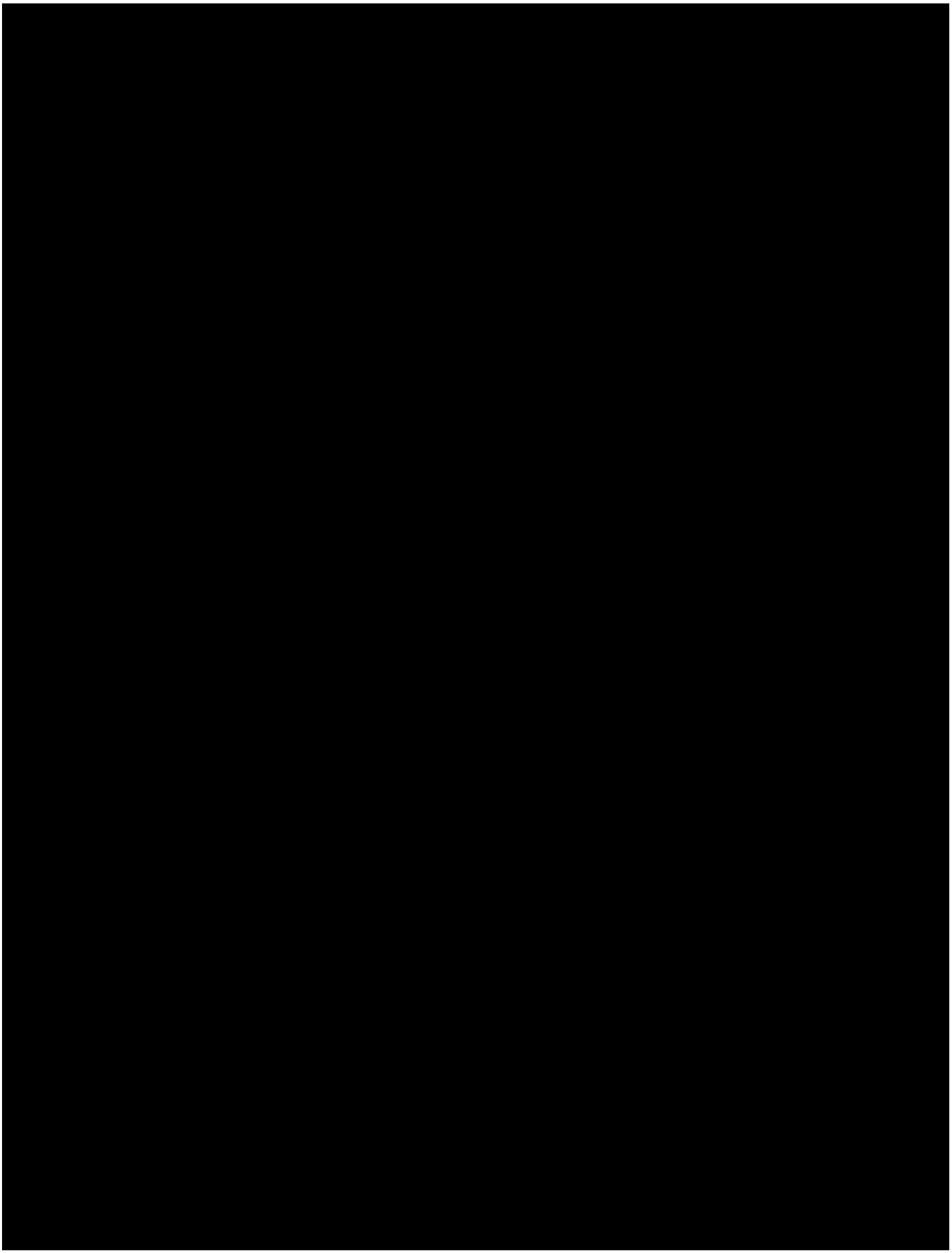

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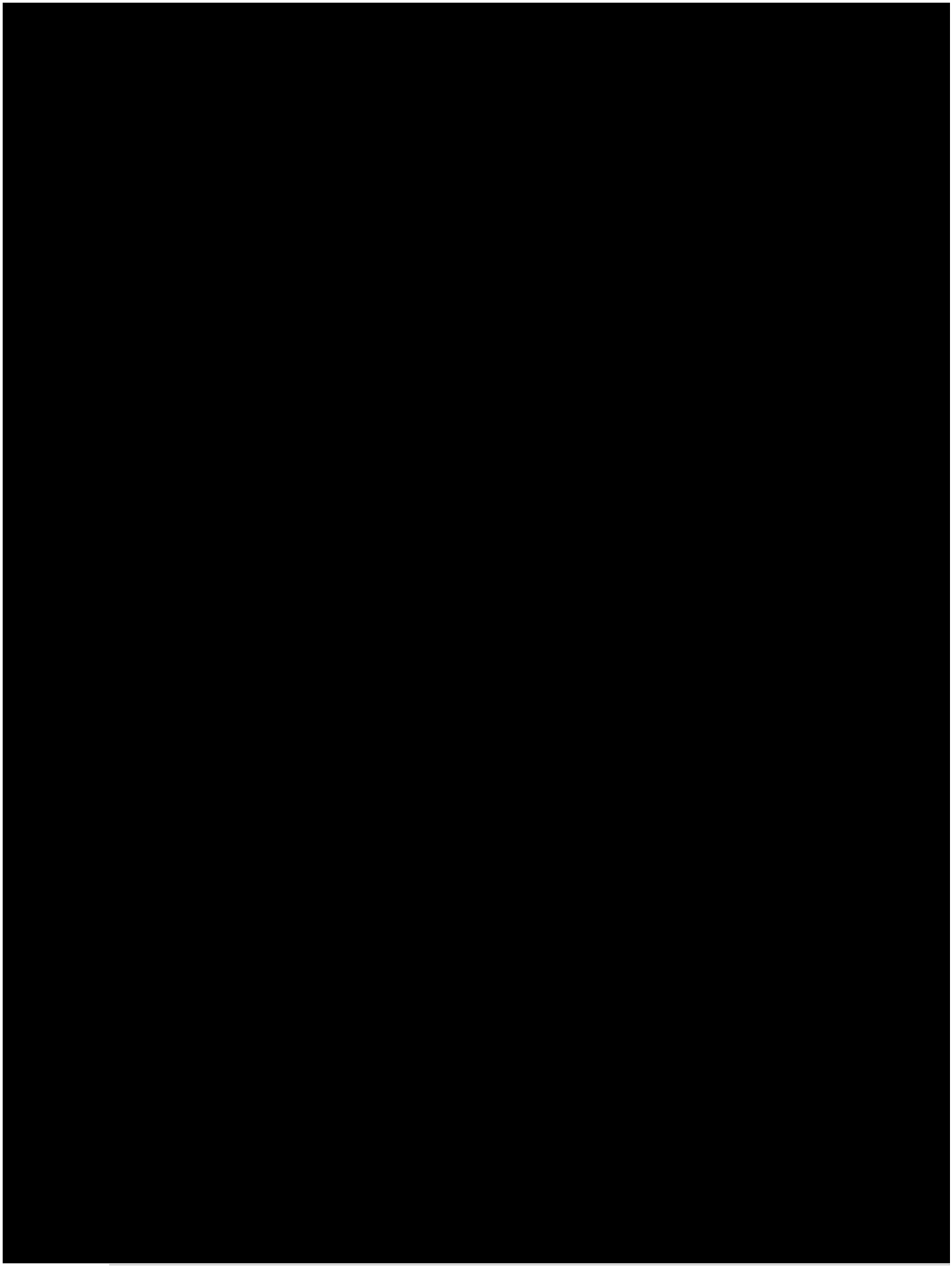

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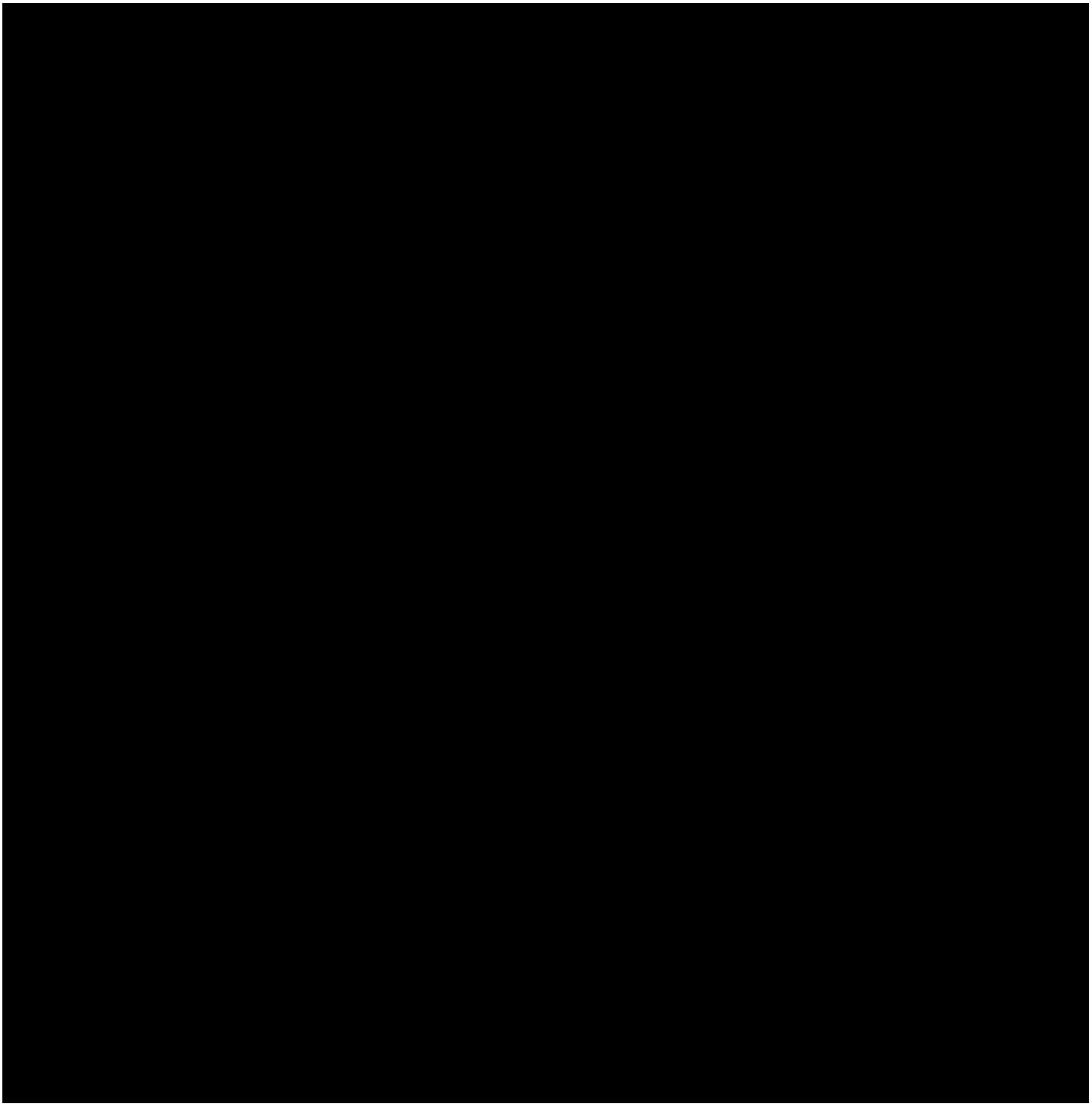

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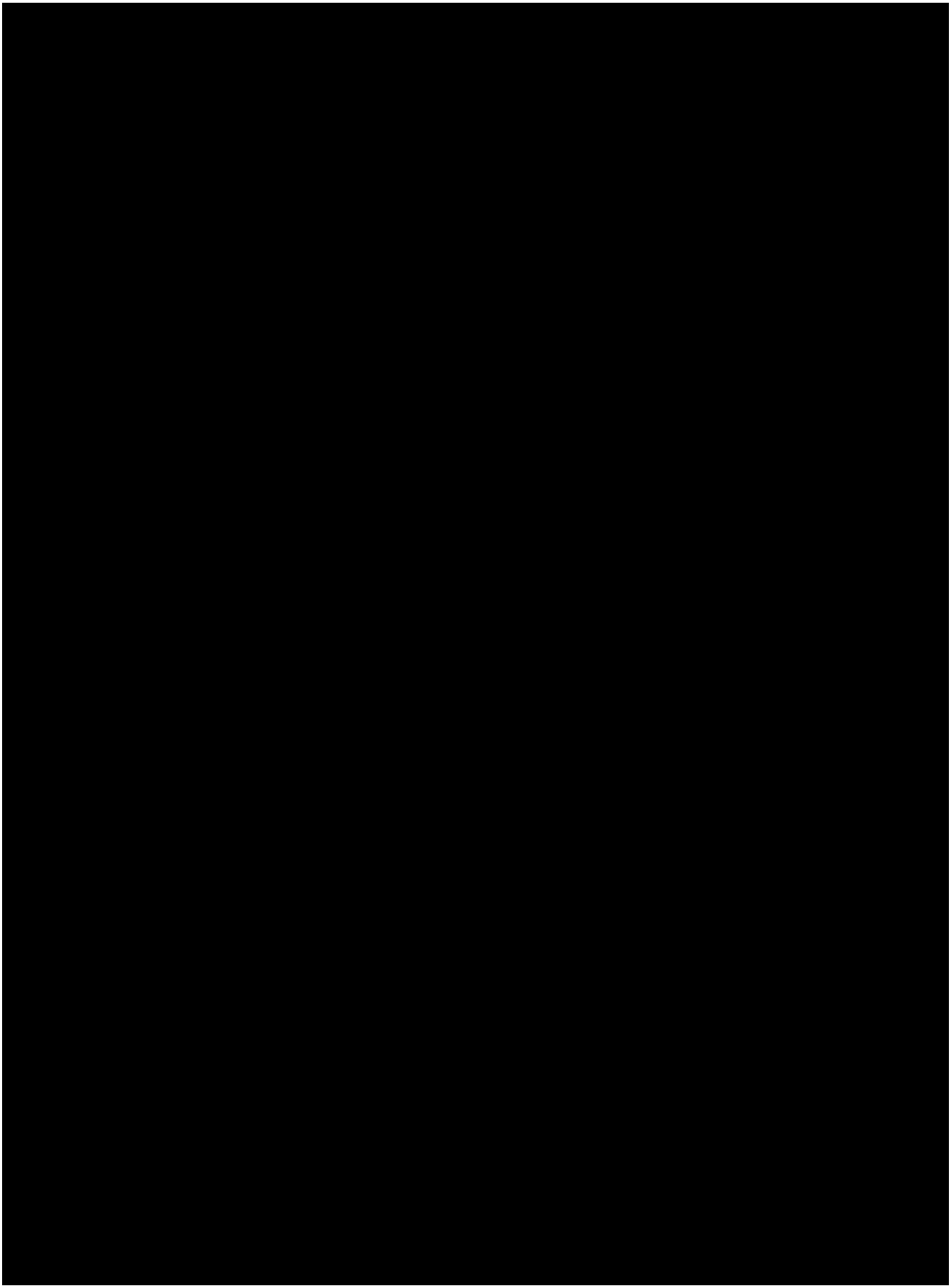

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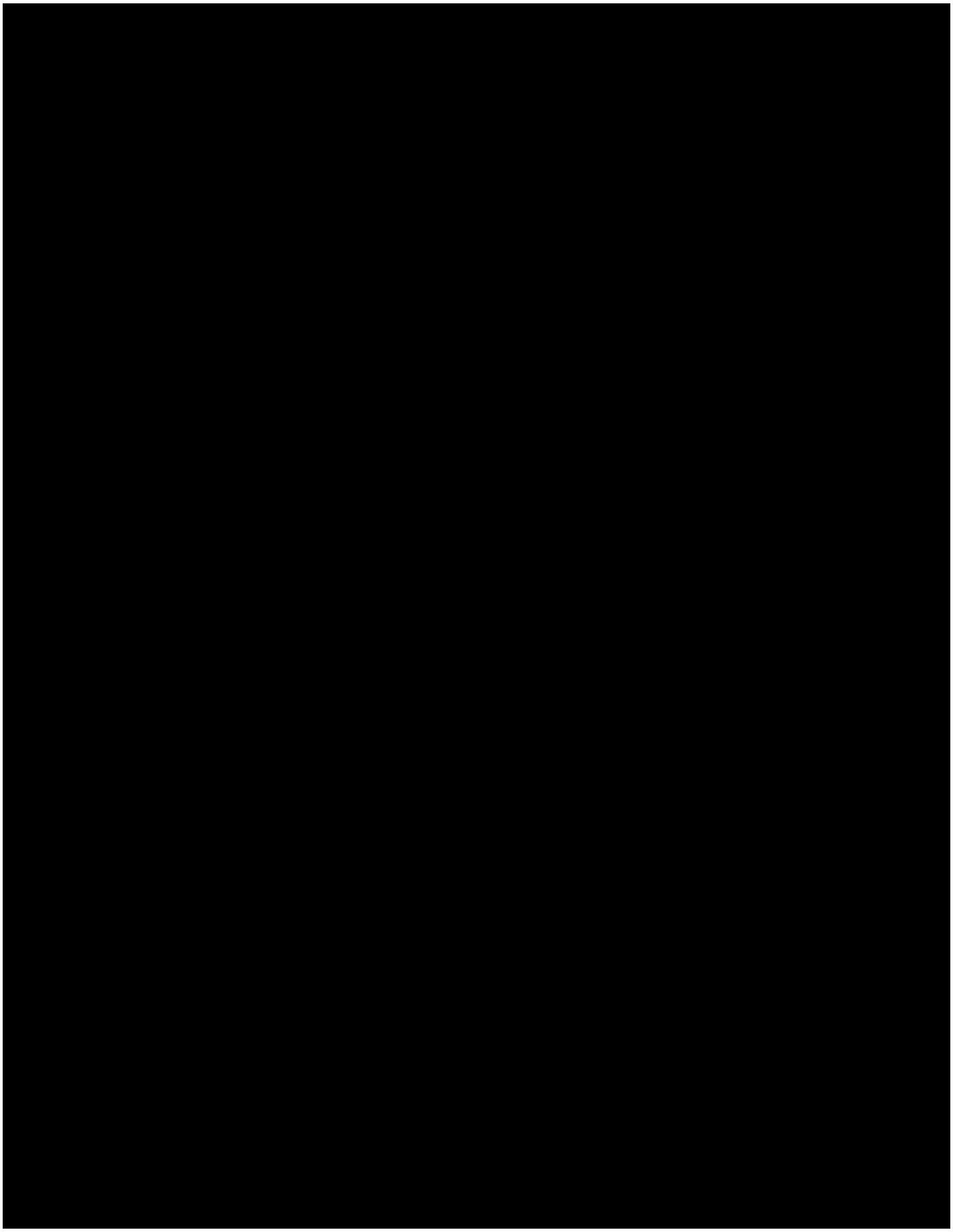

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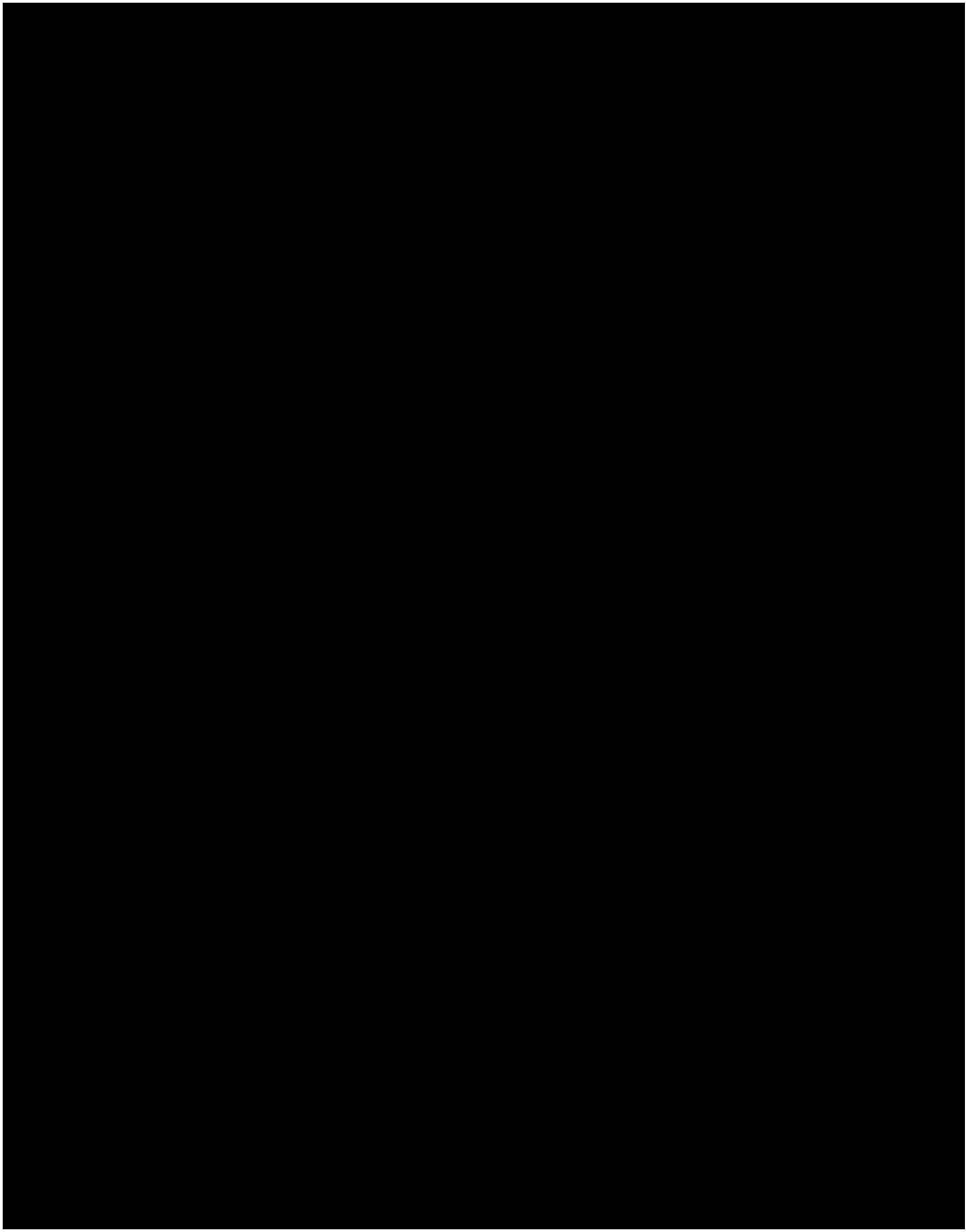

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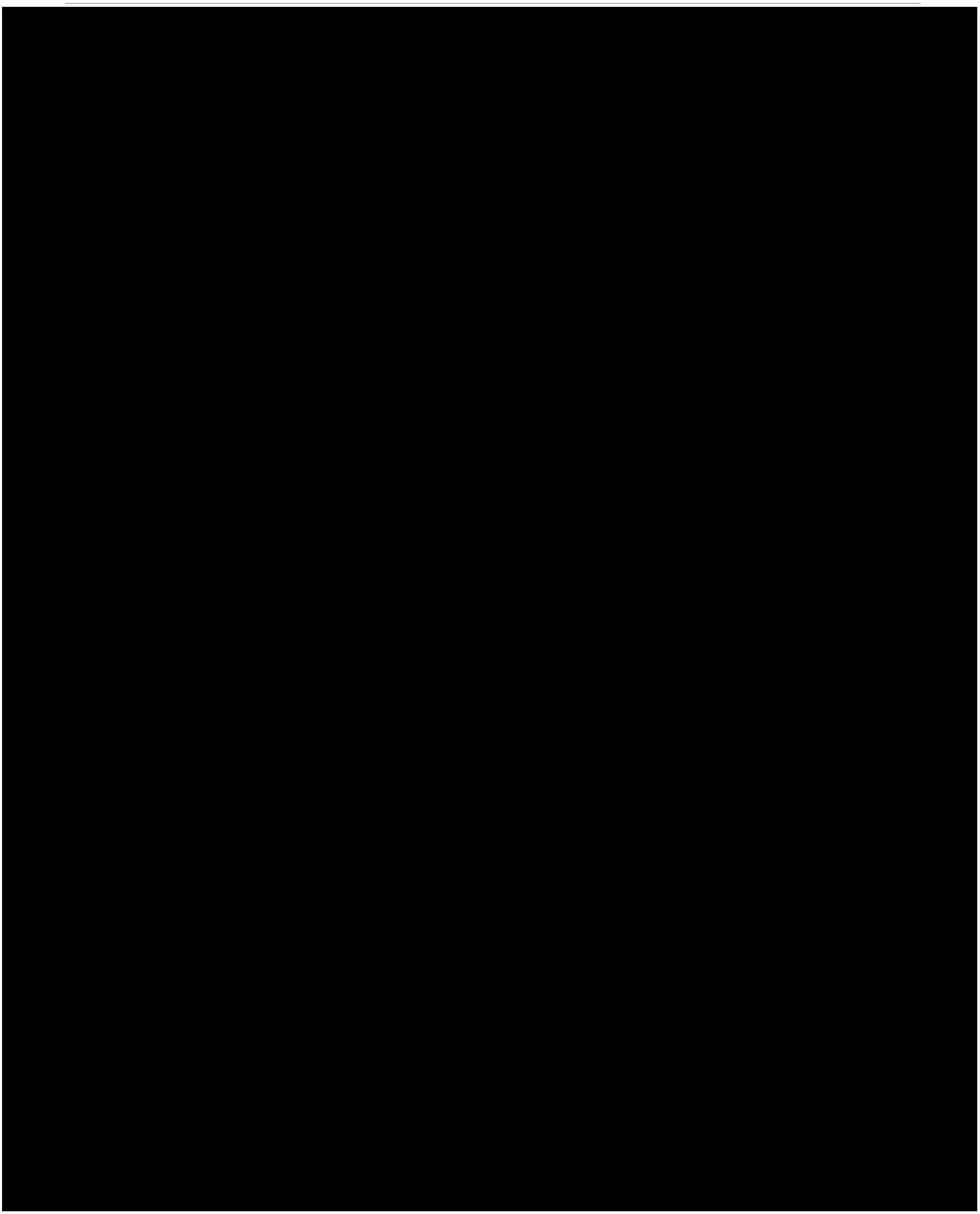

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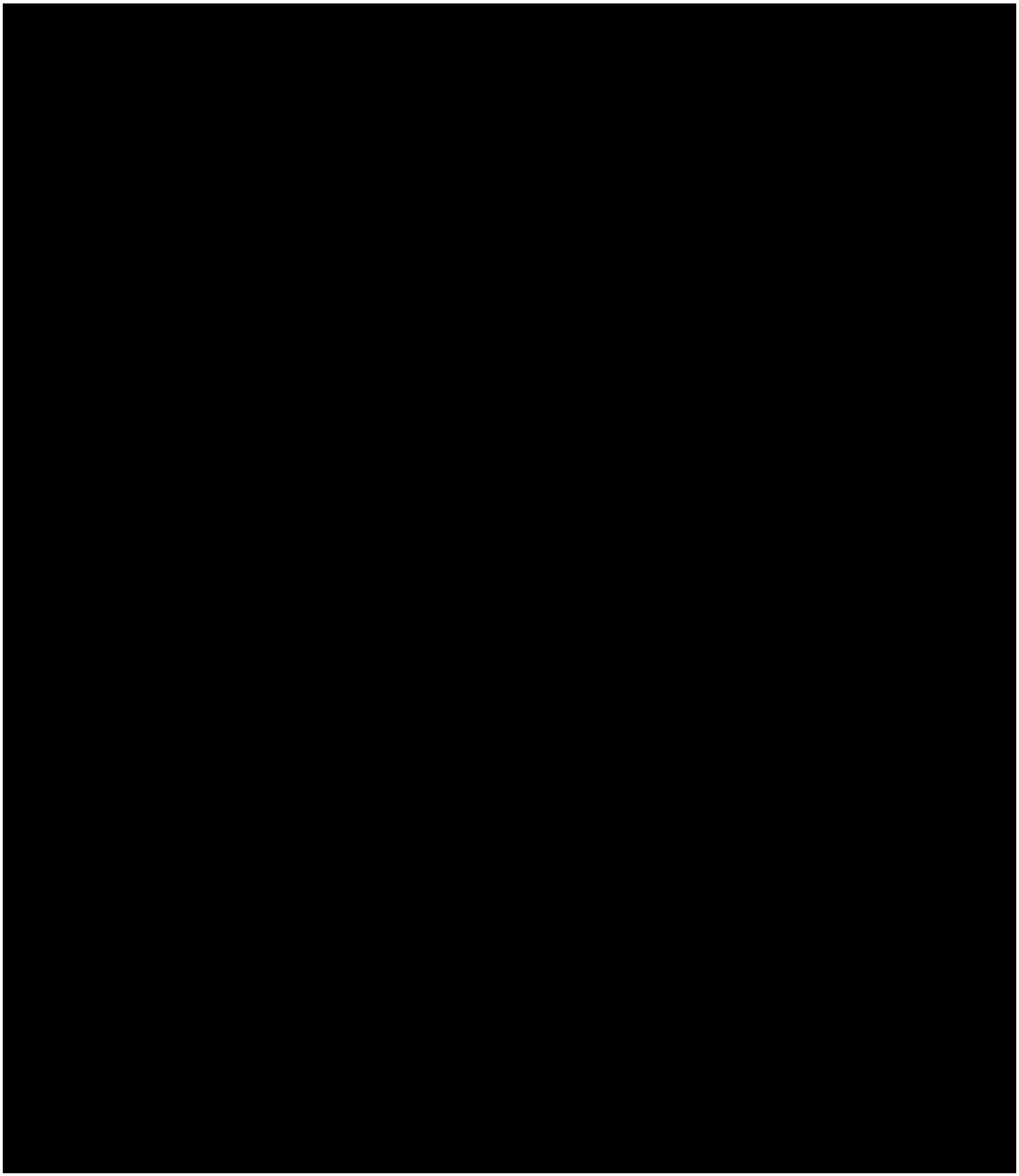

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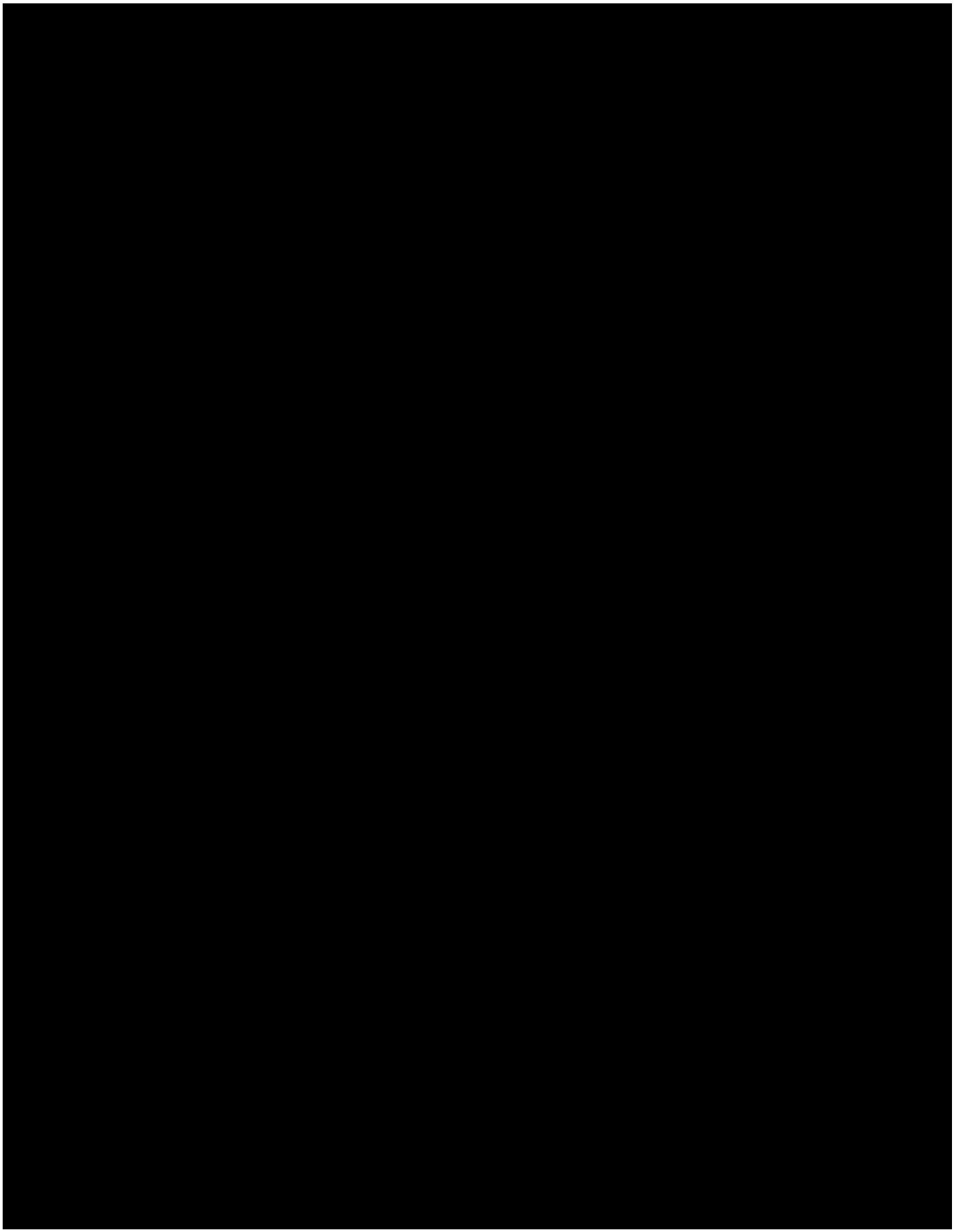

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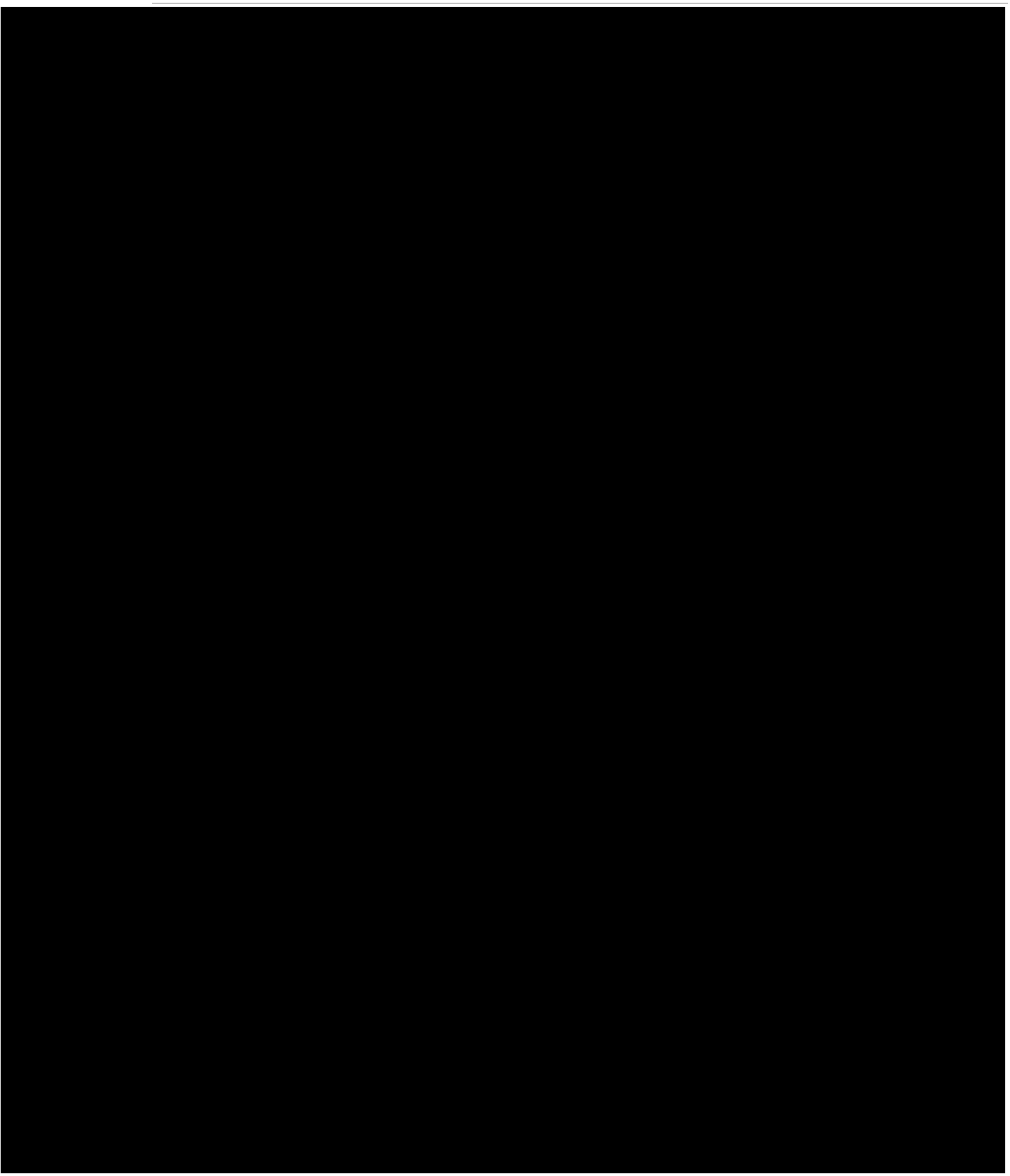

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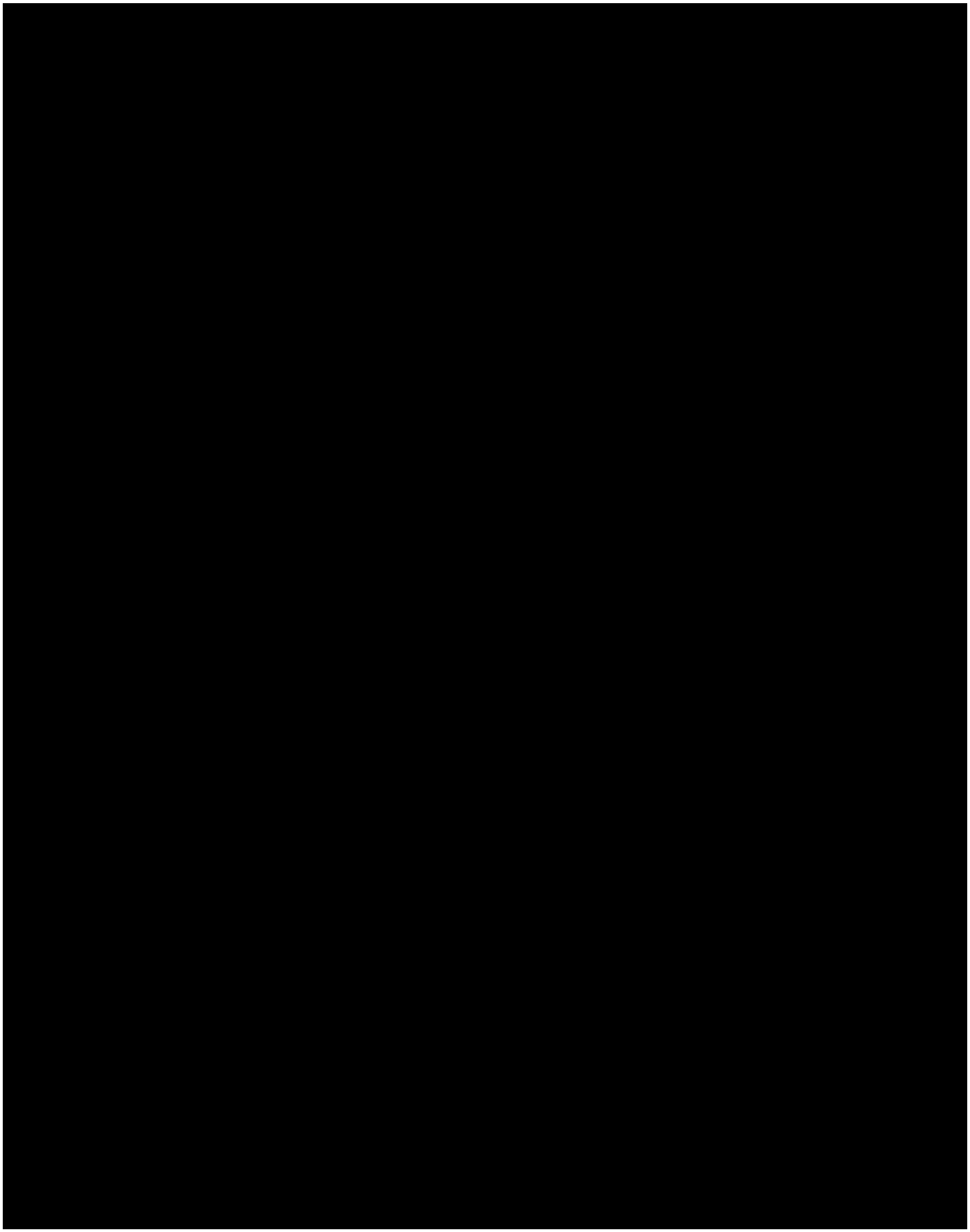

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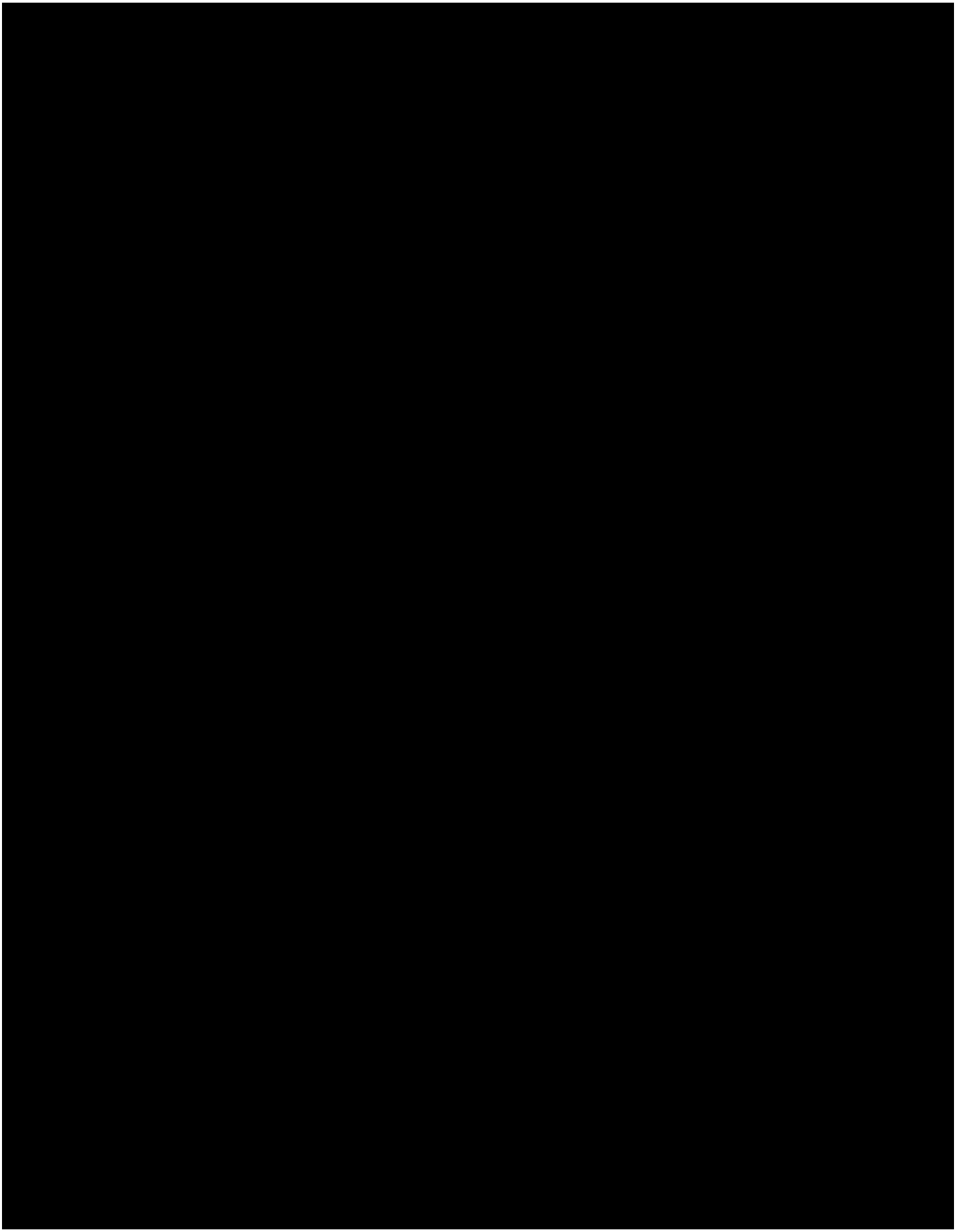

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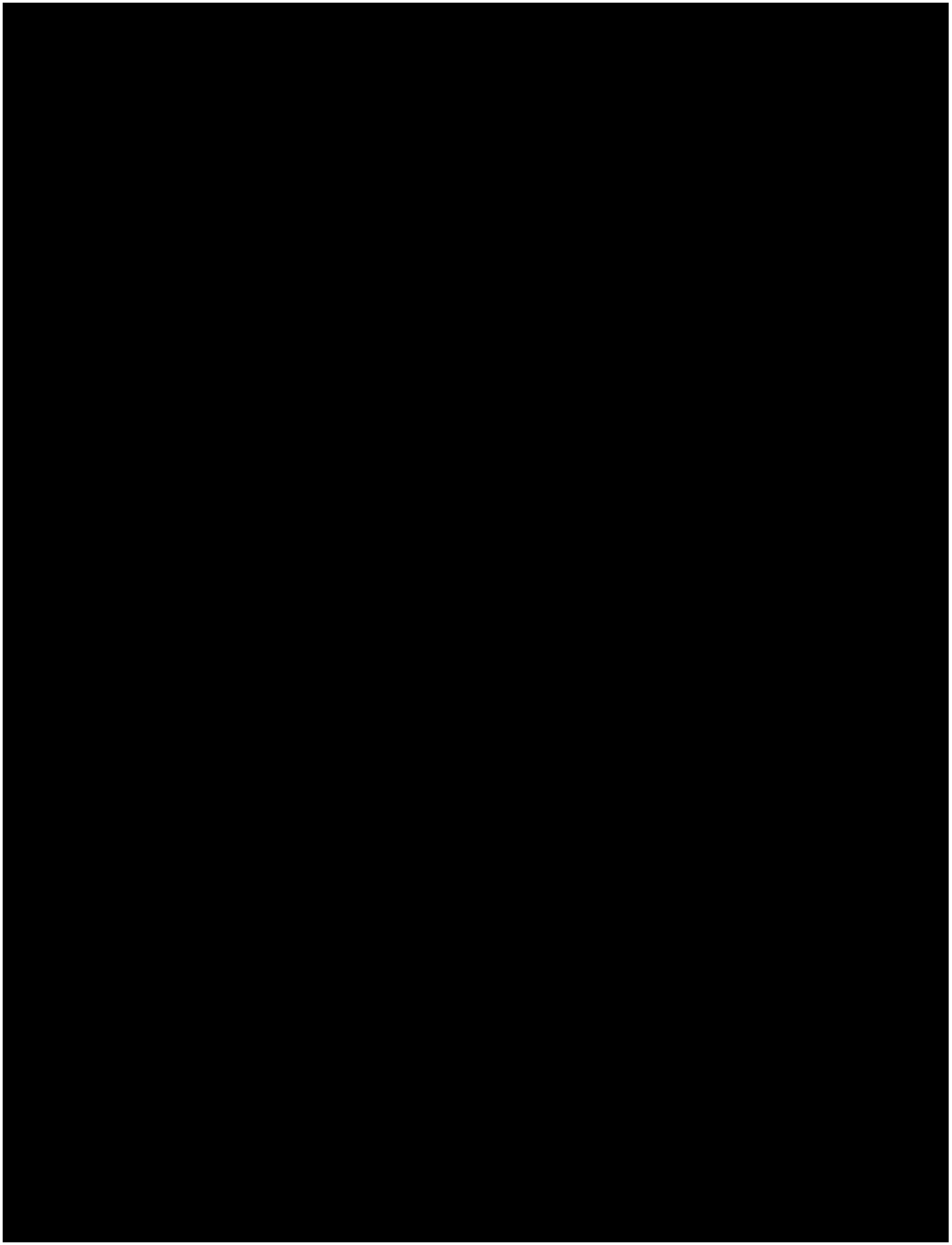

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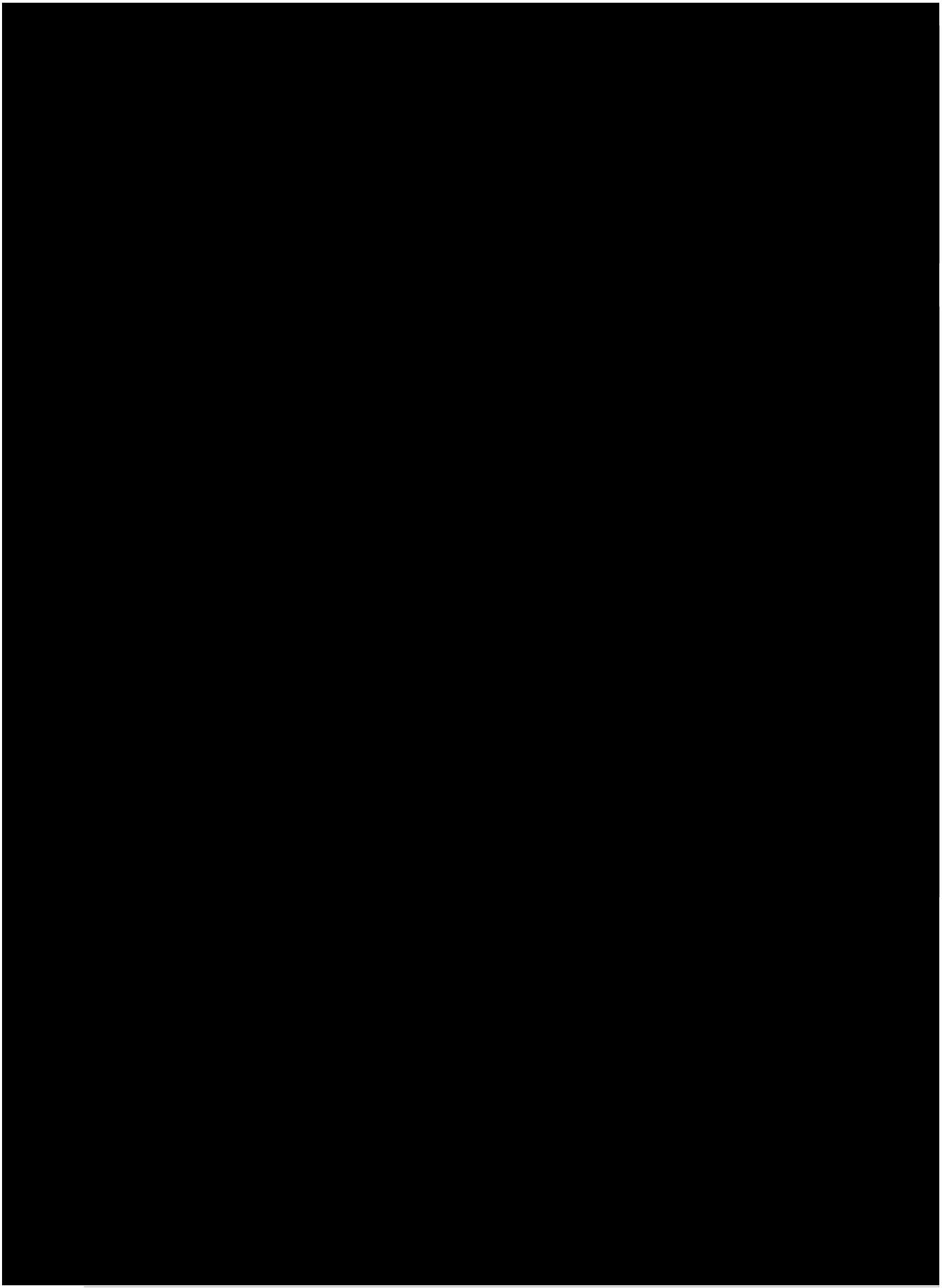

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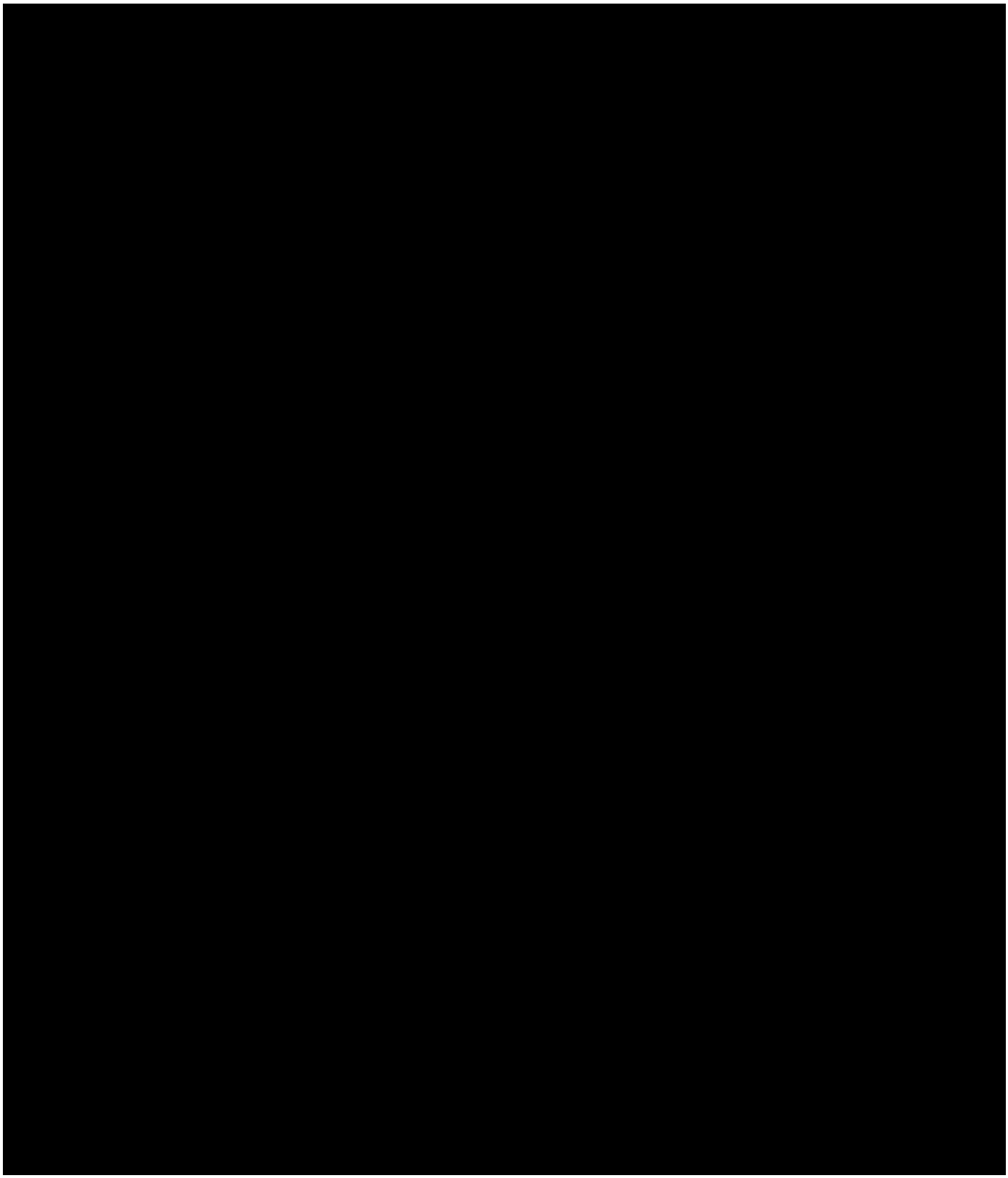

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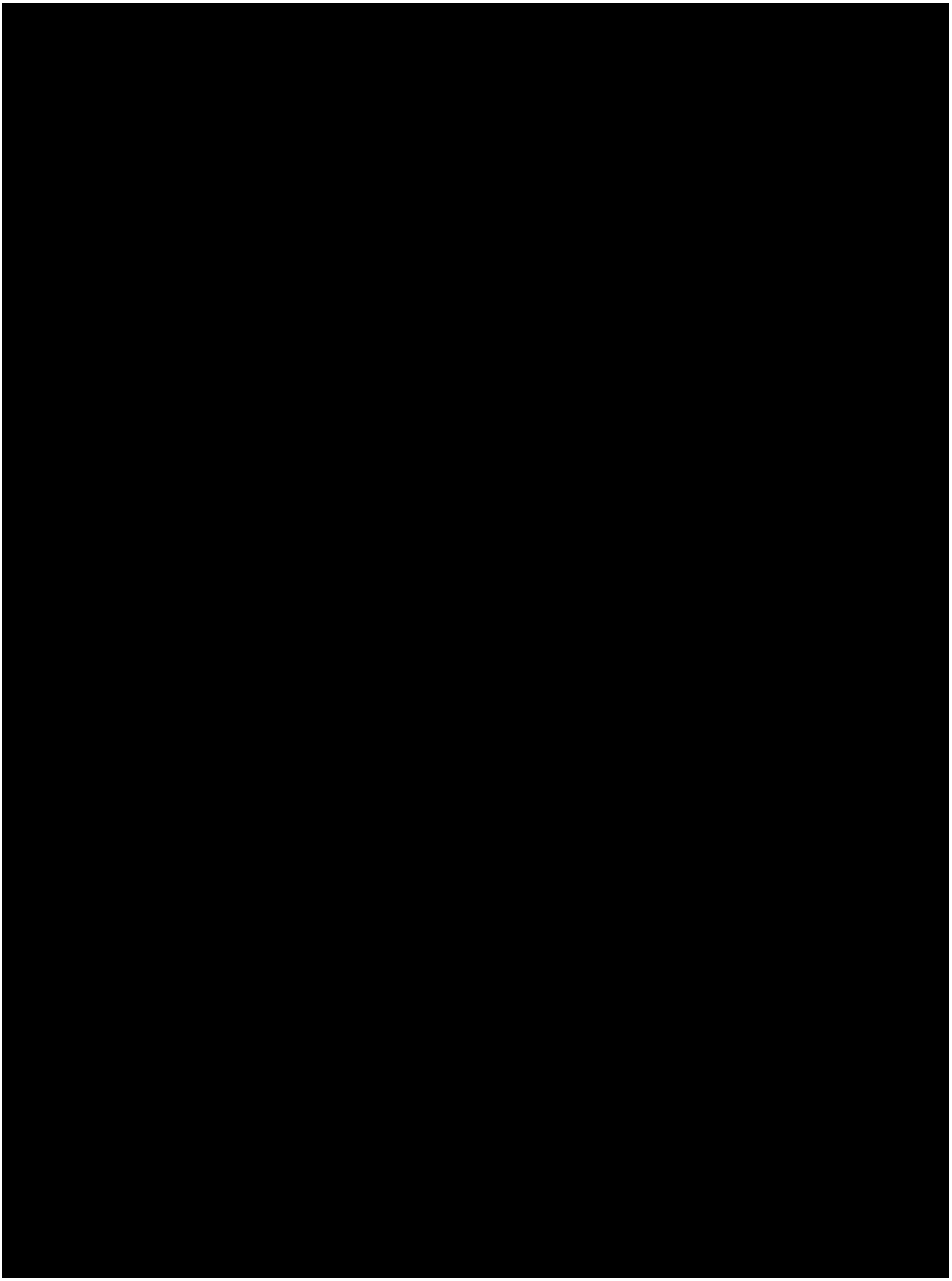

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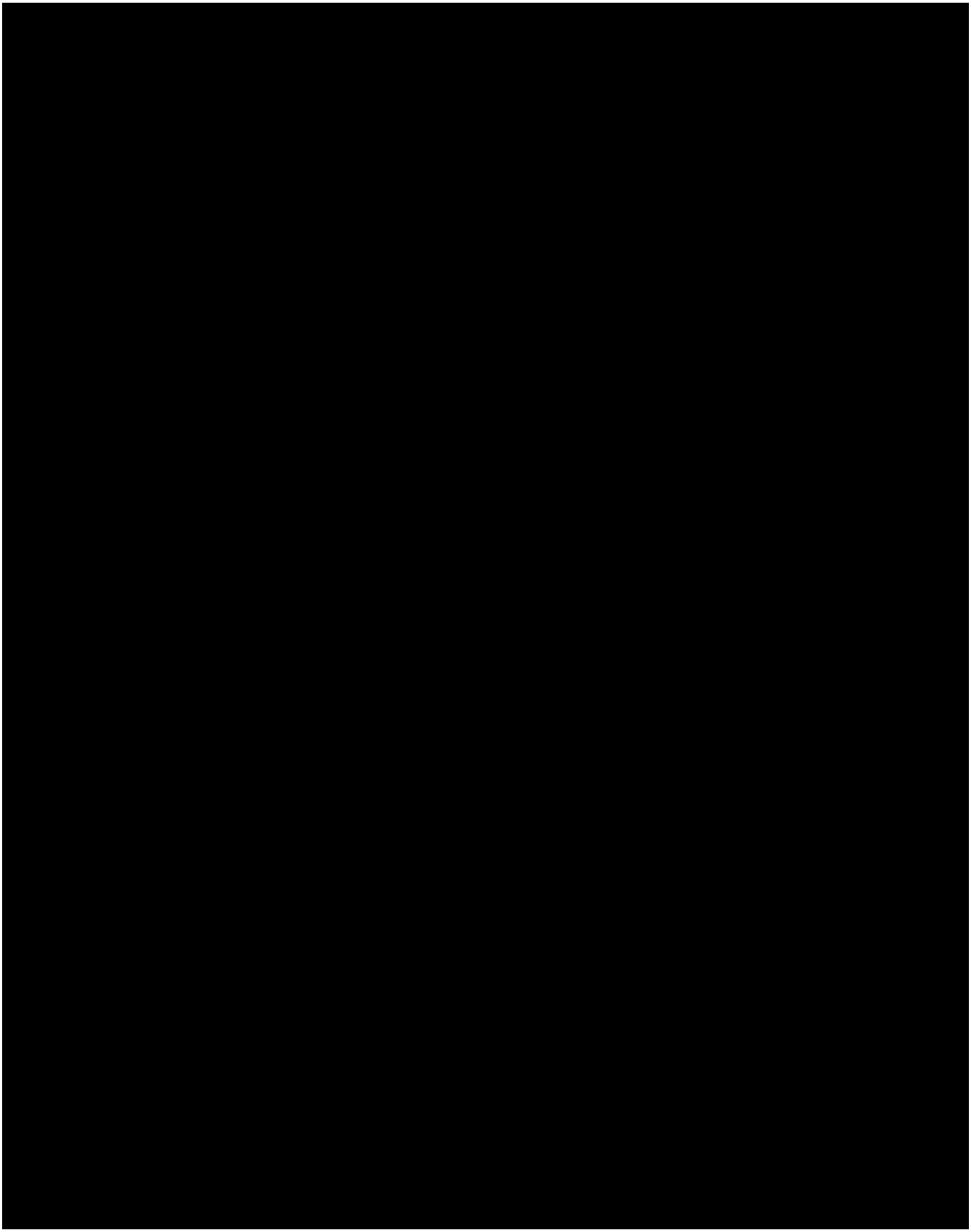

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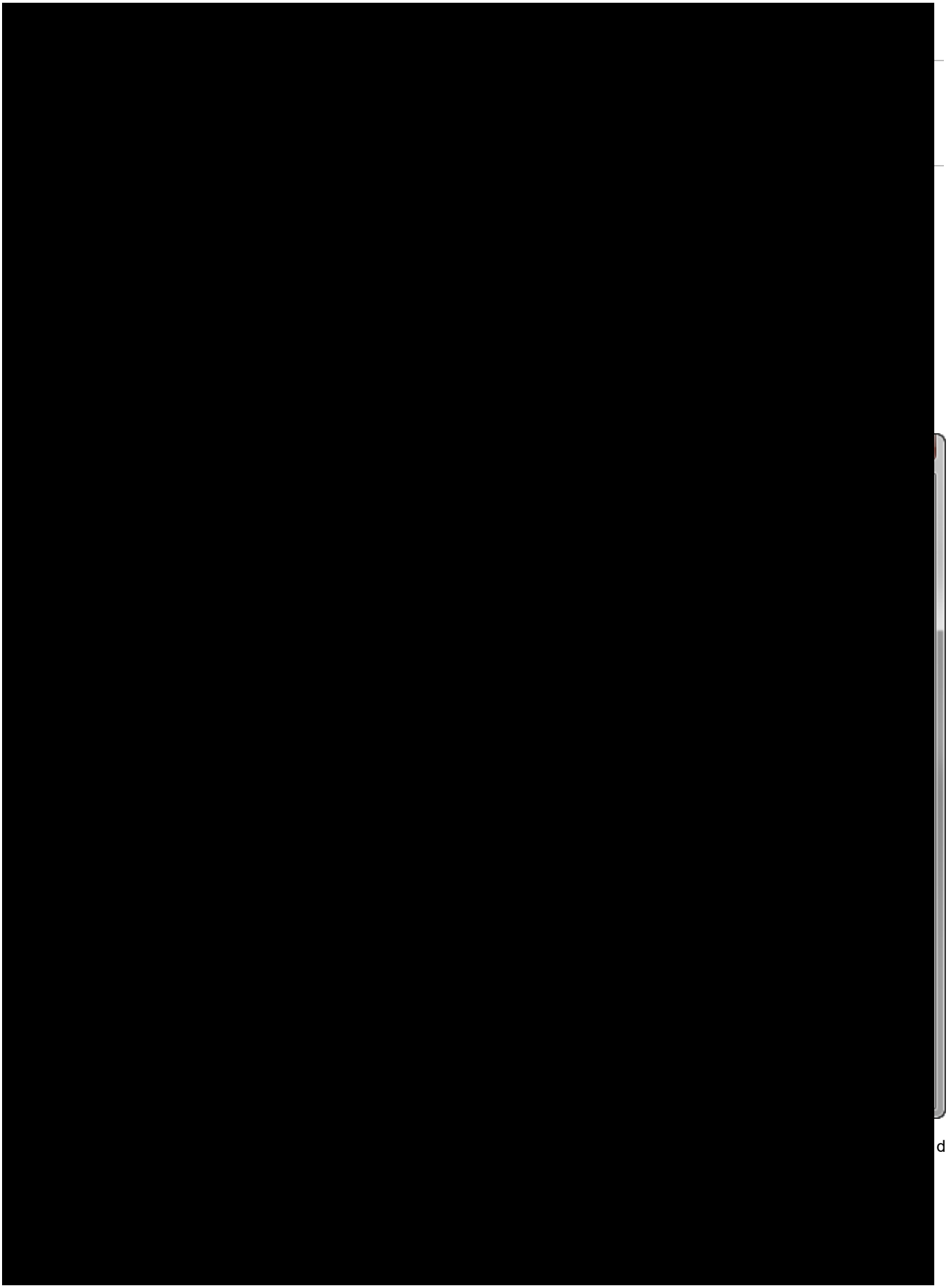

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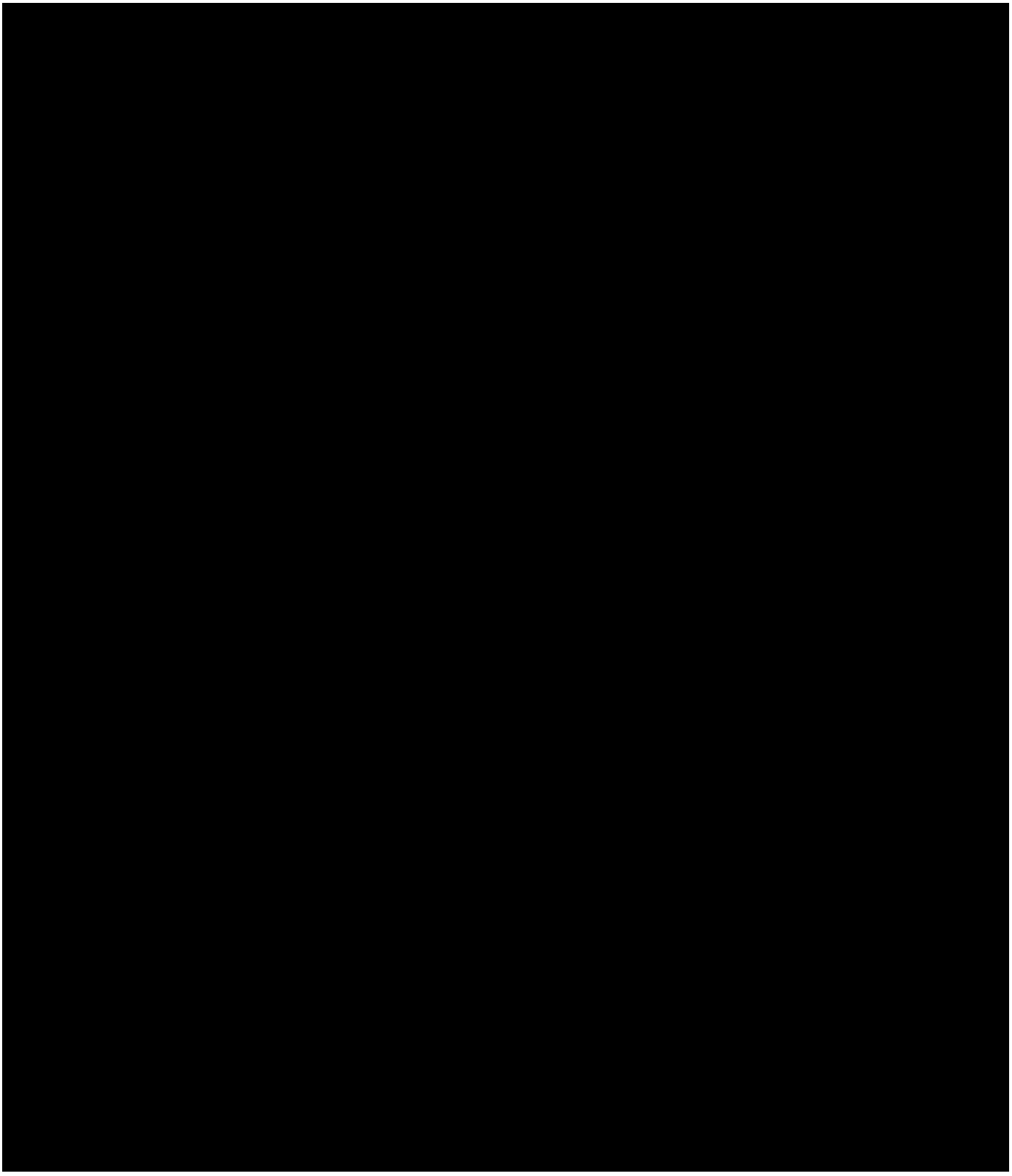

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Manual

MOBILEvario Parameter Management

Tri-County Metropolitan Transportation

Version: 1.0

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1 Introduction

This manual is intended for users who want to learn how to use MOBILEvario Parameter Management. It supports both functional descriptions and step-by-step instructions.

1.1 Symbols and conventions

In order to make the best use of this document, highlighted elements are located in several places.

The following support structures apply to this document:

Note
Indicates additional information.

Caution
Indicates warnings or other important information that have to be precisely followed.

The following conventions apply to this document:

Symbol	Explanation
✓	Indicates a condition that must be met before carrying out a step-by-step instruction.
1.	Indicates an action step.
a.	Indicates a sub step or an alternative action step.
▷	Indicates an intermediate result that can be seen after carrying out an action step.
▶	Indicates a result at the end of the step-by-step instruction.
Interface element	Indicates elements on the user interface, e.g. buttons.
1 Introduction →5	Indicates a cross-reference and shows the page where the corresponding chapter can be found.
Introduction	Indicates a cross-reference to another document.

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1.2 About MOBILEvario Parameter Management

Note
Depending on the contractually agreed upon optional features, some table columns or functions described in this manual may differ from the current user interface.

Vehicles have various kinds of on-board equipment; such as displays, loudspeakers, and ticket vending machines that are controlled by the on-board computer. Controlling this equipment requires several parameters that may vary from vehicle to vehicle because of different equipment configurations.

MOBILEvario Parameter Management enables modifying predefined system parameters and thresholds as well as assigning and transmitting them to units.

MOBILEvario Parameter Management consists of the following program groups:

Program group	Description
Parameter archives	Enables you to manage system parameter collections that can be transmitted to unit devices.
Settings	Enables you to manage the available system parameters.

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2 Structure of the user interface

This chapter contains elements of the user interface.

2.1 Navigation bar

The navigation bar can be used to select the available program groups and perform general functions.

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2.2 Tables

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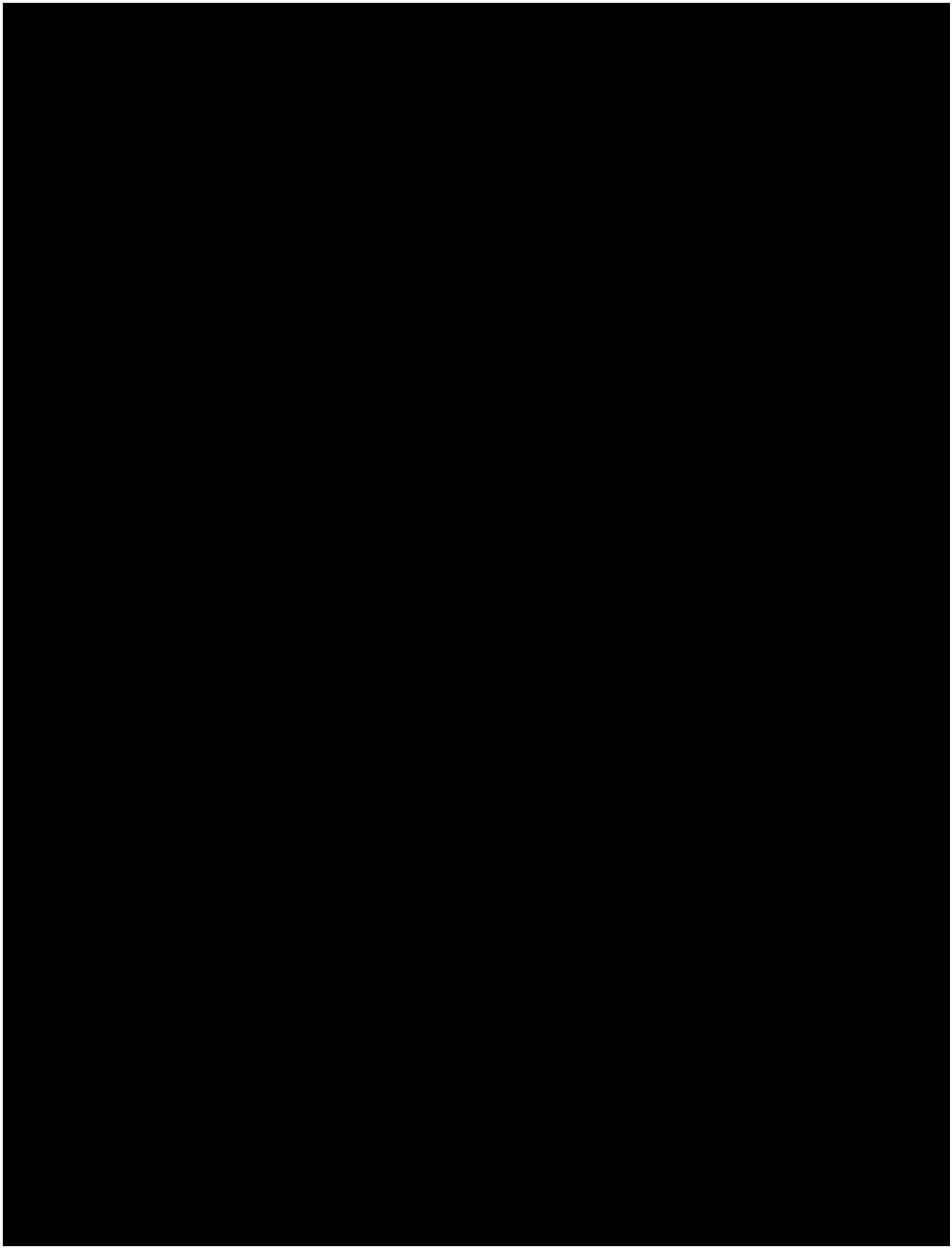

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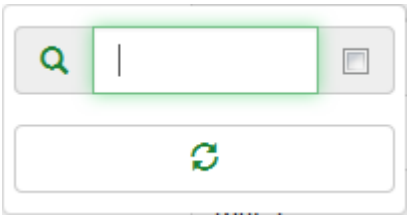

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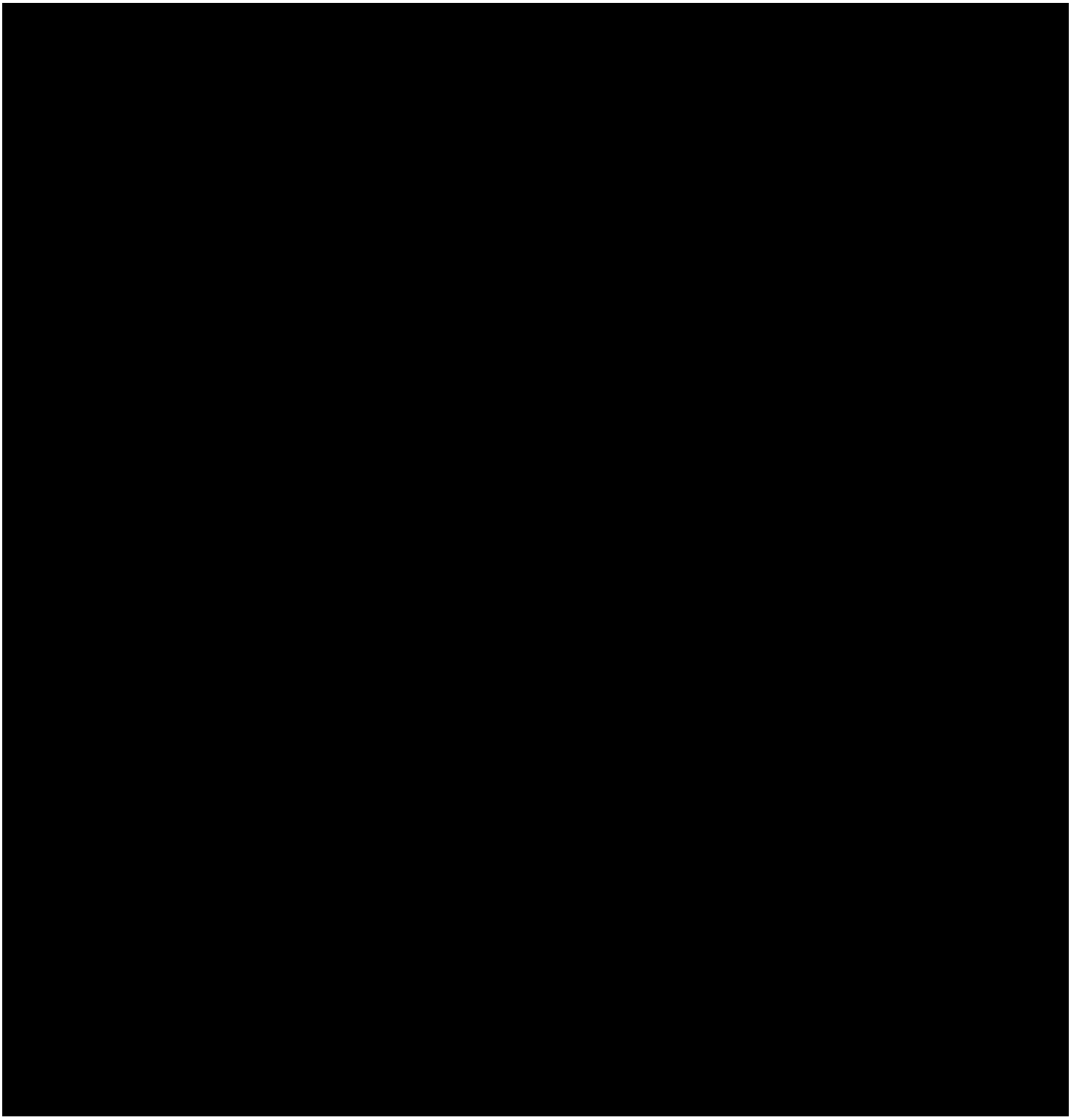
Buttons



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3 First steps

3.1 Start MOBILEvario Parameter Management

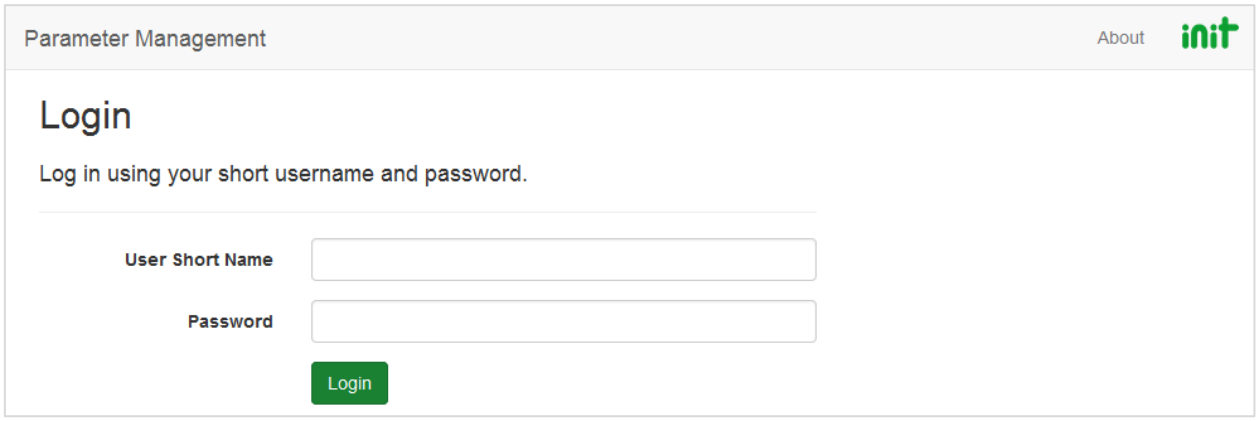
To start MOBILEvario Parameter Management, follow these steps:

1. Double-click the icon for MOBILEvario Parameter Management, which is usually located on your desktop.

Start MOBILEvario Parameter Management

Note
The icon is also located in the "MOBILEvario" directory. If you are not able to find the icon, contact your system administrator or INIT.

▷ The **Login** screen will be opened.



Login

2. If you want to log in with your MOBILEvario user:
   a. Enter your user name.
   b. Enter your password.
   c. Click the **Login** button.
   ▷ Your access rights will be checked based on your login information. If you have the right to run the application, it will be started. If you do not have the right to run the application, a corresponding message will be opened and the application will be closed.
3. If you want to log in with your Windows user, click the **Auto Login** button.
   ▷ Your access rights will be checked based on the user logged on to the operating system. If you have the right to run the application, it will be started. If you do not have

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the right to run the application, a corresponding message will be opened and the application will be closed.

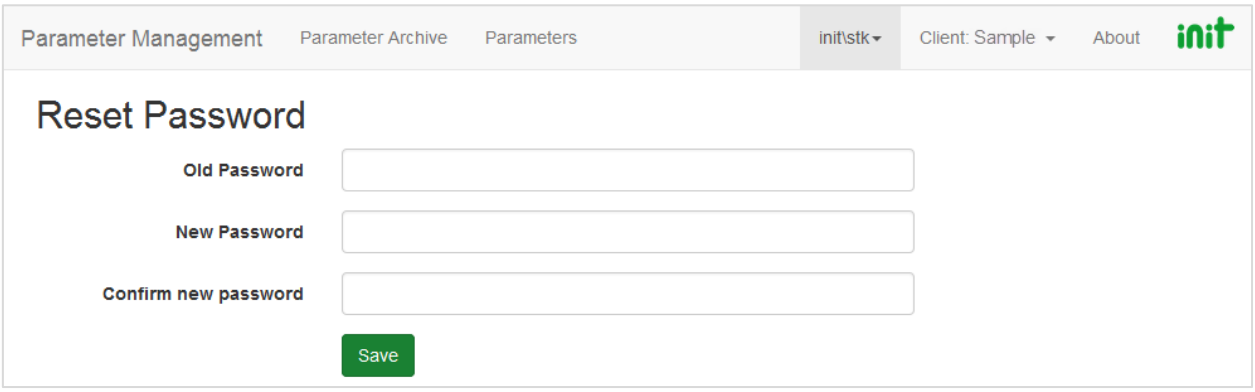
Note
If only single access rights are missing, starting the application will cause the corresponding program groups and buttons to be disabled or hidden where applicable.

▶ You have started MOBILEvario Parameter Management.

3.2 Change password

To change your password, follow these steps:

1. Click your user name in the navigation bar and select **Reset password**.
   ▷ The **Reset password** screen will be opened.



Reset password

2. Enter your current ("old") password.
3. Enter your new password.
4. Enter your new password again in order to prevent typing errors.
5. Click **Save**.
   ▷ The password change will be saved in the database.
   ▶ You have changed your password.

3.3 Change client

Condition:

✓ You have the right to work with at least two clients.

To change the client, follow these steps:

1. Click **Client** in the navigation bar.
   ▷ For each client you have the right to work with an entry will be displayed.
2. Select the intended client.
   ▷ The selected client will be set and the data of this client will be loaded.
   ▶ You have changed the client.

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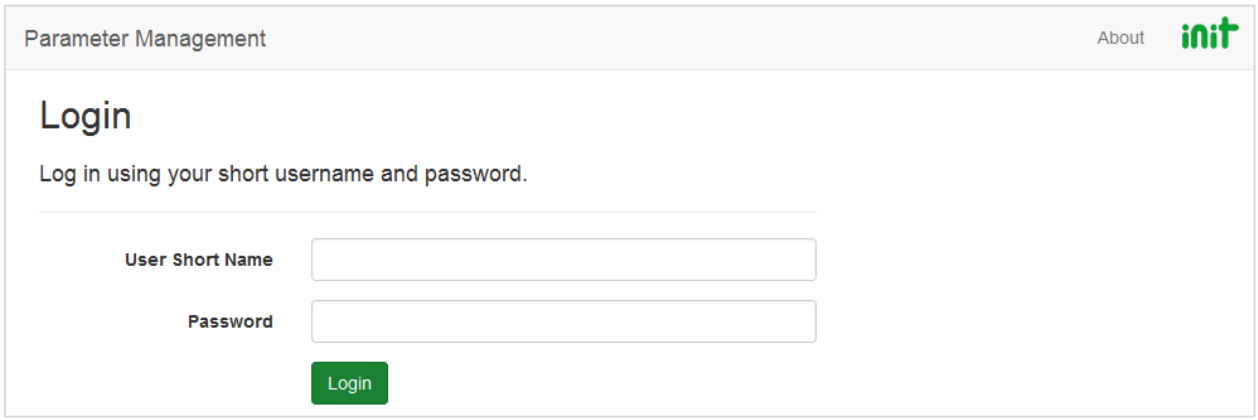
3.4 Close MOBILEvario Parameter Management

To close MOBILEvario Parameter Management, follow these steps:

1. Click your user name in the navigation bar and select **Logout**.
   - ▷ The currently logged-in user will be logged out.
   - ▷ The **Login** screen will be opened where you can log in another user.



Login

- ▶ You have closed MOBILEvario Parameter Management.

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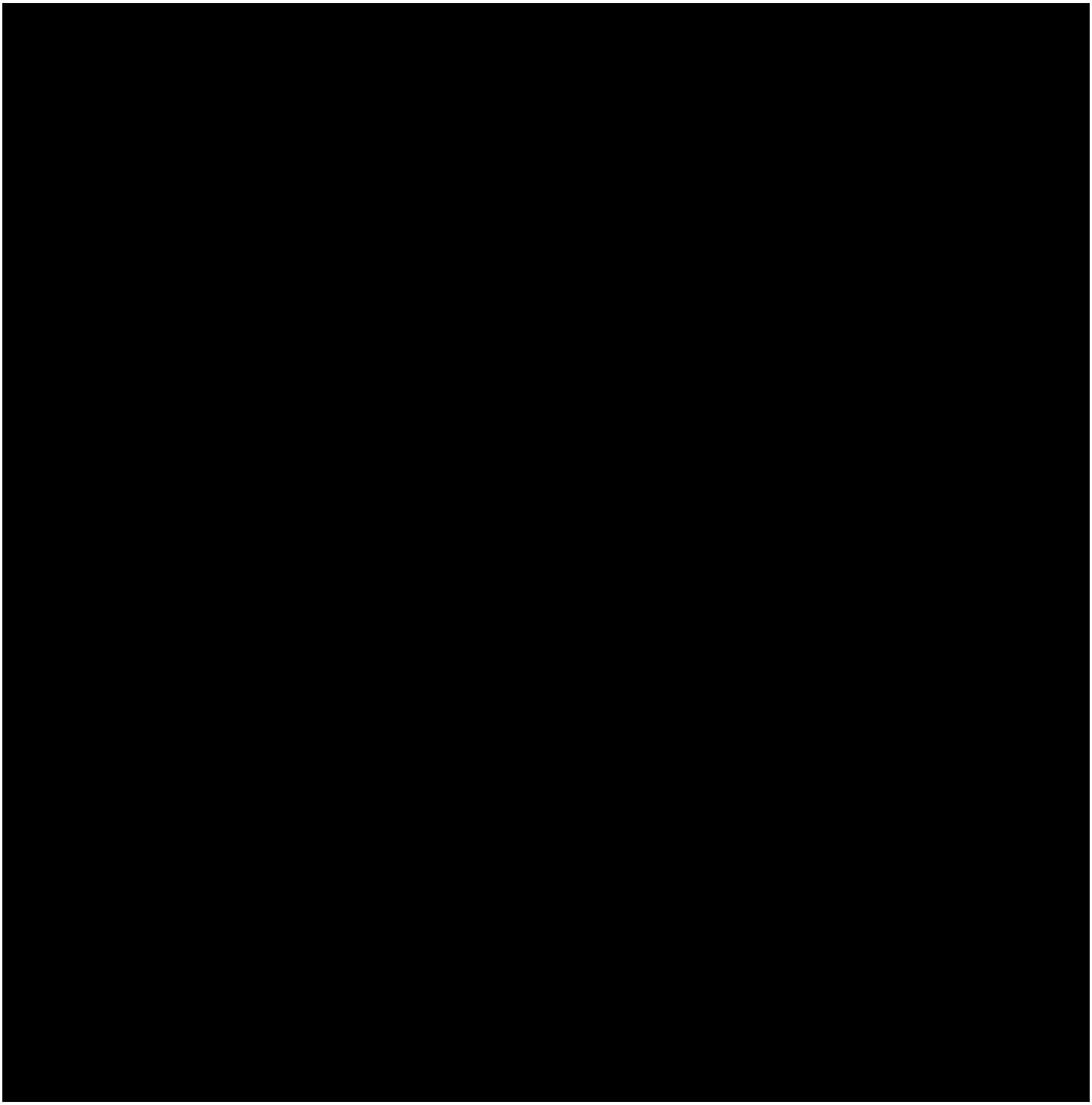
4 Parameter archives

The **Parameter archives** program group enables you to manage system parameter collections that can be transmitted to vehicle units using the MOBILEic application. A parameter archive consists of one or several unit collections. Each unit collection consists of a specified parameter set and the vehicle units for which this parameter set is valid. It can be transmitted to the units before the start of validity, but it will only be activated once the validity date is reached. Until then, the previous parameter archive on the unit remains valid.



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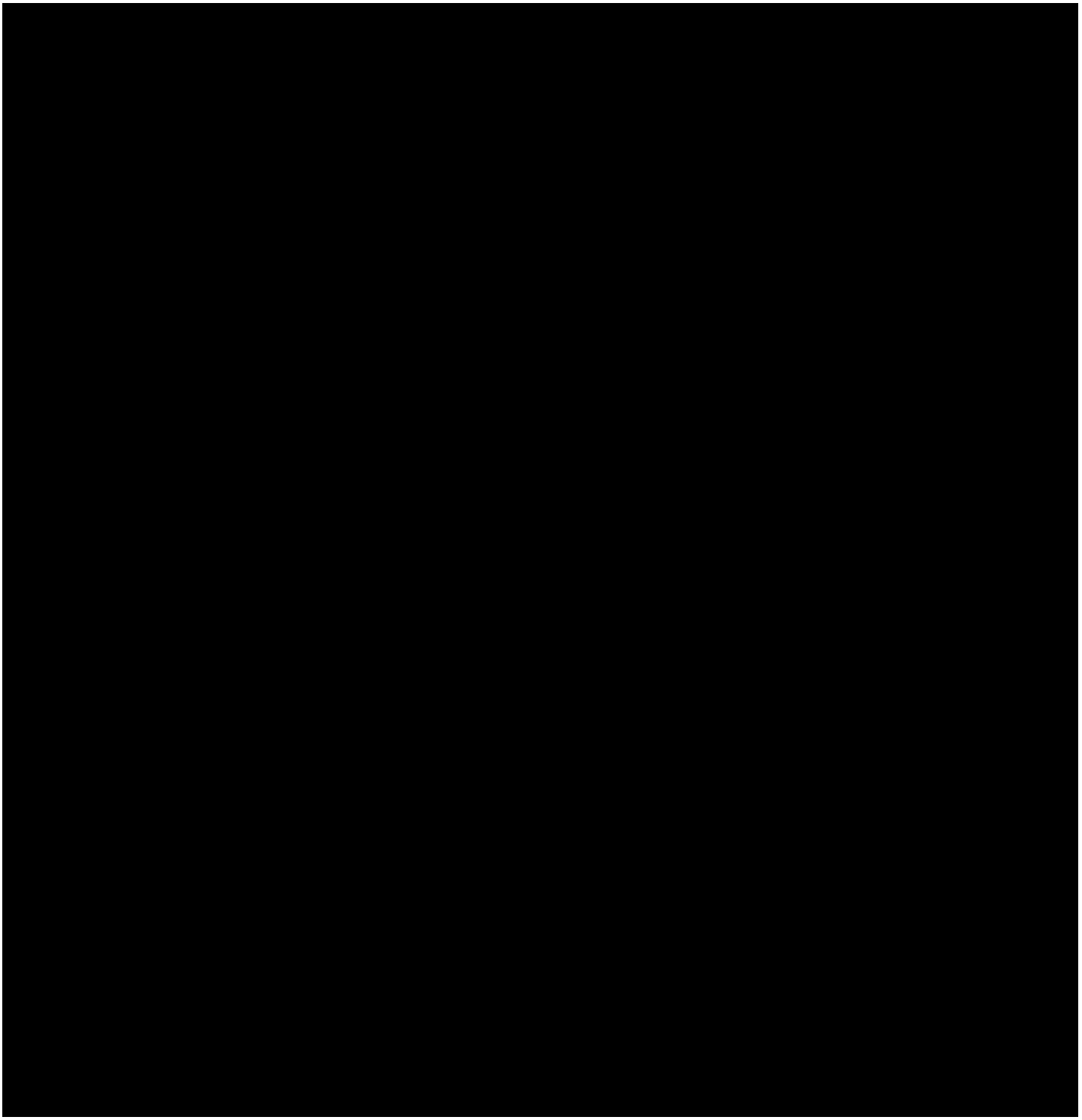

4.1 Create parameter archive

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4.2 Copy parameter archive

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4.3 Parameter archive release

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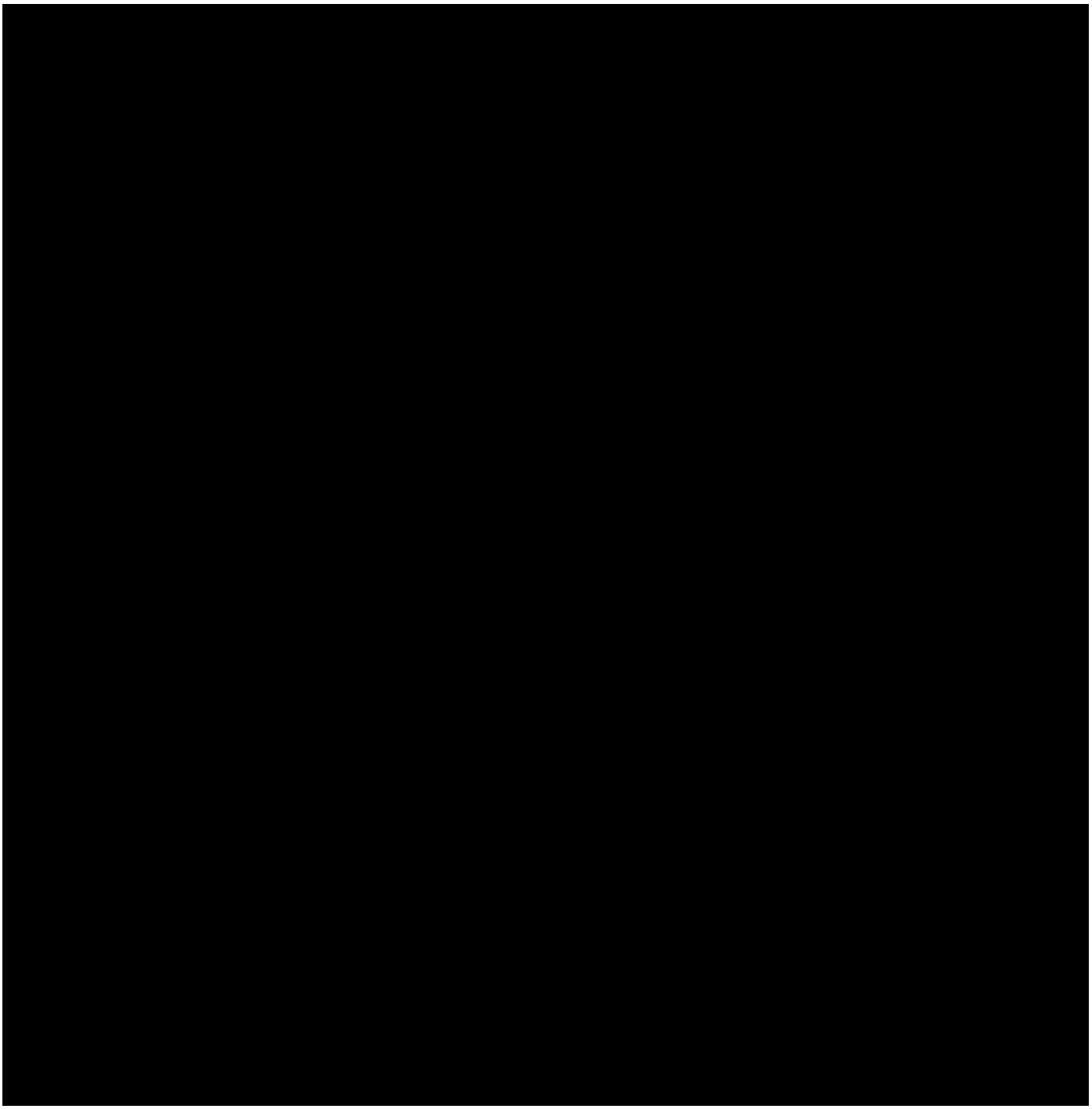

4.3.2 Release parameter archive

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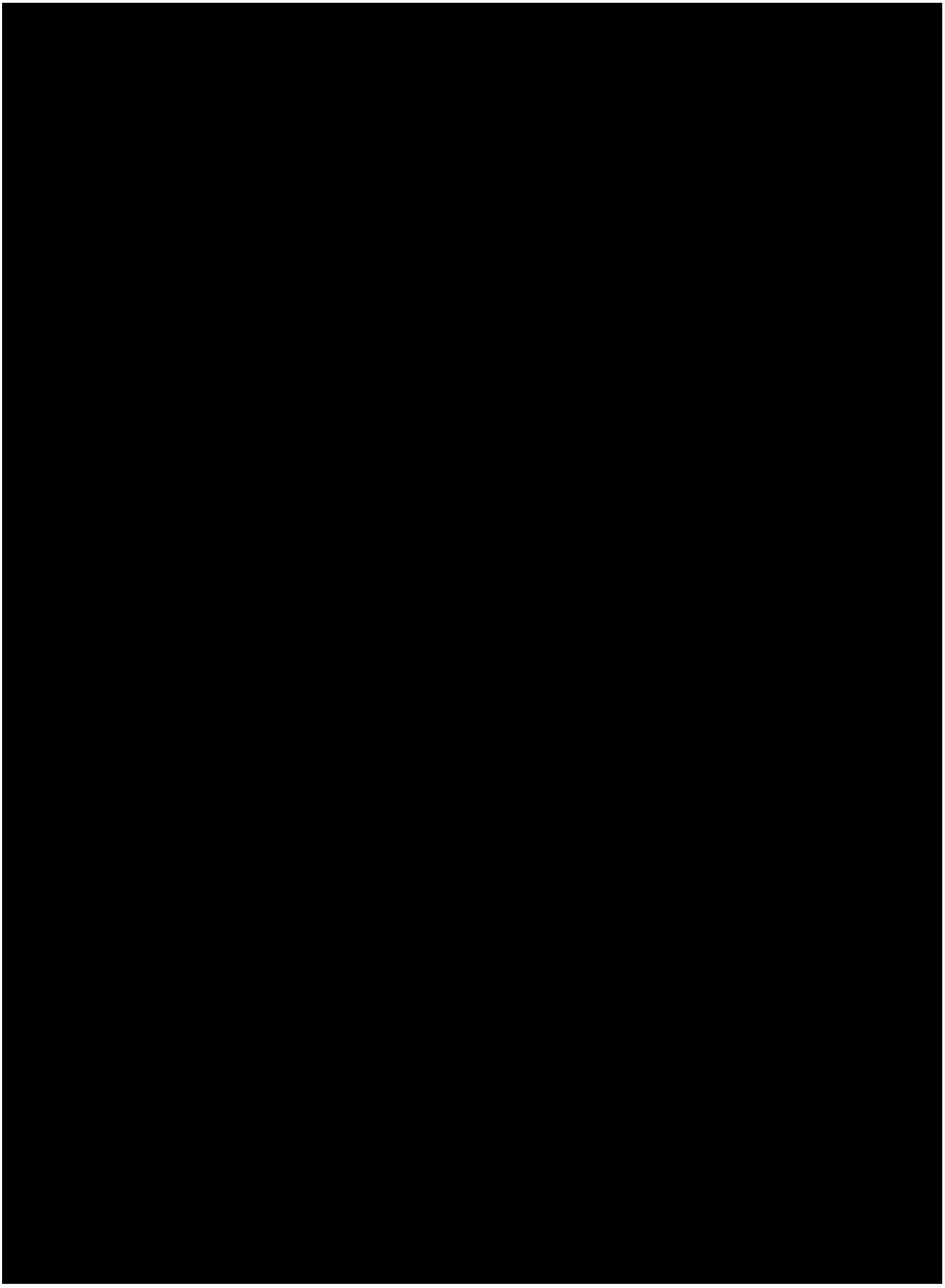

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- You have released a parameter archive.

4.4 General

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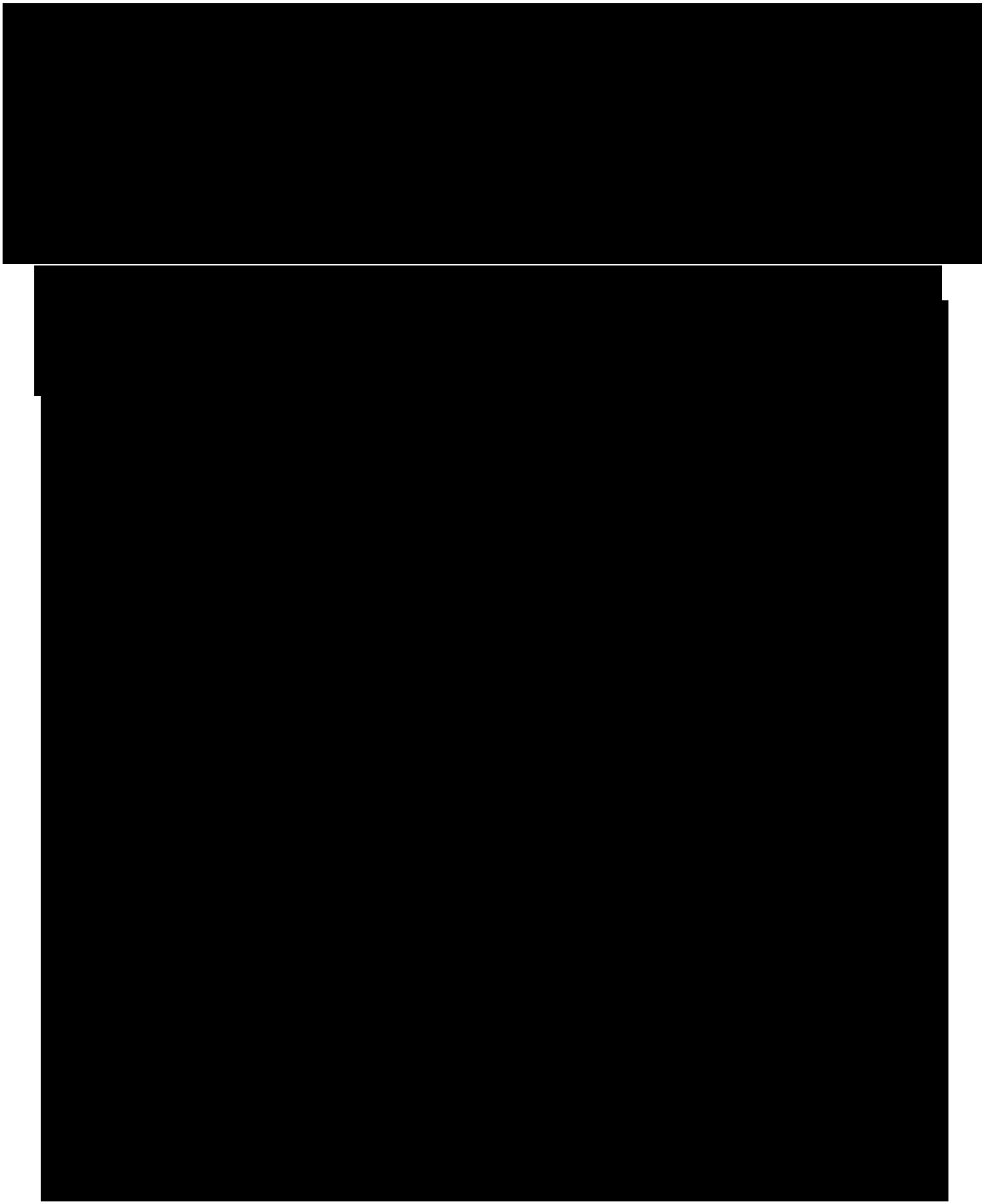

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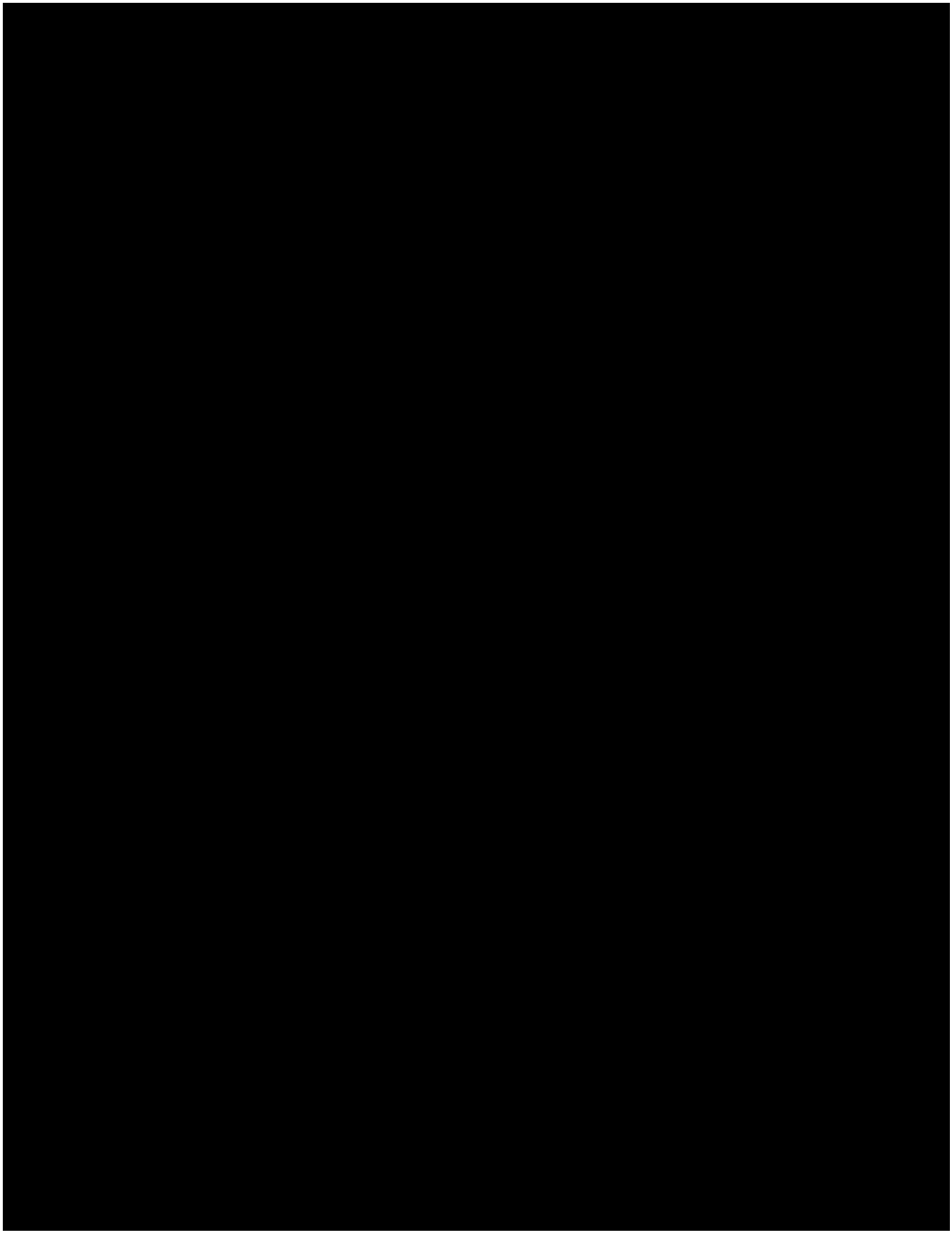

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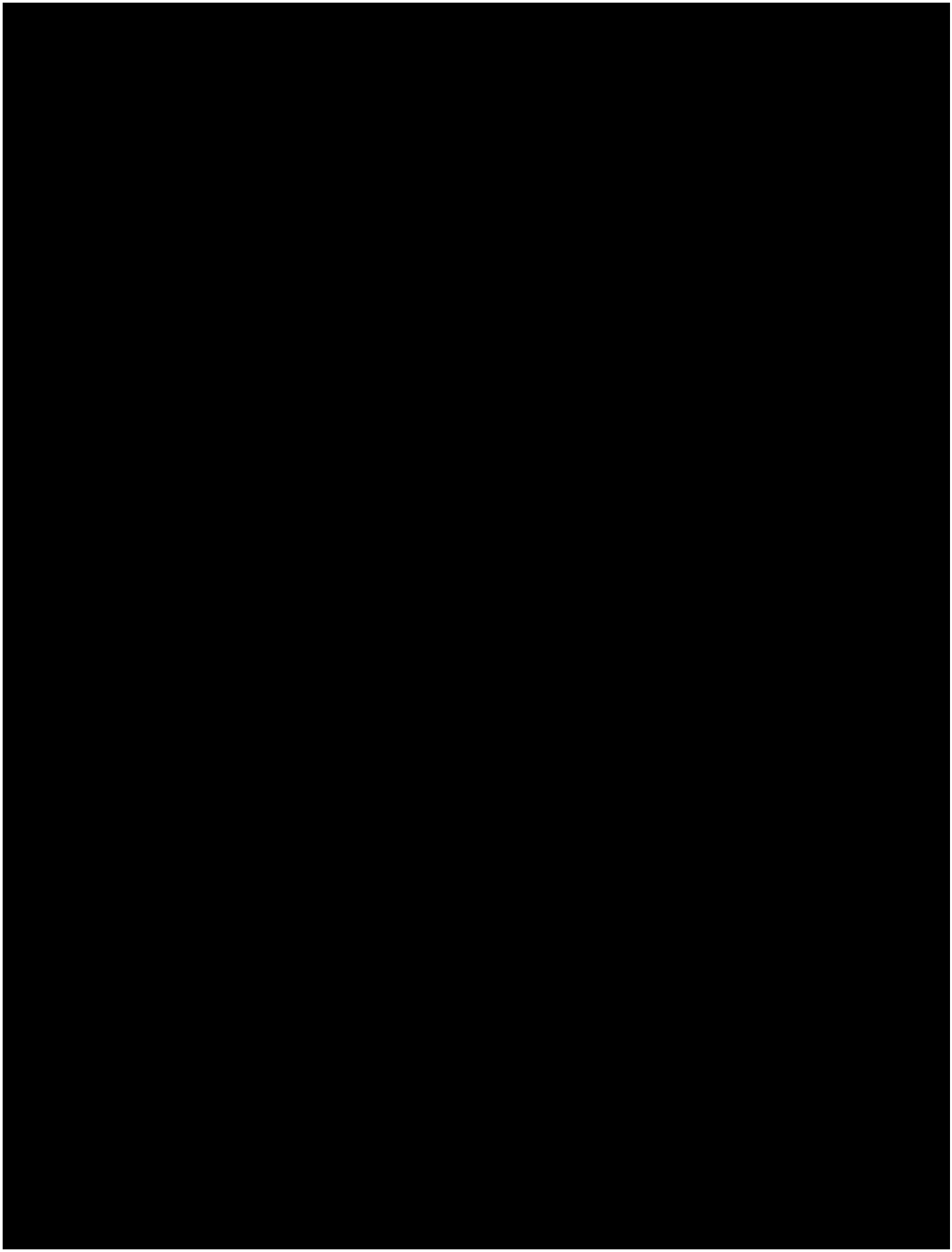

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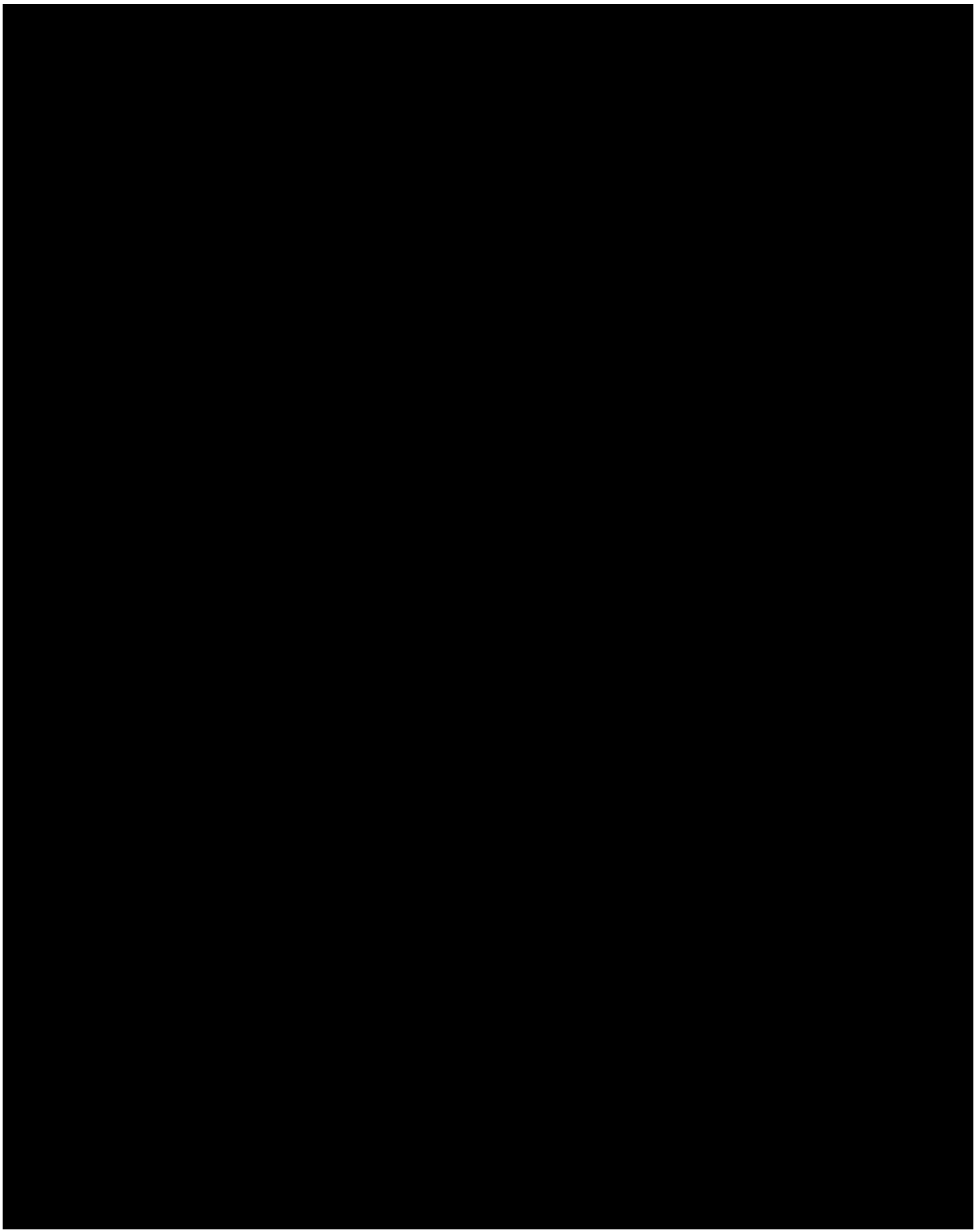

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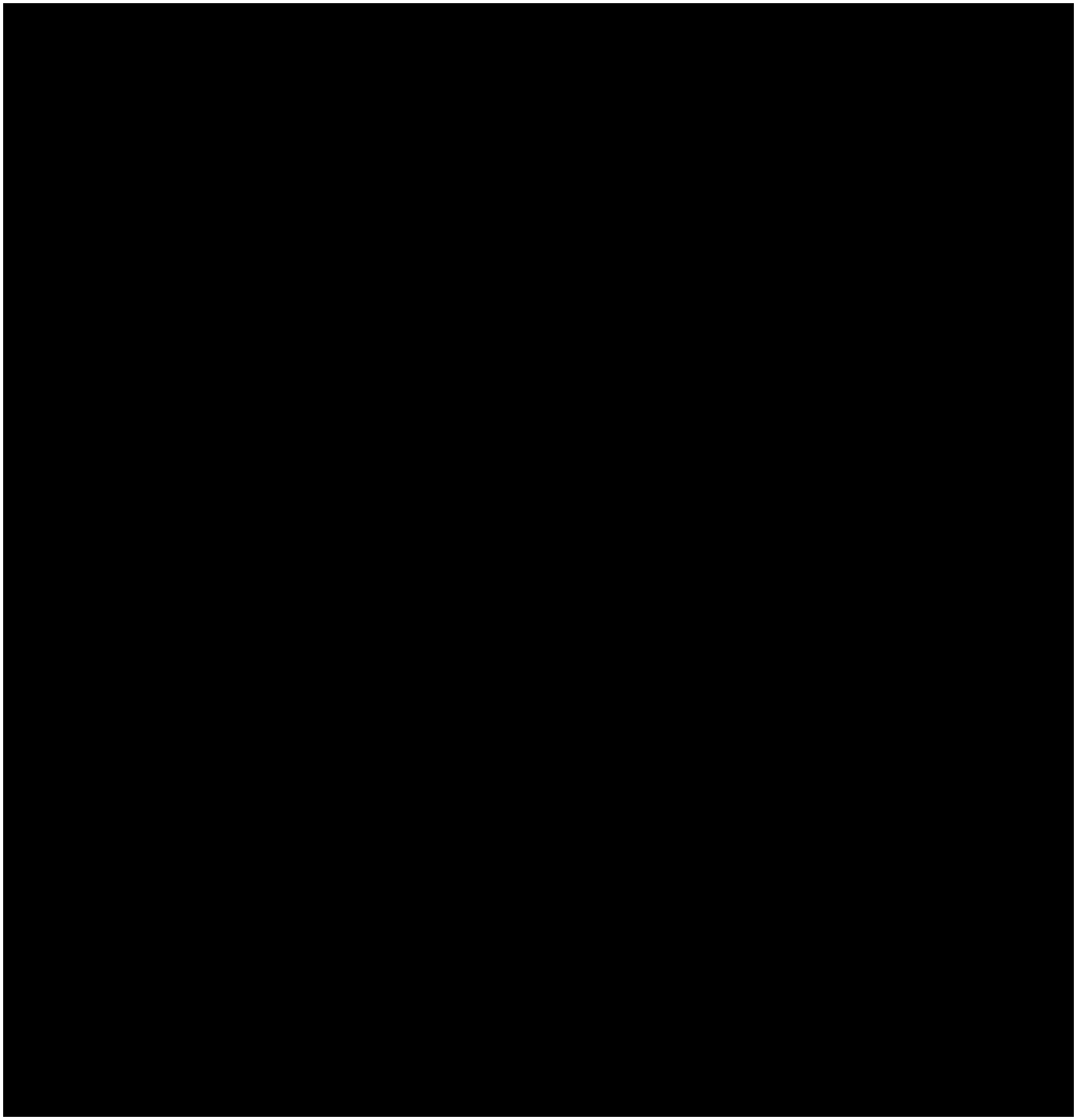

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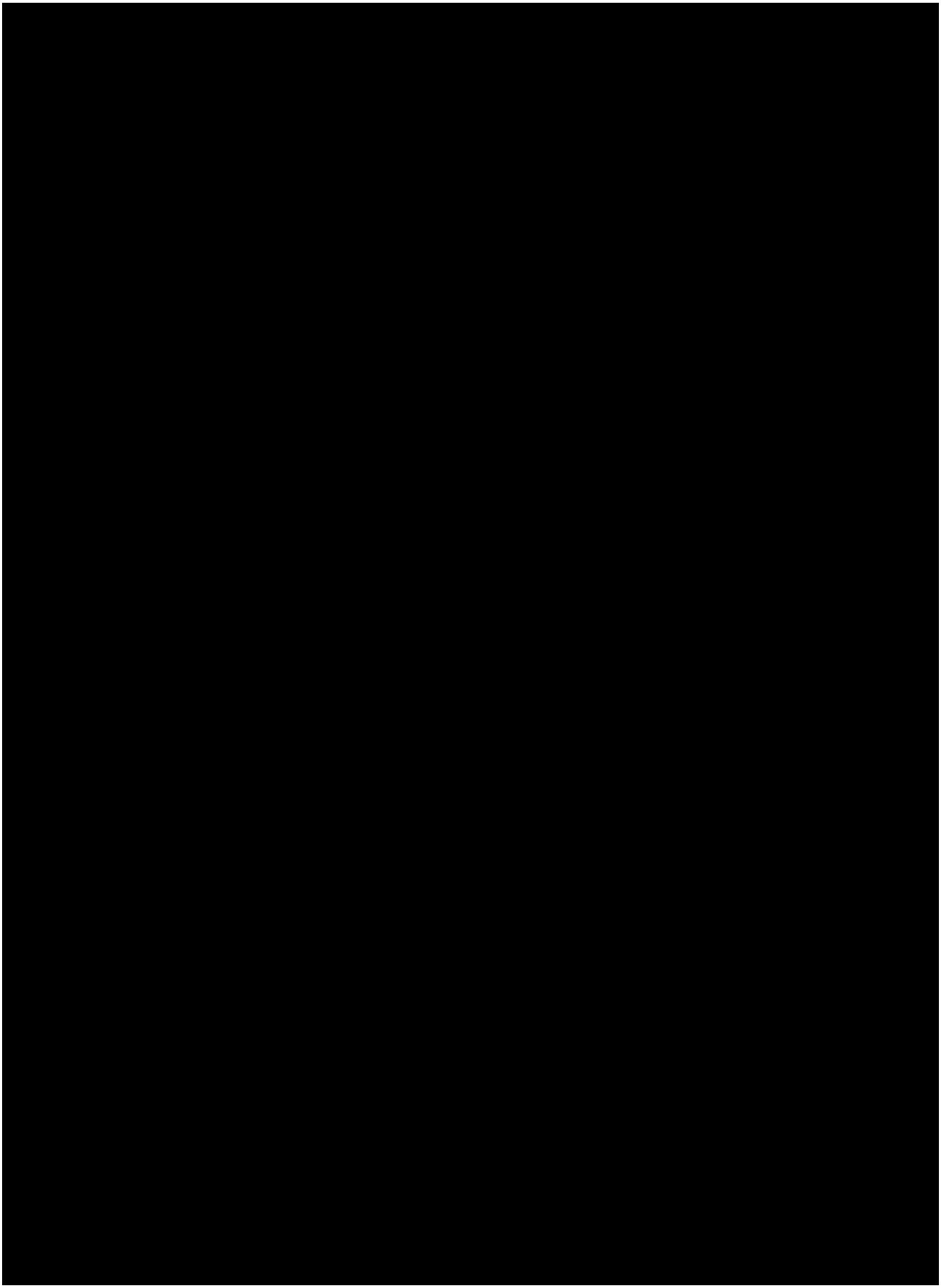

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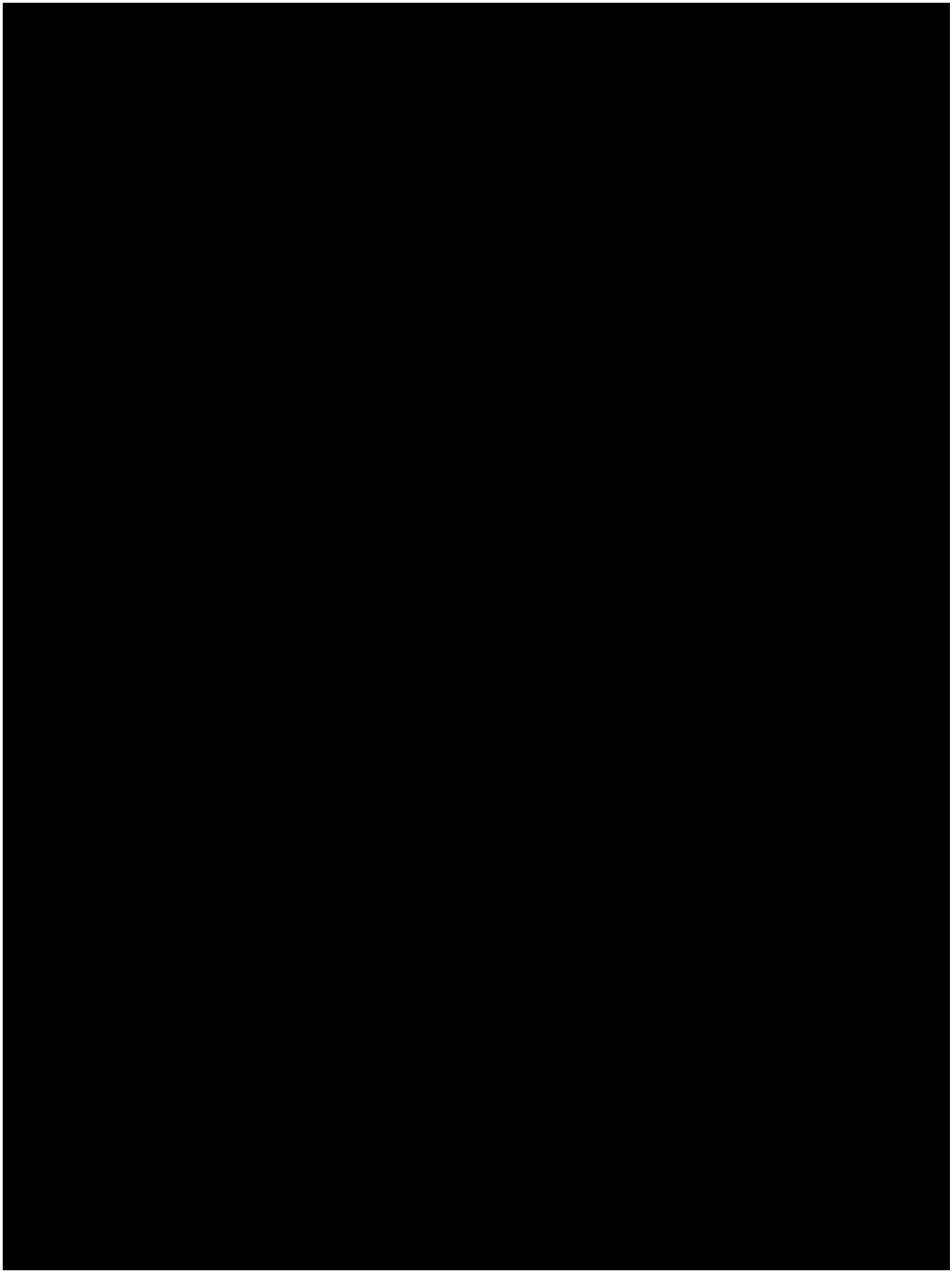

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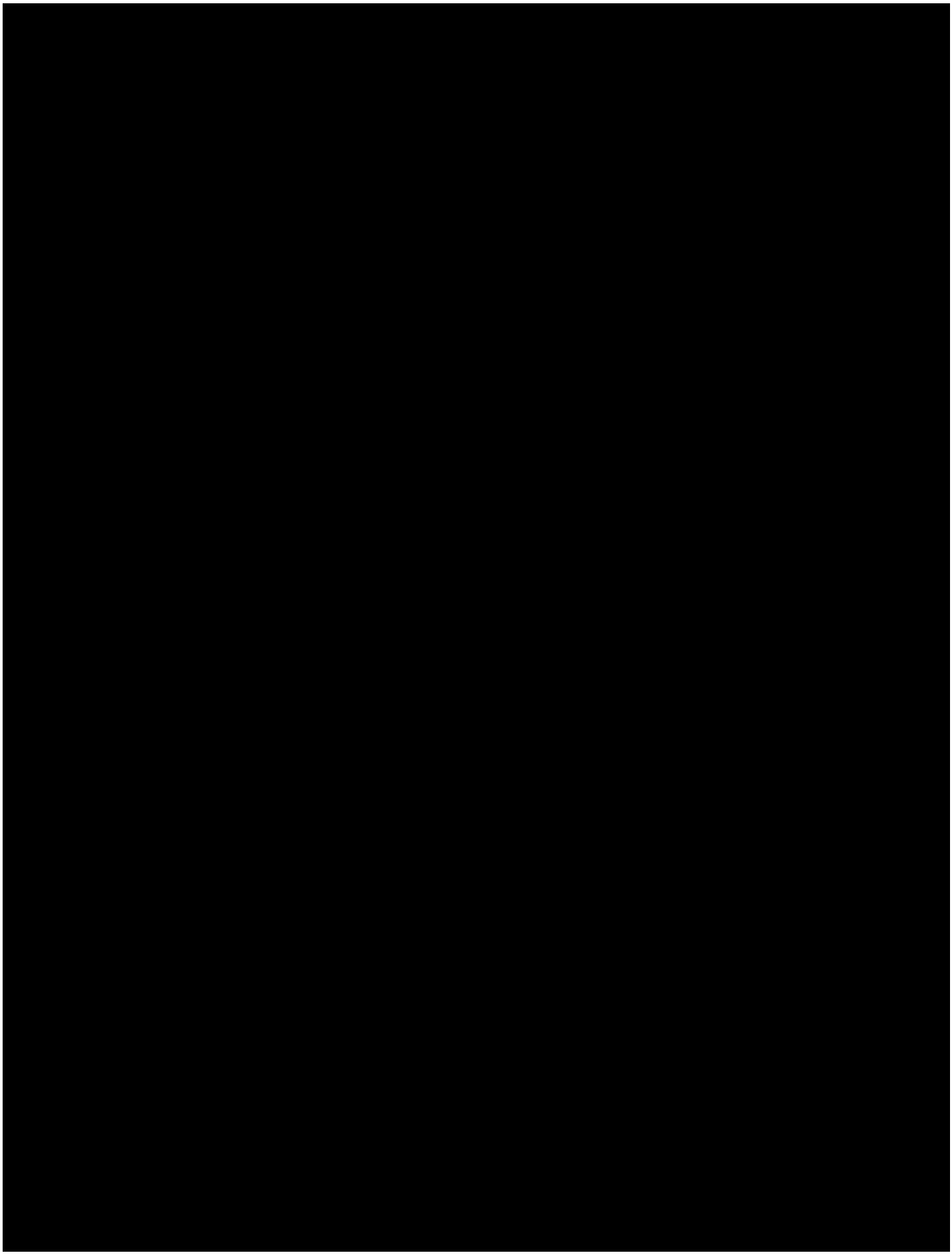

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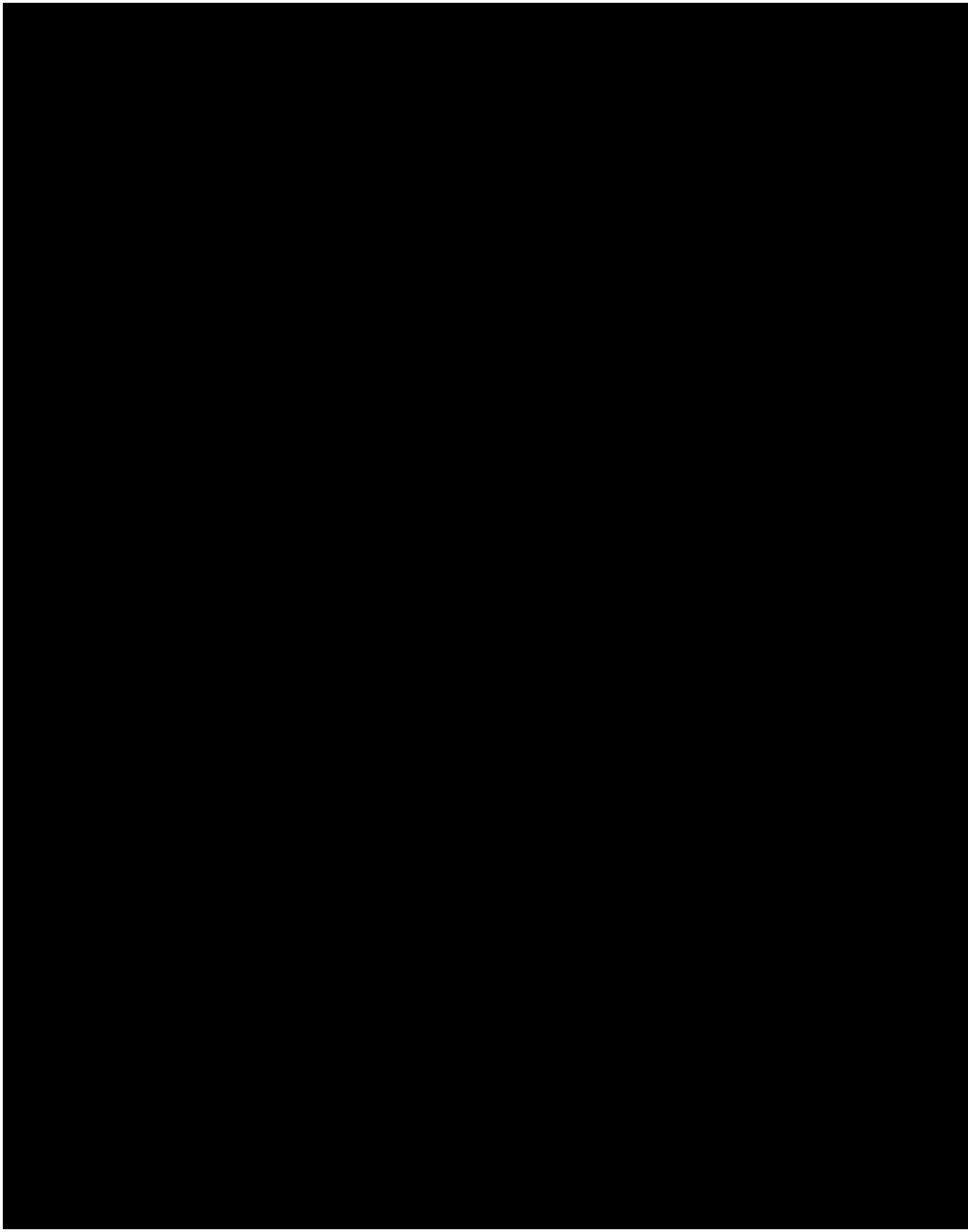

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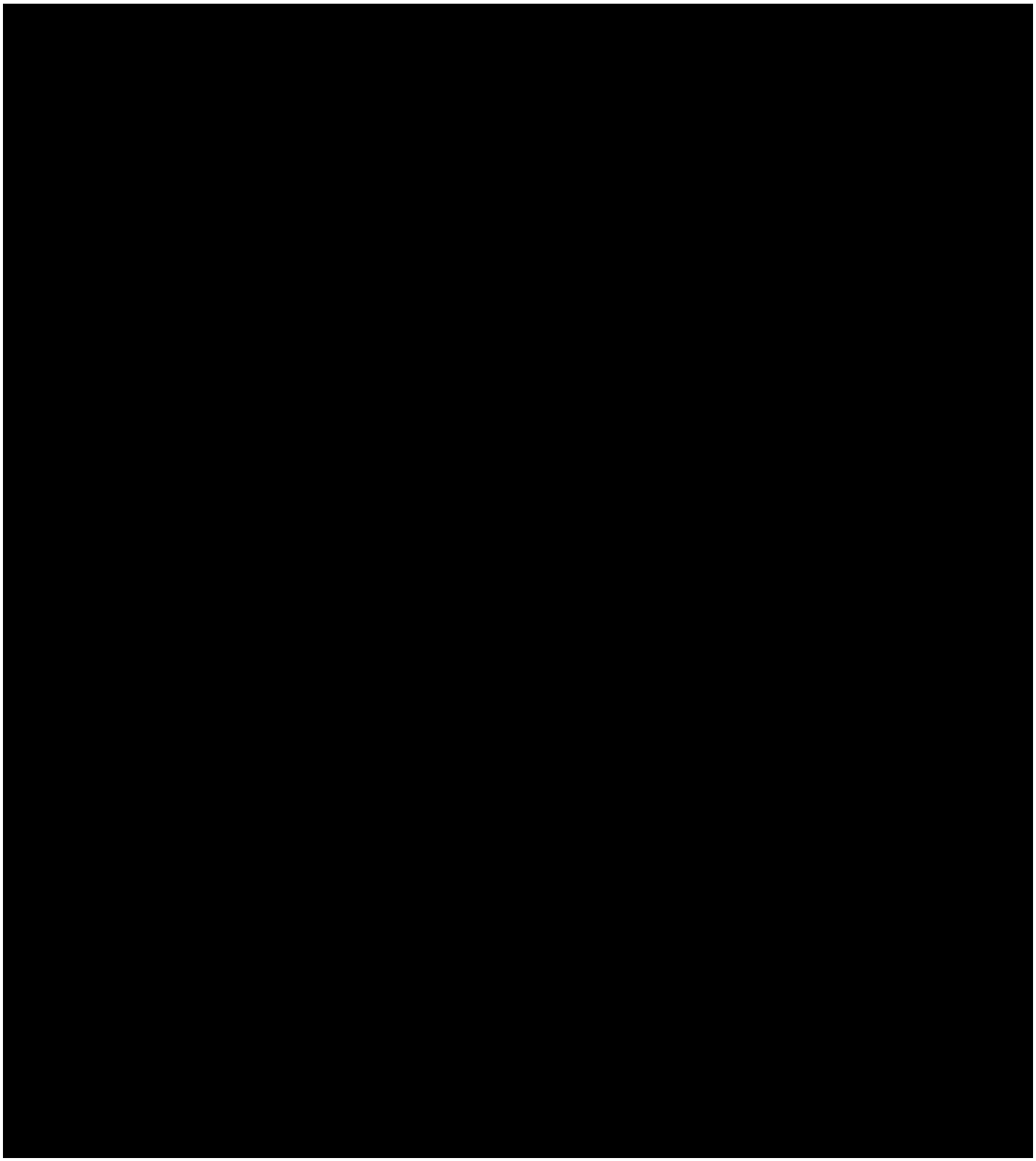

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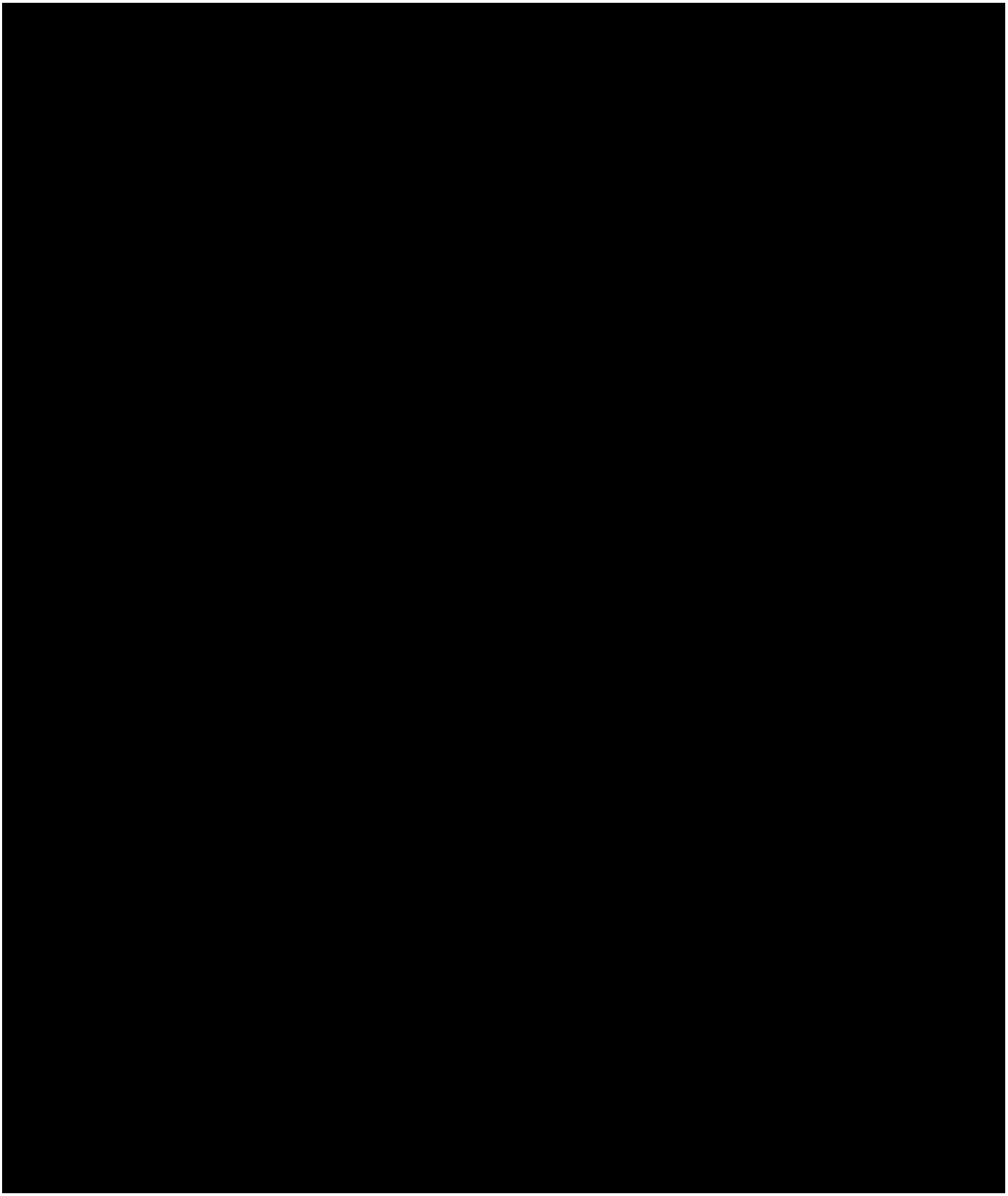

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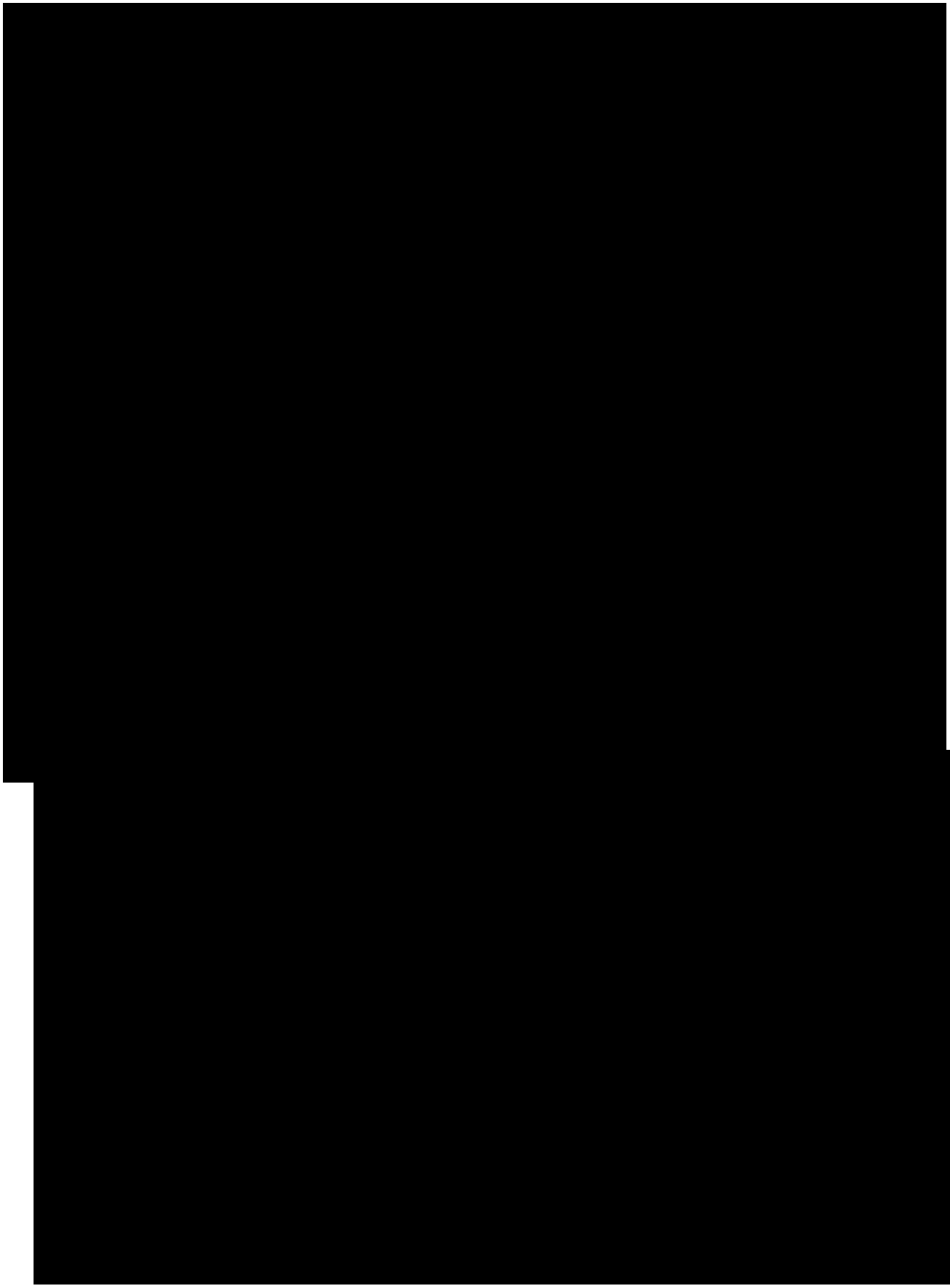

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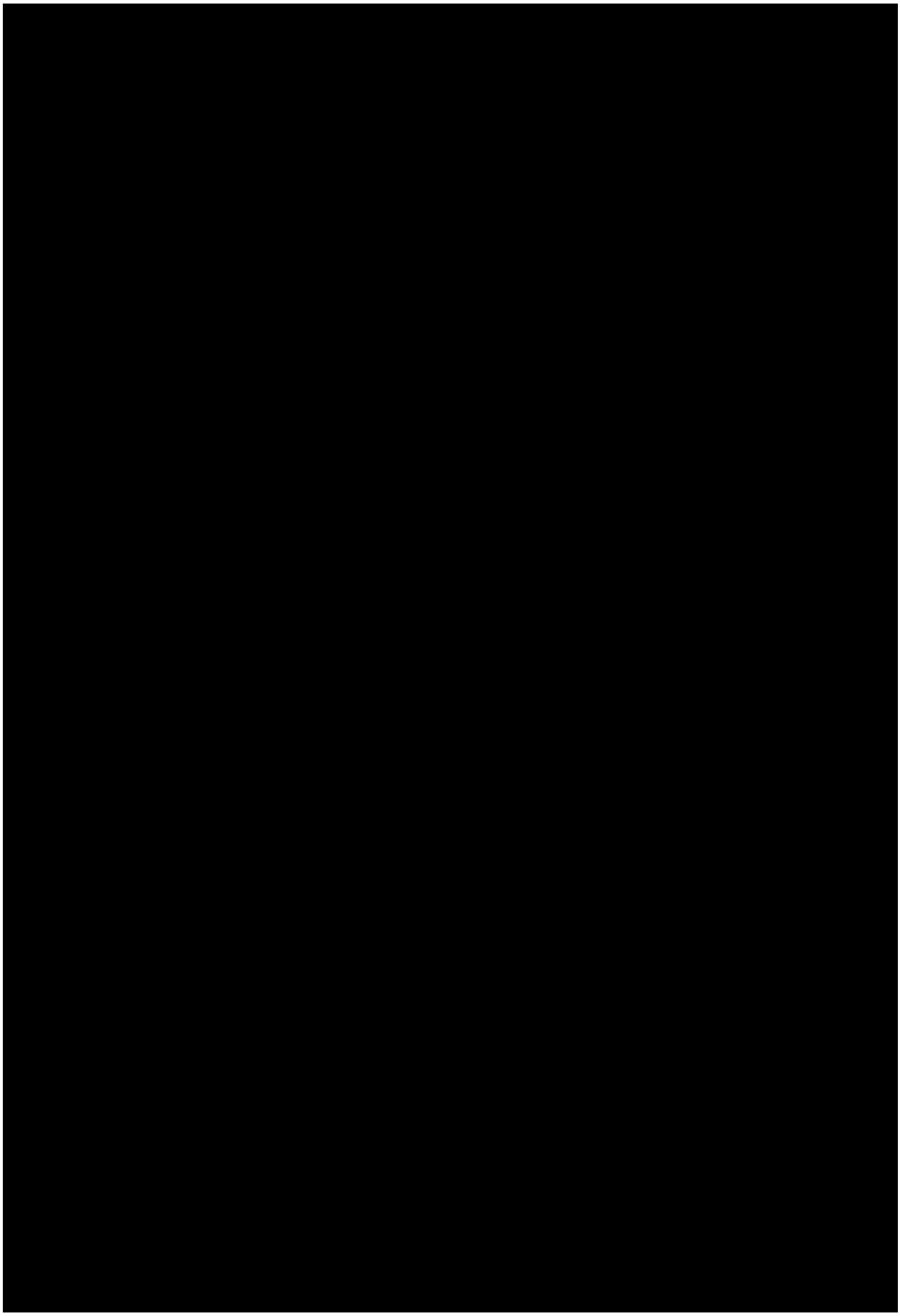

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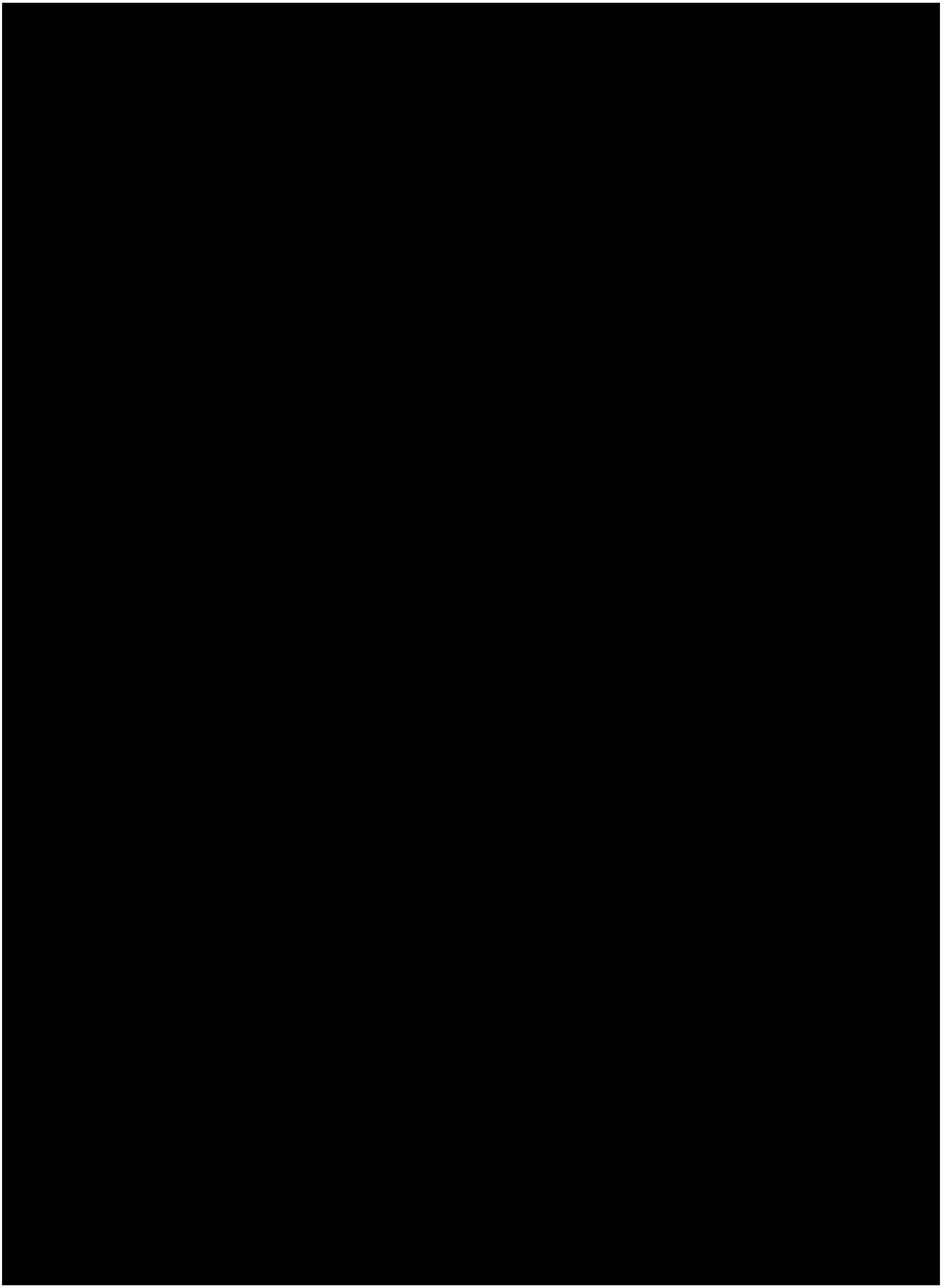

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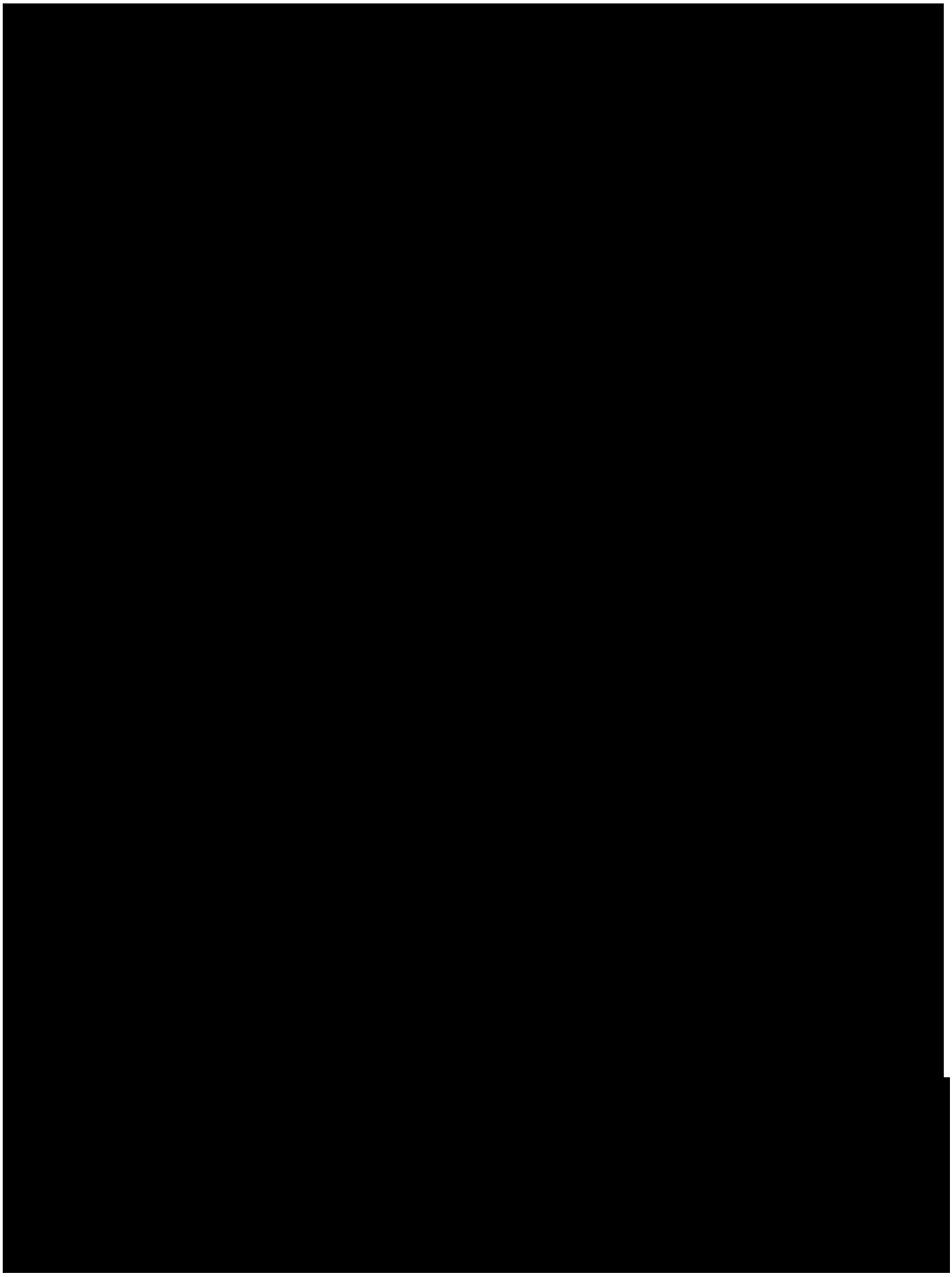

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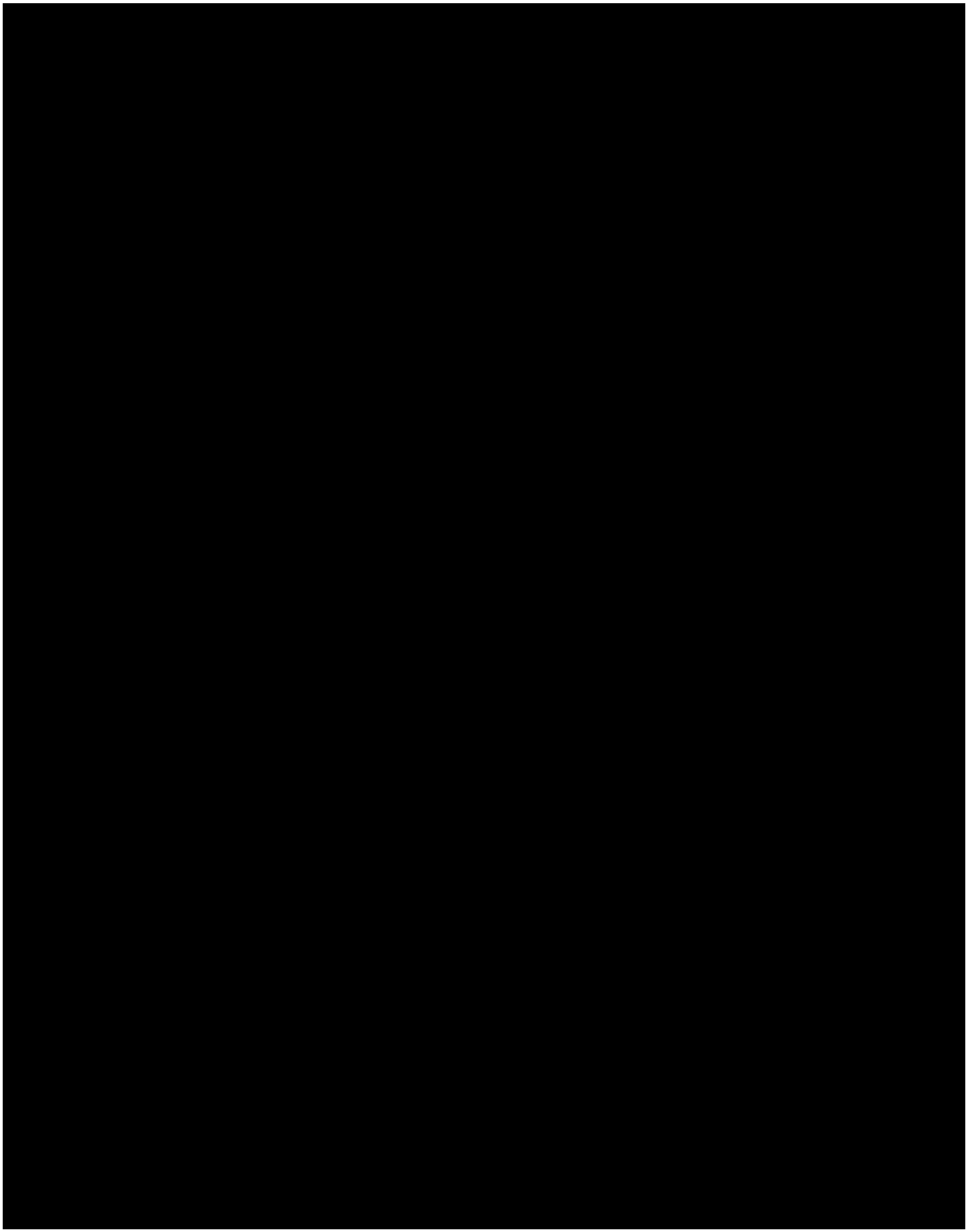

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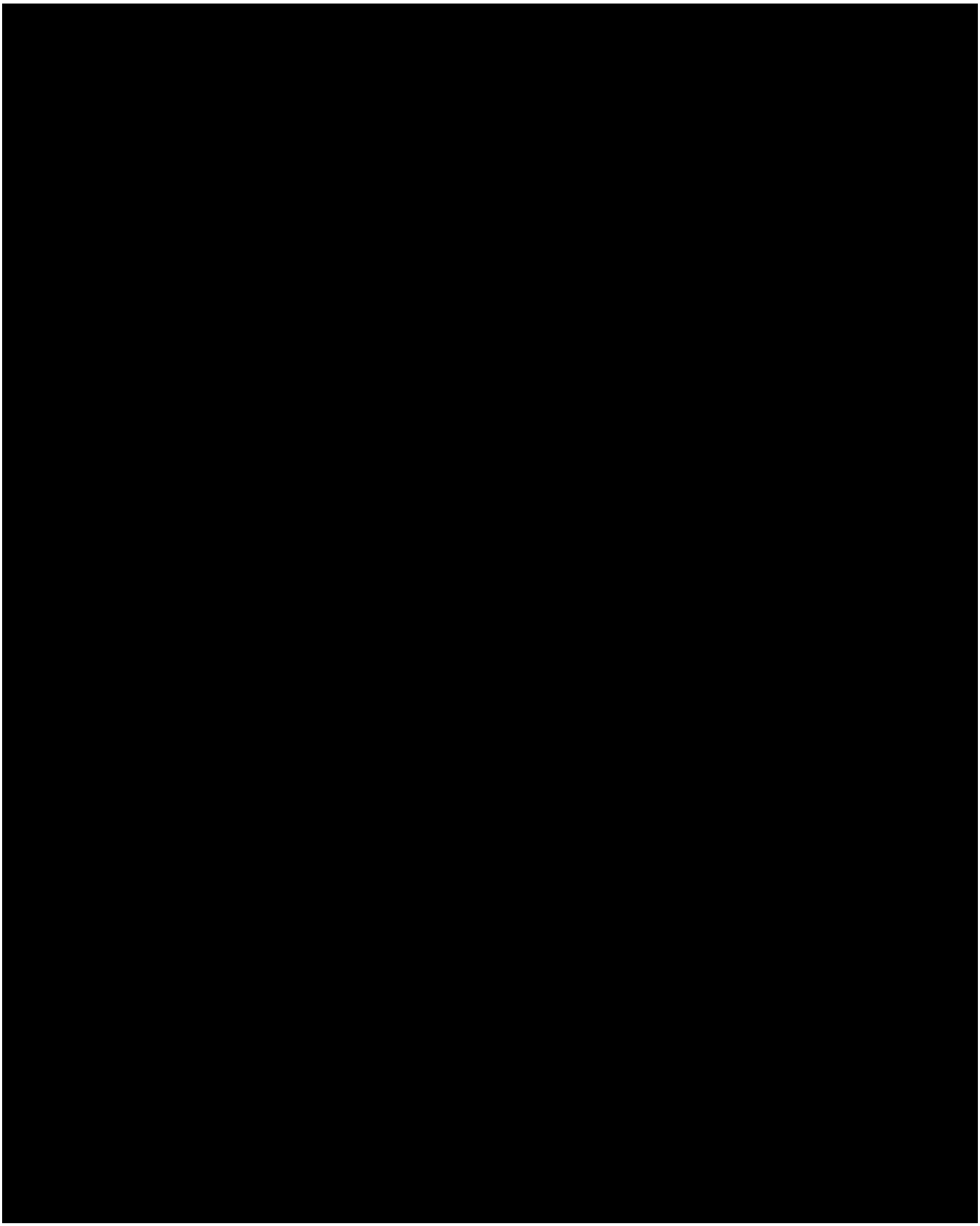

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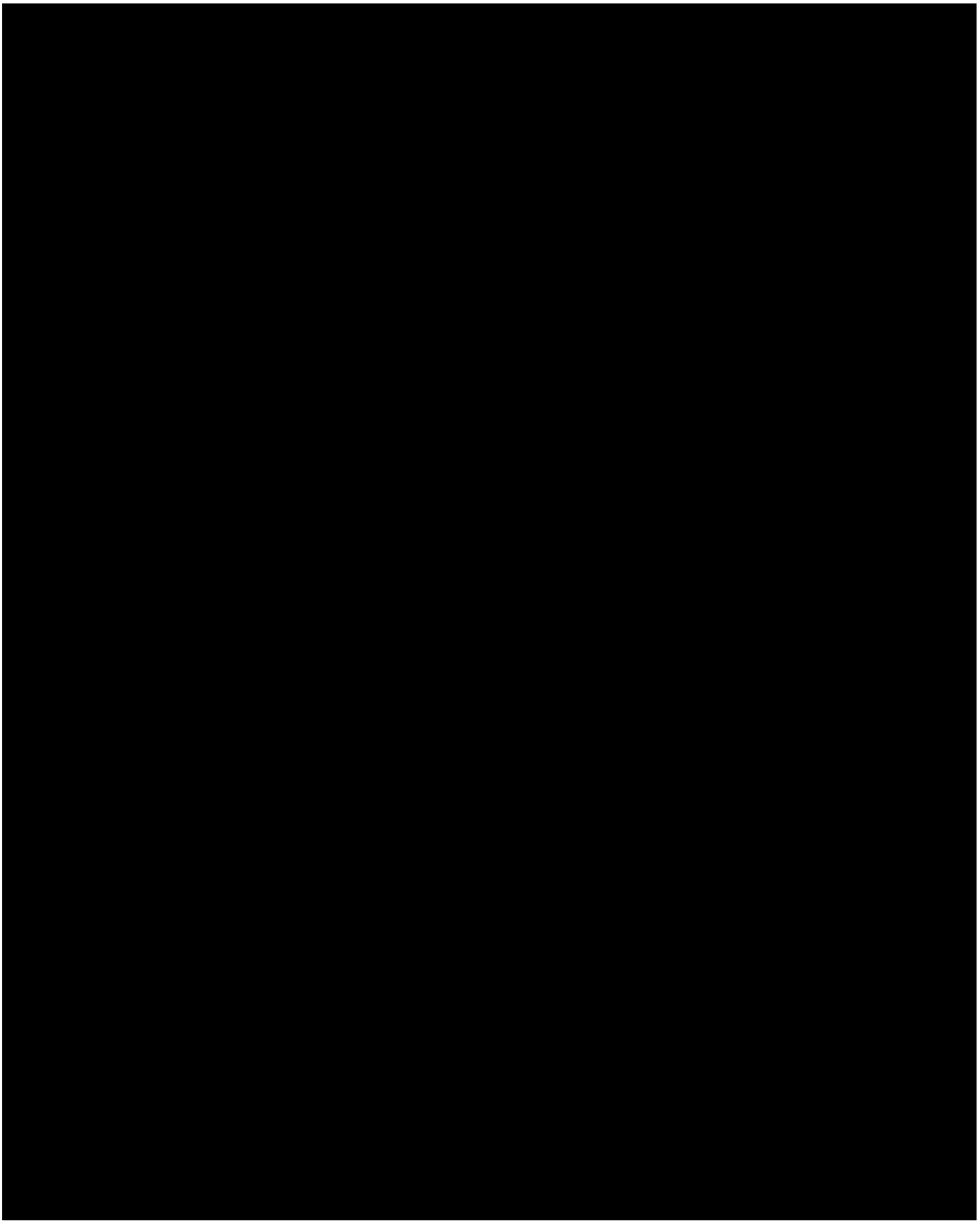
5 Parameters



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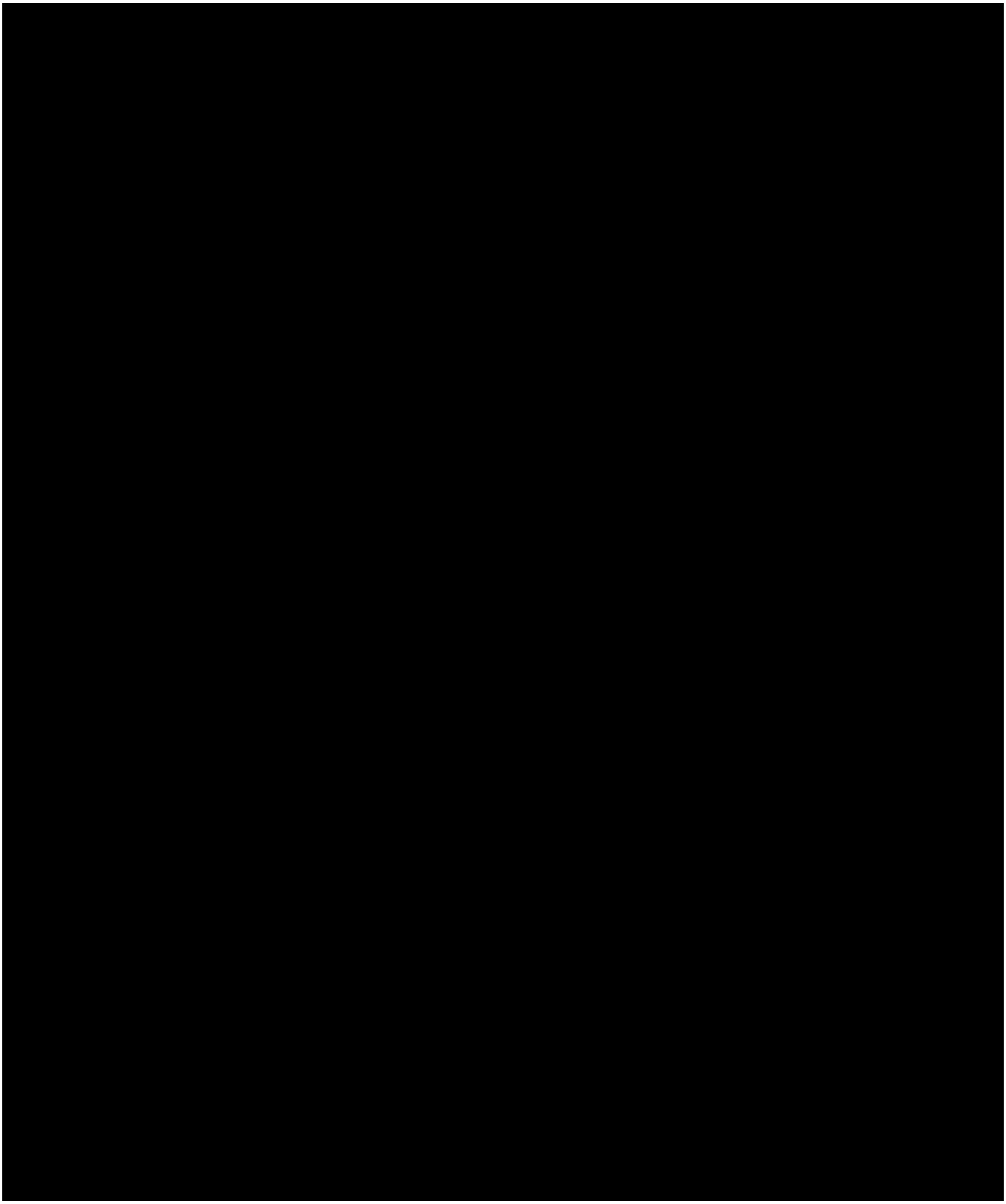

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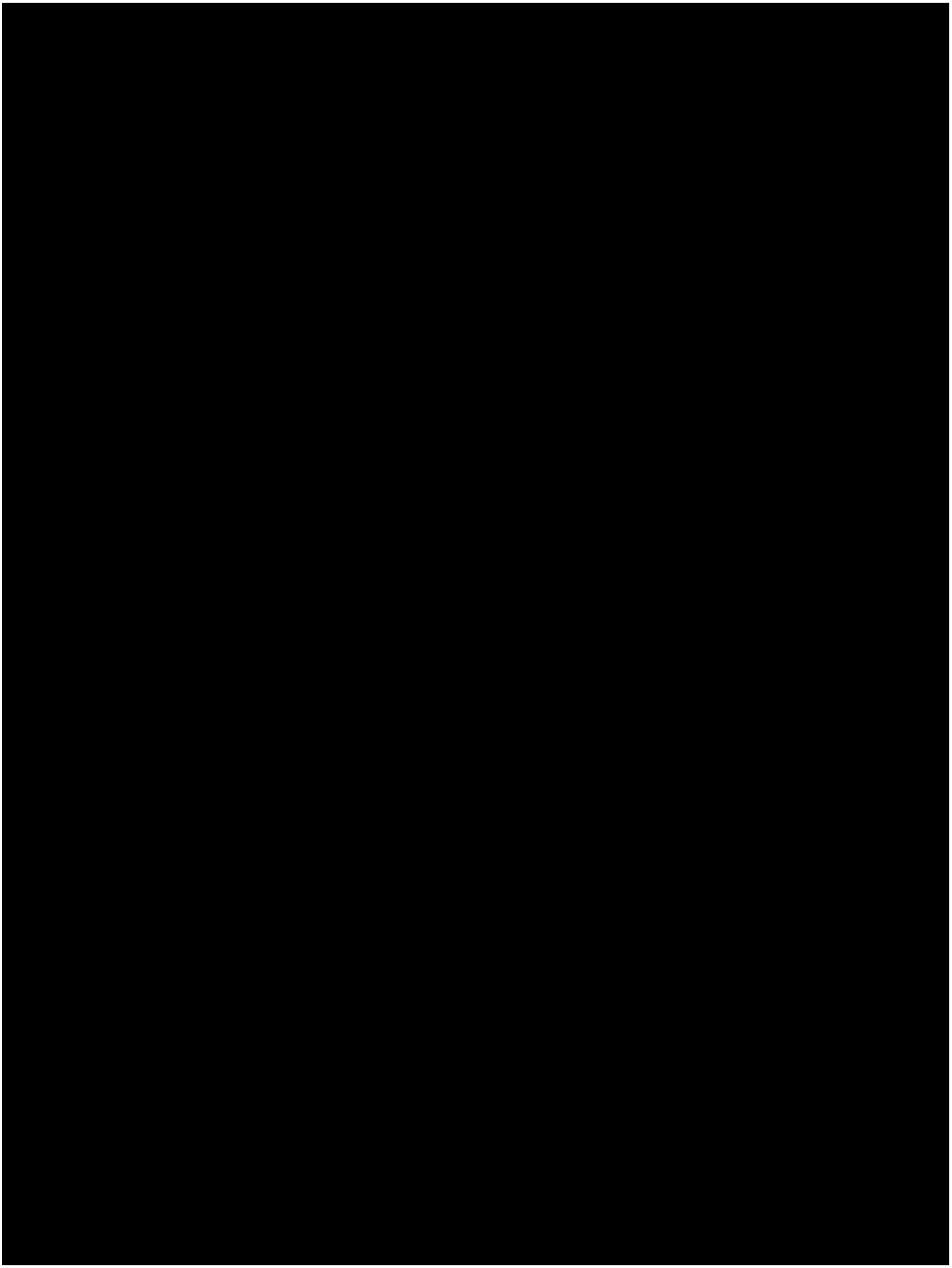

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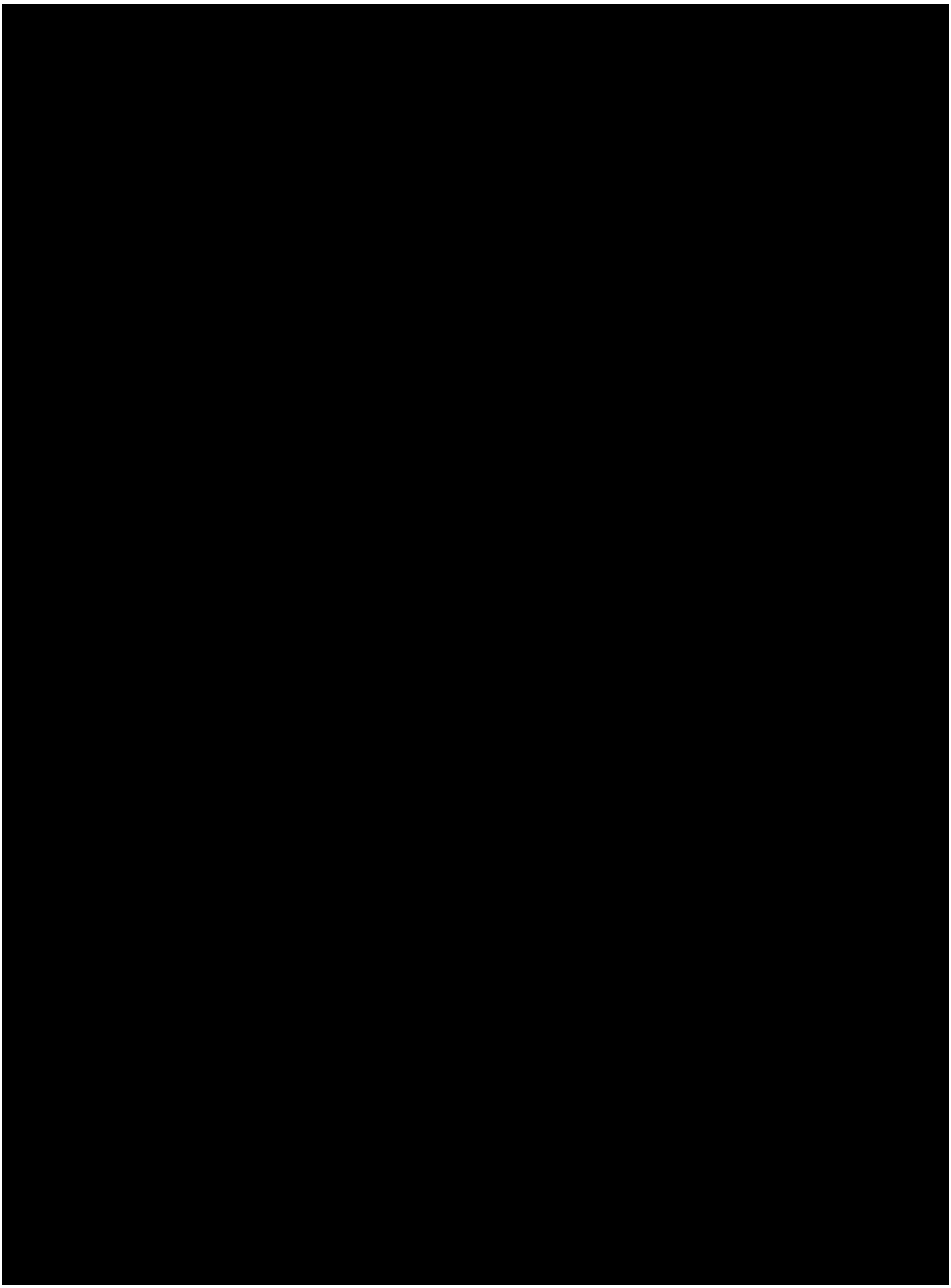

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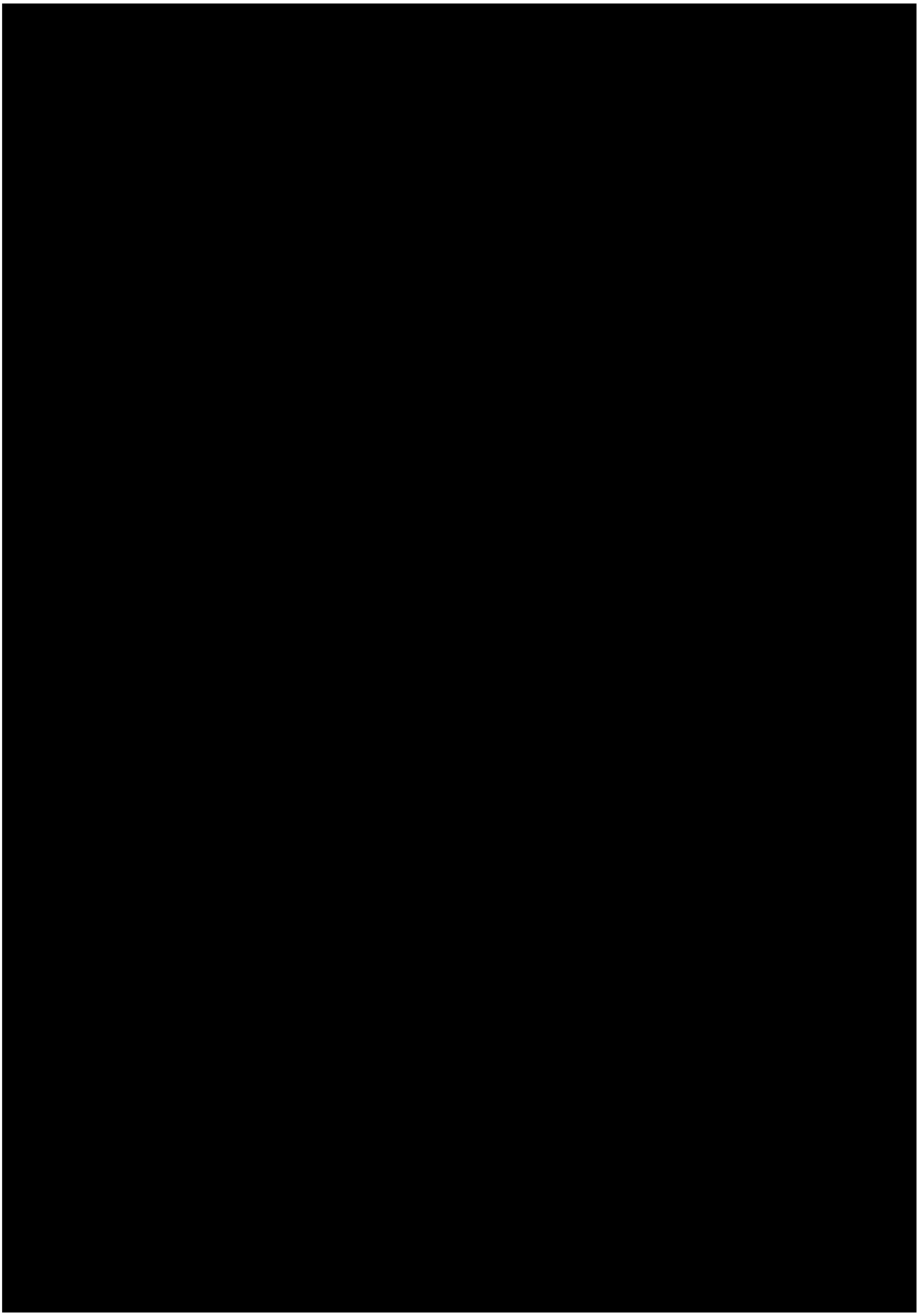

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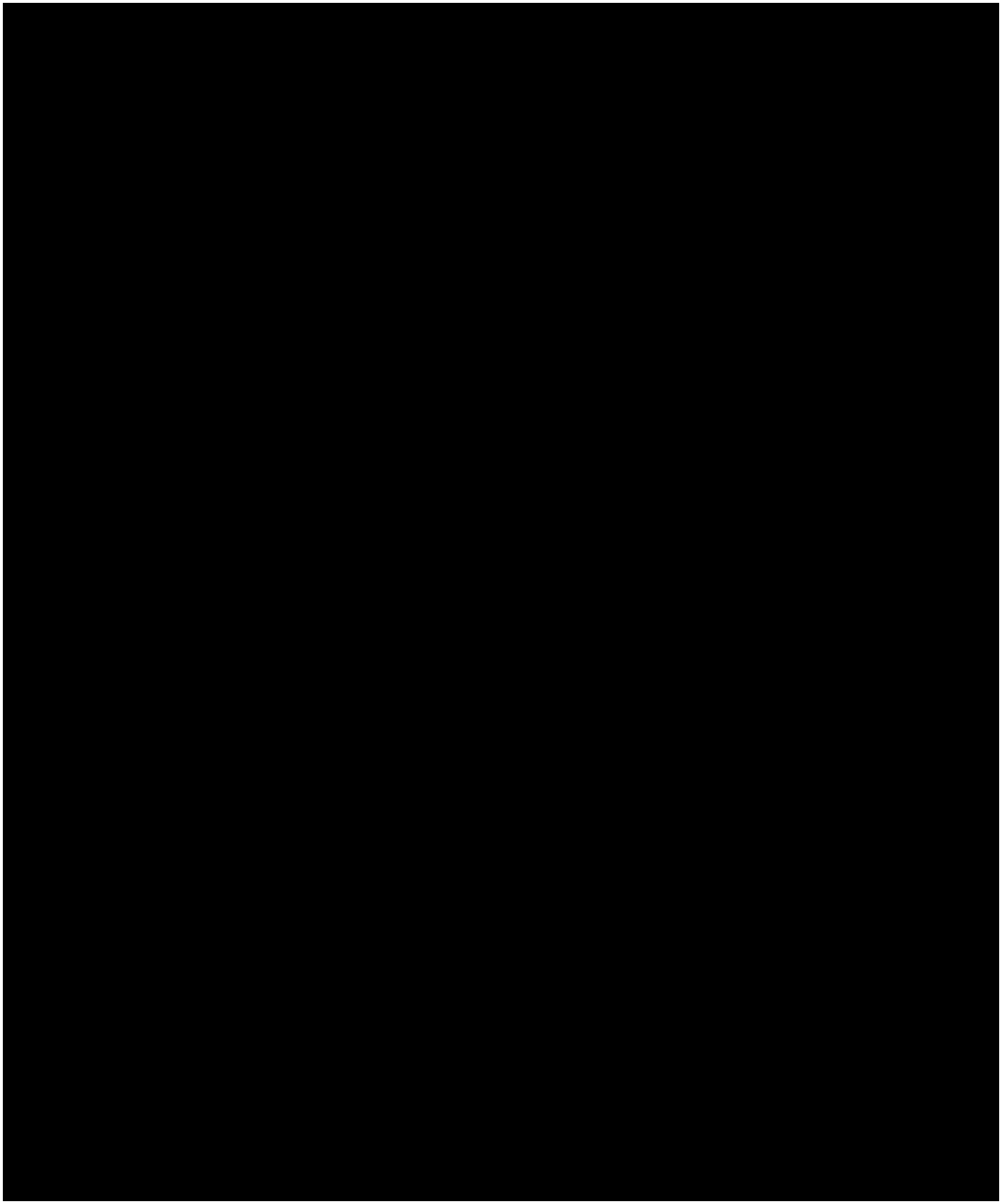

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Manual

MOBILEvario Tariff Management

Tri-County Metropolitan Transportation

Version: 1.0

Status: Dec 22, 2016

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Revision record

Version	Date	Author	Comments/modifications
1.0	Dec 22, 2016	[redacted]	Initial version

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1 Introduction

This manual is intended for users who want to learn how to use MOBILEvario Tariff Management. It supports both functional descriptions and step-by-step instructions.

1.1 Symbols and conventions

In order to make the best use of this document, highlighted elements are located in several places.

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a.	Indicates a sub step or an alternative action step.
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▶	Indicates a result at the end of the step-by-step instruction.
Interface element	Indicates elements on the user interface, e.g. buttons.
1 Introduction →6	Indicates a cross-reference within the document and shows the page where the corresponding chapter can be found.
Introduction	Indicates a cross-reference to another document.

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1.2 About MOBILEvario Tariff Management

Note
Depending on the contractually agreed upon optional features, some table columns or functions described in this manual may differ from the current user interface.

Using the MOBILEvario Tariff Management background system, all tickets as well as the associated data (layouts, matrices etc.) are managed. Tariff-related data are specifically supplied to various device classes. All data are administered in an Oracle database and transmitted to the device classes via an export interface.

MOBILEvario Tariff Management consists of the following program groups:

Program group	Function
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

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2 Structure of the user interface

This chapter contains elements of the user interface.

MOBILEvario Tariff Management

Number	Description
1	Window name, indicating the name of the application, software version and client.
2	Menu bar
3	Window list
4	Button bar
5	Variable work area
6	Cell editor

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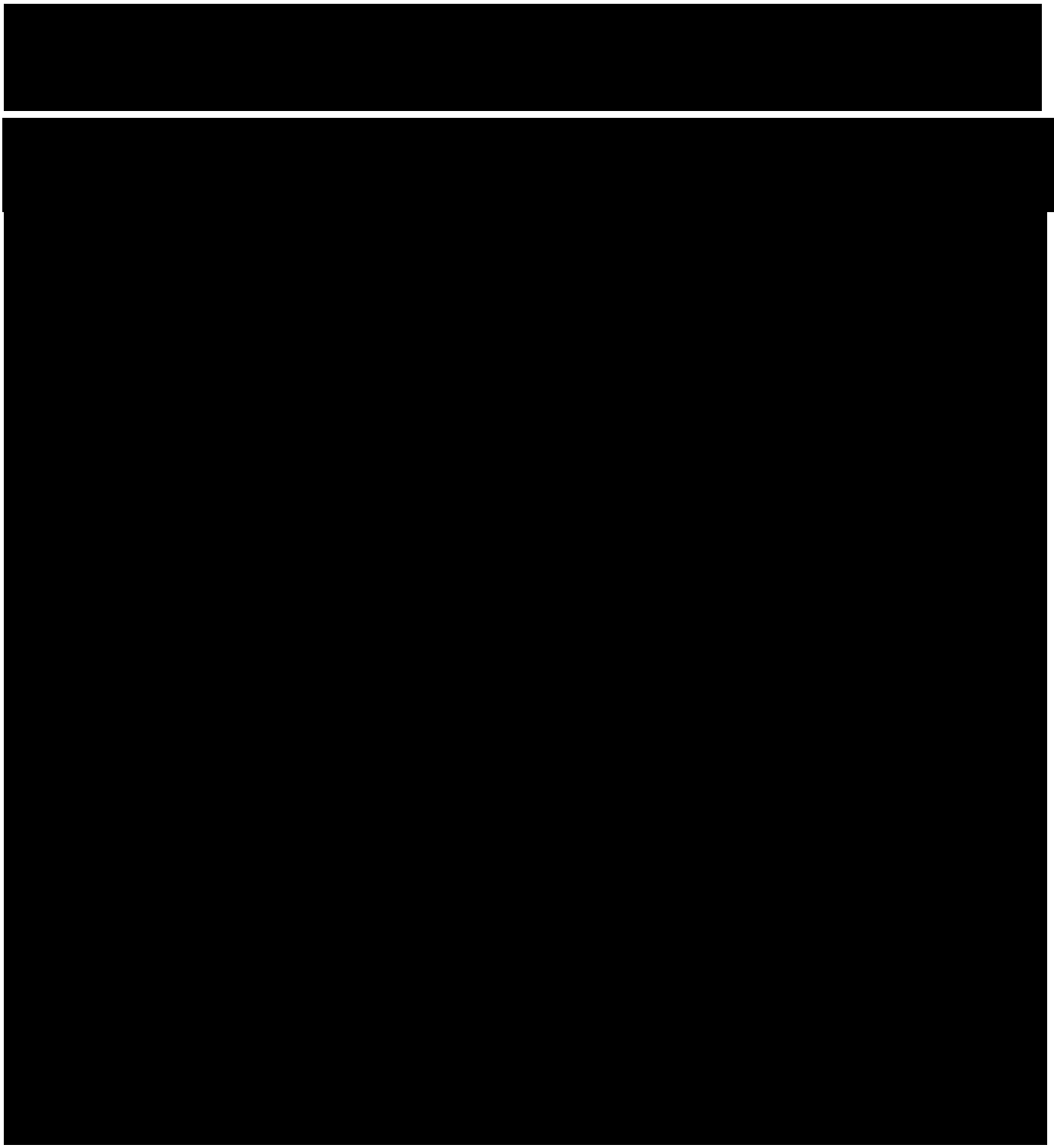
2.1 Menu bar

The menu bar can be used to select the available program groups and perform general functions.



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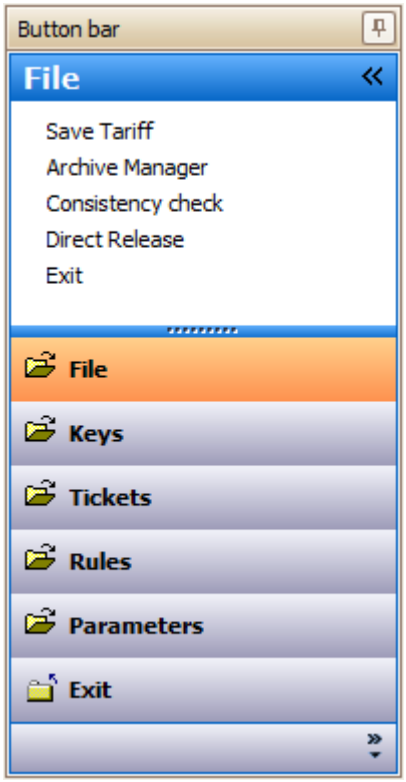
2.3 Button bar

The button bar can be used to select the available program groups and perform general functions.



Button bar

In order to optimize the work area, the button bar can be shown and hidden. The following functions are available:

Element	Function
	Shows and hides the button bar dynamically. Clicking outside the button bar will hide the button bar. Moving the cursor over the **Button bar** tab will show the button bar.
	Permanently shows the button bar.

In addition to the program groups, the following buttons are available:

Button	Function
Exit	Closes the application.

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2.4 Cell editor

The cell editor can be used to navigate between records and edit records.

Cell editor

The following functions are available:

Element	Function
	Jumps to the first row of the table.
	Jumps to the previous page of the table.
	Jumps to the previous row of the table.
Record [No.] of [No.]	Displays the number of the record that is currently marked and the total number of records.
	Jumps to the next row of the table.
	Jumps to the next page of the table.
	Jumps to the last row of the table.
	Creates a new record.
	Deletes a record.
	Edits a record.
	Saves changes in the table.
	Rejects changes in the table that have not been saved yet.

2.5 Blue font in tables

Some tables contain columns whose contents can be translated. This is indicated by blue font:

Blue font	Meaning
Column heading	Indicates that the contents of this column can be translated.
Column content	Indicates that the content is translated.

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Example:

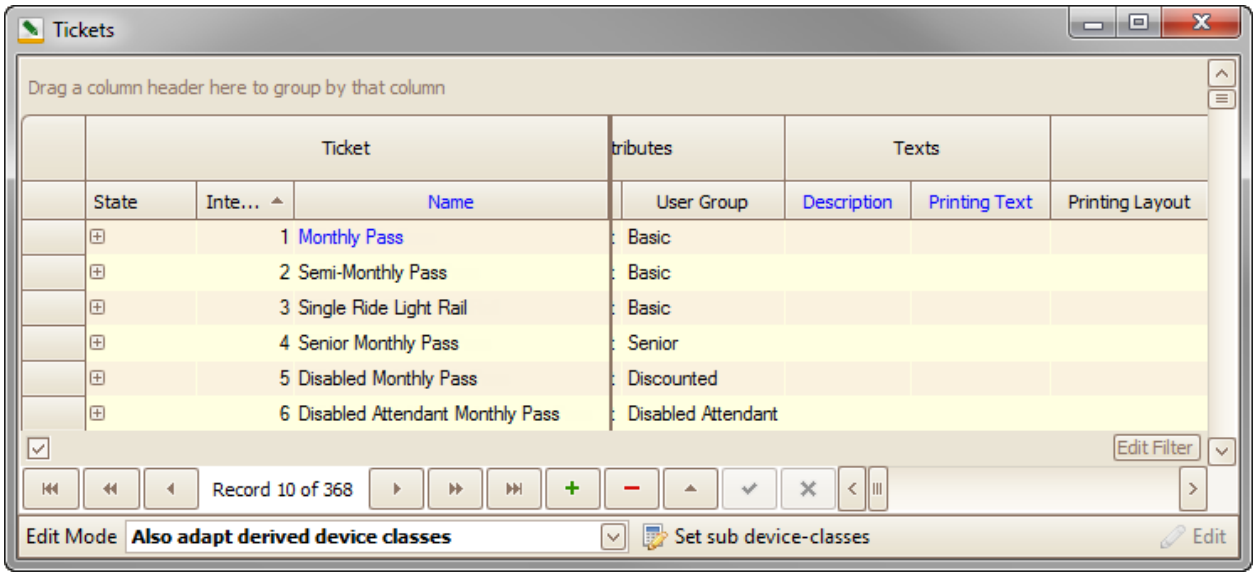

Table with translateable columns

Name, **Description** and **Printing text** are column headings whose contents can be translated.

Monthly pass is a column content that has been translated.

Note
You can view and manage all translateable contents in the **Transalations** function;
see 5.1 Translations →25.

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3 First steps

3.1 Start MOBILEvario Tariff Management

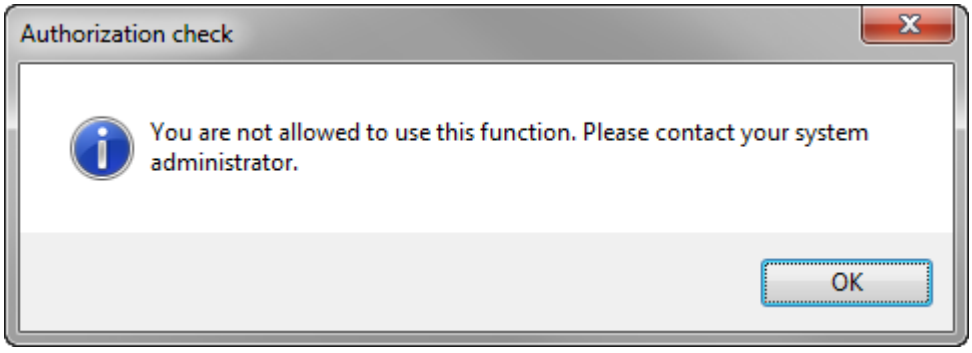
To start MOBILEvario Tariff Management, follow these steps:

1. Double-click the icon for MOBILEvario Tariff Management, which is usually located on your desktop.

Start MOBILEvario Tariff Management

Note
The icon is also located in the "MOBILEvario" directory. If you are not able to find the icon, contact your system administrator or INIT.

▷ Your access rights will be checked based on the user logged on to the operating system. If you have the right to run the application, it will be started. If you do not have the right to run the application, a corresponding message will be opened and the application will be closed.



Login - Authorization check

Note
If only single access rights are missing, starting the application will cause the corresponding program groups and buttons to be disabled or hidden where applicable.

▶ You have started MOBILEvario Tariff Management.

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3.3 Close MOBILEvario Tariff Management

To close MOBILEvario Tariff Management, follow these steps:

1. Click the **Exit** button in the button bar.
   ▷ The currently logged-in user will be logged out and the application will be closed.
   ▶ You have closed MOBILEvario Tariff Management.

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4 File

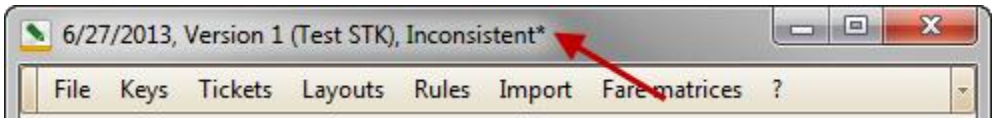
Note
For an overview of all necessary steps of setting up and releasing a tariff see Appendix MOBILEvario Tariff Management.

The **File** program group enables you to manage tariff archives. You can save, test and release archives. A consistency check can also be performed.

An archive is a collection of all data that can be transmitted to device classes using interfaces. It can be transmitted to the device classes before the start of validity, but it will only be activated once the validity date is reached. Until then, the previous archive on the device classes remains valid.

4.1 Save archive

Changed archives are marked with an asterisk in the window title.



Window title - Modified archive

To save the changes made to the tariff archive since the last load/save operation, follow these steps:

1. Select the **Save tariff** entry from the **File** menu.
   ▷ The archive will be saved. After the archive has successfully been saved, a corresponding message will be opened.
2. Click the **OK** button.
   ▶ You have saved the changes made to the tariff archive since the last load/save operation.

4.2 Archive manager

Caution
Changes will not be saved in the database until you select the **Save tariff** entry from the **File** menu.

In the **Archives** window you can manage all available archive versions. Any number of archives may be administered simultaneously, but only one archive is ever valid at any one time.

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4.2.1 Create new archive version

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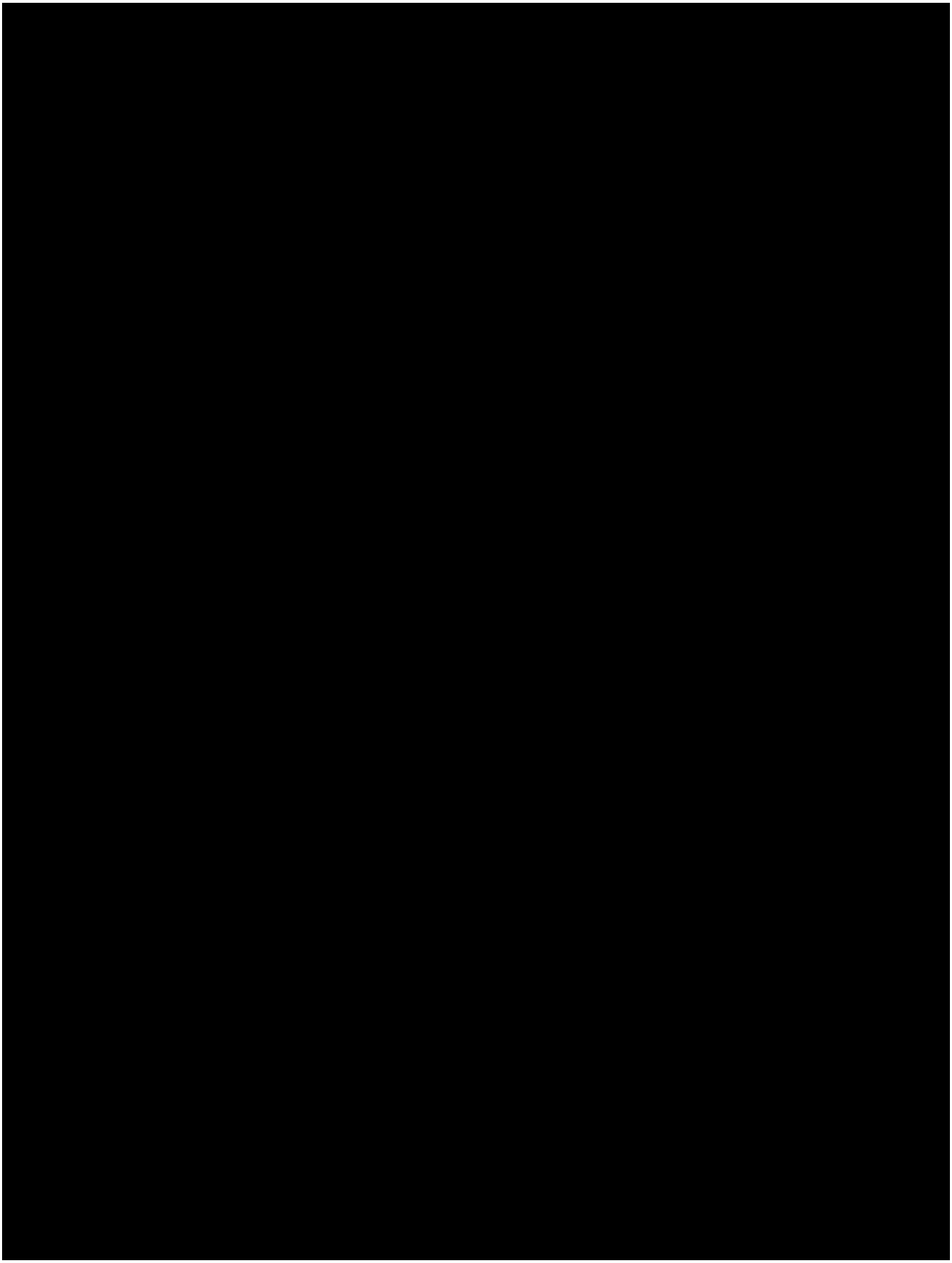

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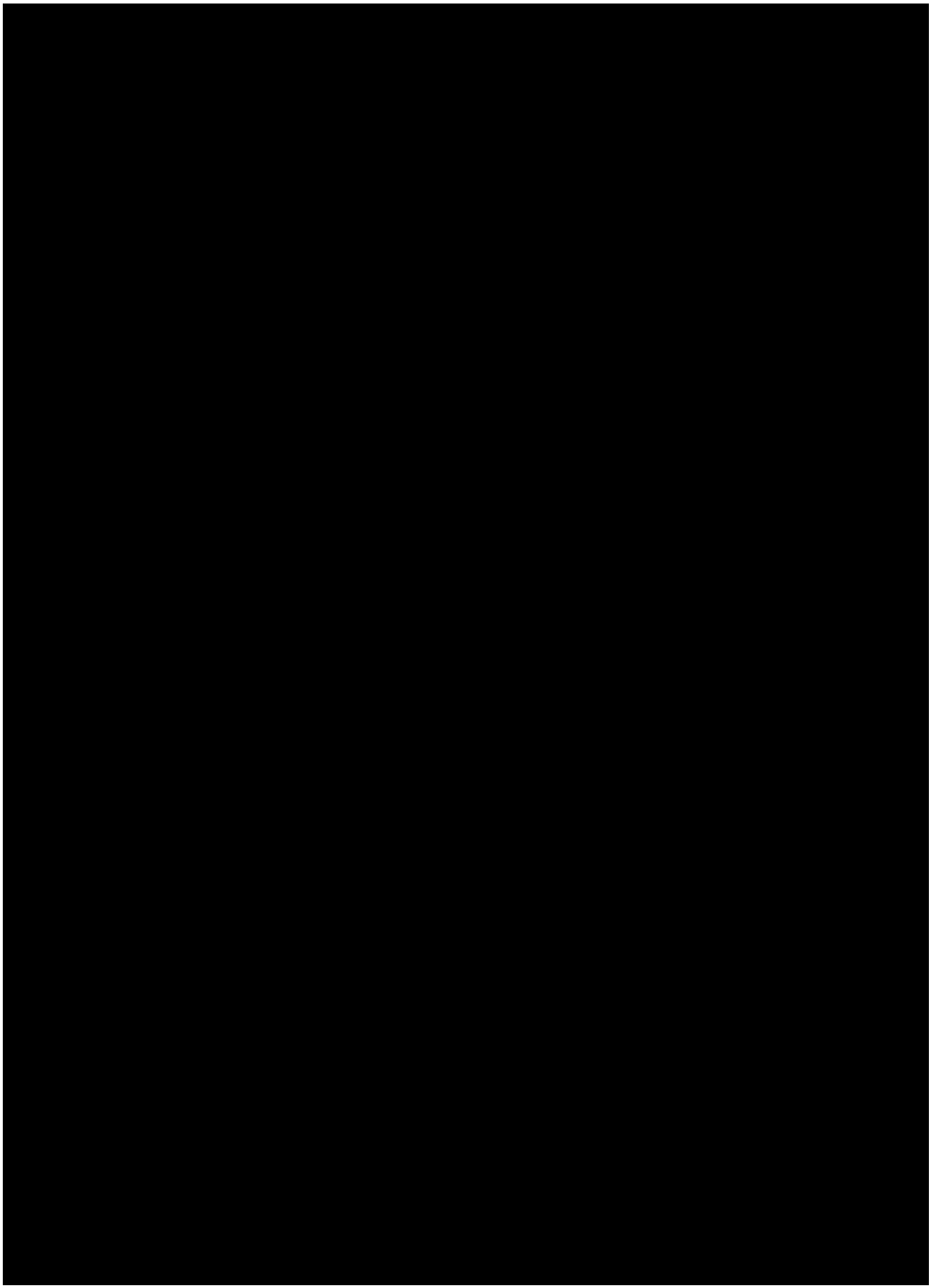

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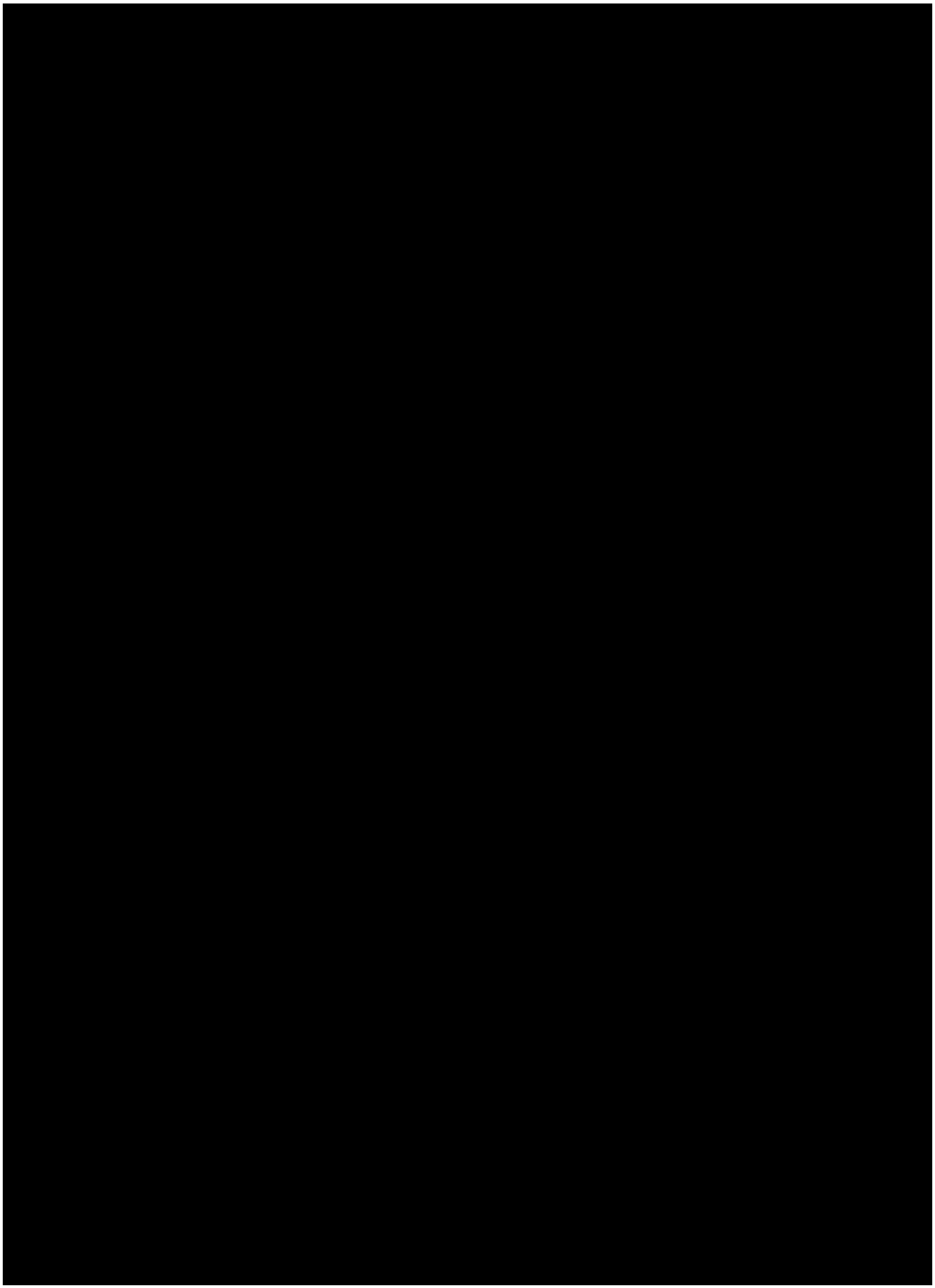

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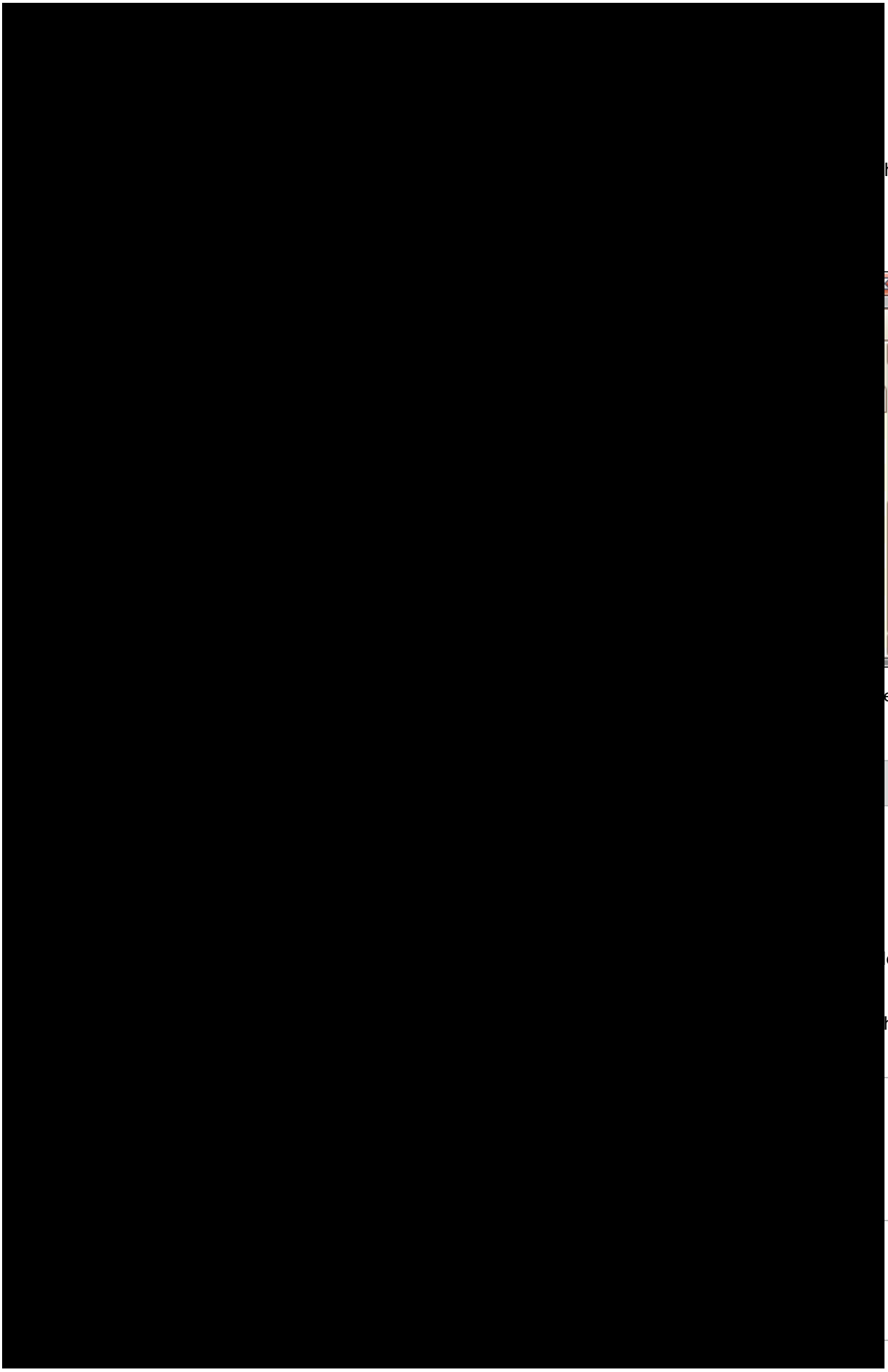

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March 23, 2018

Attn. Ashley Bowman, Agency Agreements Analyst
Sound Transit Procurement and Contracts Division
401 S. Jackson Street
Seattle WA 98104-2826

RE: RFP No. RTA/RP 0119-17 – Cover Sheet and Declaration of Revision

Dear Ms. Bowman:

INIT is pleased to provide you with our Revised Proposal to be the System Integrator for the ngORCA Program and to collaboratively develop, build, and test the best solution for the Region.

We appreciate the valuable Sound Transit feedback that allowed us to improve our offer. This revised proposal supersedes the original proposal submitted by INIT Innovations in Transportation on October 29, 2018. All changes are clearly marked per the revised proposal submittal instructions. Non-marked text has not been changed, and if it has, then the original text prevails.

Additionally, we have provided a revised Price Proposal document which reflects modifications to our system design and scope of work. We have also included a cross reference which identifies the specific sections of the Proposal which have been revised.

We remain excited about the prospect of working with the ORCA agencies to deliver the ngORCA project on time and on budget. We are convinced that the agencies will be amazed at the functionality and flexibility of our best-in-class fare collection solutions and the capabilities of our company.

INIT was founded in 1983 with the goal of providing Intelligent Transportation Systems (ITS) to Public Transit Agencies. INIT Inc. (USA) was incorporated in the Commonwealth of Virginia in 1999 to serve the North American market. The INIT group of companies has never changed ownership. Many of our original employees are still working at INIT; giving us unmatched insight into the deployment of all types of transit oriented ITS projects. INIT has deployed over 50 electronic fare collection systems to transit agencies around the world and every day millions of transit riders pay for their public transit rides using INIT supplied technology.

This Project will be led by INIT's Pacific Northwest team, who recently delivered a state of the art, open payment, account based fare collection system to TriMet and its regional partners in Portland, Oregon. The regional HOP FastPass system was implemented on schedule and on budget and

publicly launched on July 17, 2017. Recently the HOP FastPass system recorded its one millionth smartcard tap. The system already supports open payments through Android [redacted] smartphones and is the first in the world to support virtual closed loop cards through Android Pay and soon through [redacted]

The system that INIT proposes to Sound Transit will accept agency issued smart cards as well as credit, debit and smartphone payments. All financial transactions will be processed – end to end - in less than ½ second. The technology is complex but to the end-user it will be simple and easy to use and appear to work like "magic".

> "Any sufficiently advanced technology is indistinguishable from magic." Noted Author and futurist Arthur C. Clarke

When fully delivered by 2021, this INIT integrated system will provide ORCA's customers with convenient, flexible, and secure fare payments and will allow for the introduction of new payment options as they become available. We will implement a service-proven, modular system, leveraging industry leading COTS applications. The design follows principles of open architecture which will permit the next generation ORCA system to evolve as technology changes. As an added bonus INIT is proposing advanced value added features such as open payments and fare capping at no additional charge to Sound Transit.

INIT's system will be designed specifically to respond to the goals that were specified in your RFP. An experienced Project Team will deliver this most technically advanced and service proven AFC solution within the project timeline. INIT has assembled a team of employees with deep industry experience and thorough leadership expertise, as well as an ecosystem of experienced and very well qualified subcontractors, all aligned with the organizational structure defined in your RFP. The key project management and the technical staff as well as a software development group will be located at INIT's Seattle facilities.

These key project positions are augmented by highly talented and dedicated technical and project professionals, with extensive AFC experience, who have successfully implemented AFC systems worldwide. For more details and background on the team see Tab 4 "Knowledge and Experience of Key Individuals".

Our local Seattle office team – lead by [redacted], Regional Director and Contract Representative – has an established presence in the area. This gives us a complete understanding of the regional transit system and the Pacific North West. Your single point of contact will be [redacted], Director of Business Development for Western North America, also associated with our Seattle office. Jim can be reached at [redacted]

Our UBI number is 602-407-922 and Federal Tax ID Number is 54-1930353.

As a complete ITS solutions provider to Public Transit Agencies worldwide, INIT is uniquely qualified to provide Sound Transit and the ORCA member agencies with a comprehensive electronic fare collection system with unmatched flexibility, reliability, and speed. The combined capabilities of INIT's technology and the strength, experience, and local support that our Seattle based Project Team will bring to the Puget Sound Region is truly unique and we look forward to demonstrating this to Sound Transit and the ORCA member agencies in the coming months .

[redacted]

Roland Staib
President and CEO

Revision Table

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

Resubmittal March 23, 2018

The Future of Mobility

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Table of Contents

1 Weaknesses ..... **Error! Bookmark not defined.**

2 Strengths ..... **Error! Bookmark not defined.**

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INIT's Strengths and Weaknesses listed below contain trade secret information that provides a business advantage to INIT over competitors. This document is proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

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Evaluation Criterion and Section	Proposal Reference	Weakness	Capability and/or RFP Submittal Requirement Reference
Evaluation Criterion			
1. Security:			
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	Tab 1	1.8.2.4	General
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Technical Proposal of INIT's Account Based Open Architecture System

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

The Future of Mobility

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The sections listed below contain trade secret information that provides a business advantage to INIT over competitors. These sections are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

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Comment [CST1]: redo

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1.8.9 Configuration & Change Management Application

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1 INIT's Open Architecture, Account-Based AFC System

INIT is pleased to submit this technical proposal to Sound Transit in order to demonstrate how INIT meets and exceeds the capabilities stated in the next generation ORCA (ngORCA) RFP Scope of Work (SOW). As required by the RFP (Section 1.10.B), our proposal is in the order specified in Section 1.11.E.

The following chart illustrates which Evaluation Criteria submittal requirements corresponds to which proposal section.

Evaluation Criteria 1 Submittal Requirement	**INIT Proposal Section (Tab 1)**
1. Complete and submit Tab 2 of Proposal Form No. 1, Capability Conformance Matrix.	Appendix
2. Include a detailed narrative description of how the system architecture capabilities in the Scope of Work will be fulfilled. This section should also include the approach for providing and validating an account-based and open architecture system that will enable ease of integration for new partners, equipment and meet the capabilities of the Scope of Work	1.2 An Innovative, Open Architecture, Service-proven Account-based System
3. Include a chart that identifies the subcontractor firms that will be responsible for providing the products or services required by the Scope of Work	1.3 INIT's Highly-Qualified Subcontractor Team
4. Provide a description of the proposed system architecture (Scope of Work, Section 3) with supporting diagrams that clearly identify the following: a. Relationships between applications and devices in the proposed System b. Systems integration and open architecture Application Programming Interfaces (APIs) that will be used to exchange data between the different applications within the System c. The interface points of each element and the physical and logical communication standards utilized between applications within the System	1.4 INIT's Open Architecture System
5. Include a detailed description of how the proposed System conforms to the service- proven and other capabilities in the Scope of Work Sections 3 through 7, and, if applicable, clearly indicate whether or not the solution requires new development (and the extent of development required) or	1.5 A Service-Proven and Innovative Solution

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Evaluation Criteria 1 Submittal Requirement	INIT Proposal Section (Tab 1)
commercial-off-the–shelf (COTS) applications. Describe how the firm proposes to satisfy the service-proven capabilities and still be the innovative solution described in Scope of Work Section 1. For each furnished device that has been used in service, list public agencies or private organizations for which device has been supplied. Include the following information for each: a. Agency or company name and contact person, b. Business address and phone number, c. Model number (and original equipment manufacturer, if applicable) of the module, d. Quantity of equipment provided, and e. Approximate number of years in revenue service	
6. Specifically, for Field Devices and Subsystems (Scope of Work Section 4): a. Provide a detailed description of each of the following proposed devices, software, and associated mounting systems i. Onboard Validator ii. Driver Display Unit iii. Wayside Validator iv. Vending Machine v. Customer Service Terminal b. For each device listed in 6.a. above: i. Provide drawings that show dimensions and materials used ii. Describe supported functionality as it relates to the capabilities in Scope of Work Section 4 iii. Describe the proposed customer interfaces for each device iv. Describe the communication interfaces provided v. Describe the interchangeability of modules and assemblies among devices and ease of maintaining the components of the system and the expected reliability of the equipment	1.6 INIT's High-Reliability Field Devices and Subsystems
7. Specifically for Website and Mobile Application (Scope of Work Section 5): a. Provide your proposed subcontractor's development methodology for the following items: i. Customer account website ii. Content management system iii. Customer mobile app iv. Agency mobile apps	1.7 INIT's User Friendly and Intuitive Website and Mobile Applications

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Evaluation Criteria 1 Submittal Requirement	INIT Proposal Section (Tab 1)
b. Provide previously designed website URLs and credentials to websites developed by the proposed provider. c. Describe how the proposed UI/UX solution provider will design a common user experience across multiple platforms. d. Provide a draft licensing agreement(s) for items in this section.	
8. Specifically, for Back Office (Scope of Work Section 6): a. Describe in detail each component of the proposed back office including details such as: i. System hardware ii. Interfaces iii. Operating system iv. Databases v. Applications software vi. Supported functionality b. Identify any proprietary hardware, interfaces or software utilized, indicate whether industry standard equivalents are available, and if so, describe the benefits justifying use of the proprietary product. c. Considering the information provided in Scope of Work Section 6.3, explain in detail the reasoning for choosing the proposed CRM solution including why other solutions were not proposed. For example, if you are proposing a CRM solution that does not leverage another agency's existing CRM application, explain why the agency's existing CRM software was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions. d. Considering the information provided in Scope of Work Section 6.7, explain in detail the reasoning for choosing the proposed financial management solution including why other solutions were not proposed. For example, if you are proposing a financial management solution that does not leverage another agency's existing financial management application, explain why the agency's existing financial management application was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions. e. Describe in detail the proposed systems for providing	1.8 INIT's Back office: Open-Architecture and Interchangeable Modular Applications

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Evaluation Criteria 1 Submittal Requirement	INIT Proposal Section (Tab 1)
the full range of services including: i. Monitoring and management of field devices ii. Authorization of payments, debit and credit networks iii. Data collection from devices iv. Timely and accurate transaction processing v. Clearing and settlement between participants vi. Third-party billing and funds collection vii. Financial reconciliation viii. System management and monitoring ix. Indicate which applications and functions are already operational, and which have to be developed. Also, indicate which applications have been purchased from industry vendors and which have been or will be developed on a proprietary basis. f. Describe the proposed reporting system and the types of reports that will be provided to meet the system needs including KPIs, device health, and asset inventory reporting. g. Describe how the agencies will be able to generate custom reports using provided data and standard report generator tools	

1.1 INIT's Capability Conformance Matrix – Tab 2

As indicated in INIT's Capability Conformance Matrix, INIT meets all the mandatory capabilities and key desired capabilities. While there are a few desired capabilities which INIT does not meet exactly as stated in the SOW, INIT does meet the required functionality in a different manner. INIT offers value-added capabilities beyond what is stated in the RFP; therefore, we believe we exceed the required capabilities for the next generation ORCA system.

1.2 An Innovative, Open Architecture, Service-Proven Account-Based System

Include a detailed narrative description of how the system architecture capabilities in the Scope of Work will be fulfilled. This section should also include the approach for providing and validating an account-based and open architecture system that will enable ease of integration for new partners, equipment and meet the capabilities of the Scope of Work.

INIT will fulfill and exceed the next generation ORCA requirements by aligning with the ORCA Agencies' strategy of utilizing:

- Service-proven Automated Fare Collection System (AFCS) system core modules and devices,

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- Best-of-breed Commercial-off-the-Shelf (COTS) business applications,
- Industry leading firms with proven AFC track-record for externally sourced applications, and
- New development of selected existing modules for innovative enhancements.

INIT will implement an open architecture solution with a modular design and extensive use of Application Programming Interfaces (APIs), which has been INIT's consistent approach for ID-based ticketing systems. INIT's API's are well defined, documented and are woven throughout our solution providing fast and flexible integration possibilities for validation, inspection, retail sales, mobile ticketing, system monitoring, and websites.

This approach will enable the use of INIT's core AFC modules, including INIT's account-based Transaction Processor (ATP), to integrate with best of breed Commercial Off-the Shelf (COTS) sub-systems – such as, Salesforce Customer Relationship Management (CRM) and Sage Financial Management. INIT has selected industry leading firms (such as, Bytemark) for mobile apps, and Marathon Consulting for website development, which has a strong proven record for AFC website development. With our approach of service proven AFC modules, best of breed COTS sub-systems, industry leading firms for external apps, and innovative development, INIT will provide the best solution for ngORCA.

1.2.1 INIT Fulfills and Exceeds the System Architecture Capabilities

INIT meets all the key ngORCA system architecture capabilities, and exceed these requirements, with service proven solutions which include:

- Account-based automated fare collection
- Open architecture
- Modular design
- API driven
- Real-time transactions
- Real-time fare calculation
- Secure payment transactions
- Fraud prevention
- Accurate multi-agency revenue apportionment
- Flexible and powerful tariff management
- Customer-friendly user interfaces and user experience
- User-friendly reporting
- Best of breed COTS support systems
- Retail network interfaces
- Ruggedized field devices

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- Minimal transition-only software
- Maintainability and serviceability
- Scalability
- High-availability

In addition to meeting the above functionality required for ngORCA, INIT is proposing to implement its service-proven open payments solution, which can significantly enhance customer experience, as a value-added option. As the functionality will be designed and developed as part of the project, the feature can be 'turned' on at any point. However, in light of the Agencies preference to ensure core system functionality is delivered to users first, INIT proposes implementing this option at the end of the Phase 1 deliver, to ensure the required functionality is implemented first.

1.2.1.1 INIT's Modular Design System Architecture Leverages Open APIs

INIT's modular open architecture design enables the interchangeability of system blocks. In the event the ORCA agencies wish to utilize a different subsystem today or in the future, INIT's flexible architecture supports this interchangeability.

From its inception, INIT's Automated Fare Collection (AFC) system has supported an open architecture with extensive use of Application Programming Interfaces. INIT recognizes the need for the agencies to be able to efficiently upgrade their systems as transit customer expectations and operations evolve. INIT offers a complete open architecture approach. From the COTS based equipment solutions to the open architecture of the back-office software, INIT offers an open solution which enables the ORCA agencies to control:

- System enhancements to add future capability
- Third party integration to add future capability

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INIT's existing API's are currently in use by several transit agencies to grow their system capability cost-efficiently and with minimal delay. These existing APIs are documented with their own specifications including online help giving the ORCA agencies detailed information on how to enhance the system by implementing new functionality. In addition to the use of existing APIs, INIT will leverage its extensive experience in the development, implementation and use of APIs to develop new functionality to fulfill ngORCA's requirements and desired capabilities.

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[redacted]

1.2.1.2 Leveraging Best of Breed Commercial-Off-the-Shelf (COTS) Subsystems

INIT's open architecture, modular design enables the use of best-of-breed Commercial Off-the-Shelf (COTS) solutions for the AFC ancillary functions. The table below lists the COTS INIT solicited, considered, and selected. As indicated above, INIT's open architecture can accommodate interfaces with any third party; therefore, INIT is open to considering other COTS solutions if so preferred by the ORCA agencies and agree upon during design review. For some of the subsystems INIT has priced an additional option in case ORCA prefers INIT's second option.

ngORCA Subsystem	COTS Solutions Considered	Solution Proposed	Potential Alternative
Customer Relationship Management (CRM)	[redacted]		
Financial Management Application (FMA)			
Asset Incident & Management (AIM)			

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Configuration & Change Management (CCM)	[redacted]
Fare Media Management (FMM)	
Light Featured VM	
Bank Card Payment Gateway	

1.2.1.3 INIT Teams with Expert COTS Consultants/Integrators

The selection of best-of-breed commercial-off-the-shelf software does not ensure successful integration and interoperability with the INIT system; therefore, INIT is leveraging relationships with COTS value-added resellers and experts. These companies will provide knowledge and expertise required to realize the full potential of interoperability between COTS products and INIT's API library. Please see Section 1.3 for a listing and information on the INIT subcontractor team.

INIT is uniquely suited to be the System Integrator (SI) for ngORCA because:

- INIT has experience implementing multi-agency, account based, Automated Fare Collection System (Portland, Tampa, Honolulu)
- INIT has experience transitioning an existing Vix Automated Fare Collection System to an INIT AFCS (Christchurch, New Zealand)
- Approximately 80% (1700 out of approximately 2100) ngORCA vehicles are currently equipped with INIT onboard equipment resulting in reduced onboard integration risks

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1.2.1.4 INIT's Extensive Automated Fare Collection Experience

The figure below provides a timeline summary of INIT's 25 years of fare collection history showing key systems and reflecting INIT's innovation and ability to evolve with changing technology.

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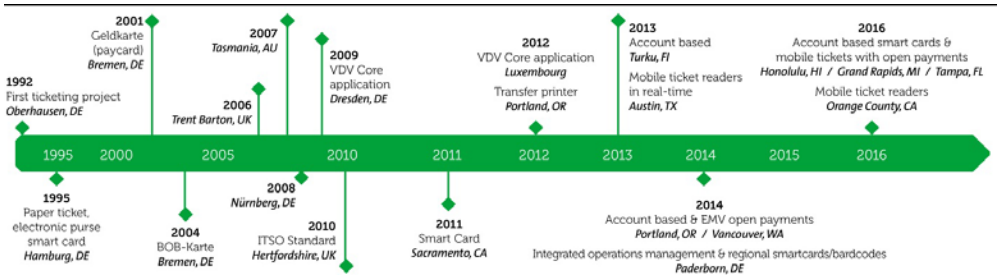

INIT's 25 Years of Fare Collection History – Innovations with Changing Technology

INIT has deployed two account-based systems that are currently in revenue service, one in Portland, Oregon and the other in Turku, Finland. Additionally, we are currently implementing account-based systems in Tampa, Florida and Grand Rapids, Michigan which are all about to enter the pilot phase of the project and will soon be starting the pilot phase in Honolulu, Hawaii.

Each of these systems leverage open architecture and extensive use of APIs as similarly proposed for ngORCA. The following table provides a more comprehensive list of our automated fare collection system experience including multi-agency systems similar to ngORCA.

City	Buses	LRV / Platform Validator	German Chip Card (Geld Karte)	Agency Smart Card	2D Barcode	Multi-Agency	Account Based	Open Payments (EMV)
Marburg, Germany	50			●				
Hamburg, Germany	1,200		●	●				
Hildesheim, Germany	80		●					
Neunkirchen, Germany	70		●					
Frankfurt, Germany	200		●					
Hamm, Germany	80		●					
Osnabrück, Germany	282		●					

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City	Buses	LRV / Platform Validator	German Chip Card (Geld Karte)	Agency Smart Card	2D Barcode	Multi-Agency	Account Based	Open Payments (EMV)
Leverkusen, Germany	240		●					
Keil/Plön, Germany	96		●					
Bochum, Germany	340	90	●					
Mühlhausen, Germany	113		●					
Bonn/Troisdorf, Germany	250		●					
Südthüringen, Germany	85		●					
Solingen, Germany	100		●					
Heidelberg, Germany	100		●					
Trier, Germany	120		●					
Mülheim a.d. Ruhr, Germany	65		●					
Oberhausen, Germany	150		●					
Bremen, Germany	265	128	●	●				
Bremerhaven, Germany	70		●	●				
Herne-Castrop-Rauxel, Germany	56		●					

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City	Buses	LRV / Platform Validator	German Chip Card (Geld Karte)	Agency Smart Card	2D Barcode	Multi-Agency	Account Based	Open Payments (EMV)
Oldenburg, Germany	88		●	●				
Gotha, Germany	110		●					
Wesermarsch, Germany	38		●					
W.Giese, Germany	27		●					
Delmenhorst, Germany	12		●					
Fulda, Germany	40		●					
Lüdenscheid, Germany	335		●					
Dortmund, Germany	240		●					
Graftschaft Hoya, Germany	22		●					
Trent Barton, Nottingham, UK	330			●				
Bavaria, Germany	3,100		●	●	●			
Tasmania, Australia	220			●				
Dresden, Germany	685		●	●	●	●		
Nuremberg, Germany	352	52		●	●			
Christchurch, NZ	305			●				

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City	Buses	LRV / Platform Validator	German Chip Card (Geld Karte)	Agency Smart Card	2D Barcode	Multi-Agency	Account Based	Open Payments (EMV)
Sacramento, CA.	425			●	●	●		
Portland, OR	888	49		●	●	●	●	●
Turku, Finland	260			●	●		●	●
Birmingham, UK	1500						●	●
Orange County, CA	556						●	
Tampa, FL	600					●	●	●
Grand Rapids, MI	150	34					●	
Honolulu, HI	550	250				●	●	

1.2.1.4.1 INIT's Experience Transitioning a Vix System

INIT possesses experience transitioning agencies from legacy Vix system to INIT-offered systems. In an AFCS competitive procurement, Christchurch, New Zealand selected INIT over other competitors as well as the incumbent (Vix). Although the Christchurch project was not as large as ngORCA, INIT transitioned the system with Christchurch successfully addressing similar complex AFC system transition challenges, including:

- Minimizing customer impact
- Preserving operating revenue
- Minimizing operational impacts to the agency
- Overcoming onboard equipment space constraints
- Minimizing transition-only software

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In addition to the Christchurch, NZ solution, INIT also successfully transitioned a legacy card-based solution to an account-based solution in Turku, Finland. The Turku system was transitioned approximately 3 years ago and is one of INIT's key reference projects.

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1.2.1.4.2 INIT's Existing Transit Technology Deployment with ORCA Agencies Reduces Integration and Implementation Risk

INIT currently provides the transit CAD/AVL systems for King County Metro (KCM) and Community Transit (CT), which involves over 50% of the ORCA agencies' vehicles. This will significantly simplify and mitigate the risk related to the onboard integration – as the INIT onboard validators will be communicating with the INIT Vehicle Logic Unit (VLU) COPILOTpc2s ([redacted]PC2s). This advantage is especially pronounced for the KCM vehicles which require the AFCS to communicate not only the INIT VLU service data, but also to share the single Driver Display Unit (DDU).

1.2.2 Enabling Ease of Integration for New Partners and Equipment

INIT's open architecture and modular design, leveraging our broad API library, enables ease of integration of new equipment or the addition of 3rd party hardware and software providers. Should the ORCA Agencies wish to add a new agency to ngORCA, INIT's MOBILEvario can easily do so. In the rare event the new agency utilizes business rules which do not exist, there may be additional scope involved. MOBILEvario is inherently architected to support multiple agencies and can easily add new agencies quickly and non-disruptively. Each agency's data is partitioned from one another to ensure data integrity and privacy. These controls prevent an agency from accessing another agency's data, user administration, etc. The system has the capability of providing separate, agency-oriented storage of data, presentation (GUIs), and configurations (customizations).

Each transit agency or subdivision is only able to see and change its own data. In MOBILEvario the agency is the top-level partition for access authority and represents a closed, technical and organizational, data unit within the system.

The system contains both global and agency specific data and parameters. Agency specific data and objects can be customized. Examples are additional tickets or different fare fees. Universal agency data and objects serve the general and agency-independent configuration of the system. Examples are customer data, card management and system parameters.

The additional API Management platform, hosted in [redacted] provides for simplified and controlled on-boarding of 3rd party API consumers. As the API gateway, the API management platform can ensure the identity, integrity and appropriate access and API call volume restrictions required to safely provision new partners and equipment.

1.2.3 Meeting and Exceeding the Capabilities of the Scope of Work

In summary, INIT will meet and exceed the capabilities required for ngORCA by:

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- Using INIT's service-proven open architecture with an extensive use of open APIs
- Leveraging best-of-breed COTS subsystems
- Leveraging INIT's experience transitioning legacy systems, including Vix systems
- Utilizing best-of-breed expert consultants for the different COTS subsystems
- Utilizing API Management best practices
- Providing direct access to developers
- Exceeding requirements by providing service-proven open payments capability as part of Phase 1

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1.3 INIT's Highly-Qualified Subcontractor Team

Include a chart that identifies the subcontractor firms that will be responsible for providing the products or services required by the Scope of Work.

The INIT team includes highly-qualified, industry leading subcontractor firms as indicated in the following table:

Subcontractor Firm	Qualifications	Scope
[redacted]		
Bytemark	Extensive mobile app development experience in the transit industry including work with INIT in Grand Rapids, Tampa, Austin and Sacramento.	Mobile app (virtual card) development
BrainSell	Extensive experience in the integration and implementation of Sage financial management applications.	Financial management application (Sage) integration and implementation

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Subcontractor Firm	Qualifications	Scope
[redacted]		
Anthro-Tech	Extensive UI/UX experience.	UI/UX design
ESP	Extensive vehicle installation experience and DBE.	Vehicle installations
WOWRACK Hosting	Enterprise Class data center with multi-datacenter locations in Seattle supporting large Seattle based organizations.	Datacenter hosting –Production System, Pre-Production System, Test System, Out-of-region Backup
Arctic Wolf	Security Operations Center –as a service provider with security engineering personnel and tools providing security monitoring and escalation.	Information Security, Compliance, Operations and Maintenance
[redacted]		

1.4 INIT's Open Architecture System

This section is ordered according to the RFP Scope of Work Section 3, System Design & Architecture.

1.4.1 Common Design Capabilities

Following are design elements common throughout the System – including the overall system architecture that will support the System leading to a cohesive, reliable, and easy-to-use regional fare collection system.

1.4.1.1 Service-Proven Design

INIT is proposing a modern System which is proven at the core. The software and hardware proposed will have a service life of at least 12 years from the commissioning date. INIT will enhance some elements to meet next generation ORCA's required capabilities, but the main

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back office and field components are currently in use in similar transit fare collection systems as indicated in the following table.

System	In-Service Date	ngORCA Proposed Back Office	ngORCA Proposed Wayside & Onboard Validators	ngORCA Proposed VMs	ngORCA Level Reliability, Accuracy, Availability
Portland, Oregon	Jun. 2017	●	●	Not in Scope	●
Turku, Finland	2016	●	●	Not in Scope	●
Sacramento, CA	Jul. 217	●		Not in Scope	●
Tampa, FL	Pilot Q2 2017	●	●	Not in Scope	●
Luxembourg		●		●	●
Bremen, Germany		●		●	●
Grand Rapids, MI	Pilot Q3 2017	●	●	Not in Scope	●
Honolulu, HI	Pilot Q1 2018	●	●	●	●
Orange County, CA	Pilot Q4 2017	●	●	Not in Scope	●
Metrolink SCRRA, So. California	Pilot Q4 2019	●	Not in Scope	●	●

1.4.1.2 Nonproprietary Technology

INIT's proposed next generation ORCA system does not include any obsolete or discontinued components. The system is service proven and does not involve prototypes. The system is designed using open standards for software design, communication protocols, and fare media.

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INIT's proposed system leverages best of breed commercial-off-the-shelf (COTS) software where possible. The proposed fare media is available for competitive purchase from multiple U.S. sources.

The proposed System utilizes a modular design for all relevant field replaceable components, without the need to make adjustment for compatibility. INIT was the first AFC vendor to introduce intelligent wayside validator platforms which stored metadata in non-volatile memory to enable replacement without any configuration of the new validator.

1.4.1.3 Supply & Availability

INIT will make best efforts to supply devices, components, parts, modules assemblies and subassemblies, as well as software and other essential elements of the Systems, itself and from original equipment manufacturers (OEM) that have a service life of 12 years after Final System Acceptance. If any OEM component is discontinued or obsoleted by the SI or OEM, INIT will provide the Agencies six (6) months advance notice prior to the last available date of purchase or support. Additionally, INIT will work with the Agencies to provide suitable replacements which are like in functionality and compatibility as the original.

1.4.1.4 Materials & Workmanship

INIT will utilize new components which conform to the capabilities of the next generation ORCA SOW – however, as allowed for in the SOW, INIT may utilize new components which utilize recycled materials. In the event INIT wishes to change components, it will do so only with the ORCA Agencies' approval. INIT will utilize equipment which is free from safety hazards and complies with relevant Underwriter's Laboratory (UL) standards. All interior and exterior surfaces will be fee from sharp edges, protrusions, exposed wires, and other hazards. If it is found that approved sources do not furnish a uniform product, or if the product from such source proves unacceptable in meeting the requirements in the SOW, INIT will address and correct these issues.

1.4.1.5 Software Design Principles

INIT is determined to deliver quality implementations for all customers. Detailed below is INIT's CMMI based Design Principles. CMMI design principles along with JIRA, our Defect Tracking Tool, define the process for reporting, tracking, and resolving problems/issues during and after implementation.

Carnegie Mellon University's Capability Maturity Model Integration (CMMI) principals are designed to correct issues with software, firmware, hardware products, service, maintenance processes and more.

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The CMMI is a world-class performance improvement framework for organizations that want to achieve high-performance operations. CMMI best practices address three areas of interest:

- CMMI for Development addresses product and service development processes
- CMMI for Acquisition addresses supply chain management, acquisition, and outsourcing processes
- CMMI for Services addresses guidance for delivering services within an organization and to external customers

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To address user security, the security guides "Security Management" and "Security by Design" are part of the CMMI.

Principles embraced include:

- Built in diagnostics and reporting
- Object-oriented software
- Easily configurable
- Portability
- Automated distribution of updates

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The ORCA agencies will benefit from this reliability and performance improvement system embraced by INIT that paves the way for reliable software, firmware, hardware, and dependable service.

INIT's Quality Engineer, Matthew Riley, lead INIT's ISO 9001:2008 efforts to ensure superior Quality Management across all business processes and functions. He facilitates continual process improvement and ISO audit recommendation implementation. In a few short months INIT will be ISO 9001:2015 certified.

1.4.1.6 User Interface & User Experience

Developing and implementing products and services without full consideration of the end-to-end user experience leads to disjointed and confusing user experiences. This impedes adoption rates, and often creates negative perceptions of the organization responsible for the services.

Transit fare collection systems have historically focused on the function of each singular component separately rather than creating a seamless user experience across interfaces. Many of these systems are built using multiple components and interface points, increasing the likelihood of a disjointed user experience.

After our discussions with the committee and careful consideration, INIT has increased the UI/UX scope to a premium level. The scope of UI/UX services as well as the applications affected are described below.

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In partnering with the Agencies for the next gen ORCA project, INIT will focus on user experience throughout the design and development phases. [redacted]

[redacted]

[redacted]

[redacted]

Anthro Tech's User-Centered Design Approach

[redacted]

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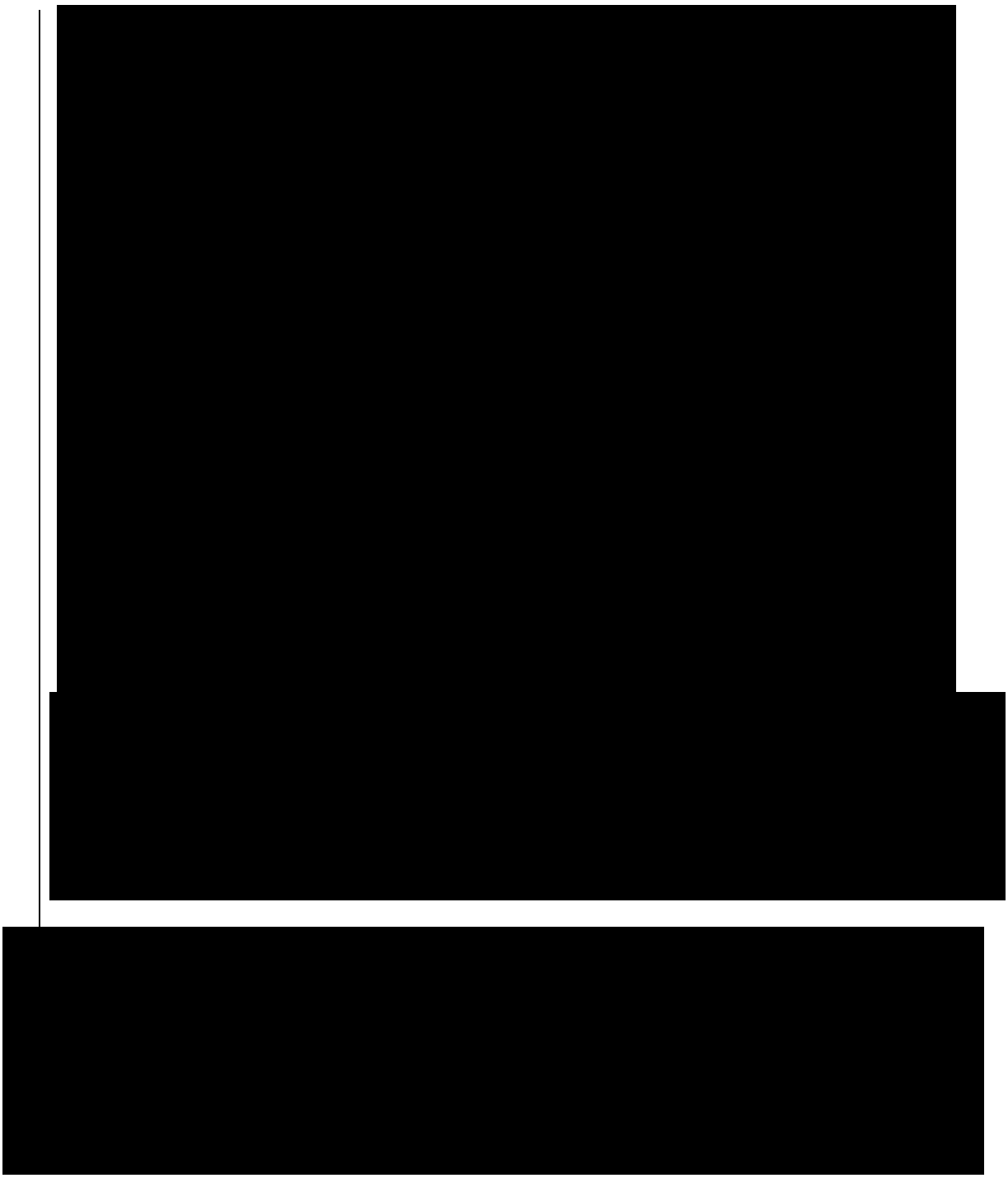

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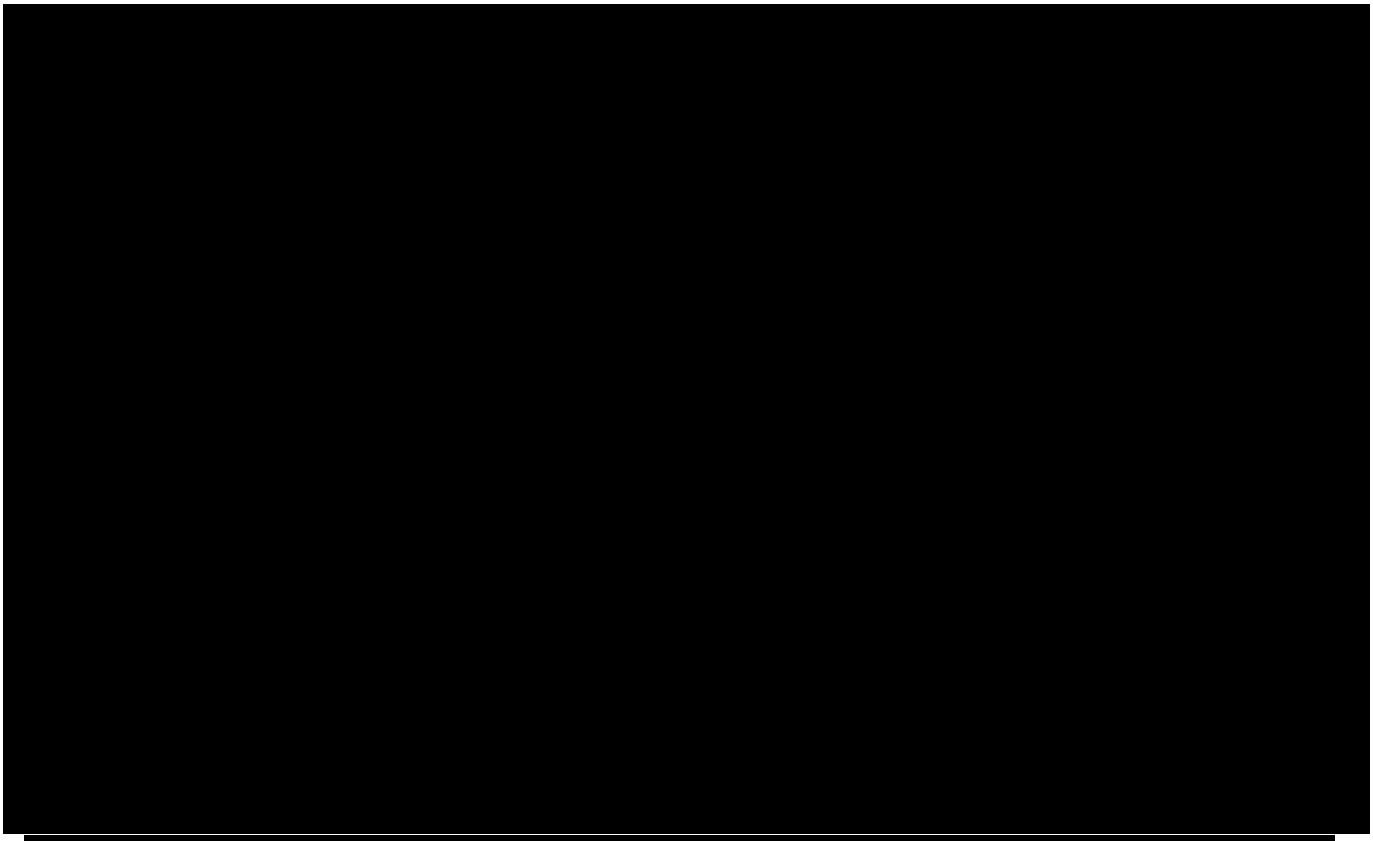

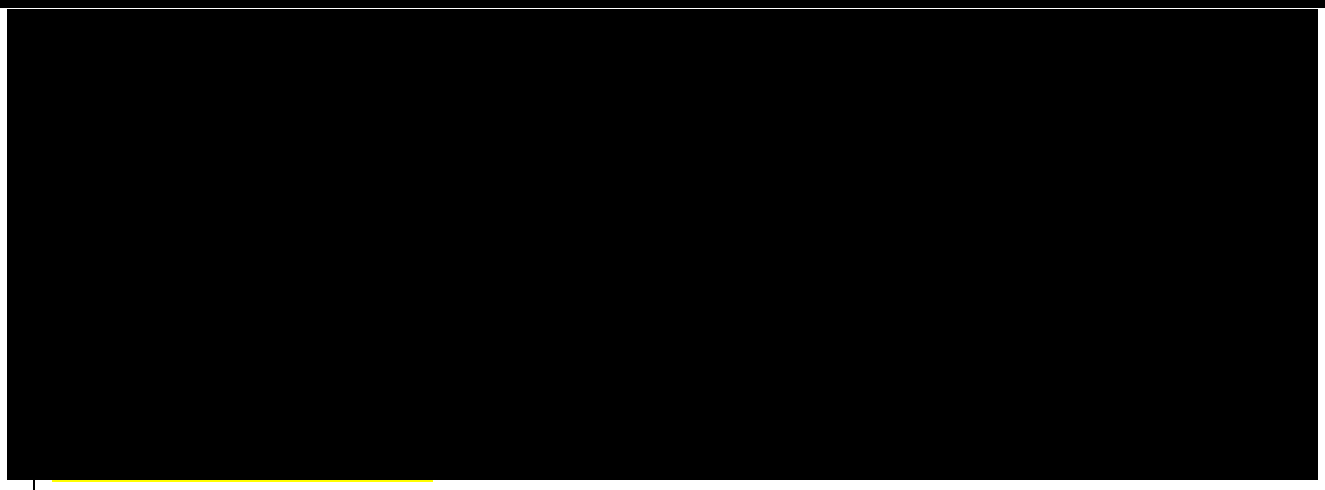

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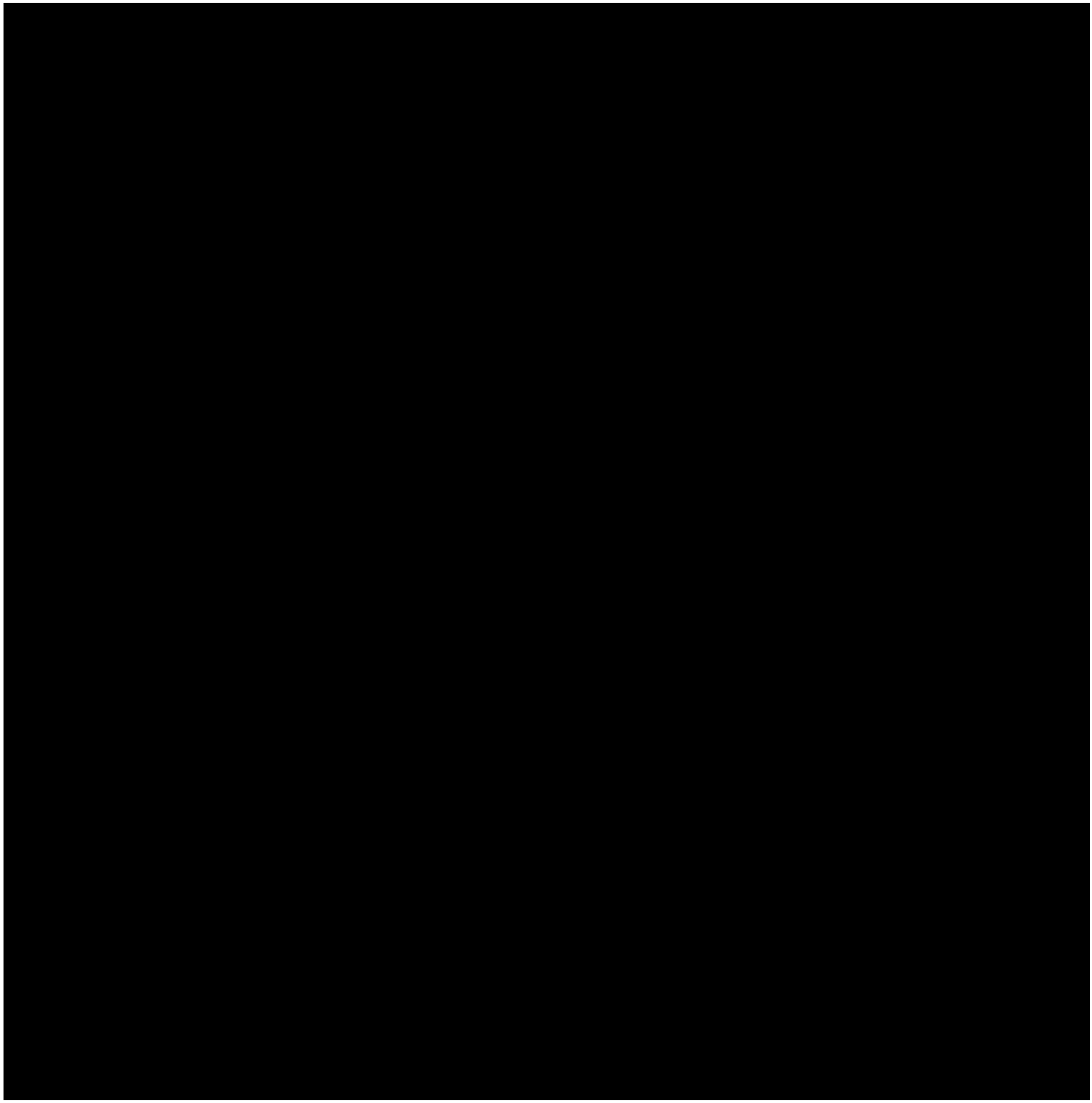

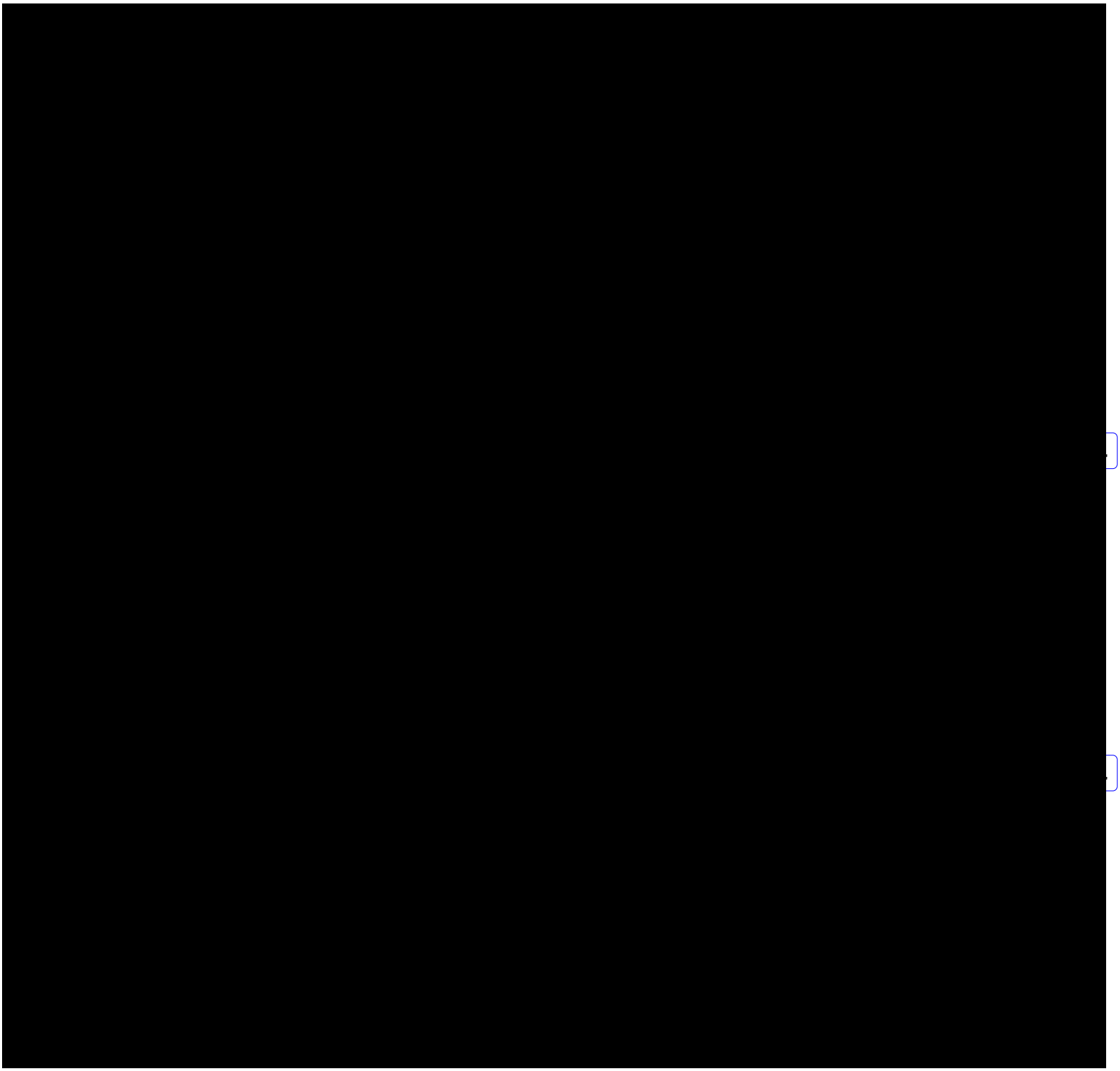

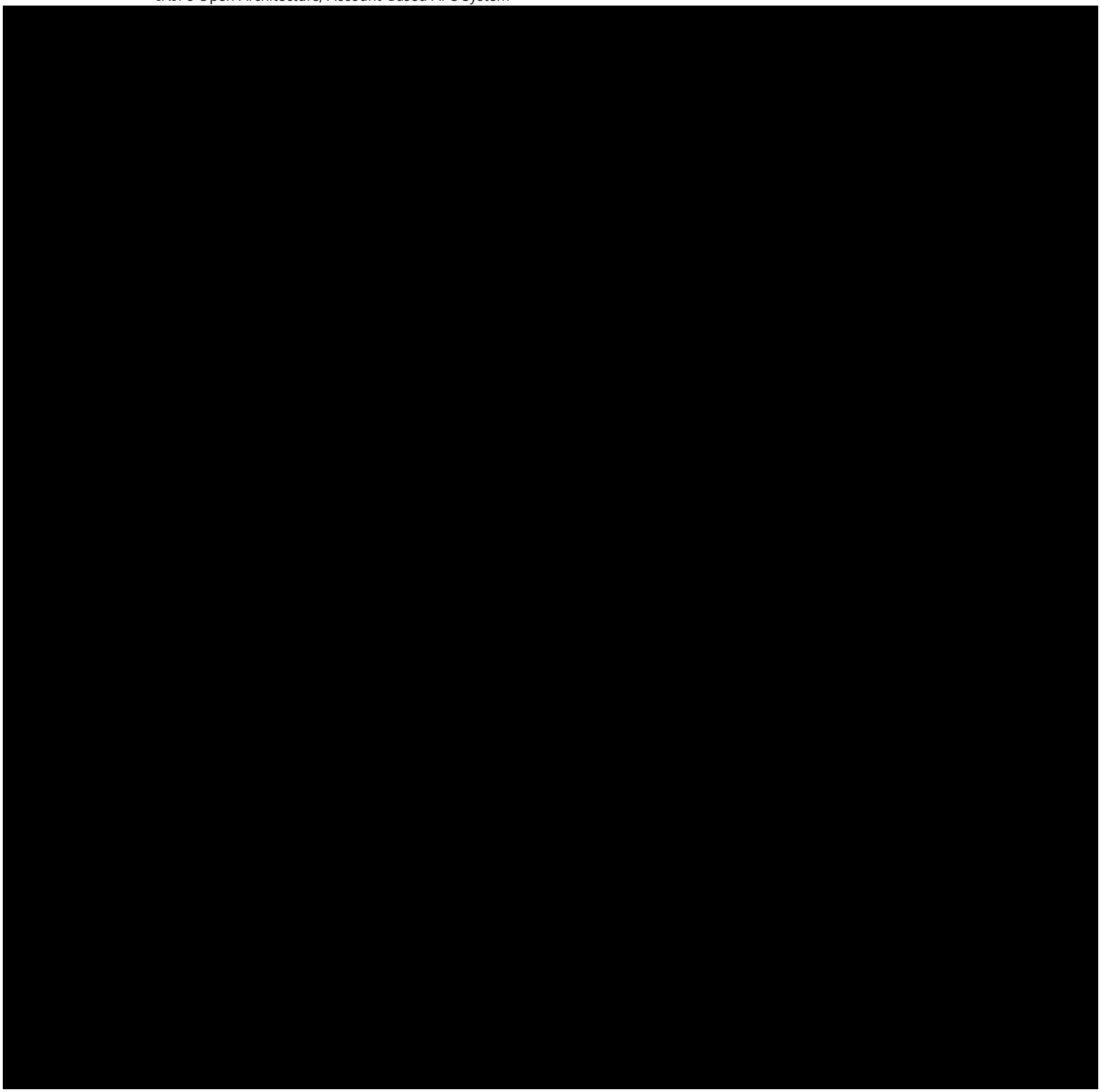

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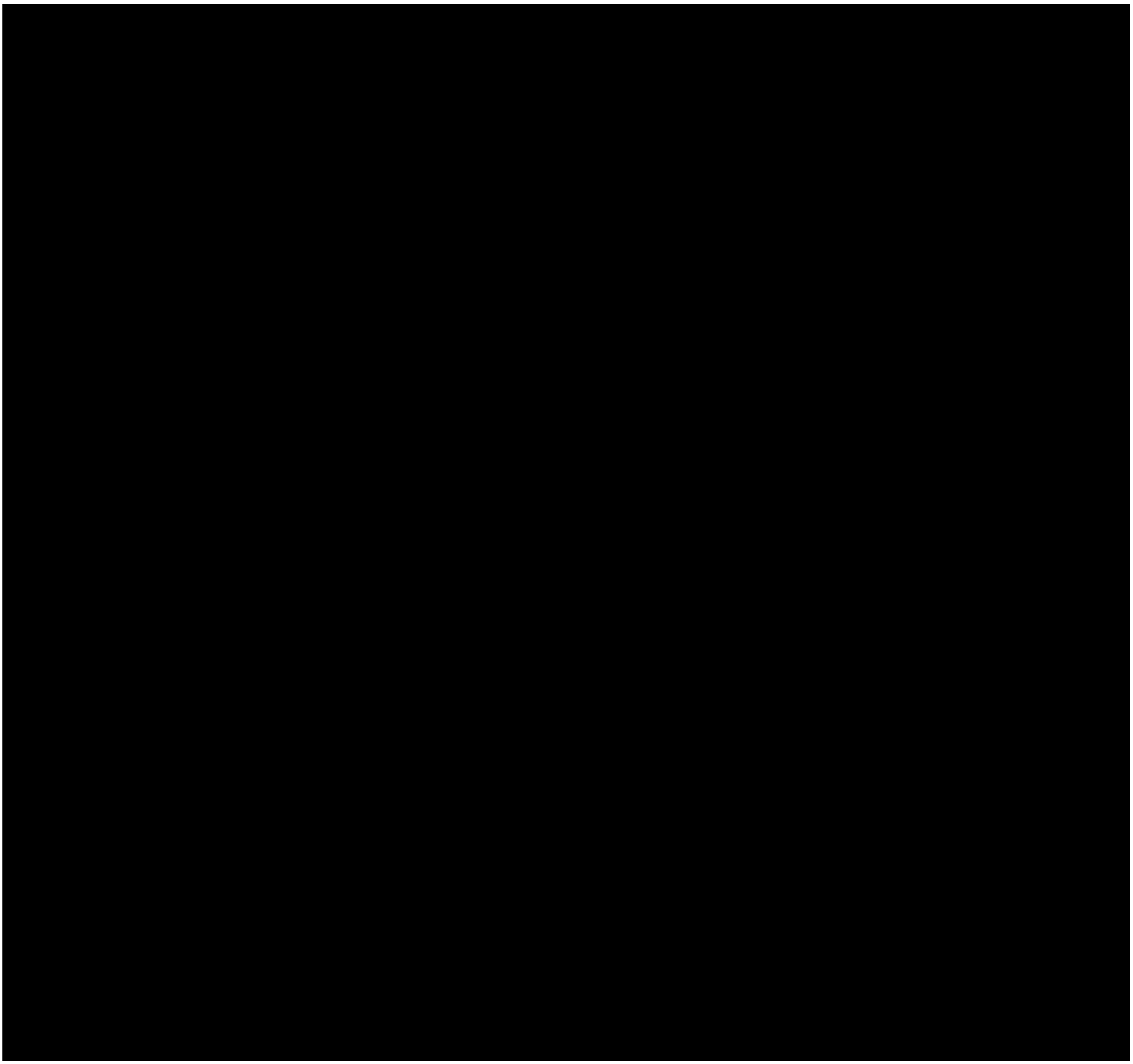

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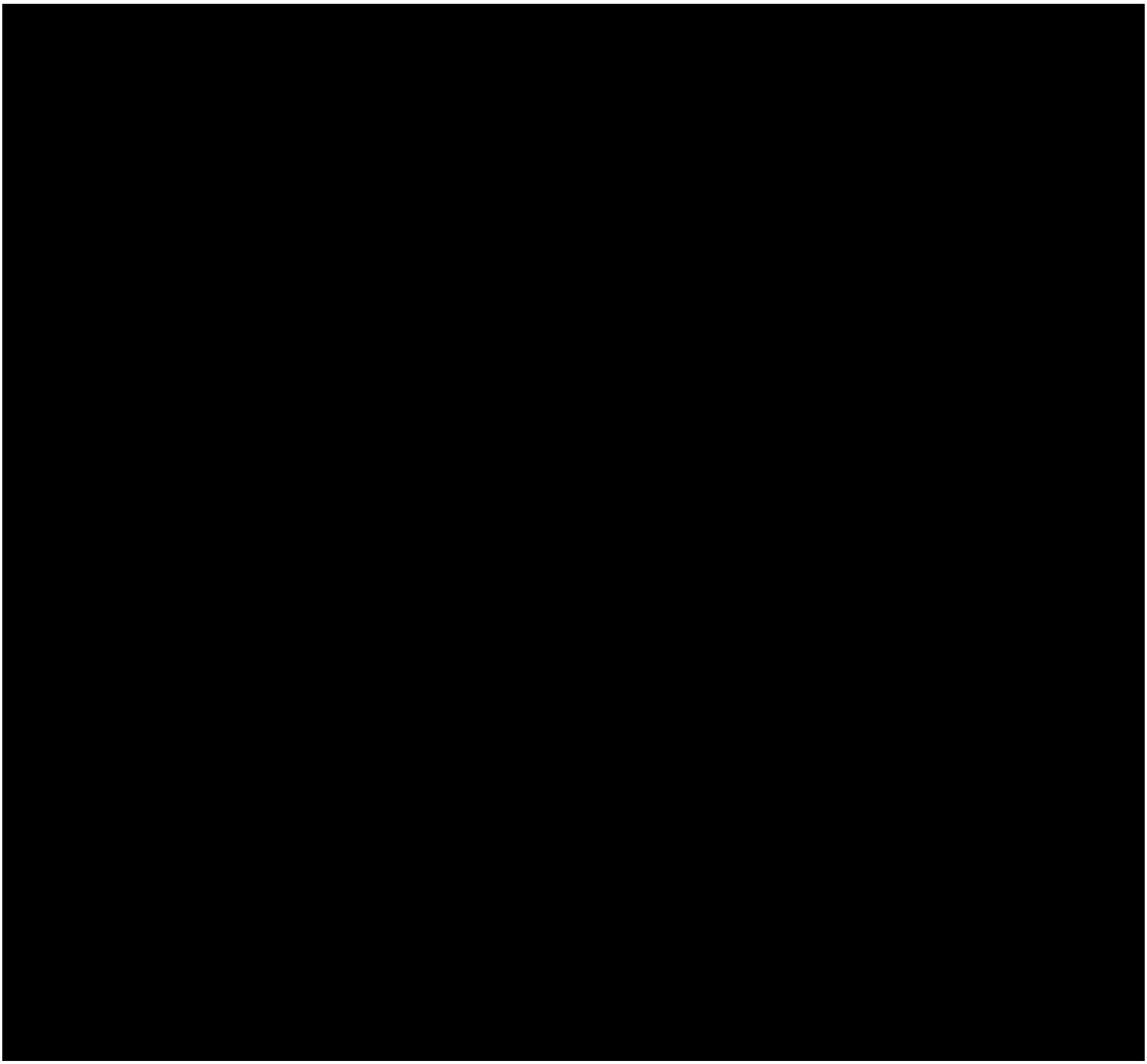

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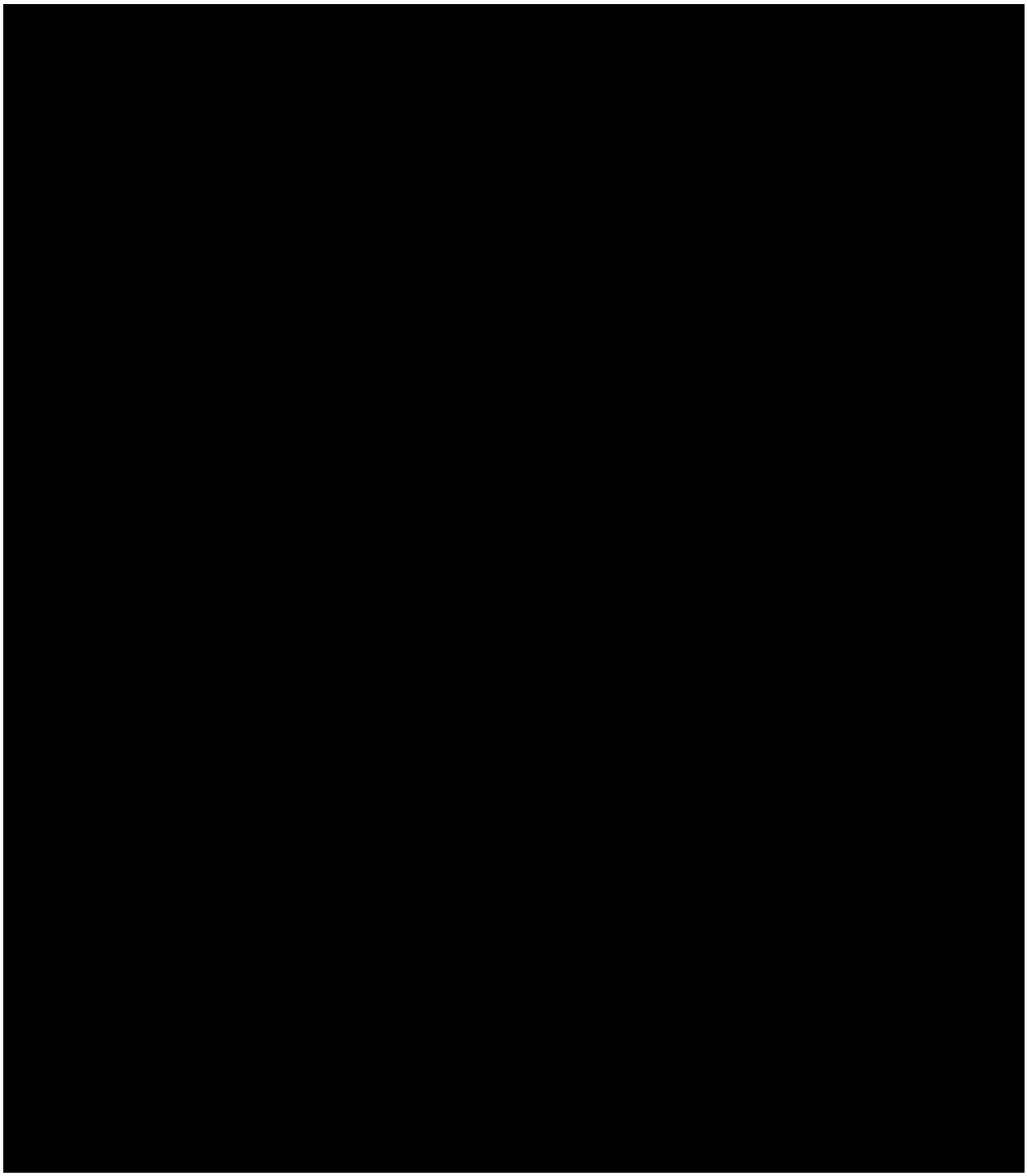

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1.4.1.7 Maintainability & Serviceability

Given INIT's extensive experience with transit CAD/AVL and AFC systems, INIT has ruggedized its field equipment to require minimal scheduled and unscheduled maintenance. As the chart below indicates, most of the equipment is maintenance-free, and there is minimal scheduled maintenance on some mechanical moving parts.

Equipment	Scheduled Preventative Maintenance Requirement (Not Including Consumables – such as, printer paper)
PROXmobil3 onboard/platform validator	Possibly change battery (after 5-10 years)
TOUCHit3 Driver Display Unit (DDU)	None (maintenance-free)
VENDstation and VENDmobile Vending Machines (VMs)	Minimal (lubrication of some moving mechanical parts annually, and compressed air spraying of

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Equipment	Scheduled Preventative Maintenance Requirement (Not Including Consumables – such as, printer paper)
	sensors every 6 months)
Customer Service Terminal (including peripherals)	None (maintenance-free)

All the scheduled, preventative maintenance required – including frequency, procedures, durations, and required tools, parts, and materials – will be provided by INIT in a Preventative Maintenance Plan.

System components include automatic diagnostic test routines to aid in troubleshooting down to the Lowest Level Replaceable Unit (LLRU). As the chart below indicates, most of the equipment is maintenance-free, and there is minimal scheduled maintenance on some mechanical moving parts.

INIT minimizes unscheduled maintenance by designing equipment suitable for the transit industry with high Mean Time Between Failures (MTBF). INIT ensures that any COTS components used, also possess these characteristics.

The placement of the Onboard and Wayside Validators, the Driver Display Units, and the Customer Service Terminal equipment will be finalized jointly with the agencies to ensure adequate access for maintenance. INIT's field equipment has been designed and optimized taking maintenance considerations into account. The interior of housings and cabinets provides easy and safe access, and provides adequate space to work on the internal components as indicated in the figures below of the VENDstation and VENDmobile, which show that all components are accessible.

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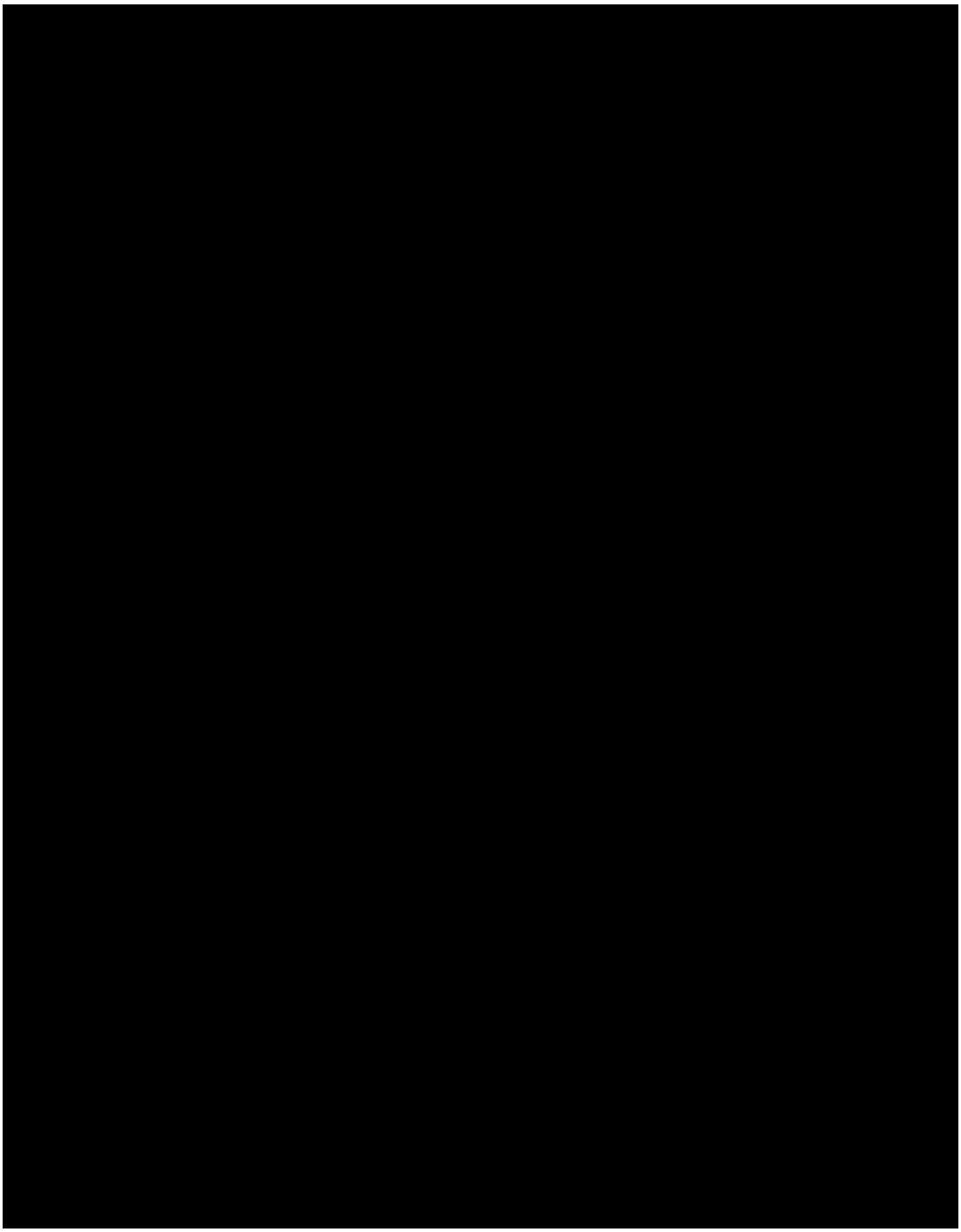

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1.4.1.8 System Sizing & Scalability

As part of the design process, INIT conducts usage and transaction analysis to model the peak usage of the System – including peak concurrent account-based transactions, peak website

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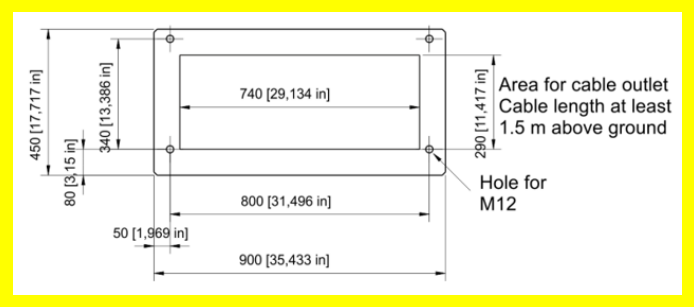
usage, etc. – and designs the system to accommodate at a minimum 200% of the current and anticipated ridership figures for the year 2040 and up to 400% of the anticipated peak processing load.

1.4.1.9 Operating Environment

As a transit CAD/AVL and AFC system provider, and currently having six systems operating in the environmental conditions of the Pacific Northwest, INIT's field equipment is environmentally service-proven.

1.4.1.9.1 Shock & Vibration

INIT will comply with the local codes regarding stability of structures and contents in earthquakes, high velocity wind (up to 60 mph), and other natural phenomena. For VMs INIT utilizes a pedestal made of 0.08" [2mm] stainless steel, which is fixed to the ground with M12 screws (see the following figure for the VENDstation pedestal mounting). In the event additional bracing is required, INIT will ensure it complies with the specifications related to seismic, wind, and other natural phenomena.



VENDstation Stable Pedestal Mounting

INIT's system components are designed to withstand structure-borne stresses and vibrations caused by the motion of transit vehicles, daily customer use, passing of trains or other vehicles, and emergency braking of fully-loaded trains. INIT products are vibration tested according to European Railway standards EN50155. In EN50155 sinusoidal testing has been replaced with broad band random vibration. Test parameters used by INIT are: Frequency range of 5-1000Hz, Acceleration 1.3g rms, sweep time 5h per axis. The standard intends to simulate 25 years of usage onboard a rail vehicle.

The PROXmobil3 is rugged in design and the housing is made in a special die casting process named thermoplastic structure foam molding (TSG) and are made of polystyrene (PS) or acrylonitrile butadiene styrene (ABS). This casting process creates a device that has a very stiff

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structure compared to normal die casting processes. The housings are flame-retardant according to UL94 V-0, and meet the product meets the horizontal shocks of up to 6g and vertical shocks of 1.2g without permanent deformation or failure. Both devices pass the EN 61373 Railway applications for Rolling stock equipment for Shock and vibration – specifically:

- EN 60068-2-27: Environmental testing - Tests - Test Ea and guidance - Shock
- EN 60068-2-64: Environmental testing - Tests - Test Fh - Vibration, broadband random and guidance

These onboard devices also meet the specified the shock and vibration tests:

- IEC 60068-2-27
- IEC 60068-2-64

The rail equipment, including vending machines and wayside validators will pass the ERTMS/ETCS shock and vibration tests – e.g., EEIG 97s0655.

1.4.1.9.2 Onboard Equipment

INIT's onboard equipment is designed, and proven, to prevent degradation in performance from exposure to moisture or dust raised by inclement weather or interior cleaning. As the two figures below show, both, the PROXmobil3 onboard validator and the TOUCHit3 driver display unit, are tightly sealed to provide a high degree of ingress protection. The PROXmobil3 has been installed in approximately 12,000 transit vehicles, and the TOUCHit3 predecessors on approximately 16,000 without any ingress issues.

PROXmobil3 tight seal prevents ingress

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TOUCHit3 provides high ingress protection

As indicated in the previous section, the PROXmobil3 and the TOUCHit3 are designed and service proven to withstand the harsh, high shock vibration operating environments of onboard transit vehicles.

The following chart demonstrates that INIT's onboard equipment operating environment specifications meet the SOW requirements.

The following chart demonstrates how INIT's onboard equipment operating environment specifications meet the SOW requirements.

Capability	**SOW Requirement**	**PROXmobil3 Onboard Validator Specification**	**TOUCHit3 Driver Display Unit Specification**
Storage temperature	-22 to +150°F	-22 to +176°F	-22 to 158°F
Operating temperature	-15 to 140°F	-15 to 140°F	-15 to 140°F
Thermal shock	Up to 50°F in 1-hour, non-condensing	Up to 50°F in 1-hour, non-condensing	Up to 50°F in 1-hour, non-condensing
Relative humidity	5-100% non-condensing	5-100% non-condensing	5-100% non-condensing
Airborne dust	Up to 180 μg / m^3, with iron & salt particles	Up to 180 μg / m^3, with iron & salt particles	Up to 180 μg / m^3, with iron & salt particles
Sunlight	Direct sunlight, radiation loading of up to 789J/s/m^2	Direct sunlight, radiation loading of up to 789J/s/m^2	Direct sunlight, radiation loading of up to 789J/s/m^2
Inclination	0 to 20° off vertical	0 to 20° off vertical	0 to 20° off vertical

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Capability	SOW Requirement	PROXmobil3 Onboard Validator Specification	TOUCHit3 Driver Display Unit Specification
Rainfall	10" over 12 hrs	Ingress Protection (IP) 54 (splashing water protected)	Ingress Protection (IP) 53 (spraying water protected)
Water/solvents	IEC529 to level IP54 or equivalent	IP54	IP54
Pollution	Vog (e.g., sulfur dioxide-laden air)	Atmospheric pollutants characteristic of Puget Sound area	Atmospheric pollutants characteristic of Puget Sound area
Other	Water spray, industrial cleaning solvents, and mud from cleaning vehicles	Water spray, industrial cleaning solvents, and mud from cleaning vehicles	Water spray, industrial cleaning solvents, and mud from cleaning vehicles

The onboard equipment will not be impacted from the damaging effects of visible spectrum and ultraviolet radiation. There are no active cooling devices in the onboard equipment to report failures on. The onboard equipment will be tested and certified to operate under the environmental conditions specified in SAE J1455.

1.4.1.9.3 Wayside Equipment

The following chart demonstrates that INIT's wayside equipment meets the SOW requirements, except the ingress protection level IP65 as discussed below.

Capability	SOW Requirement	PROXmobil3 Platform Validator Specification	VENDstation / VENDmobile VMs Specification
Storage temperature	0 to +140°F	0 to 150°F	0 to 150°F
Operating temperature	-15 to 140°F	-15 to 140°F	-15 to 140°F
Thermal shock	Up to 30°F in 1-hour, non-condensing	Up to 30°F in 1-hour, non-condensing	Up to 30°F in 1-hour, non-condensing
Relative humidity	5-100% non-condensing	5-100% non-condensing	5-100% non-condensing
Airborne dust	Up to 180 µg / m^3, with iron & salt particles	Up to 180 µg / m^3, with iron & salt particles	Up to 180 µg / m^3, with iron & salt particles
Sunlight	Direct sunlight, radiation loading of up to 3MJ/hr/m^2	Direct sunlight, radiation loading of up to 3MJ/hr/m^2	Direct sunlight, radiation loading of up to 3MJ/hr/m^2

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Capability	SOW Requirement	PROXmobil3 Platform Validator Specification	VENDstation / VENDmobile VMs Specification
Platform inclination	0 to 10° off vertical	0 to 10° off vertical	0 to 10° off vertical
Rainfall	10" over 12 hrs	10" over 12 hrs	10" over 12 hrs
Water/solvents	IEC529 to level IP65 or equivalent	IP34 according to IEC 60529	IP34 according to IEC 60529
Pollution	Vog and other forms of native air pollution	Air pollution characteristic of Puget Sound	Air pollution characteristic of Puget Sound
Other	Water spray, industrial cleaning solvents, and mud from cleaning vehicles	Water spray, industrial cleaning solvents, and mud from cleaning vehicles	Water spray, industrial cleaning solvents, and mud from cleaning vehicles

Our standard validator is IP54 classified and therefore suitable for outdoor use. The suitability for outdoor use has been proven in environments similar to Seattle, e.g. in Portland, OR.

IP 54 means that the validator has a limited protection against dust ingress, with no harmful deposit of dust within the device. In addition the validator is protected against splash water from any direction.

Getting the validator to a IP65 classification would require a redesign that could be priced as an option.

INIT will ensure that incidental moisture that enters the VMs through the coin, bill, and card slot is managed – for instance, the coin shutter directs any water that enters the coin slot to the waste chute. The wayside platform validator and VMs do not use any cooling devices to report on and cause a graceful shutdown.

Please see Appendix 3 for the following VM component hardware specifications:

- Display
- Bill handling unit
- Coin acceptor
- Coin shutter
- Coin escrow
- Bank card reader and pin pad
- Smartcard dispenser
- Receipt paper
- Receipt paper roll

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- Power supply
- UPS

1.4.1.9.4 Office Equipment

The Customer Service Terminals (CSTs) will be designed to be installed in an office and mobile environment. Please see Section 1.6.4 for information and specifications of the CST components.

1.4.1.10 Electrical

This section addresses the electrical capabilities of the onboard and wayside equipment. Please see Section 1.6.4x.x for CST electrical capabilities.

1.4.1.11 Power & Voltage Capabilities

INIT's equipment incorporates robust, reliable power and voltage capabilities suitable for the environment it's operating in. The PROXmobil3 onboard validator and the TOUCHit3 DDU draw power from the vehicle DC power source. The VMs obtain power from the station 115 or 240 Vac line voltage, and the platform validators can obtain power from the station line voltage or Power over Ethernet (PoE). All power conditioning is done within the equipment enclosures, except for the platform validator (whose power conditioning is done within the installation pole).

The onboard equipment, as indicated by the chart below, can operate over a wide range of input voltage.

Onboard Equipment	Minimum Input Voltage	Maximum Input Voltage
PROXmobil3 onboard validator	9 Vdc	36 Vdc
TOUCHit3 Driver Display Unit	8 Vdc	36 Vdc

The PROXmobil3 uses a varistor in the power supply rail to absorb transient surges which provides protection against damage to internal components. The PROXmobil3 system controller monitors the voltage level, and will shut down the device if the voltage level is too high. Low-voltage conditions are handled by the power circuitry itself by performing a power-on reset. The PROXmobil3 uses filters and switching regulators to withstand noise and power fluctuations. The printed circuit board is an 8-layer board with two complete ground planes, which vastly improves immunity to electronic interference, which may come from other onboard equipment. The validator protects against transaction data damage, loss or modification during voltage fluctuations or other power related events through the use of high-grade flash memory by storing several copies of the sales data to different flash areas in the validator.

The VENDstation and VENDmobile use the station line voltage, and can accept an input voltage range of 90 Vac to 305 Vac (as indicated in the power supply specification in Appendix 3).

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The VMs incorporate a UPS within its enclosures which provides 30 minutes of back-up power to allow for graceful shutdowns in the case of power loss. The VMs power up automatically upon resumption of AC power. The platform validators can utilize either station line voltage or Power over Ethernet (PoE), and will accommodate 10% fluctuations in the line voltage. All field equipment will retain all information stored on non-volatile memory regardless of any voltage or power issues.

1.4.1.11.1 Electrical Noise Capabilities

1.4.1.11.2 Grounding

INIT shall, with respect to grounding, conform to the National Electric Code (NEC) and UL, SAE, and local codes where applicable.

1.4.1.12 Licensing & Ownership

1.4.1.13 Accessibility & ADA Compliance

The proposed System will be compliant with current accessibility standards, laws, and regulations and ensures that the system meets or exceeds the Americans with Disabilities Act (ADA) and accessibility requirements of federal, Washington State and Puget Sound regional governments. INIT is working with external ADA consultants to ensure ADA compliance.

1.4.1.14 Code & Regulation Compliance

INIT concurs with the requirement that the proposed system will be compliant with relevant standards, laws, and regulations to ensure that the System

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- Presents no safety hazards for customers and agency employees
- Will withstand the rigors of the environments in which the equipment will be installed, and the public use to which it will be subjected
- Provides for the secure storage and transmittal of data
- Is designed using state-of-the-art methods to maximize quality
- Satisfies federal, state, and other requirements for ergonomics and usability

1.4.1.15 Information Security

Information security is a critical component of the next generation ORCA technology solution. Ensuring the confidentiality, integrity and availability of the system is critical to the customer experience and trust in the system. The people, processes and technology involved in system delivery will need to work collaboratively under common guidance to achieve system security. INIT will work with the agencies, subcontractors, vendors and service providers to ensure selected ISMS controls are implemented and followed. INIT has not included effort to pursue or obtain ISO or ISMS certification independently, as we understand that this is portion of a ROOT-managed ISMS.

An ISO27001:2013 driven ISMS has a broad amount of guidance and controls, therefore INIT recommends the selected ISMS controls to be right-sized and appropriate for the solution rather than attempted to be applied at a level requiring compliance with every potential control within the ISO framework. Not every ISO control is applicable or likely palatable to the agency, provider or subcontractors due to the costs and time to document and manage the vast amount of information associated with implementation, testing and tracking every control. While INIT understands the intention of the system to be operated within a selected set of ISMS controls, INIT has included a subset of recommended controls as described in section 1.4.2.8. INIT assumes that the agencies, ROOT, or other external auditing party may recommend additional controls throughout the lifetime of the system. The implementation of these new controls, if adopted or requested by the agencies, will be considered a change as they are additional to what has been priced and included.

1.4.1.15.1 Information Security Management System – Asset Management

As a control objective of an ISMS, asset management within the next generation ORCA information technology is concerned with the identification and management of the assets involved in service delivery. Inventory will be managed using a CMDB within the Asset Information Management (AIM) platform. Assets include hardware, software, licenses, and other equipment or systems associated with the delivery of the system. Each tracked asset will be assigned an asset owner, description, and location, criticality and classification. The CMDB will be the system of record to manage the assets and their associated information and life cycle. All

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hardware and software will be procured through primary sources rather than the secondary market to ensure integrity of firmware and legality of licenses. Ensuring license, support and access to primary sources supports ISO guidance regarding supplier relationships and the reduction of risk associated with supplier's assets. In the case of the proposed hosted environments, the hosting provider will ensure the maintenance and lifecycle of the assets.

1.4.1.15.2 Access Control

This chapter is focused on INIT's access control approach.

1.4.1.15.2.1 User Authentication

All users of the system are required to authenticate to a centralized directory within the back office. Windows Active Directory centrally manages user login identity, password policy, and roles for access to the INIT provided systems and applications. The role based access control available within the integrated Active Directory and INIT solution can provide individual or group access and ensure which level of access those users are granted. While Active Directory between the next generation ORCA system and the existing ORCA agencies could be federated and trusted, the large number of users combined with the internal and external applications will benefit from a universal directory. In alignment with ISO27001 guidance, INIT recommends deploying this strategy to create user authentication consistency in the distributed network environment required by the next generation ORCA system. A federated identity solution provider such as Azure AD Services can provide the recommended universal directory, SaaS application integration, multi-factor authentication and secure access.

1.4.1.15.2.2 Password Policy and Management

Password policy is set and enforced in the settings of the primary user directory. Accounts will be forced to create and rotate passwords depending on a mutually agreed policy definition. INIT recommends adopting the most recently updated NIST password guidelines which emphasize longer passwords with longer rotation schedules. This provides a higher level of security through increasing the amount of entropy within an individual password as well as decreasing user shortcuts that inevitably occur when forced to create complex passwords at a high frequency. With the addition of Azure AD, password policies and changes should be able to be enforced throughout the entire distributed application infrastructure adding additional security and easing the burden on end-users.

1.4.1.15.2.3 Privileged Remote Access [redacted]

[redacted]

1.4.1.15.2.4 Firewalls, Routers, Switches and Network Security

Edge devices such as firewalls and routers, along with internal access layer devices such as layer

1.4.1.15.2.5 Physical, Environmental and Equipment Security

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

1.4.1.15.3 Encryption

[redacted]

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[redacted]

1.4.1.15.3.1 Database Encryption

[redacted]

1.4.1.15.3.2 Communication Security

[redacted]

1.4.1.15.3.2.1 API Communication

INIT secures all API communication [redacted]

1.4.1.15.3.2.2 Field Device Communication

[redacted]

[redacted]

1.4.1.15.3.2.3 Public Website

The publicly accessed web applications are secured[redacted]

1.4.1.15.4 PCI & PII

In order to reach 100% PCI compliancy and most important a bullet proof secure payment system, INIT works together with SRC Security Research & Consulting GmbH. SRC is a PCI SSC approved[redacted]

For this project, INIT will also contract with a local PCI QSA who can make all local evaluations necessary.

Highlights of the INIT PCI solution

- [redacted]

In order to provide reliable, flexible and versatile and 100% PCI compliant payments, INIT is working with different gateway providers such as the CreditCall payment gateway.

The following diagram gives an overview how payments are processed in the system and which parts of the system are in the PCI scope.

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On the lower left hand side is the card holder who can purchase services via different system services. The card can be presented to one of the validators (PROXmobil3) which generates an open payment credit card transaction and forwards in to the payment gateway.

[redacted]

[redacted]

1.4.1.16 Fraud Prevention

INIT's system supports a host of fraud detection and prevention functionality – including:

- Data analytics to support fraud detection based on ridership data
- Agency-configurable velocity checks
- Detection of potentially cloned cards

In addition to the detection of fraud, the system provides numerous fraud prevention capabilities:

- Passback protection configurable by fare media type, fare product, agency, mode, and passenger type which can be set differently for different device types
- Upper ride limits on period passes generating automated alerts, with the configurable auto-blocking
- Configurable "floor limit" for stored value (which can be set to zero or a negative value) with configurable auto-blocking
- Ability to set credentials and transit accounts to "observation mode" so that all activity is reported in an extra report for further investigation
- Blocking credentials and transit accounts automatically and manually (including on a bulk basis)
- Master Status Lists (MSLs) including negative lists of blocked cards regularly updated to field devices for offline validation provisions
- Writing limited information to cards for offline validation purposes

1.4.2 System Architecture

INIT is proposing an open architecture, modular design system with extensive use of Application Programming Interfaces (which will be licensed to the Agencies) as depicted in the figure below.

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1.4.2.1 Account-Based System

INIT's proposed system is a service-proven account-based system. The back office Account-based Transaction Processor (ATP), performs the fare calculation and processes all transactions in real-time. It also acts as the system of record for fare calculations and enforcement. To keep it a true account based system, fare media such as smart cards and NFC enabled smartphones, will serve only as credential for accessing transit accounts. Limited amount of data will be written to the fare media to support risk mitigation strategies, mostly for fare inspection reasons.

The ATP includes a module to configure and maintain fare apportionment rules between agencies based on fare products purchased, products used, number and value of trips taken, and agency associations. The ATP apportionment module includes an intuitive, user friendly interface to allow the rules to be securely maintained and updated, including the ability to change current rules and add new rules based upon new fare products, trip types, or Agencies being added to the next generation ORCA program.

1.4.2.2 Real-Time Communications

Each fare validation and fare distribution device will perform real-time communications with the back office. If no wired connection can be established (e.g. on-board devices), the devices will communicate using cellular technology.

1.4.2.3 Offline Provisions

[redacted]

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[redacted]

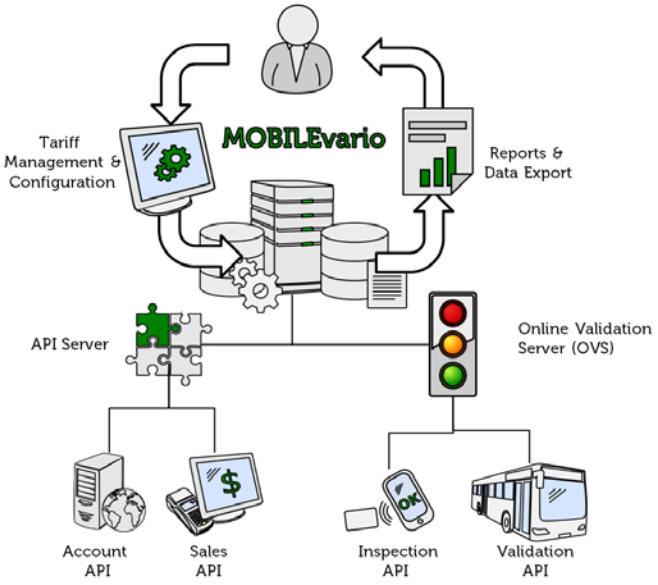
[redacted]

[redacted]

authenticate all users in accordance with the ORCA Agencies Information Security Management System (ISMS).

INIT's open architecture APIs are based on the REST standard and JSON data format which is the de facto standard today for web APIs. The API developers can use the APIs with standard http client libraries of the programming language of their choices (#C, C++, Python, Java, Javascript etc.), command line tools such as curl or wget, or API development tools such as postman or insomnia to test and develop against the APIs.

The figure below shows INIT's existing core APIs that provide functionality for any 3rd party devices and networks to sell and validate fares. All client devices and customer interfaces use INIT's APIs to sell and validate fares.



INIT's Core APIs to create an Open Architecture Platform

The account API provides services to access customer and transit account information in order to integrate mobile applications, web services and even 3rd party CRM tools. All sales transactions like product sales or value loads are generated via the sales API and the Online Validation Service (OVS) provides the validation API to recognize that revenue.

The test environment will allow the ORCA agencies or Third-Party Vendors (TPVs) to design and test their solutions. This protects the agencies' valuable investment for many years to come as it allows the agencies to enhance the system autonomously.

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OVS is also an API server that provides REST APIS for the validation/inspection devices. The system clients can access these APIs via the API management gateway (Azure) or directly. For the validators that require very low response times, INIT suggests that the devices access the API services directly.

The APIs provide a standard and easily understandable interface to the next generation ORCA System. These APIs demonstrate the open architecture of the system, and provide the agencies full flexibility to integrate 3rd party sales and fare validation solutions. The following table lists some of the main APIs of MOBILEvario.

Specification	Description
Product API	API is tasked with product related operations
Fare Distribution API	API for selling fare products and adding stored value on transit accounts
Fare Payment API	API used by platform/vehicle validators and agency mobile app for real-time fare validation and stored value usage
Fare Inspection API	API used by fare inspection devices to check if a given fare media has a valid transit product
Transit Account Management API	API used by POS devices, web portals and CRM system to list transactions do value adjustments etc.
Customer Account Management API	API used by web portals and CRM system to manage registered users (including institutional customers)
Cardholder API	API used to query and modify data maintained on cardholders
Device Management API	API for remotely managing and monitoring devices in the City system

In addition to the above existing main APIs, INIT utilizes additional APIs – such as, central payment processing API – which will be added to the list during the design phase. INIT will also add specific APIs required by the ORCA Agencies such as, the onboard integration API. In addition to the APIs, INIT will publish specifications, as requested in the SOW, for all transactions generated and used within the system but not already covered by the required API.

INIT provides an easy to understand help page for all API calls.

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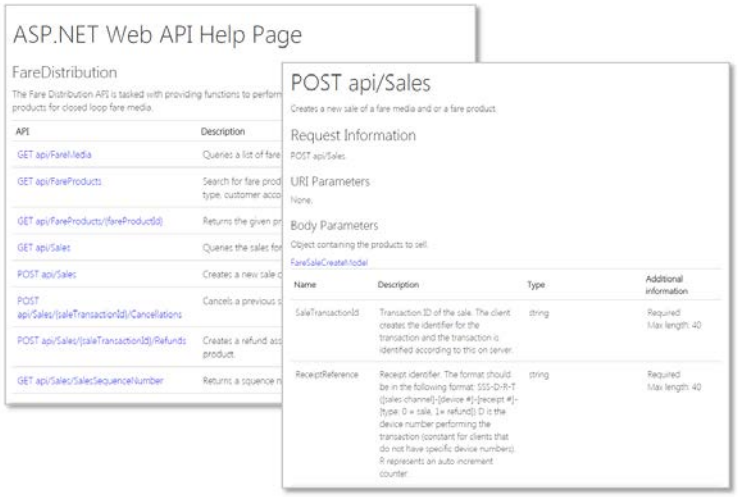
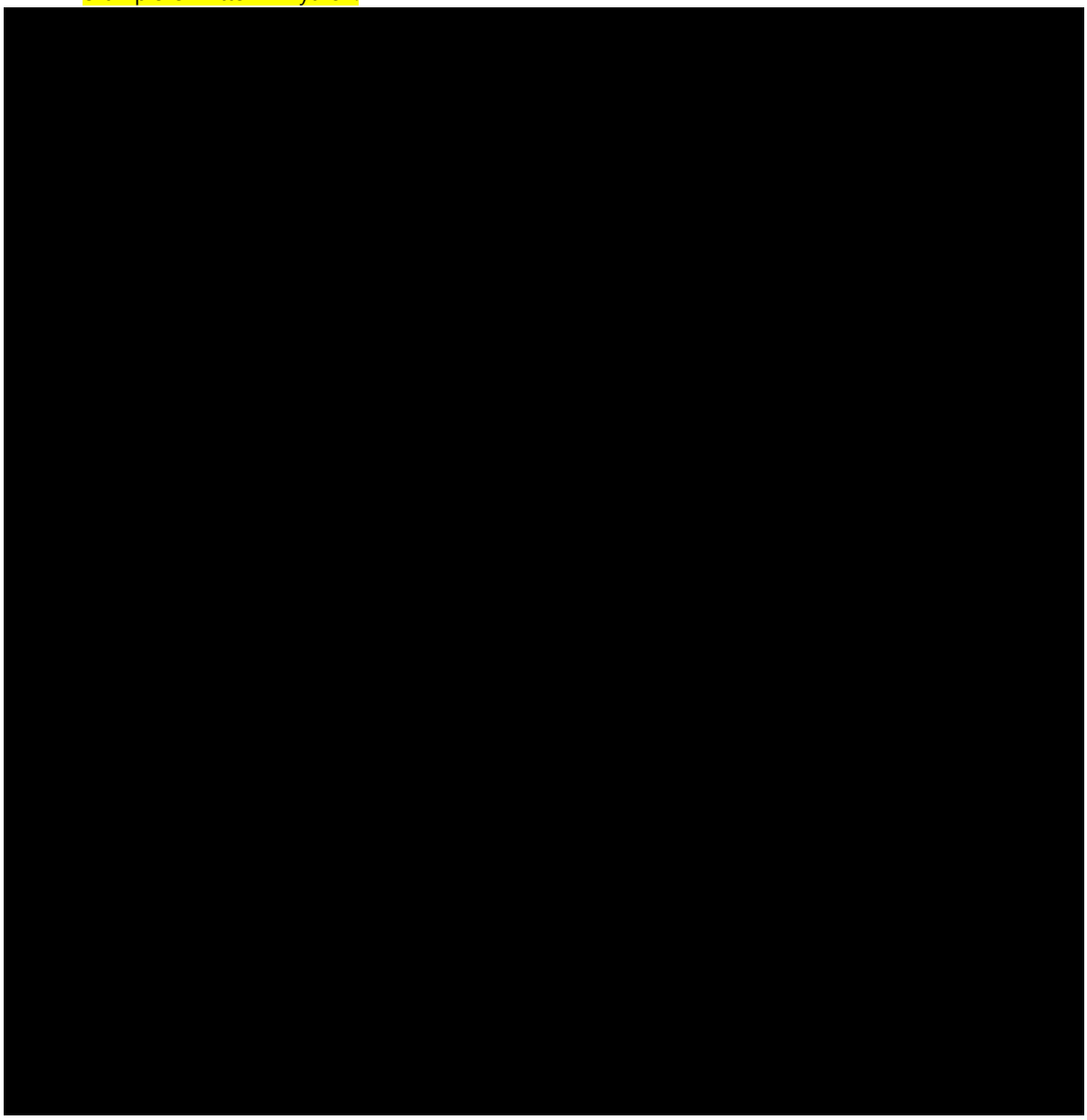


API Help Page

Below is a screenshot of an API development and testing session with postman (a very popular API testing and development tool).

In the above screenshot the users gets a list of the available sales channels with the SalesChannels REST API endpoint.

The following example shows how the get the 5 most recently blocked transit account. The example is written in Python:



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1.4.2.5 Network Architecture

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1.4.2.5.1 Description

The proposed network architecture consists of enterprise class servers, storage and networking deployed in a multi-site, stretched virtual cluster leveraging geographic load balancing to create an active/active disaster resilient infrastructure. Production and pre-production virtual machines and applications live within the resources of the stretched cluster which is capable of making either proactive or lightly automated decisions to ensure system availability across sites. A separate test back office infrastructure replicates the characteristics of the production system and a third out-of-region data backup facility ensures data availability in the rare case of a catastrophic regional event. While a multi-site active/active datacenter architectures provides for the high availability and disaster avoidance infrastructure next generation ORCA requires, it does add a level of complexity within the operating environment that can work against availability goals. This is primarily due to the additional technologies, configuration, monitoring, and autonomous response involved in disaster avoidance. Disaster avoidance and disaster recovery are not mutually exclusive; however, focusing on disaster avoidance typically results in less structured or resourced disaster recovery orchestrations. A multi-site active/failover datacenter architecture protects against the majority of the availability limiting scenarios but also adds in testable, repeatable failover orchestration capabilities which is typically described as disaster failover and recovery. See Appendix A: Disaster Avoidance vs. Disaster Recovery for additional information.

Hosted in the Seattle area, a local, low-latency data center infrastructure with broad wide area networking capabilities ensures uninterrupted access to internet based resources and agency networks. Enterprise class data center software including [redacted] provide commercial off-the-shelf software capabilities to create a managed, secure and resilient information technology infrastructure. Local, remote and data-center managed services provide 24/7/365 response capabilities to infrastructure events. The two proposed datacenters [redacted] account for the real-time, or near-real time data synchronization necessary for an active/active cluster. While active/active clusters can be installed in environments further apart then the two proposed facilities, there is a geographic distance limitation which can be increased with additional licensing and configuration cost. INIT has identified more than one potential data center provider that can provide two datacenters in the Greater Seattle area as well as

The [redacted] hosted environment was proposed to be able to provide a localized data center, with private cloud resources and security, at a predictable cost. Hosting in a public cloud increases latency risks between agencies, users, vehicles and the public cloud hosted back end environment. Due to the sensitive nature of real-time validations, INIT prefers deploying in locations close to the operating environment. INIT recommends private-cloud infrastructures to

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provide more administrative control, monitoring, and single-tenant storage and resource guarantees. Further, the private cloud strategy provides a more predictable cost over a long period of time which more appropriately matches the fixed price contract and should allow the agency to avoid spikes in operational costs due to configuration changes made in the future.

[redacted]

1.4.2.5.2 Onboard Infrastructure

INIT supplied on-board equipment such as fare validators will leverage the agency-provided mobile access router (MAR) providing the required cellular or wireless communications to the back office. INIT recommends leveraging VLAN capabilities of the MAR to segment fare-related network traffic from other onboard technology systems such as CAD/AVL. INIT will require specific ports and protocols to be able to be routed through the MAR for the purposes of basic communications, software updates, and device management. Typical network protocols such as DNS, NTP, SNMP, UDP, HTTP/S, SSH are requested and either standard or non-standard ports can be assigned during design review. INIT recommends this traffic be routed [redacted] network, file transfer to the backend will occur via the [redacted] protocol.

1.4.2.5.3 Wayside Infrastructure

INIT supplied wayside equipment such as pole validators or VM's will leverage agency-provided wired infrastructure for communications to the back office.

1.4.2.6 System Hosting

INIT interviewed and analyzed several data center providers to provide the hardware, software and managed infrastructure as a service required to operate the next generation ORCA back

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office technology infrastructure. As expected, a large number of datacenter options available in the Seattle area were capable of fulfilling the technical requirements; however, several providers specifically met INIT's goals of having a strong, local Seattle-based presence, multiple local data centers, and a third, out-of-region on network datacenter. Superior availability, security, and deep technical engineering experience were also a key requirement used during our analysis.

INIT proposes [redacted] as the IAAS provider. [redacted]

[redacted]

1.4.2.6.1 Customer References

[redacted]

1.4.2.6.2 Security

[redacted]

1.4.2.6.3 Wowrack Staffing and Resources

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted])

[redacted]

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[redacted]

1.4.2.6.5 Wide Area Networking Capabilities

[redacted]

1.4.2.6.6 Single Tenant Private Cloud

[redacted].

1.4.2.6.7 Multi-Site

[redacted] Multi-site solutions prioritize proactive and partially automated disaster avoidance over orchestrated failover oriented disaster recovery strategies. A third site will be leveraged for an out-of-region data archive location to ensure data availability in the unlikely event of a regional disaster that could impact both data centers.

1.4.2.6.8 Load Balanced / Parallel Transactions

The multi-site infrastructure allows for the hosting of web sites and API services at both data center locations simultaneously. A load balancing strategy providing global server load balancing DNS-based capabilities allows traffic to be routed into either data center. This allows

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[redacted]

1.4.2.6.9 Hardware Redundancy

All deployed hardware is deployed using industry standard best practices in either active/active or active/passive configurations depending on the technology layer. Any networking devices such as switches, routers, firewalls, fiber switches, etc. are deployed in high availability configurations with at least two devices in each datacenter location. This allows for multiple network and storage network paths between host servers, storage, and wide area networks.

All storage mediums regardless of location in servers or dedicated storage arrays are protected with RAID ensuring disk failures or disk performance issues can be isolated and protected from impacting the system as a whole.

Multiple host servers are deployed to create a larger, distributed resource pool the virtual machines and appliances can use to perform the compute operations necessary. For example, five host servers are clustered together into a virtual datacenter to create a pool of CPU and Memory resources. The deployed virtual machines can operate on any of the five hosts that has enough capacity to run the provisioned resource requirements. Hosts are configured with greater resource availability then the system requires to provide for availability, scalability and redundancy in the case of a host failure or intentional host maintenance.

1.4.2.6.10 Data Resiliency

Data is written into multiple databases in near-real time ensuring transactional integrity of the database. All databases, virtual machines and applications are stored on enterprise class storage devices leveraging redundant hard drives (RAID) to provide a resilient data infrastructure. Additionally, this data is replicated to secondary storage locations as well as archived to the off-site data storage location outside of the Seattle area.

1.4.2.6.11 Hardware Refresh

Over such a long period of performance, the back office system will necessarily undergo one or more hardware refresh cycles. Estimated to be at least every five (5) years, the INIT and WOWRACK teams will ensure maximum availability through regular hardware maintenance and refresh.

1.4.2.7 Operational Security

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Perhaps one of the broadest areas of ISO guidance is operational security. INIT's proposed back office system already addresses many of the primary sub-clauses critical to maintaining the availability of the environment.

1.4.2.8 Security Operations Center

To support the security, compliance and ISMS requirements of next generation ORCA, INIT intends to operate a security operations center to monitor, evaluate, and respond to security incidents, vulnerabilities, or unexpected changes to the environment. The security operations center is responsible for security incident event management (SIEM), log management, intrusion detection and regular vulnerability assessments. In addition to providing a mature set of security related tools, the security operations center will evaluate and escalate important incidents while minimizing the significant amount of noise and overhead associated with managing these tools and their outputs. The Security Operations Center provides security management for perimeter defenses, data protection, endpoint protection, and vulnerability protection.

INIT will leverage [redacted] a Security Operations Center service provider will provide the security operations center applications and staff to monitor, analyze and report on the next generation ORCA infrastructure. [redacted]

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1.4.2.8.1 Change Management

While the change management process and communication is handled by the Atlassian tools JIRA Service Desk and Insight, additional device and configuration change of IT devices are monitored and managed by [redacted] is a file integrity management platform that provides change auditing and security protection to servers, networks, databases. Deployed as an on premise, agent based system, [redacted] provides change details to support the who, what, when question details of changes. In addition to supporting ISO guidance, a change management control system also supports related PCI-DSS requirements for file integrity monitoring and change detection. [redacted] multiple change detection and response options including logging, recovering and prevention.

1.4.2.8.2 Web Server Change Tracking

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[redacted] can be deployed to protect the configuration and content files behind public web servers. [redacted].

1.4.2.8.3 Network Device Change Tracking

[redacted].

1.4.2.8.4 Databases Configuration Change Tracking

[redacted]

[redacted]

1.4.2.8.5 Malware/Antivirus Protection

In addition to change management, anti-malware and anti-virus solutions align with controls recommended to protect the integrity of information systems. An effective anti-malware platform provides endpoint security to the servers and workstations deployed as part of next generation ORCA. [redacted].

1.4.2.8.6 Patch Management

Expected changes to the environment include those introduced by application and operating system patches. Following ISO guidance and general IT best practices, INIT will deploy a patch management platform to handle physical and virtual environments both internally and externally from the data centers. [redacted]

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[redacted]

1.4.2.8.7 Capacity Management

Capacity management which monitors capacity and makes projections about future resource requirements is provided by an array of management and monitoring solutions. While the monitoring solutions are typically implemented as part of a larger Systems Management solution, the individual monitoring tools also provide the capacity management capabilities.
[redacted]

1.4.2.8.7.1 SolarWinds Network Performance Manager

SolarWinds Network Performance Manager (NPM) provides performance monitoring and trend analysis for network and server devices in the back office environment. The solution extends beyond internal network devices to monitor and track WAN performance and capacity between the back office and the agency endpoints. While primarily used for system monitoring and reporting, the NPM platform provides the data collection and analysis needed for network capacity monitoring.

1.4.2.8.7.2 SolarWinds Server Application Manager

SolarWinds Server Application Manager (SAM) provides performance monitoring and trend analysis of server resources in the back-office systems. SAM provides the capability for timeline based data correlation to provide operational intelligence across the technology stack. This data correlation allows for trend analysis intelligence to be performed between network, server, storage, and virtualization layers. While primarily used for system monitoring and reporting, the SAM platform provides the data collection and analysis needed for system resource monitoring.

1.4.2.8.8 Environment Separation

ISO controls suggest the separation of development, testing and production environments and INIT's proposed back-office infrastructure is deployed in support of that guidance. As demonstrated in the network architecture diagram, the production and pre-production back office systems are built within the same hosted, multi-site, distributed infrastructure and share

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the directory, monitoring, redundancy, load balancers and other administrative services deployed in support of the back-office requirements. Leveraging these support functions for both production and pre-production help limit costs and complexity while providing segmentation and isolation for the pre-production environment. Virtual machines from the production environment can be replicated to the scaled down, separate test environment deployed on a separate infrastructure. While representing smaller scale and redundancy of the production environment, the test environment will mirror some of the load balancing and disaster avoidance strategies in order to be able to test these functions from the test facility. Development environments are deployed and maintained in virtualized development environments in INIT's on premise datacenters [redacted].

1.4.2.8.9 Backup

Backup is an integral component to system availability, business continuity and disaster recovery objectives. INIT will deploy a backup infrastructure to complement the multi-site disaster avoidance strategy as detailed in the Network Architecture section. INIT deploys backup solutions which are purpose built to leverage virtualization benefits allowing both full and incremental backups to be taken quickly and without production impact. Our backup controls are focused on backup verification and quick data recoverability. Integrations with VMWare, Windows, and Oracle provide granular backup and recovery options at either the virtual machine level or the file level. INIT proposes an out-of-region data backup facility to ensure resiliency from regional issues with the possibility of impacting both production datacenters in the greater Pacific North West region. Backups will occur locally within the production back office and be copied to an offsite, out of region storage location. This strategy provides for near-store backup data for the fastest RTO and RPO as well as for a remote-store backup for longer RTO/RPO but with protection against the rare, regional disaster that could affect the entire regional system and datacenters such as fire, flood, or earthquake. The scope of backups include applications, network devices and databases. Backup controls are additional to the disaster avoidance controls detailed in the Network Infrastructure and Business Continuity sections.

1.4.2.8.10 Network Segmentation

ISO27001 recommends introducing controls within larger network environments that segregate information domains to smaller, specific purpose enclaves. INIT's deployment strategies reflect this guidance using load balancers, firewalls, VLAN's, and DMZ's to segregate public facing services from internal servers including database servers. The creation of logical security perimeters creates the capability of further access control to higher-secured zones. A limitation of Internet access from some of the higher-security zone enclaves provides further protections but also creates complexity in operations. INIT leverages centralized patching, virus

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management and remote access proxies to extend the necessary management controls into the secure network segments.

1.4.2.8.11 Server Hardening

As recommended, INIT uses a standard server implementation template which has been hardened towards benchmarks from Center for Internet Security (CIS). INIT implements controls suggested by the CIS on a regular basis which improve the security of system without producing undue complexity or overhead. INIT prioritizes the selection of controls that are both simple and secure to ensure an environment simultaneously secure and manageable. Specifically, public facing servers such as web servers with Microsoft IIS receive additional configuration scrutiny and hardening to limit potential attack surfaces.

1.4.2.8.12 Security Incident and Log Management

[redacted]

1.4.2.9 Business Continuity & Disaster Recovery

A load-balanced, multi-site, active/active datacenter architecture provides the highest levels of availability focused on disaster avoidance through both light automation capabilities as well as proactive administrator-driven actions. [redacted]

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[redacted]

1.4.2.9.1 Disaster Recovery Plan

INIT's disaster recovery plan, of which a sample template has been included, contains industry standard disaster recovery information. Because the proposed architecture is primarily designed to avoid disaster, the plan also includes details on the expected automated responses the system will take in certain common failure scenarios. Also included are templates for documenting business impact analysis and risk assessments that will be performed in collaboration and cooperation with ORCA agencies. Key personnel, application lists and dependency mappings are also detailed to provide operational intelligence to consumers of the disaster recovery plan. The DRP is intended to be a living document with updates made on a semi-annual basis to ensure accuracy, document changes, or to add additional information. A proposed disaster incident workflow and response plan document a recommended course of

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action and tracking mechanism that extends from disaster declaration and communication to system recovery priorities and order of operations.

Additionally, the disaster recovery plan would include data restoration procedures to restore data locally or from the proposed out of region data archive.

1.4.2.9.2 Out of Region Backup

[redacted]

1.4.3 System Integration Services

INIT will provide an open platform and work collaboratively with the ORCA Agencies and other parties to integrate new agencies, services, functionality and subsystems to the next generation ORCA system.

1.4.3.1 API Management

For API Management INIT proposes the comprehensive and widely used [redacted] The following diagram shows the proposed integration with the MOBILEvario APIs.

Client devices and software use the MOBILEvario APIs directly to provide the minimal latency times for the most critical system clients (for example the validators that require 500ms response times). Depending on the configuration that is determined during the negotiation or system specification phase, validator components can also be placed to use the API gateway. This depends on whether the vehicle routers (MARs) will provide a public internet or private APN connection.

With the API management, ORCA is able to publish APIs for different 3rd parties and publish even public APIs for everyone to use. ORCA can publish for example a public API to get the pricing information. Since this kind of information is normally read only, it can be cached in the gateway without placing too much burden on the fare collection system.

The Azure API management system also supports industry standard client authentication methods such as Oauth and OpenID. Authentication with client certificates is also possible.

ORCA can also set limits for certain API clients; for example, limiting the number of API calls allowed per day. This is very important to secure proper system operation in case of malfunctioning API clients or DoS attacks on public APIs.

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Although it is possible to implement on premises API gateway with some of the API gateway providers (for example Azure does not provide this option), the common way today is to use a cloud/SaaS based solution which is also in line with the agencies preference. In order to overcome any latency issues for devices for which the latency time is critical (validators), INIT suggests that the validators use the OVS APIs directly to ensure low latency and high throughput for other system clients, Azure API Management provides two independent sites at US west coast (WEST US and WEST US 2). INIT proposes a solution where both sites are used. This will further decreace latency and increase throughput. If the agency prefers on premises API management instead, this can also be discussed during the system design phase.

General information on [redacted]

[redacted]

[redacted]

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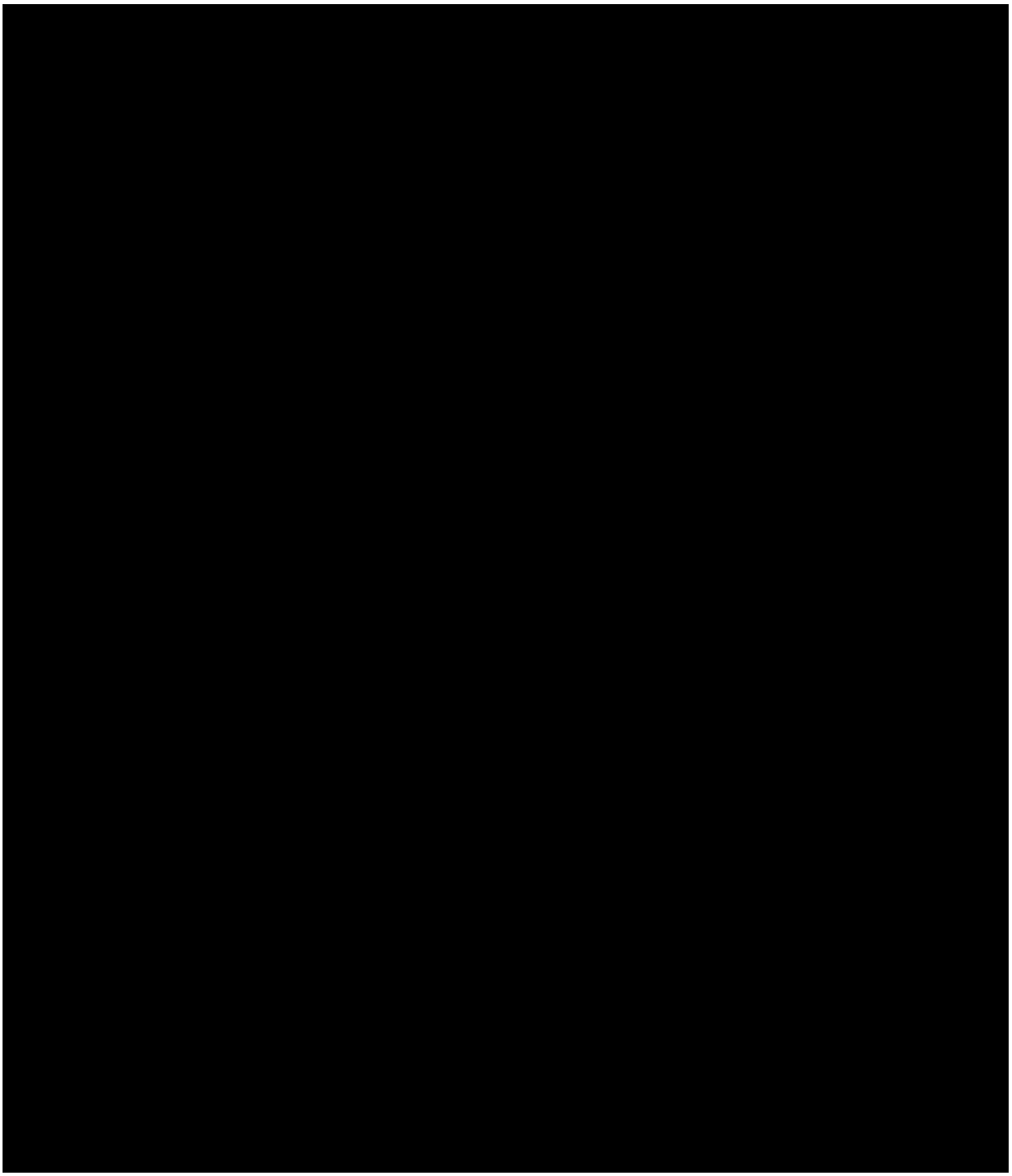

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1.4.3.2 Onboard Integration

INIT currently provides the CAD/AVL equipment for the majority of the buses that participate in the next generation ORCA system (i.e., for King County Metro (KCM) and Community Transit (CT)).

Consequently, INIT can provide the onboard integration more cost-effectively and with lower implementation risk than other proposers. These advantages are especially amplified for the higher-level of integration required for the KCM busses. The integration at KCM, and potentially at Community Transit will require the INIT CAD/AVL DDU to also act as the next generation ORCA DDU. INIT will be able to provide single sign-on easily on these agencies' buses.

INIT's also has extensive experience with onboard integration to other vendors' onboard equipment, such as Clever Devices and Conduent. INIT will integrate with the remaining Agencies' onboard CAD/AVL equipment to obtain geolocation data, work status information (i.e., route/run/trip), and to provide single sign-on logon.

INIT will realize this interface over one of the open onboard communication standards – such as, J1708/1939, Ethernet/Wi-Fi, Bluetooth, and/or USB. The specific details will be determined during the design phase.

INIT recommends the use of the INIT developed Information Sharing Interface (ISI) to perform the on-board integration effort. The ISI is a TCP/IP based interface to share information like login information, trips, routes etc. The ISI messages are XML based and the interface used for dozens of integration projects between INIT devices and other vendors.

1.4.3.2.1 ISI Communication Example

In this example the validator requests the route number from the CAD/AVL system. The validator application sets a cyclic trigger and a change trigger for the route data items. This means that the CAD/AVL system will send the route number whenever the number changes and in addition every 60 seconds.

The application also sets an identifier <IsiId? for the IsiPut Message to have to ability to disable this message later.

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The IsiGet Message looks like:

```
<IsiGet>
        <IsiId>123</IsiId>
        <Items>RouteNo</Items>
        <OnChange>RouteNo</OnChange>
        <Cyclic>60</Cyclic>
      </IsiGet>
```

The IsiPut Message that the CAD/AVL system will return looks like this:

```
      <IsiPut>
        <IsiId>123</IsiId>
        <BlockNo>1401</BlockNo>
      </IsiPut>
```

1.4.3.3 Customer & Agency Interfaces Integration

As discussed, connections between the back office and customer and agency interfaces – such as, the customer website, customer mobile app, and agency mobile apps, will be performed through INIT-provided APIs.

1.4.3.4 Washington State Ferries

INIT will utilize the core next generation ORCA APIs to interface to the Washington State Ferries (WSF) frontend devices including the following:

- Turnstiles (fare gates used for walk-on passenger fare payment at certain WSF locations)
- Handheld validators (mainly use for fare payment – however, include additional capabilities to query an account and adjust next generation ORCA value and products)
- POS system (to collect fare payment at a passenger or vehicle tollbooth, do a transit account query, use ORCA stored value, or load value/product)

INIT understands that all fare amounts, including calculated peak fares by trip, will be determined by the new WSF fare collection system, EFS2, and the next generation ORCA back office will only determine the time-based peak pricing.

All INIT validators are using INIT's own Fare Payment APIs to perform fare validation. Those APIs would be used by the WSF Turnstiles and Handheld Validators too to access the ngORCA back

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office. INIT is familiar with 3rd parties doing fare validation using the APIs. E.g. in the Portland HOP Fastpass implementation the paratransit scheduling provider Trapeze is integrating into the back-office using INIT's APIs to perform fare payments.

INIT's proposed card scheme for newly issued cards includes a signature that can be authenticated by the Turnstiles and Handheld Validators using a public key. This would allow the WSF devices to authenticate the cards without exchanging the secret card key.

The Turnstiles and the Handheld Validators will most likely only have the need to make two API calls.

On a regular basis (INIT recommends every 30 seconds) the validators should update their status list. This is done using the GET TransitAccountStates call. The call is designed so that incremental list updates can be performed. Therefore, the validator will send the last status list version that the device loaded to the backend. The backend will then only return with the changes since the last version.

The second call that would need to be performed by the validators is the POST FarePayment call to perform the fare payment and deduct the appropriate fare. The FarePayment call will have a parameter to submit the fare value that should be charged.

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The Turnstiles / Validators may need to be integrated to the TransitAccountManagement APIs e.g. to provide further information to the Handheld Validator Operator or to the System Monitoring / Asset Inventory system. Further details need to be discussed during the system design phase.

1.4.3.5 Data Access & Reporting Platform (DARe)

INIT will work with the Agencies and the DARe vendor to design, build and test a system to Extract, Transform and Load (ETL) data from the next generation ORCA back office to the DARe for reporting. INIT will ensure that the data transmission module is secure, reliable and meets the ORCA Agencies' ISMS requirements. The data transmitted to the DARe will not include any PII or any data that would put the DARe in PCI scope. Customer and transit account identifiers will be obfuscated with a one-way hash. INIT will transmit this data to the DARe at least once a day. As called for in the RFP SOW, the design details of this transmission module will be determined collaboratively during the design phase.

The RFP states that DARe is focused on long term reporting. INIT generally considers that the end of an operation day is the best time for exporting data for long term reporting purposes. If needed the export can be done on more frequent basis as well (for example hourly).

1.4.3.6 Retail Network

MOBILEvario is INIT's account based open architecture back office system that enables the integration of various types of sales clients. This can support a range of devices from individual POS devices up to and including an entire retail sales network.

The main task of a retail sales network is to sell customers new smartcards and to add stored value to existing cards. Since, in an account based fare collection system, the smartcard is used merely as an account identifier and all information is stored in the back office, it is very important that all retail sales transactions are immediately sent to the APIs without any batching being performed which would delay the newly loaded value being credited to the customer's account. This way the passengers will be able to use the card on a bus or platform validator directly after purchasing it in the store. The instantaneous availability of loaded value increases customer satisfaction by eliminating the waiting period for value added to the ORCA card.

According the next generation ORCA RFP, the primary distribution channel for next gen ORCA fare media and stored value cards will be an extensive network of retail merchants. The retail network will consist primarily of merchant locations that currently sell prepaid debit cards (e.g., gift cards) and where the point-of-sale (POS) system is already integrated with at least one prepaid debit card network provider.

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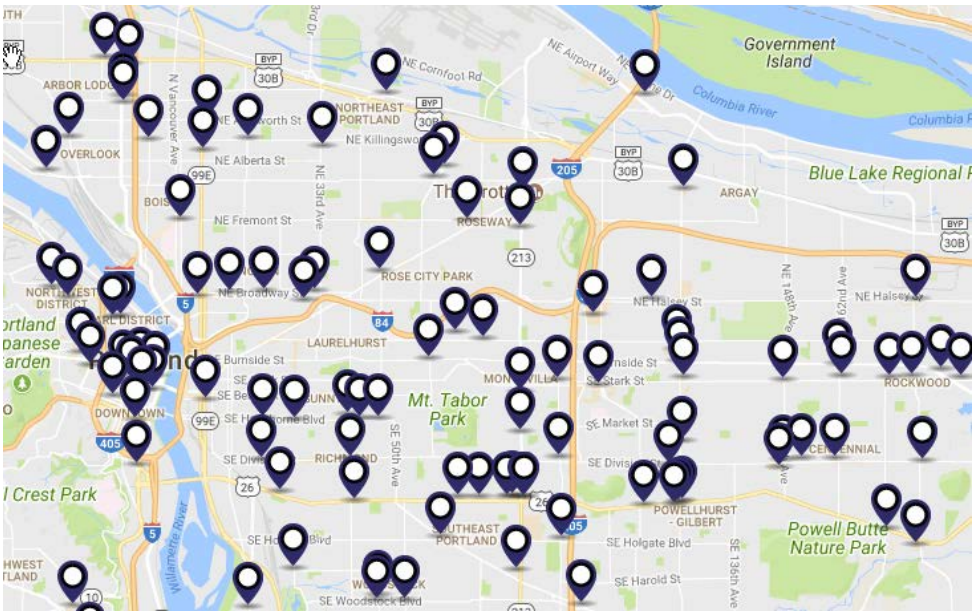
This scenario is identical to the retail network approach that was implemented by TriMet for the HOP Fastpass system in Portland, Oregon. The retail sales network implemented for the Portland HOP card uses ReadyCredit as the retail network. Retail outlets that are connected to this retail network include Safeway, New Seasons, Fred Meyer, 7-11 and others providing card distribution throughout the greater Portland metropolitan area.



Retail locations accepting HOP transactions in the Portland metropolitan area

The following diagram shows the main system components of the Retail Sales Network integration. The central service uses the REST/JSON API provided by the MOBILEvario system to add value/products to the card accounts (aka. transit account) and sell new cards. We do not envision that the payments of the retail network will be processed via the API's, but this would be possible too.

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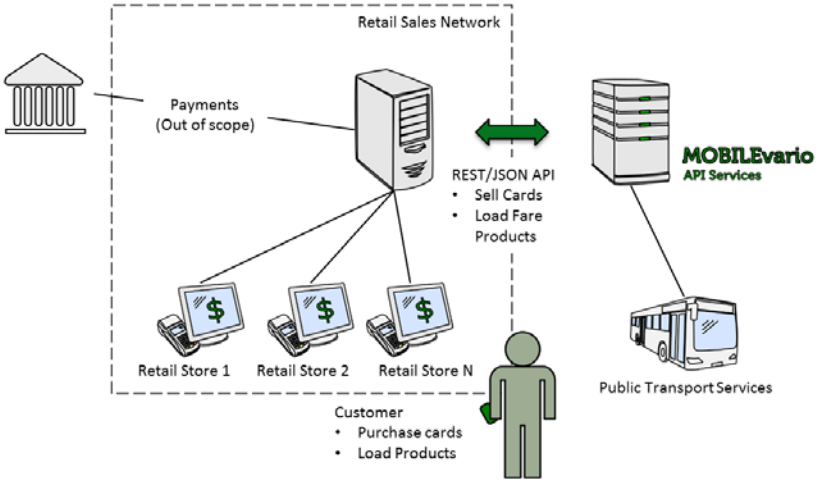

Retail Network System Components

1.4.3.6.1 Standard Use-Case

The retail network can either sell new passes or cash value loads. Giving the retail network the ability to load pass products may require complex interaction between the clerk and the retail load terminal (e.g. choosing the right agency, selecting the right product and fare category, selecting the right validity dates).

To avoid a complex selection process, other projects, like the HOP system in Portland, only allow cash value loads.

The following is a description of a normal sales procedure:

1. Customer selects a card from the card hanger or brings an already purchased card and passes it to the sales person.
2. The sales person swipes the card (either using the magnetic stripe) or scans it (using a barcode reader) to initiate the sale process.
3. The clerk asks for an amount of stored value to be added to the account and enters this amount into the POS.
4. The POS calculates the transaction amount. If the system detects that the card is new, the cost of the card will be added to the transaction.
5. The customer pays the amount owed.
6. The POS system generates the JSON transaction data for the MOBILEvario Sales API.
7. The transaction is sent to the MOBILEvario API.

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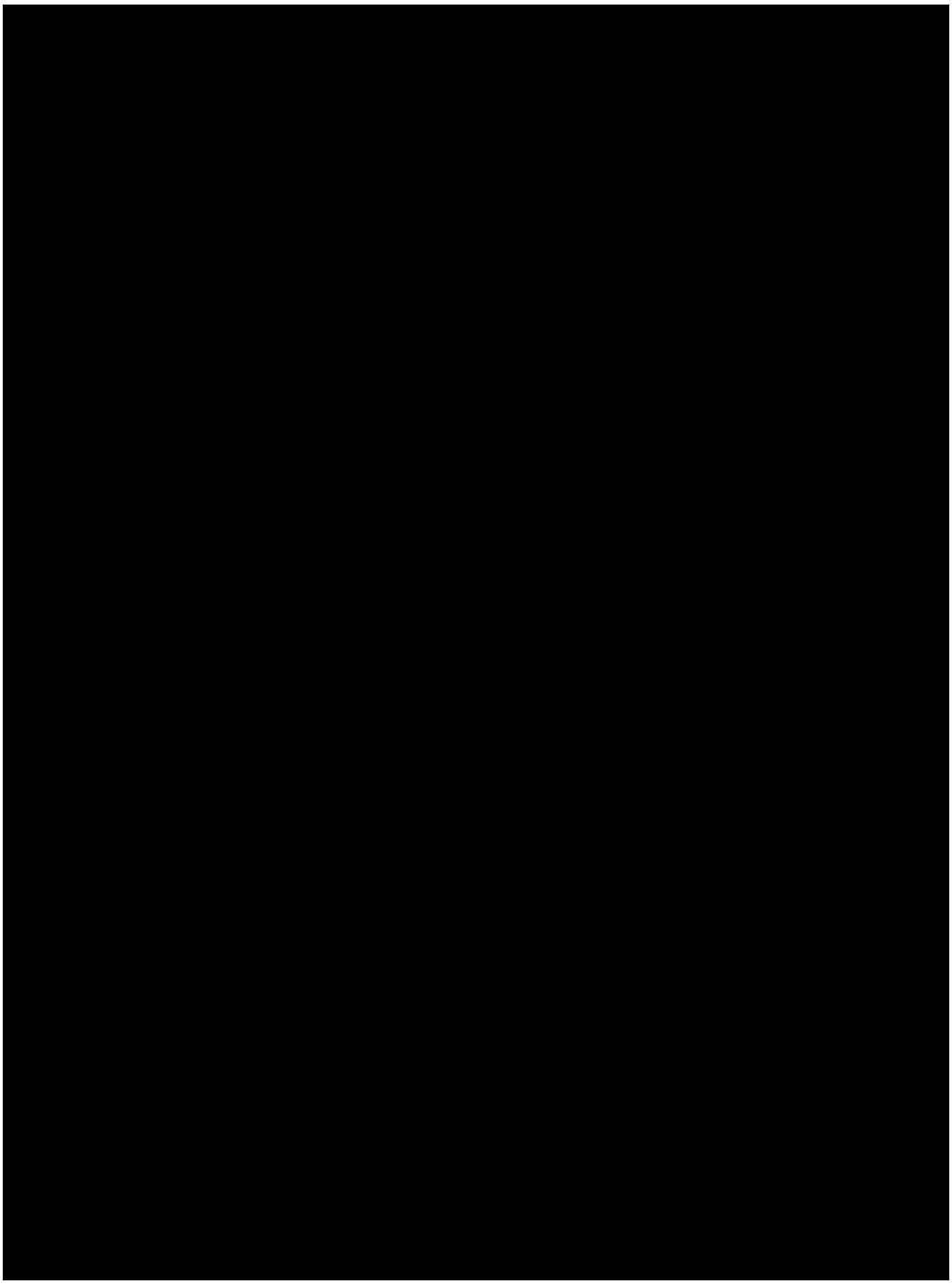
The API supports cancellations and refunds. This is especially important for situations where communication problems between the retail network and the backend exist.

With a cancellation, the sales client can cancel the whole sales transaction shortly after it is executed. For example, if the sales transaction with the API is done before the payment and needs to be cancelled due to failed payment. With the refund transaction, the sales client can refund a transaction made maybe days before and it has finer grade of control on what is being refunded and how the refund is made (cash, credit card etc.). It might be that the customer bought a card, $25 of stored value and a month pass and want to have refund only on the month pass, maybe day after the sales transaction. Which sales channels can make refunds is in the agencies consideration. For example, the sales network does not normally process refunds.

The Retails Sales Network will have its own sales channel identifier that is submitted in every transaction. Based on this identifier the retail network can be invoiced for the amount loaded to the cards.

1.4.3.6.2 Retail Network API Example

The most important end point for any sales client is the Sales API which is used to issue a card and/or add a fare product to the cards account. Following table shows the different fields in the transactions:



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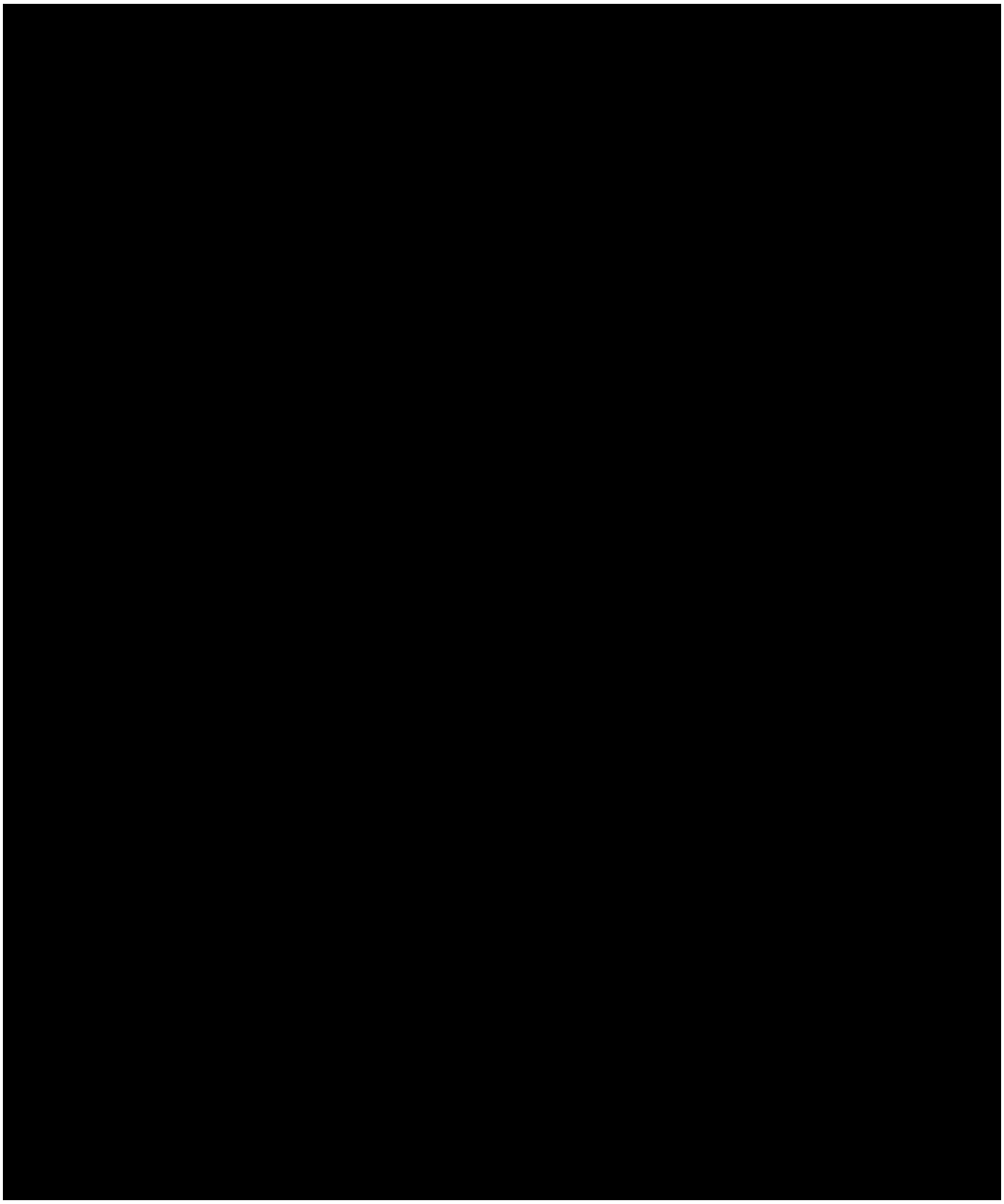

1.4.3.7 Back Office Integration with Existing Solution

INIT will exchange data with the legacy ORCA system via the DARe repository. During the transition, INIT will obtain legacy ORCA transit account information via the DARe and provide

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negative lists to the legacy ORCA system using its facility for the bulk uploading of lists. The actual method of information exchange and the design details will be determined collaboratively during the design phase.

All transactional data (e.g. all taps performed on the legacy ORCA validators) will be transferred to the ngORCA system using the DARe. Based on the dataset received from the DARe the Transit Account balances and all card histories will be updated accordingly.

The same applies to all sales transactions that are made with legacy hardware, for example with the legacy Vending Machines. All transactions will be transferred to the ngORCA system using the DARe.

Once the ngORCA system is the system of record, the only means for the legacy validators to determine if a card is valid is the status list / negative list. INIT will use a middleware to pull the status list information from the INIT API server and modify the list into any format so that it can be consumed by the legacy ORCA system. The status list could be a simple negative list with the card numbers of all cards that are blocked or have a negative balance. In addition, INIT could provide a blocking timestamp so that riders can finish their current ride that they paid for, even if their balance is negative at the end of the trip.

1.4.3.8 ADA Paratransit

INIT will replicate the legacy ORCA integration with King County's ADA paratransit system in Phase 1, and have it available for all participating ORCA Agencies.

Specifically, the next generation ORCA system will receive a list of eligible paratransit customers. INIT will support an agency-specific paratransit monthly pass, and the system will restrict sales of such a pass to eligible customers only. INIT will export a list with pass sales details from the back office on a daily or more frequent basis for import into agency paratransit databases.

In addition to system updates using a file import that contains all eligible customers, the customer eligibility for the ADA services can be managed by the CRM system.

1.4.3.9 Vanpool

INIT will replicate the current legacy ORCA System integration with vanpool systems in next generation ORCA system in phase 1.

The tariff will be configured with multiple Vanpool products with flexible value. The Vanpool users will be able to purchase this vanpool pass by typing in (or selecting from a drop-down) the monthly dollar value that they owe to the agency for the Vanpool services. The purchase can be made online, via app or using the CRM / POS.

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The Vanpool product configurations (e.g. validity/payment periods) will be configurable in the MOBILEvario Fare Management application.

All payments will be handled in the ngORCA background system.

1.4.3.10 Additional Integrations

INIT's proposed next generation ORCA System will support additional integrations beyond Phase 1 to include additional agencies and additional modes. The System will support the addition of unlimited new agencies including fare rules that are part of the existing design. The system will provide a scalable framework to support the growth in users and data inherent in adding agencies. The System will be able to integrate with the Kitsap Fast Ferries reservation system in Phase II. All agencies added after the initial implementation will use the System's user interfaces, process flows, and business rules as designed during the initial implementation. Additional agencies will be able to have revenue sharing and apportionment turned on or off according to the existing apportionment rules.

The System will support the addition of new transportation connections, modes and products (e.g., parking) with unique fare pricing and all the configurability of existing modes and products without additional development. The System will support additional modes (Transportation Connections) through APIs that allow third party developers of external applications to communicate with the System in order to manager fare products, transit accounts, and report transactions.

For further details see Tab 6 of this proposal.

1.5 A Service Proven and Innovative Solution

*Include a detailed description of **how** your proposed System conforms to the service- proven and other capabilities in the Scope of Work Sections 3 through 7, and, if applicable, clearly indicate whether or not the solution requires new development (and the extent of development required) or commercial-off-the–shelf (COTS) applications. Describe how the firm proposes to satisfy the service-proven capabilities and still be the innovative solution described in Scope of Work Section 1. For each furnished device that has been used in service, list public agencies or private organizations for which device has been supplied. Include the following information for each:*

a. Agency or company name and contact person,

b. Business address and phone number,

c. Model number (and original equipment manufacturer, if applicable) of the module,

d. Quantity of equipment provided, and

e. Approximate number of years in revenue service.

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1.5.1 INIT's Proposed System conforms to the Scope of Work

INIT meets the ngORCA capabilities by specifically meeting each of the ORCA Agencies' customer, technology, cost, and agency project goal. INIT's proposed system conforms to ngORCA's required service-proven and other capabilities by utilizing a combination of system modules and devices that include:

1. Service-proven INIT AFCS modules and devices
2. Best-of-breed Commercial Off The Shelf (COTS) business applications
3. Industry leading firms with proven AFC track record for externally sourced apps, and
4. New development for innovative enhancements

1.5.1.1 INIT Meets the ngORCA Required Capabilities

The table below indicates how INIT's proposed solution meets the ORCA Agencies' project goals.

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next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Customer Goals	
Ease of use	INIT provides intuitive user-friendly design for ngORCA onboard validators and platform validators. The public and internal websites and applications are developed under common UI/UX guidelines and principles ensuring user adoption. High volume applications are deployed through web-browsers for improved consumption and adoption. Agency employees also enjoy the ease of use of familiar web-based and client-server based, point-and click administration tools for back office administration, tariff management, and reporting. INIT administration tools provide the highest levels of configuration flexibility. A UI/UX consultant will assist INIT and the ORCA agencies in ensuring common design principles will support system adoption and use.
Convenience	INIT provides multiple channels to load and manage accounts – including websites, mobile websites, Vending Machines (VMs), call-center functionality, and customer service terminals (CSTs). INIT provides this capability with a service-proven, real-time account-based system so that customers can use their cards immediately after loading. *To enhance customer convenience INIT is offering its service-proven open-payments solutions in Phase I.* The INIT solution supports real-time transactions and real-time fare calculation for quick and accurate transaction time. The INIT solution supports offline transactions which ensure continuous boarding even in the event of back office systems being offline or during cellular service interruption.

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next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Equitability	Equitability is supported through cash-enabled vending machines, gift cards available through retail outlets and through innovative fare capping technology. Fare capping allows agencies to guarantee a fixed maximum price for varying terms including daily, weekly or monthly limits.
Existing relationships	INIT's website will provide an easy to use, full-featured administration tool for companies, universities, and social service agencies.
Seamless transition for customers	INIT will implement the ORCA Agencies' innovative transition strategy which utilizes the intermediary DARe database to minimize customer impact. *INIT will advance the Phase 5 and 6 transition schedules via resource loading to minimize the period of side-by-side legacy and ngORCA field devices which involves the most customer impact with customers potentially not receiving the most up to date account information.*
Open customer communication	INIT enables effective customer communication through powerful content management systems for customer information channels – such as, websites, VMs, etc.
Technology Goals	
Open architecture	Since the inception of its Automated Fare Collection (AFC) system, INIT has utilized an open architecture with extensive use of Application Programming Interfaces (APIs) which allow ease of interfacing between different system components – including third-party components.
Modular design	INIT's System highly modular design allows for the use and interchangeability of third-party Commercial-off-the-Shelf (COTS) solutions. This is supported by INIT's open API architecture and Azure API Management gateway.

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next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Real-time communications	INIT provides a proven real-time solution which enables customer transactions to occur within milliseconds – customer can use their cards or smartphone "virtual cards" immediately after loading fare products or value onto their transit accounts. The robust solution allows for low risk offline operations with local approvals and store and forward capability.
High availability	INIT utilizes an active-active, load-balanced geographically redundant dual-site Infrastructure as a Service (IaaS) solution at Level 4 data centers to provide disaster avoidance and an extremely high availability hardware and software solution. Additional offsite, out-of-region data backups ensure resilience from generally rare, but increasingly prevalent regional disasters.
Compliance with security standards	INIT has recently deployed multiple Automated Fare Collection (AFC) systems which are certified PCI compliant. INIT's security strategy involves industry best practices including, tokenization and cryptography. Additional IT security best practices such as log management, flow monitoring, file integrity management, endpoint protection and intrusion detection systems are used to protect the production environment. The Oracle Enterprise database is fully encrypted at the table level.
Minimize transition-only software	INIT's solution, based on the ORCA Agencies innovative transition plan, involves very minimal transition-only software. Although INIT will develop an interface to the DARe for information exchange with the Legacy ORCA, this interface will also be utilized for reporting of long-term data.
API integration	Since the inception of its Automated Fare Collection (AFC) system, INIT has leveraged the use of APIs to realize an open architecture platform. This use of APIs to integrate different applications and devices enables the easy use of best-of-breed third-party COTS solutions.

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next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Scalability	INIT's use of an Infrastructure as a Service (IaaS) solution allows for easy scalability as ngORCA expands agencies, modes, usage, and customers.
Cost	
Minimize dependencies on a single vendor	INIT's open architecture solution will allow for easy integration of different third-party COTS applications resulting in a higher-level of multi-supplier environment, increasing competition and reducing costs.
Manage and minimize risk to cost and schedule	INIT's use of a service-proven solution, extensive experience in the implementation of Automated Fare Collection systems and integrating to INIT CAD/AVL onboard equipment on the vast majority of the vehicles will significantly minimize risk to the program cost and schedule.
Lower Total Cost of Ownership (TCO)	The INIT solution lowers the TCO through the use of a service-proven platform (which minimizes development costs), an open architecture system (which increases competition), an INIT to INIT onboard system (minimizing complex, costly integration), and a Seattle office to provide deployment and ongoing support locally.
Agency Needs	
Preserve operating revenues	During the transition, integration with the DARe will protect data and operating information and therefore protect operating revenue. After transition, a robust financial management application and advanced multi-agency revenue distribution function will ensure accurate revenue reconciliation.
Revenue distribution	INIT brings an extensive track record in implementing multi-agency Automated Fare Collection systems with successful and accurate revenue distribution.

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next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Access to information	INIT employs a browser-based standard reporting application, VASAweb which provides easy access to standard reports. Further information is available in web-based systems management dashboards from MOBILEsymon, JIRA Service Desk, Riada Insight, and MOBILEGuard.
Increase ORCA usage and market penetration	INIT appreciates the business advantages of increasing usage and penetration, and will act as a partner and support the ORCA Agencies to advance this goal from a technology, business and operations perspective. *As indicated above, INIT proposes to advance the use of its open payments solution from Phase 2 to Phase 1 which should assist in increased use of ORCA.* The high performing transactional system combined with the user-friendly and well-designed website will encourage increased adoption and market penetration. The use of fare capping within the INIT platform will increase good will amongst riders by being able to ensure a guaranteed best fare.
Operational efficiency	INIT incorporates extensive experience in the transit industry and will deploy its operations-centric solution to optimize System operations, administration and maintenance. With a COTS-based solution and a very strong subcontractor partner team, the INIT team will be able to roll-out new functionality and upgrades faster. Given the separate test platform, INIT's existing remote field device software update capability, and the configuration and change management application, the INIT solution will facilitate the ORCA Agencies to quickly assess and pilot new technology features and implement them efficiently. INIT's open architecture and extensive use of APIs will enable successful integration and operation with legacy and third party systems.

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next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Work within the limited space available	INIT appreciates the space constraints on transit vehicles and has integrated with all major onboard transit equipment providers in a wide variety of locations including busses, LRV, streetcar, ferry, stations, garages and offices.
Scalable to agencies of varying sizes	INIT's system is very scalable and has been successfully implemented for multi-agency platforms with agencies ranging in size from several hundred vehicles to several thousand vehicles.

1.5.1.2 INIT's Service Proven Automated Fare Collection System

The table below shows how the proposed INIT system is service-proven – indicating that all the system components and devices have been deployed in other systems previously.

INIT's Service-proven Automated Fare Collection System

Agency	In-Service Date	ngORCA Proposed Back Office	ngORCA Proposed Wayside & Onboard Validators	ngORCA Proposed VMs	ngORCA Level Reliability, Accuracy, Availability
Portland, Oregon	Jun. 2017	●	●		●
Turku, Finland	2016	●	●		●
Sacramento, CA	Jul. 2017	●			●
Tampa, FL	Pilot Q2 2017	●	●		●
Luxembourg		●		●	●

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Agency	In-Service Date	ngORCA Proposed Back Office	ngORCA Proposed Wayside & Onboard Validators	ngORCA Proposed VMs	ngORCA Level Reliability, Accuracy, Availability
Bremen, Germany		●		●	●
Grand Rapids, MI	Pilot Q3 2017	●	●		●
Honolulu, HI	Pilot Q1 2018	●	●	●	●
Orange County, CA	Pilot Q4 2017	●	●		●
Metrolink SCCA – Los Angeles*	Pilot Q4 2019	●		●	●
MTA Nashville, CA*	Pilot Q4 2019	●	●	●	●

* Projects recently awarded but not yet contracted.

1.5.1.3 A Balance of Service-Proven, COTS, and Innovative Modular System Design

INIT's proposed System provides a balance of service-proven, COTS and innovative modular design as indicated in the table below. This approach balances the risk mitigation and cost-effectiveness associated with service-proven components, and state-of-the art functionality associated with new development. Even though INIT's modules are service-proven, they continue to be updated and are very current. The most recently successfully implemented systems include Portland, Turku and Birmingham. Systems currently being deployed include Honolulu, Tampa, Grand Rapids and a recently awarded contract with SCCA Metrolink in Los Angeles County for a large number of VMs and MOBILvario back office software.

INIT understands that the ngORCA project is very complex. We have changed some of the percentage values in the table and added justification for them.

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System Module / Application	INIT Service Proven Module	COTS Module	Externally Sourced Modules	Innovative Development/ Customization (Estimated)
Account-based Transaction Processor (ATP) Percentage justification: INIT is using the OVS already in four projects and the experience has already shown that the API is mature and does not require much changes. INIT is however not underestimating the ngORCA complexity and the given 5% here is already a high percentage of changes for a mature API. For example, for Tampa and Grand Rapids projects no changes to the API were necessary.	MOBILEvario OVS & MOBILEvario API Server			5%
Customer Relationship Management (CRM) Percentage justification: INIT is not underestimating the CRM integration effort. INITs CRM/Salesforce integration strategy is designed together with a 3rd party Salesforce consultant (Persistent Systems). This strategy is designed with a high level of code-reuse in order to reduce the integration effort. INIT however agrees that the CRM integration is something that will require lot of integration effort and therefore the original estimation of 15% has been increased to 25%.	MOBILEvario CSW	[redacted]		25%

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System Module / Application	INIT Service Proven Module	COTS Module	Externally Sourced Modules	Innovative Development/ Customization (Estimated)
Asset Incident Management Percentage justification: Since the effort is mostly integration effort of existing systems, INIT considers that the 15% value here is correct.		[redacted]		15%
System Manager Percentage justification: INIT will need to make many project specific adaptations to MOBILEsymon and other parts that deliver status information to MOBILEsymon. 20% is already a high level of changes for this purpose. INIT is not under-estimating the effort.	MOBILEsymon	[redacted]		20%
Fare Media Management Percentage justification: This effort is corrected to 10% since we need project specific changes to the MOBILEvario inventory management	MOBILEvario Inventory Management	[redacted])		10%

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System Module / Application	INIT Service Proven Module	COTS Module	Externally Sourced Modules	Innovative Development/ Customization (Estimated)
Financial Management Application Percentage justification: INIT will need to implement the ORCA specific revenue apportionment and recognition rules. We do not currently know in detail how these rules look like, but according to the comments on INITs proposal they are apparently complicated so the percentage is here corrected upwards. INIT is however allocating a software engineer, who implemented the MOBILEvario revenue recognition and apportionment for on site development in Seattle for the ORCA project. This mitigates the risk and lowers the implementation effort. The revenue sharing and clearing is less SW development and more developing the operational processes for the INIT operational team and ROOT. This effort is not considered SE or integration effort here.		[redacted]		15%
API Management Application Percentage justification: INIT will integrate the API gateway to INIT APIs. INIT needs to develop the API description files that are exported to the gateway. INIT also has effort on the integration and configuration. 20% effort is justified here.		[redacted]		20%

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System Module / Application	INIT Service Proven Module	COTS Module	Externally Sourced Modules	Innovative Development/ Customization (Estimated)
ORCA Website Percentage justification: INIT and Marathon are using an industry standard CMS (Umbraco) with high level of code re-use from other projects. The look and feel however require a decent amount of adaptation. In addition, there are also new features to be implemented. The business website, customer website and Mobile Website are combined in the revised proposal.			[redacted]	60%
Agency Mobile Apps (Fare Inspection & Validation) Percentage justification: INIT is already delivering the validation and inspection apps to Honolulu and inspection App to Grand Rapids. The user interface needs to be adapted to meet ngORCA's requirements, but we do not expect big changes to the functionality.			[redacted]	25%
"Virtual Ticket" Mobile App Percentage justification: Bytemark have already implemented account management functionality for their mobile app for our customers in Grand Rapids and Tampa. The Virtual Card is independent on the mobile app.			Bytemark	20%

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1.5.1.4 Service-Proven Devices and Modules

The table below illustrates the type, quantities, length of time and references for the hardware devices that we are proposing for next generation ORCA project. For the Driver Display Unit (DDU) INIT is proposing it newest model, the TOUCHit3, which utilizes similar circuitry as the highly proven TOUCHit2, but with the following enhancments:

- Use of a capacitive (as opposed to a resistive) touchscreen for a brighter and sharper display, and a more responsive touch
- Independent standalone power circuitry as opposed to being dependent on the COPILOTpc2 onboard computer

Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Original Version)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]								

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Original Version)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]								

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Original Version)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]								

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Original Version)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]								

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Original Version)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]								

[1] Although the TOUCHit3 is a new model, it mainly uses the same electronics as the TOUCHit2 but with a capacitive (versus resistive) touchscreen for sharper and brighter display and a more responsive screen – the TOUCHit3 also provide internal power conditioning circuitry to obtain the power feed directly from the vehicle power source as opposed to the onboard computer.

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Original Version)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]								

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Original Version)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]								

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Original Version)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]								

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Original Version)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]								

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Original Version)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]								

The "Years in Revenue Service" apply to the Service Proven Design. INIT has updated the design to meet industries demands. PROXmobil1, PROXmobil2 and PROXmobil3, TOUCHit1, TOUCHit2 and TOUCHit3 are all based on the same service proven design, PROXmobil3 and TOUCHit3 are very recent and the latest versions of the design. INIT does not have any plans make any of the devices obsolete for the current customers. We still deliver the same hardware for our customers who procured their ticketing systems 15 years ago. Whenever possible, INIT also makes the new models compatible with the old versions. For example, a current TOUCHit1 user can use TOUCHit3 without any HW changes since the attachment, connector and signals are backwards compatible. INIT has a strong experience and knowledge on providing backwards compatible hardware that also meets the latest technology requirements.

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1.5.1.5 Fare Media

For the next generation ORCA system, INIT proposes the [redacted] which provide an excellent option for account-based transit applications because of the limited storage capacity that is needed. Additional features of this of [redacted] include:

- [redacted]

[redacted]

1.6 INIT's High-Reliability Field Devices and Subsystems

Specifically for Field Devices and Subsystems (Scope of Work Section 4):

a. Provide a detailed description of each of the following proposed devices, software, and associated mounting systems:

- *i. Onboard Validator*
- *ii. Driver Display Unit*
- *iii. Wayside Validator*
- *iv. Vending Machine*
- *v. Customer Service Terminal*

b. For each device listed in 6.a. above:

- *i. Provide drawings that show dimensions and materials used*
- *ii. Describe supported functionality as it relates to the capabilities in Scope of Work Section 4*
- *iii. Describe the proposed customer interfaces for each device*
- *iv. Describe the communication interfaces provided*
- *v. Describe the interchangeability of modules and assemblies among devices and ease of maintaining the components of the system and the expected reliability of the equipment*

INIT's extensive experience and wide range of fare collection solutions including wayside validators, onboard validators, driver display units, vending machines, and customer service terminals provide a coherent customer experience, with similar look and feel across all the POS service points throughout the entire next generation ORCA system. The customer payment experience is designed to be a uniform and smooth experience for all riders including commuters, infrequent customers (including tourists), children, the elderly, persons with

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disabilities, customers with impaired vision, customers with impaired hearing, and non-English speaking customers.

INIT's highly configurable Vending Machines (VMs) and validators will facilitate ORCA agencies to design a coherent customer experience for all customer facing equipment and applications. INIT and its User Interface/User Experience (UI/UX) consultant, will work collaboratively with the Agencies to develop a design that defines the UI/UX components – including:

- Consistent cross-platform branding
- Interface displays
- Lettering
- Lights
- Colors
- Tactile feedback
- Brightness
- Graphics
- Animation
- Screen savers
- Surface texture
- Component size and height

1.6.1 INIT's Service-Proven PROXmobil3 Vehicle Onboard and Station Platform Validator

INIT is proposing the same validator for vehicles and platforms. This simplifies operations and maintenance due to the benefit of shared spares and common training.

For well over a decade, INIT has provided validators to process tickets and electronic fare media serving riders around the world. We are now in our third generation of smartcard validation/processing devices, the PROXmobil3. Our latest generation of validators is designed to process all currently available smart media, barcoded paper and mobile tickets.

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Flexible, fast and secure

An easy-to-use fare collection system makes public transportation more attractive. Especially now that electronic fare management and passenger-operated terminals are in great demand.

Like its predecessor, INIT's new passenger terminal PROXmobil3 supports all variations of e-ticketing. The housing is more sleek taking up less aisle space on the vehicles.

With its 12.0 cm (4.75-inch) display PROXmobil3 offers passengers a convenient and intuitive way to manage all their ticketing transactions. For instance, they can select the ticket that is best suited for their needs, store tickets on smart cards, or validate bar code tickets. VDV-KA, ITSO, Calypso and boarding control are supported, as well as credit card based applications according to the EMV standard or account-based ticketing. The software supports different standards, even combined in one system.

The intelligent terminal can be operated as well as a stand-alone device as it is equipped with WLAN and GPRS/UMTS. PROXmobil3 is available in two versions: for mobile use inside vehicles and for stationary use at platforms.

Features

- Contactless payment in the vehicle
- Controlled boarding
- Check-in / check-out
- Automatic fare calculation
- EMV, NFC
- On-board or at platforms
- Easy installation

PROXmobil3, INIT's Space-Efficient and User-Friendly Validator

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1.6.1.1 Hardware

The PROXmobil3 meets the stringent requirements of the ADA standards. Furthermore, the PROXmobil3 fully complies with all environmental requirements, as stated in the RFP.

PROXmobil3 Reliable and Easy to Maintain Hardware

- **The Environmental Light Sensor** ensures that the screen brightness is appropriate for all lighting conditions making it easy to read even in bright sunlight
- **Customer Display** with optional touch function gives passengers information on the validation status and shows passengers information about the payment options (such as MasterCard and Visa logos). The touch function is not included in this proposal but can be priced as an option. The Tariff Management tool would be used to configure the functionality of the optional buttons
- **Reader EMV L1 & L2 and PCI/PTS certified** reader fast and secure closed and open loop payment card validations. The reader is featured with intelligent algorithms to detect card clash according to the EMV standard
- **Barcode Reader (unpriced option)** can read all industry standard barcode formats with high speed. The barcode decoding is implemented with a HW accelerated barcode decoding module
- **Service Port** is a magnetic coupled USB 2.0 port that provides maintenance personnel an easily accessible interface. Non-standard waterproof design adds an additional layer of security while protecting internal electronics from water and dust
- **Mechanical Lock** is used to lock the PROXmobil3 device to the mounting plate
- **Mounting Plate** is firmly attached to the mounting pole. The mounting plate contains integrated memory where the vehicle

PROXmobil3 =

Hot swappable

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number and any specific configurations are stored. Thus, the device can be exchanged without any configuration effort—Hot swappable. The mounting plate also contains backup memory for transactions to further protect your transaction history

- **Cellular Communication (unpriced option)** can be included for the validator using an on-board cellular option so that there is no need for a mobile access router connected to the validator. There is an extra cost for this internal cellular device

INIT provides "Hot Swappable" field devices. Because logs of transactions as well as core configurations are stored in an intelligent mount, one need only swap out an INIT PROXmobil3 should a unit fail in the field. This can be done in a matter of seconds saving you valuable time minimizing any impact on your revenue and customer confidence. On boot-up, it will pick up without the need for further configuration or programming.

The PROXmobil3 can be equipped with a 2D barcode scanner, located at the bottom of the device. In the event the agencies will require barcode scanning in the future, the validators could be modified to include the reader. The convenience of placing the barcode scanner at the bottom of the device allows for a minimal footprint onboard a bus, where space is already limited.

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Service port protection plate

1.6.1.1.1 ADA Compliance

The onboard validator was designed such that obstruction is minimal and to make access simple so that ADA compliance can be achieved. Within the vehicle, an ADA compliant location for the validators will be identified and confirmed by the agency together with INIT.

In order to be compliant, the validator must be installed at 48" (see requirement 308.3.1 of the ADA Accessibility Guidelines) maximum above the finished floor surface and provided in an area that provides a minimum of 30" x 48" of clearance in the floor space for wheelchair users to approach and access either by parallel or forward approach (see requirement 305 of the ADA Accessibility Guidelines).

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If the validator is mounted in the dash console of the vehicle and is set back greater than 10" from the edge, forcing the user to reach over an obstruction, then a maximum of 46" to highest operable part or element is required (see requirement 308.3.2 of ADA Accessibility Guidelines).

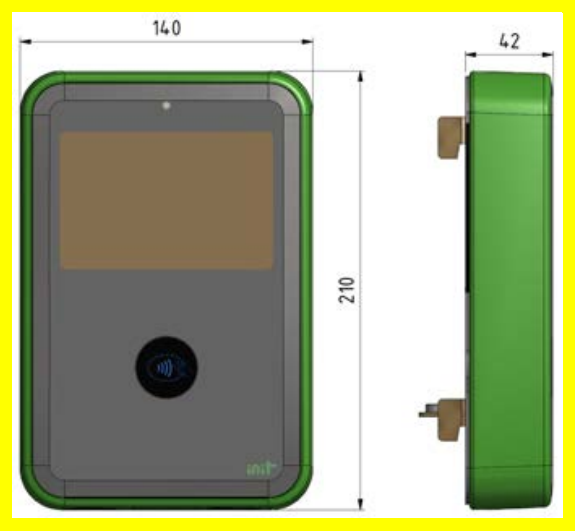
A speaker included in the validator will provide different audible tones to provide visually impaired persons with the validation result (either positive or negative).

With regard to the applicable ADA requirements, it is important to remember that the on-board validator is located in an attended environment (bus operator).

1.6.1.1.2 Enclosure

The PROXmobil3 is ruggedized and specifically designed for the transit industry with a proven track record. The PROXmobil3 has a safe design with all validator corners rounded, no exposed or accessible bolt heads, nuts, sharp edges, or cracks on outside surfaces. The display is flush-mounted in the housing. The validator housing covers for accessing modules and subassemblies are secured with mechanical locks. The keys are uniquely serialized and cannot be copied.

The dimensions of the PROXmobil3 validator are 5.5" x 8.3" x 1.6" (width x height x depth) as indicated in the drawing below.



PROXmobil Validator Drawing

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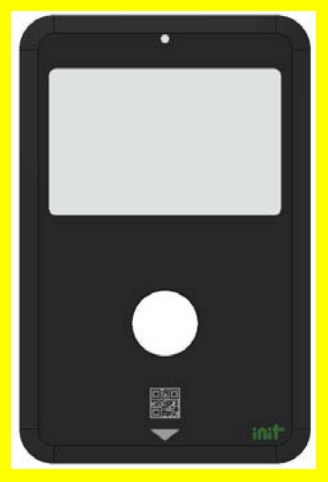
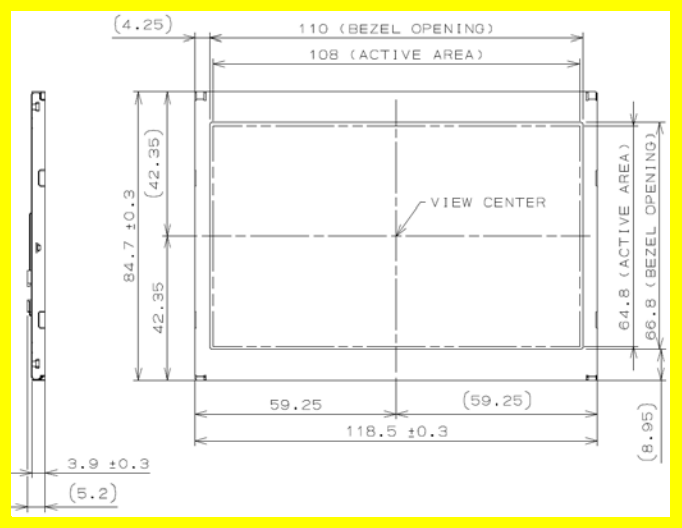
This proposal includes a glass screen as part of the housing. The validator housing can be optionally equipped with a plexi-glass screen (instead of a glass screen at no additional cost. The front glass screen is shown below.



PROXmobil3 Validator Glass Screen

The drawing below provides the dimension of the PROXmobil display.



PROXmobil3 Display Drawing

Please see the following section for some high-level specifications of the PROXmobil3, and detailed hardware specifications in Section 1.6.1. See section 1.6.1 for the software and functional information.

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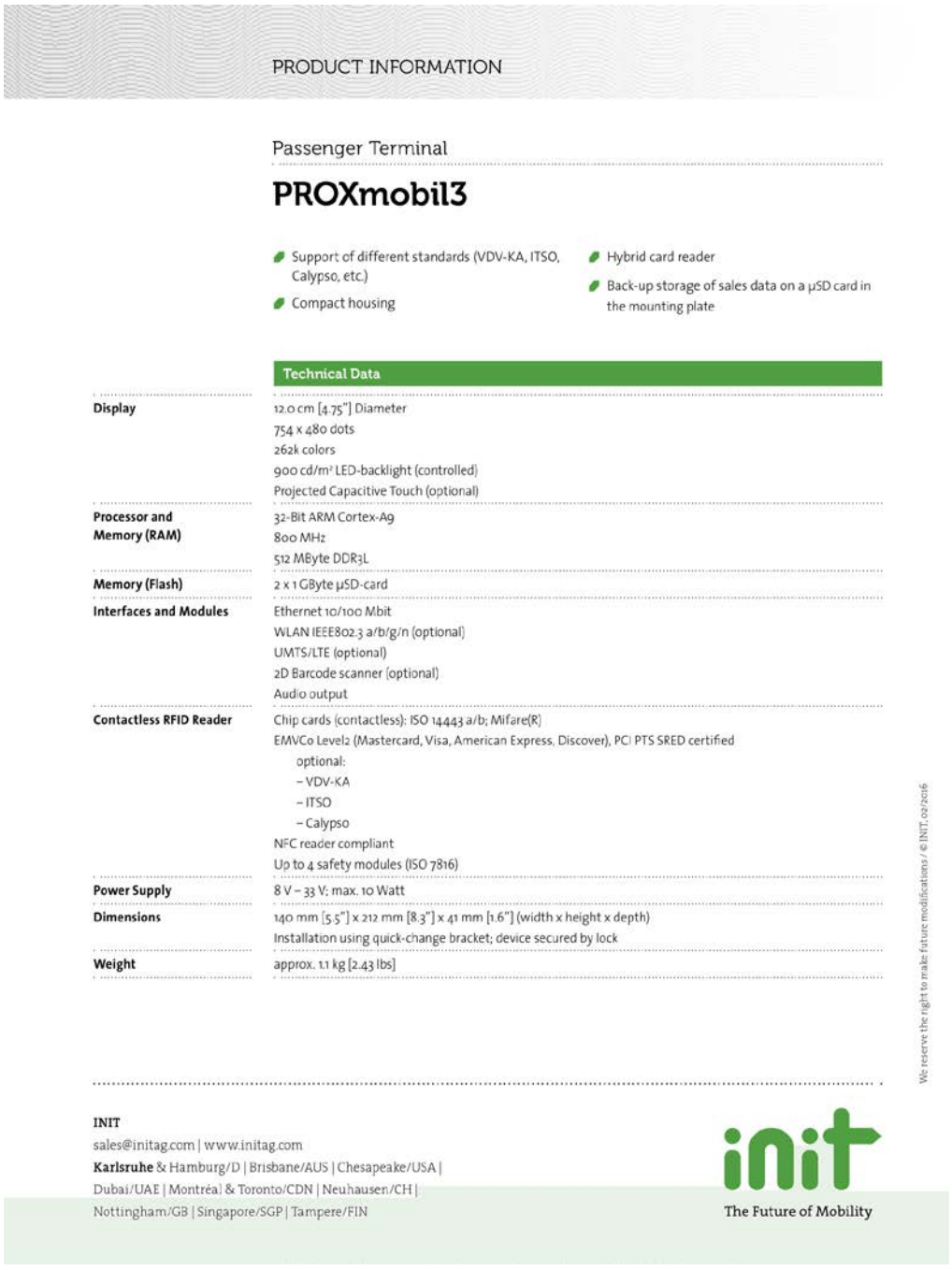

PRODUCT INFORMATION

Passenger Terminal

PROXmobil3

- Support of different standards (VDV-KA, ITSO, Calypso, etc.)
- Compact housing
- Hybrid card reader
- Back-up storage of sales data on a µSD card in the mounting plate

Technical Data	
Display	12.0 cm [4.75"] Diameter 754 x 480 dots 262k colors 900 cd/m² LED-backlight (controlled) Projected Capacitive Touch (optional)
Processor and Memory (RAM)	32-Bit ARM Cortex-A9 800 MHz 512 MByte DDR3L
Memory (Flash)	2 x 1 GByte µSD-card
Interfaces and Modules	Ethernet 10/100 Mbit WLAN IEEE802.3 a/b/g/n (optional) UMTS/LTE (optional) 2D Barcode scanner (optional) Audio output
Contactless RFID Reader	Chip cards (contactless): ISO 14443 a/b; Mifare(R) EMVCo Level2 (Mastercard, Visa, American Express, Discover), PCI PTS SRED certified optional: – VDV-KA – ITSO – Calypso NFC reader compliant Up to 4 safety modules (ISO 7816)
Power Supply	8 V – 33 V; max. 10 Watt
Dimensions	140 mm [5.5"] x 212 mm [8.3"] x 41 mm [1.6"] (width x height x depth) Installation using quick-change bracket; device secured by lock
Weight	approx. 1.1 kg [2.43 lbs]

We reserve the right to make future modifications / © INIT 02/2016

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The Future of Mobility

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1.6.1.1.3 Installation & Mounting

The PROXmobil3 is capable of a variety of installations as shown in the figure below. Whether it's on a platform, bus or LRV, the PROXmobil3 has been designed to support the agencies requirements, even in outdoor environments.

Ease of PROXmobil3 Installation and Mounting

In addition to the mounting variants shown above, INIT designed a surface-mounted wall mount and a flush mount of the validator. See drawings / renderings below for more information.

Surface mounted wall mount

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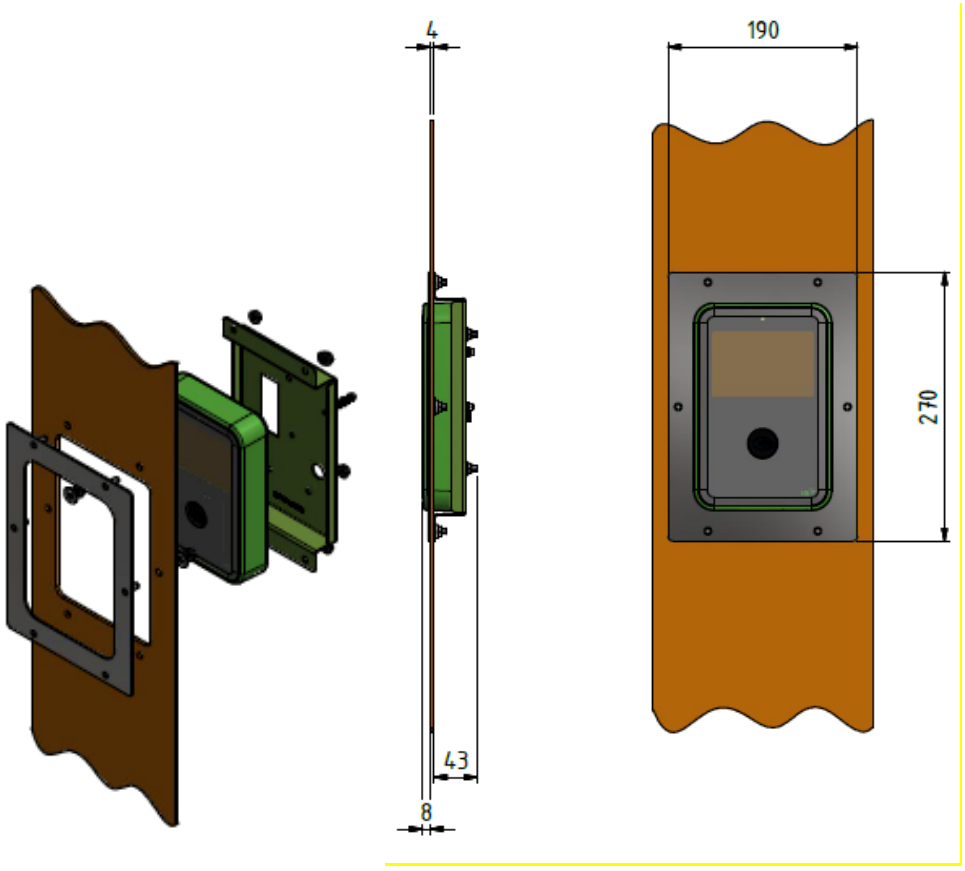

Flush-mounted wall mount

Because of its compact footprint, even dashboard mounting is possible. INIT works closely with our clients to find the optimal locations for the equipment supporting both ergonomic and aesthetic considerations. As seen here, most installations include vertical mounting, however, INIT can also provide a horizontal mount if preferred by an agency. The horizontal mount, is available for a small upcharge, which is provided in the options pricing.

1.6.1.1.4 Power

The PROXmobil3 can operate with the wide voltage range from 8V to 33V. When the bus ignition is turned off, the onboard validator will remain powered for a configurable time to allow completion of transmission of any and all data files and transaction records.

1.6.1.1.5 Communications

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The figure below provides an overview of the onboard communications, which involves a single cable to the onboard validator to provide Ethernet connection, power, ground and the ignition signal to turn the validator on and off.

The validator will utilize Ethernet to connect to the ORCA Agencies' provided Mobile Access Route (MAR), the INIT or third-party CAD/AVL Vehicle Logic Unit (VLU), and the INIT or third-party DDU.

For [redacted]. Interfacing between INIT-only onboard components will lead to a very simple, cost-effective, low risk and quick integration for the KCM vehicles. INIT utilizes this same architecture for the HOP Fastpass project in Portland and Vancouver, WA, which utilized INIT for both CAD/AVL and AFC. For the Community Transit vehicles, INIT can also provide a simple, cost-effective, low risk, and quick integration, given that it involves communications between INIT-only components. For the CT vehicles, INIT can provide a separate DDU for the fare collection or share the existing one being used for CAD/AVL. Given that the KCM and CT vehicles make up the vast majority of next generation ORCA vehicles, there would be a significant advantage to utilizing an INIT System – especially, for the more complex KCM interface involving the sharing of the DDU for both CAD/AVL and AFC. For the non-KCM and non–CT vehicles, INIT will interface to the third party onboard CAD/AVL equipment.

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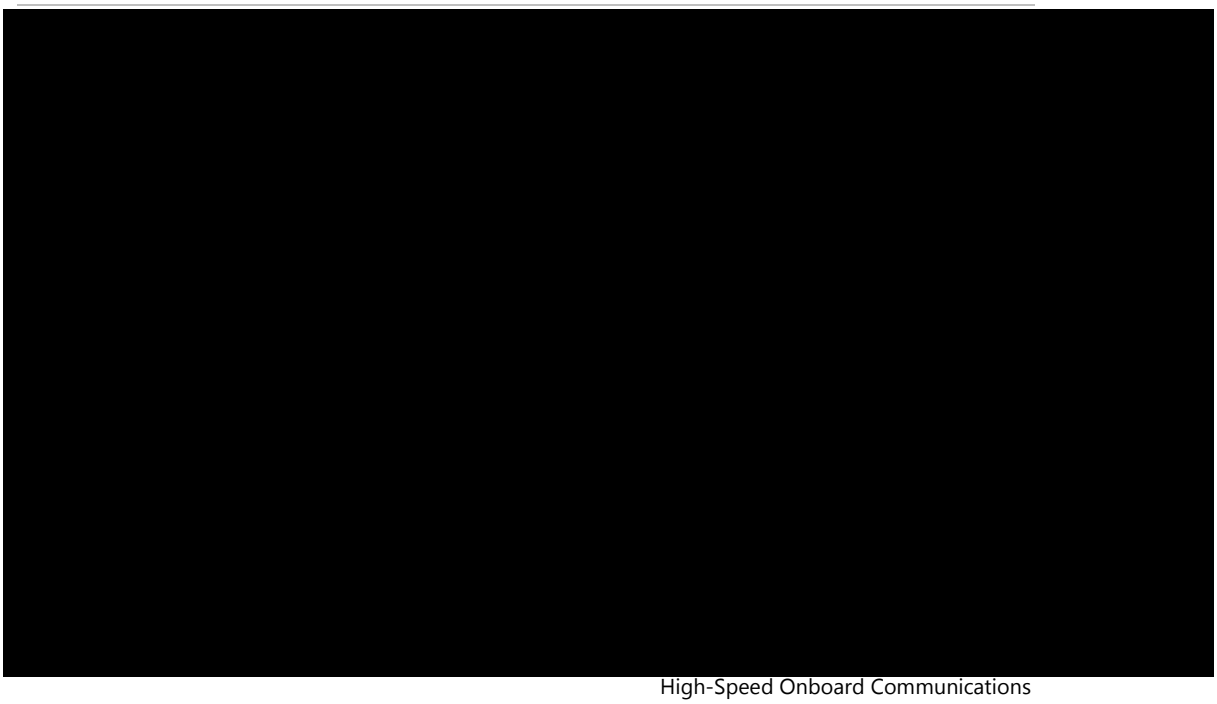

High-Speed Onboard Communications

The platform validator will connect to the back office via Ethernet to a station switch and then via the Agencies' WAN.

For the platform devices, the PROXmobil3 validators may be connected using standard POE.

1.6.1.2 Software (Functionality)

When the vehicle ignition is turned on, the PROXmobil3 will boot and go through its self-diagnostics. Any errors or anomalies will be logged and sent to the central system where MOBILEsymon, INIT's system monitoring too, will record and process them according to mutually agreed policies.

If no issues are found, the validator will finish its initialization routine and display a gray screen stating "Not in Service". This status and message will be pushed to the DDU for display to the operator.

Once the operator logs on the DDU, the validator will change its display to the default passenger screen, e.g. 'Please tap on'.

The onboard CAD/AVL system will report the vehicle location to the validator periodically. On door cycle events, the onboard CAD/AVL system will push the stop and location information to

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the validator so that any passenger payment interaction may be correlated with the route, stop and location.

In addition to the door cycle events or if the door cycle events are not available to the CAD/AVL system, the location (GPS coordinates and Stop ID) can be updated on a time basis (e.g. every 15 seconds).

1.6.1.2.1 Transaction Records

Onboard and wayside validators will generate, store and transmit a discrete data record for each transaction and/or validation performed, and include the information indicated in the table below:

1.6.1.2.2 Audit Registers

INIT's validators include local audit registers for data and analysis purposes, which maintain counts for the following events as applicable:

- [redacted]

1.6.1.2.3 Events & Alerts

The PROXmobil3 validators will provide real-time status of device events and alerts to the MOBILEsymon, INIT's system manager – including:

- [redacted]

In addition to providing real-time status information, the validators will locally store events and alert logs for up to three (3) months in the event of loss of communications to the back office.

The validators will transmit "heartbeat" messages at an adjustable frequency to confirm communication with the back office and basic status.

1.6.1.2.4 High-Speed Validation Process with Offline Provisions

The figure below provides a flow chart of the validation process which includes an inherent provision for offline situations, by providing a local validation in the event the validator does not obtain a response from the ATP.

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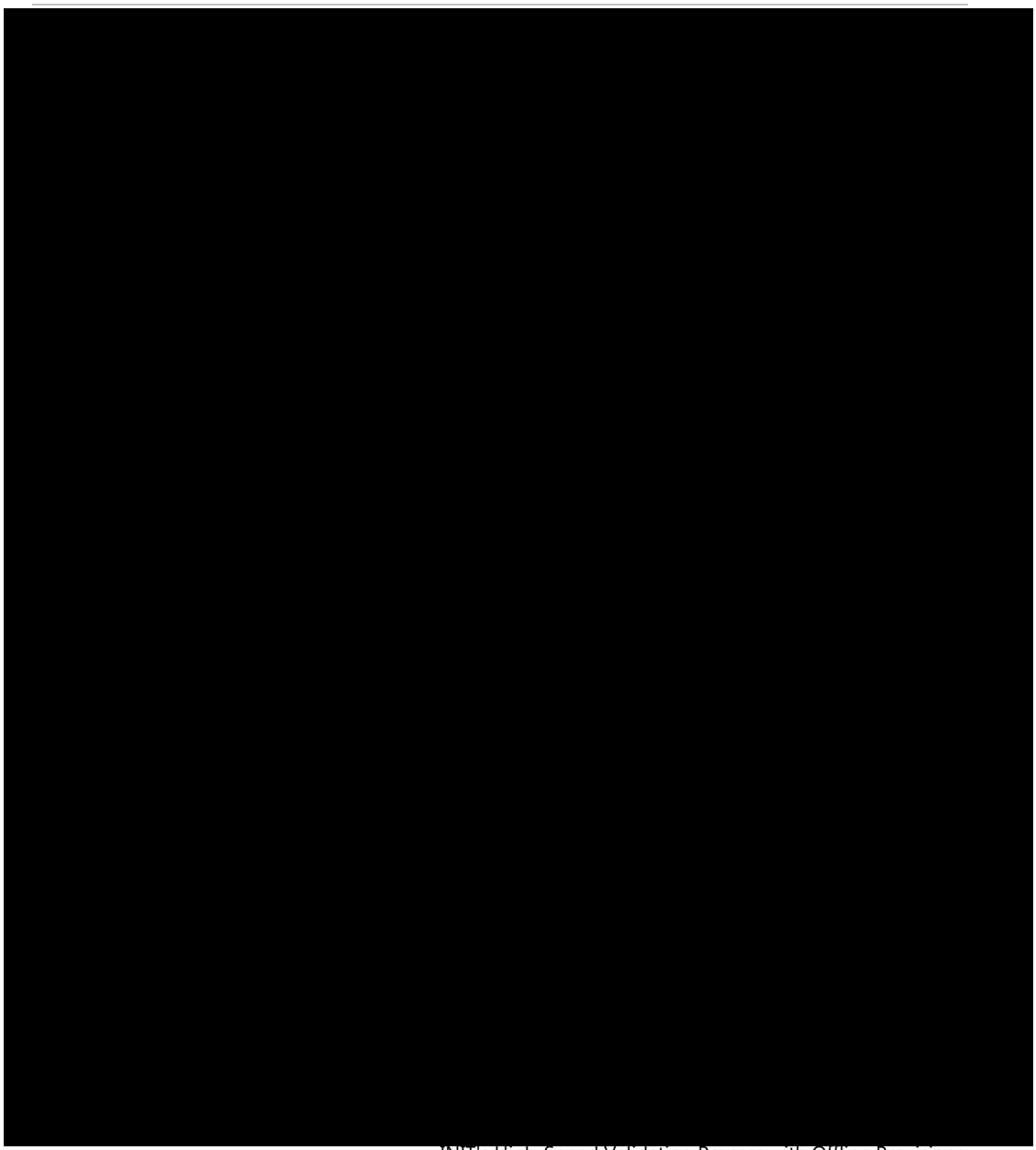

INIT's High-Speed Validation Process with Offline Provisions

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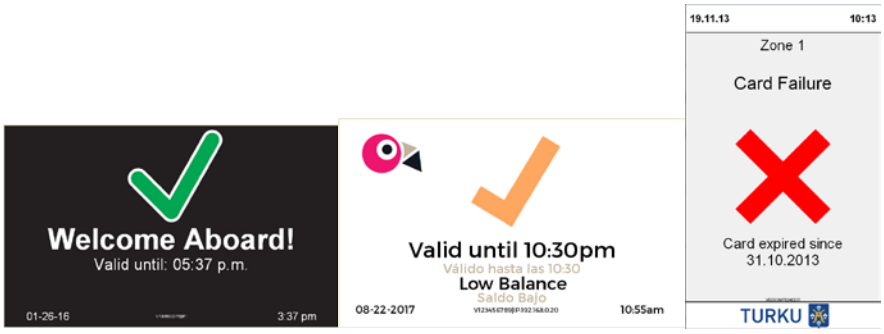
1.6.1.2.5 Customer Interfaces

The PROXmobil3 customer interface is highly configurable. From left to right in the pictures below, you can see the look and feel of the user interfaces for the HOP Fastpass (Portland, OR), Tampa and Turku. These projects are all account based systems, making them very similar to the next generation ORCA functionality. The PROXmobil3 display is LED based with a light sensor to determine brightness. As evidenced above, the GUI will be customized to fit the look and feel of the next generation ORCA design. A speaker included in the validator will provide different audible tones to provide visually impaired persons with the validation result (either positive or negative).

The screens will be designed during the design phase together with the agencies and the UI experts. Changes to specific text elements (e.g. product names) can be configured by the agency. Changes to the main screen layout would need to be done by INIT.



INIT's Highly-Configurable Validator User Interface

1.6.1.3 Maintainability

INIT provides "Hot Swappable" field devices. Because logs of transactions as well as core configurations are stored in an intelligent mount, one need only swap out an INIT PROXmobil3 should a unit fail in the field. This can be done in a matter of seconds, saving you valuable time minimizing any impact on your revenue and customer confidence. On boot, it will pick up without the need for further configuration.

Easy validator replacement

1.6.2 INIT's Color, High-Resolution TOUCHit3 Driver Display Unit

INIT is proposing its new TOUCHit3 Driver Display Unit (DDU) for the next generation ORCA project.

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INIT's Transit-Rugged Touchscreen DDU

1.6.2.1 Hardware

The TOUCHit3 consists of a brightness sensor for regulation of the display brightness, status LEDs and touch sensitive display. The 6.5", 800x480, full-color touch screen is ergonomically designed, and the display has LED backlight for optimal contrast and extended life-time. The TOUCHit3 is designed with a high resolution screen giving drivers easy to read information even in bright sunlight. It automatically adjusts to ambient light conditions and offers a night mode.

The compact housing contains:

- All electronic components
- TFT Display
- Touch panel
- Connector to the on-board computer

1.6.2.1.1 Controller Board

The electronics of the TOUCHit3 are specially designed for automotive use. The components are nearly all manufactured in SMT (Surface Mount Technology). This offers the possibility of a compact design and the advantages of high-quality mechanics. The components are selected to fit the required industrial temperature range.

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The TOUCHit3 is controlled by a 32-bit CPU-Module with ARM Cortex A9 processor from Freescale. The device features 512 MB RAM and 4 GB Flash Memory. A touch controller from Texas Instruments performs signal interpretation of the touch panels.

1.6.2.1.2 TFT-Display

The color display is a TFT display with LED Backlight:

- Aspect Ratio:16/9
- Screen diagonal: 6.5 inch
- Brightness: 600 cd
- Display Resolution: 800 x 480 dots
- Visible area: approx. 5.7" x 3.1" (144 mm x 78 mm)

1.6.2.1.3 Touch Panel

The touch panel utilizes capacitive touchscreen technology and is coated to feature an anti-glare surface. The lifetime of the touch foil is specified to one million finger touches. As confirmed by the agency, a touchscreen solution is acceptable, therefore physical buttons will not be provided. Since there are no physical buttons, additional virtual buttons can be added to the graphical user interface to perform future functions. Because the touchscreen is capacitive, it provides a brigher and sharper display with a more responsive screen.

1.6.2.1.4 Enclosure & Mounting

The TOUCHit3 features a strengthened polyamide housing with dimensions of approx. 7.28" x 4.13" x 1.42" (185 mm x 105 mm x 36 mm) W x H x D (as illustrated in the drawing below). It is designed to withstand all the required bus environmental and operating conditions and to withstand the tough conditions of the bus environment.

The TOUCHit3 has various mounting accessories available to integrate or to mount to different locations of the different bus types. INIT will provide all necessary hardware and mounting brackets. The mounting location will be decided together with the Agencies so that the bus operator has an unobstructed view. The connector on the back of the device enables power and Ethernet connection with just one cable, making the installation simpler.

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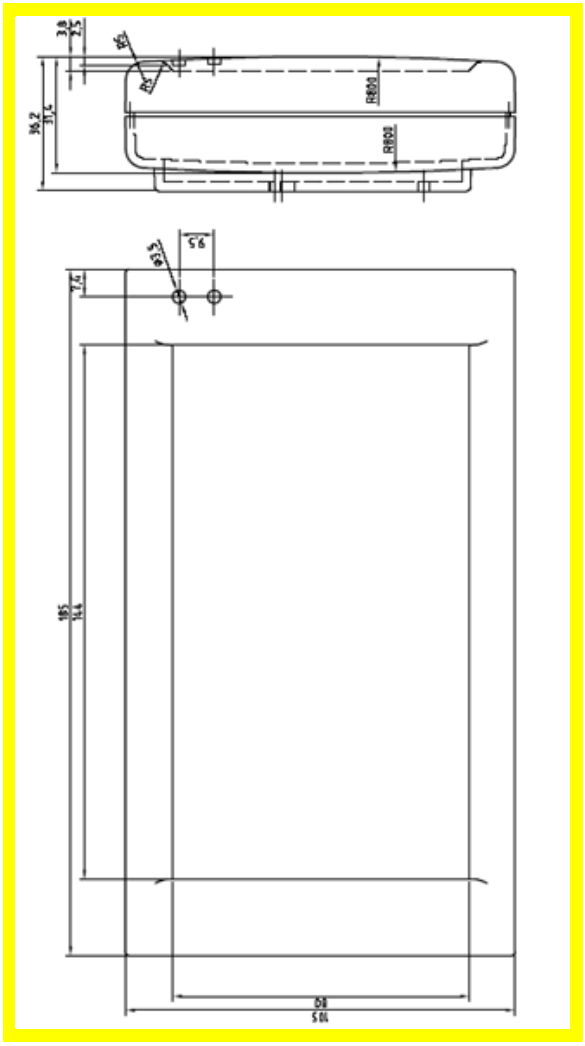

TOUCHit3 dimensions drawing

See Section x.x for the detailed hardware specifications. The TOUCHit3 being a tough-display, it does not have a lot off functionality.

Comment [CST10]: Fix crossreference

1.6.2.2 Software

The operating system on the TOUCHit3 is Linux and will provide all system functions needed such as Ethernet communication drivers.

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1.6.2.2.1 Operations

On system startup, the TOUCHit3 checks its hardware and boots the operating system. After a successful boot, the driver display application is loaded. As soon as the application is running, a connection to the PROXmobil3 bus validator is established. Fare validation results of transactions performed on the validator are transmitted to the TOUCHit3 to display them to the bus operator. The driver display also updates status information shown on the screen and is ready to send commands to the validator e.g. to enable the Maintenance Mode. If the connection to the PROXmobil3 can't be established, the driver display will show an error status.

1.6.3 INIT's High-Configurable Smart Vending Machine

INIT is pleased to propose its state of the art VENDstation Full Featured Vending Machine (FFVM) and VENDmobile Light Featured Vending Machine (LFVM) as the choice Vending Machine (VM) solution for the next generation ORCA project. INIT VENDstation and VENDmobile VM's are the perfect solution to satisfy the contractual requirements as the current design of the VM's align with the specific goals and objectives of the agency, setting the stage for a new era of ticketing convenience for next generation ORCA customers. Both VM models are designed to be simple, low-maintenance, and low-complexity machines utilizing a cost-saving design that meets or exceeds the functionality and common design capabilities specified.

Our highly efficient and user friendly VM's will improve the customer experience and reduce VM waiting times, especially at high priority stations. INIT is an experienced and qualified supplier of VM's, providing proven and easily configurable options for full cash, limited cash (no change) and cashless configurations, enabling cost effective future enhancements at any time. Because of our commitment to Open Architecture, open APIs and COTS (Commercial off-the-shelf) based solutions, the VM's offer valuable benefits from low initial start-up costs to significant decreases in ongoing operations and maintenance costs.

Once installed, the new VMs, with their modular open architecture and open Application Programming Interfaces (APIs), will provide unmatched flexibility to control the VM configurations, implement future enhancements and support third party integration. A direct

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result of this flexibility is a significant improvement in the VM useful life, and the elimination of excessive ongoing costs related to the complexity of unproven, custom designs. This simple, but extremely flexible open system is highlighted in the table below:

Benefits of the INIT VENDstation and VENDmobile VM System
✓ **Reduced Capital Costs and Ongoing Operations and Maintenance Costs** ▪ Experienced and qualified supplier of VM Systems ▪ Proven Modular Designs in both Cash and Cashless Configurations ▪ Commitment to Open Architecture and COTS based solutions ▪ Experienced Project Staff for cost effective project management
✓ **Provide Integration Flexibility for Cost Effective Future Enhancements** ▪ Modular Open Architecture and Open APIs enables effective Third Party Integration ▪ Configurable, Modular VM and TOM Designs for Simple, Cost Effective Updates ▪ Enhanced Control Over System Configurations ▪ Unrestricted Access to APIs, Keys, Data Formats and Data
✓ **Improved Customer Experience – Reduce Lines for Ticket Purchase** ▪ Install Field Proven, Standard Configuration INIT VMs ▪ Significantly Reduce Transaction Times o Eliminate Confusion with Simplified Purchase Screen Flow o Improved Ticket Issuance Speed ▪ Improved System Monitoring for Minimal Maintenance Response Times

1.6.3.1 General Capabilities

For clarification, the INIT VENDstation and the acronym FFVM are one and the same. Likewise, the INIT VENDmobile and the acronym LFVM are one and the same. When referring to the functionality of a specific Vending Machine, the acronym or the INIT tradename (VENDstation or VENDmobile) will be used. Otherwise, the term VM will refer to both Model Vending Machines as referred in the RFP.

In keeping with the preferred goal of a common platform approach, the internal components of the VM's, where applicable, are essentially the same and can be interchanged between each type of VM seamlessly. The table below details the components between each VM which are interchangeable:

INTERNAL COMPONENTS	FFVM	LFVM
Controller (VENDpc + VENDpc extension)	Same	
Push Buttons	Same	

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INTERNAL COMPONENTS	FFVM	LFVM
FEIG closed and open loop card reader	Same	
Coin handling Unit with Escrow but without change	Coin carousels that enable Change	Escrow for refunds, no possibility for change
Bill Handling Unit MEI SCR small version	SAME	
Bank Card Processing Unit - Ingenico iSelf	SAME	
1 x Double printers (2 paper rolls in total)	Printer unit is the same. Paper roll width 300mm. Sheet metal & mounting differs from LFVM.	Printer unit is the same. Paper roll width 130mm. Sheet metal & mounting differs from FFVM.
Smartcard Dispenser	Same	

In addition, INIT's cash and "no change given" VM variants allow the transit agencies to pick the right variant at each station. The logic flow of the transaction for both VM's is the same. The following figures depict the easy three-step process the VM follows during the patron transaction. The only difference is the removal of the Coin recirculation components necessary for issuing change.

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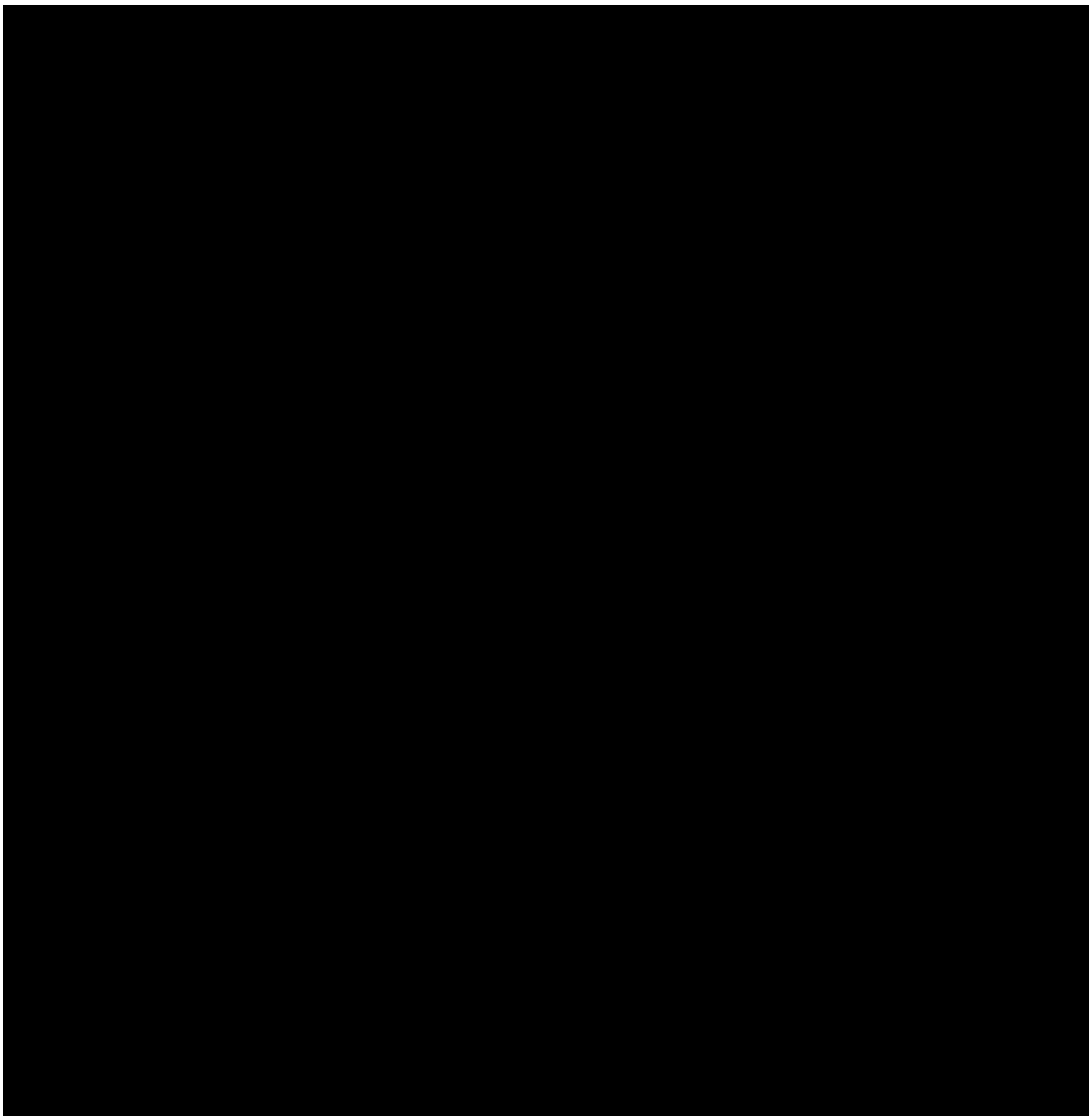

1.6.3.2 Hardware

The following chapters focus on the INIT VM's hardware.

1.6.3.2.1 Enclosure

The high security VM housings are made of 2mm thick stainless steel with reinforced corners. The secure, modular VM enclosure is constructed to withstand rugged harsh environmental

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conditions against moisture, dust/grit/sand, humidity, electrical storms, exposure to urban and marine environment, and the range of elevations and altitudes in the operating region, while providing next generation ORCA customers with a convenient customer interface.

The COTS based service proven design supports a high availability, low maintenance model, where the ORCA transit agencies can provide a positive purchase experience to its customers. As detailed in the table below and illustrated in figures, the ergonomics of the user interface front panel and component layout for both VM's provide a smooth and easy to use transaction experience for the customers.

INIT VM Features	next generation ORCA Benefit
Simple, service proven VM design	• Low capital and ongoing operating costs • Proven functionality to allow for timely VM acceptance and expedited replacement of existing malfunctioning VM's.
Modular, COTS based VM Components	• Low risk, low maintenance, low complexity as compared to custom designs • Extremely low maintenance costs • Reduced downtime for improved customer experience • COTs components can be upgraded as newer technology becomes available therefore extending the product lifecycle and avoiding technical obsolescence.
Flexible, Configurable VM	• Flexibility for next generation ORCA authorities based on passenger flow • Cost savings based on flexible configurations

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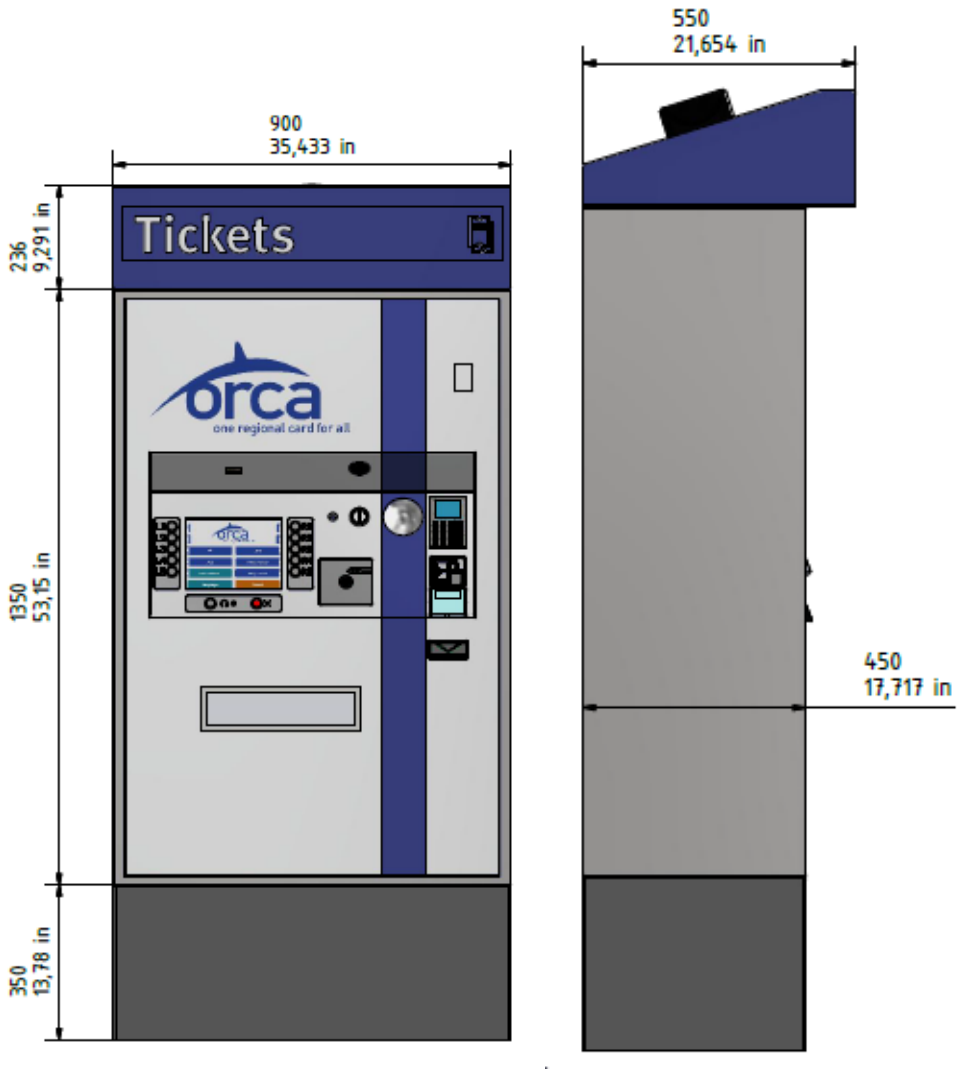

Exterior and Overall Dimensions of the VENDstation (FFMV)

The pedestal height is adapted to meet ADA requirements. The hood (with text tickets) is not mandatory and can be omitted if needed.

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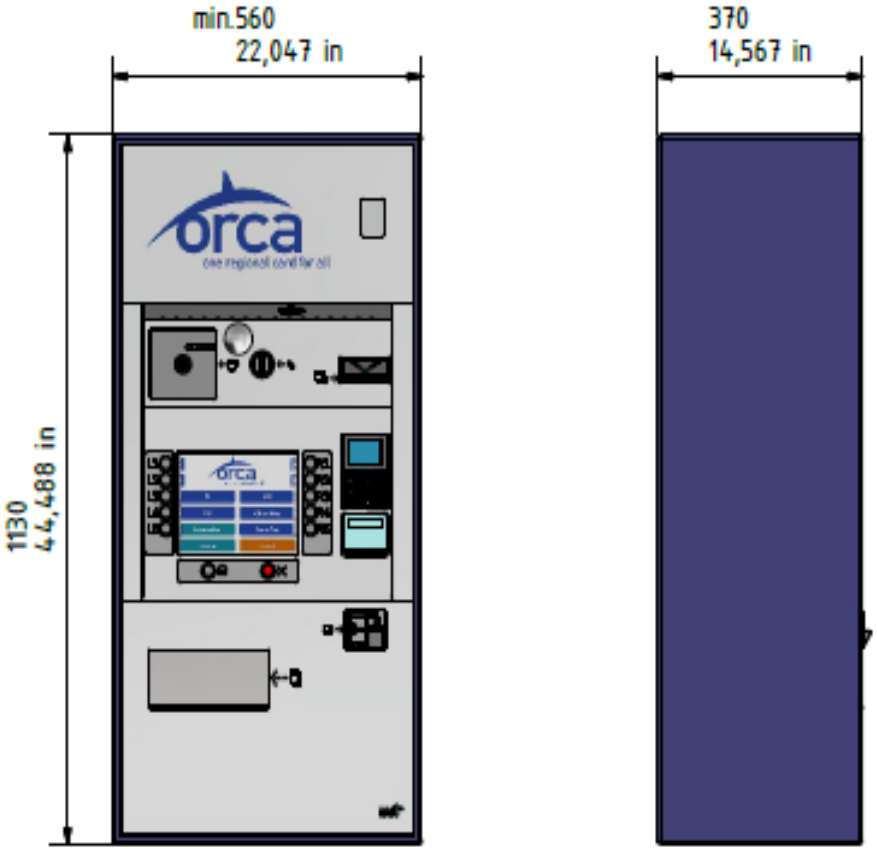

Exterior and Overall Dimensions of the VENDmobile (LFMV)

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1.6.3.2.2 Modular Design

INIT's flexible modular design allows the VM's to be configured for each customer's specific requirements. The figures below shows the location of components of the VENDstation and VENDmobile VM's.

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The following table shows common and unique features and functionality of the INT VM's.

INIT VENDstation & VENDmobile	Features and Options
Pedestal / base	• Standard pedestal made from powder coated stainless steel • FFVM: Standard pedestal made from concrete
Housing	• 2 mm powder coated stainless steel • Anti-graffiti coating (optional) • Reinforced corners • Interior hinged door
Printers	• FFVM Up to 4 thermo printers with 300 dpi resolution • LFVM: Up to 2 thermo printers with 300 dpi resolution • FFVM: Up to 4 paper rolls with up to 300 mm diameter • LFVM: Up to 2 paper rolls with up to 130 mm diameter • Paper width up to 84 mm • Paper weight up to 80-120 g/m^2 • Paper level monitoring (optional) • Paper tracking using 1D barcode reader (optional) • Full and partial cut possible
Card Dispenser	• Up to 500 cards • Card return reject bin for up to 10 cards • Write and read encoding/decoding of ISO14443 proximity cards)
Coin Processing	• Electronic coin shutter prevents non-metallic objects from being inserted. Self-cleaning function • Entire coin path within device monitored by 7 photoelectric sensors • Electronic coin validator • FFVM - Up to 6 change magazines, correctly sorted, with 50 coins per magazine. Escrow function based on "first-in-first-out" process • Self-closing stainless steel cashboxes with a 6,5 l volume • FFVM- Up to 3 "big" hoppers with up to 1100 coins or up to 4 "small" hoppers with up to 250 coins. Hoppers in lockable stainless steel boxes (optional)
Uninterruptible Power Supply (UPS)	• Uninterruptible Power Supply
Bank note handling SCR	• Escrows 15 banknotes • Cashbox: Lockable, removable and durable with 600-note capacity • Security Gate Module: Mechanical security, anti-stringing protection • Acceptor Head: Multi-width (3.27") SC Advance acceptor head • Security and/or stainless steel inlet (o)
Barcode reader	• Allows for quick scanning of mobile ticketing or barcodes on paper tickets (optional).

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INIT VENDstation & VENDmobile	Features and Options
Security	• Locking o Locks on three sides o Lock bar with nine 6 mm stainless steel hooks o Security lock o Vibration secure door lever o Sensors for monitoring the locked status of the door • Hinge o Stainless steel hinge o Adjustable
Display	• Horizontally installed 10'' display • 1024 x 768 resolution • 1000 cd/m², easily readable including under direct sunlight
Touch	• Capacitive touch
Contactless customer cards	• Write and read customer cards
Ticket tray	• 1mm stainless steel with liquid drain • Plastic cover with stop and return spring • Electrically lockable cover (o)
Credit card terminal	• Integrated PIN pad, EMV card reader and contactless card reader
Cover	• Stainless steel standard cover with logo and lighting • FFVM: Cover with illuminated and changeable title box
Miscellaneous options	• Illuminated arrows for customer direction guidance • Electrical lock cover • Microphone • Camera

Dispensing limited use media is also possible but requires different components which also depends on the type of the LU media (on roll, stacked, thickness). If LU media needs to be issued this should be decided and specified during the system specification phase.

1.6.3.2.3 Display

The VM has a trans-reflective backlit flat panel touch screen display which provides optimal view in bright sun light as well as at night time. The display detects customer selections and is unaffected by rain, temperature and sunlight. All content shown on the display is ADA compliant. User input is given via the touchscreen or with the tactile feedback push buttons (12) next to the display, corresponding to the active regions of the touchscreen.

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The touchscreen display is the primary customer interface, used to guide the customer through simple and easy to read instructions on how to complete the fare purchase process. To simplify the process, one button (virtual and/or physical) is consistently allocated to language, while another is dedicated to the CANCEL function. Customer selections are consistently displayed, eliminating confusion in any sequential purchasing process. The display is installed on the front door of the VM, situated so its view is not obstructed and to avoid any parallax effect.

Tactile buttons are part of the ADA requirements. If the agency disagrees and takes the responsibility, then we can leave them away from the design in the system specification phase.Added a note into 1.6.3.3

Button texts are set in the MOBILEvario tariff management. The TVM fetches the available products over the API and lists them on the UI. There is a corresponding button for each of the products. The layout and general content requires SW or configuration changes.

1.6.3.2.4 Bill Handling Unit

The Bill Handling Unit (BHU) is the proven design of the [redacted] unit without bill recycling. The unit includes a bill validator, escrow module and bill vault. The SC product line has redefined expectations for note acceptors by improving acceptance rates, jam rates, security and the cost of operation. The reliability that has resulted in an installed base of more than 1.5 million units worldwide is now the engine that drives a unit engineered to further reduce the costs associated with cash management. New bill designs are easily programmed to add to [redacted] designs.

The bill validator is equipped with a protective shutter to ensure that foreign matter does not enter the BHU while the machine is not accepting bills. The bill validator will remain closed until

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a transaction is selected for which cash payments are available. The shutter will automatically open once payment due has been displayed. The specification highlights of the MEI SCR are as follows:

1.6.3.2.5 Coin Handling Unit

The Coin Handling Unit (CHU) is the proven design of the COTS based chassis [redacted] a complete self-locking and self-closing coin handling solution for indoor and outdoor machines. T[redacted]

- [redacted]

The coin acceptance is self-cleaning and opens only for metallic objects. Only one coin is accepted at a time. The integrated escrow provides a universal solution for pre-vend coin storage requirements. All inserted coins are safely stored in the escrow prior to the confirmation of the sales transaction. Any interruption of the vending process results in all coins being returned, reducing the likelihood of coin manipulation and attempts of money laundering.

The VM software determines the amount of coins in coin storage and calculates the weight. When the weight reaches a certain threshold parameter, the device stops accepting coins. The INIT MOBILEsymon system monitoring software monitors the CHU storage and issues pre-assigned notifications to optimize service and maintenance response times.

1.6.3.2.6 Bank Card Processing Unit (BCPU)

The VM Bank Card Processing Unit (BPCU) is the COTS based, field proven [redacted] compliant Chip Card reader components shown in the figure below. The BPCU solution consists of the following proven and certified components:

- [redacted]

The [redacted] are installed at ADA compliant locations on the front of the VM's .

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1.6.3.2.7 Smart Card Encoder / Dispenser

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Extended Use Smart card encoder dispenser is easily configurable for EU or LU card dispensing and encoding by simply changing card dispensing carriage. As shown in the figure below the unit is setup to dispense EU cards. The encoder head unit remains the same.

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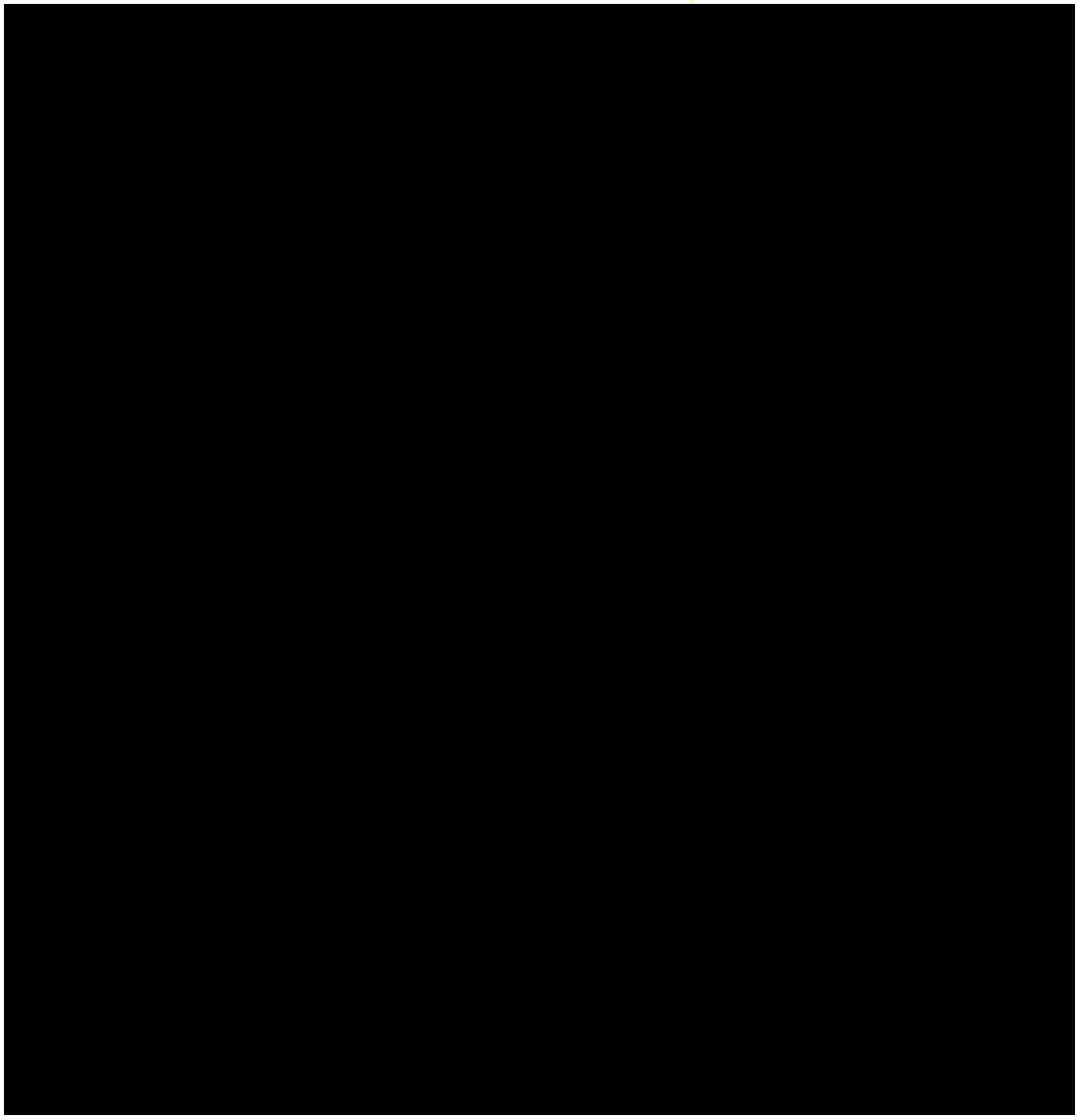

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1.6.3.2.8 Smart Card Reader

The COTS [redacted]c EMV and PCI certified Smart Card OEM terminal is INIT's choice for smart card contactless ticketing applications. This service proven smart card reader is added to the front of the VM terminal as shown in the figure below and mounts flush the front of the VM.

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1.6.3.2.9 Receipt Printer

The VM provides high speed and resolution receipt printing with the integrated printer. The paper roll can be up to 11.8in in diameter and thus provides enough paper for long interval paper exchange. After printing the ticket, the integrated cutter cuts the paper and the receipt falls into the output tray. In case multiple receipts need to be printed, the cutter is able to make partial cuts which leave the receipts loosely connected together. The printer is also able to print high resolution 2D barcodes for any possible automatic data evaluation. Highlights and technical specifications of the printer unit:

- High Resolution: 300dpi, High Speed: 7.87in/s

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- Max print width 3.2in
- Max paper width: 3.30in
- Cutter: full and partial cut
- Easy paper loading
- Max paper roll diameter: 11.81in
- Paper weight: 1.9 -2.8 lb/ft2

The next generation ORCA VM will be equipped with one EU dispenser and one Paper Media Dispenser. Each paper media dispenser is capable of using two separate paper rolls (ticket stock and/or receipt paper). Each dispenser is equipped with two (2) printers, effectively providing a separate printer for each roll. Each printer unit comprises a printing unit, a cutting unit, paper sensors and a controller. A holder for the paper rolls is installed on the rear wall of each unit. The paper ticket stock roll is tracked with a barcode reader. It is important to note that the individual paper rolls are configurable.

The integrated printing units offer the following features:

- Max. printable paper width: 81.3 mm
- Resolution: 300 dpi
- Maximum Print Speed: 200 mm/s
- Specified lifetime print head: 100 km
- Cutting unit: 1.5 m sections (full and partial cut)

The VM's Paper Stock Rolls and Printers Provide Flexibility to Optimize Configurations at each Location

The Paper Media Dispensers and Configurable Paper Rolls (Ticket Stock or Receipt Paper)

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1.6.3.2.10 Controller (VENDpc)

The control unit consists of 2 parts; [redacted]

[redacted]

1.6.3.2.11 UPS

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As uninterruptible Power Supply (UPS), [redacted]

[redacted]

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1.6.3.3 Customer Interface

The INIT FFVM and LFVM front panel provide a simple to use and easy to understand for the experienced and occasional rider.

One of the key success factors of VM is to enable the rider to use it quickly and conveniently without additional support from the agency. We achieve this with an overall clear design, including a simple and powerful user interface.

INIT's simple to use intuitive next generation ORCA FFVM Customer Interface

The front panel customer interface includes:

- Touchscreen display with twelve (12) active regions
- Twelve (12) buttons corresponding to the active regions on the screen (required by ADA)
- Coin slot input
- Bill Handler Input
- Bank Card Processing Unit (contact / contactless)
- PIN Pad
- Contactless Smart Card Reader
- Audio interface
- Media dispense tray
- Instructional graphics and text
- Information sign(s)

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Features of the customer interface include:

- ADA compliance
- Audio interface with internally mounted speaker
- Media dispense tray for tickets / receipts / change
- Payment options via coins, bills and bank cards

1.6.3.3.1 Screen flow - Simple Patron Purchase Process

1. The user first presents the fare media (if available) to the card reader located next to the screen.
2. After this, the display shows products or functions available for the presented card (for example available stored value load amounts).
3. After selecting the value load amount, the display prompts the user to enter cash or credit card in section "2. Pay". The user can also select to issue a new card.
4. If 'Credit Card' is selected, the user is prompted to complete the credit card process by entering/tapping the credit card.
5. After payment confirmation, a receipt is issued and dispensed in the receipt/ticket tray. If the user selected to issue a new fare media (extended use card), a new card is issued and dispensed as well.

1.6.3.4 Locks and Physical Security

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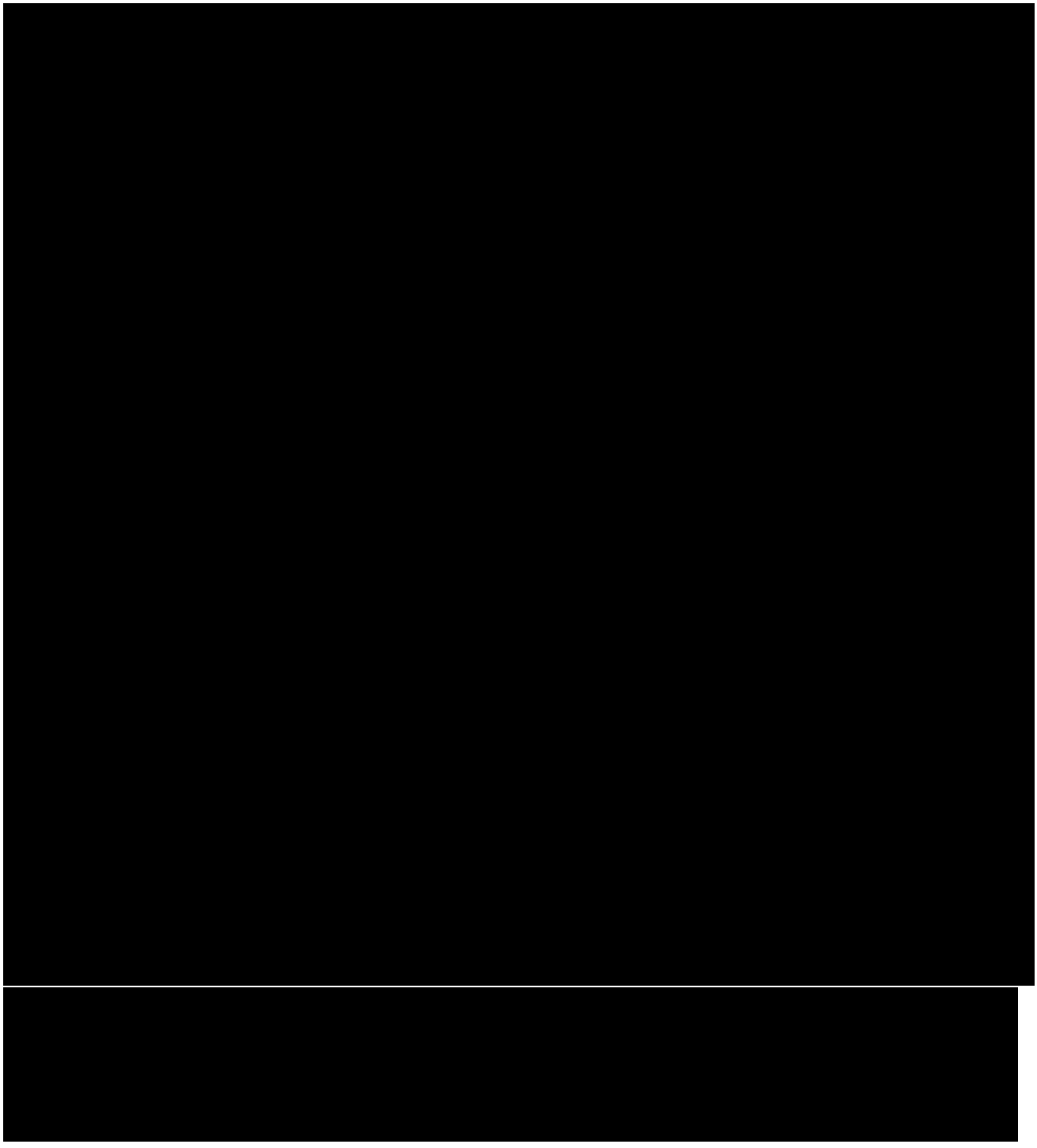

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1.6.3.5 Alarms and Reported Events

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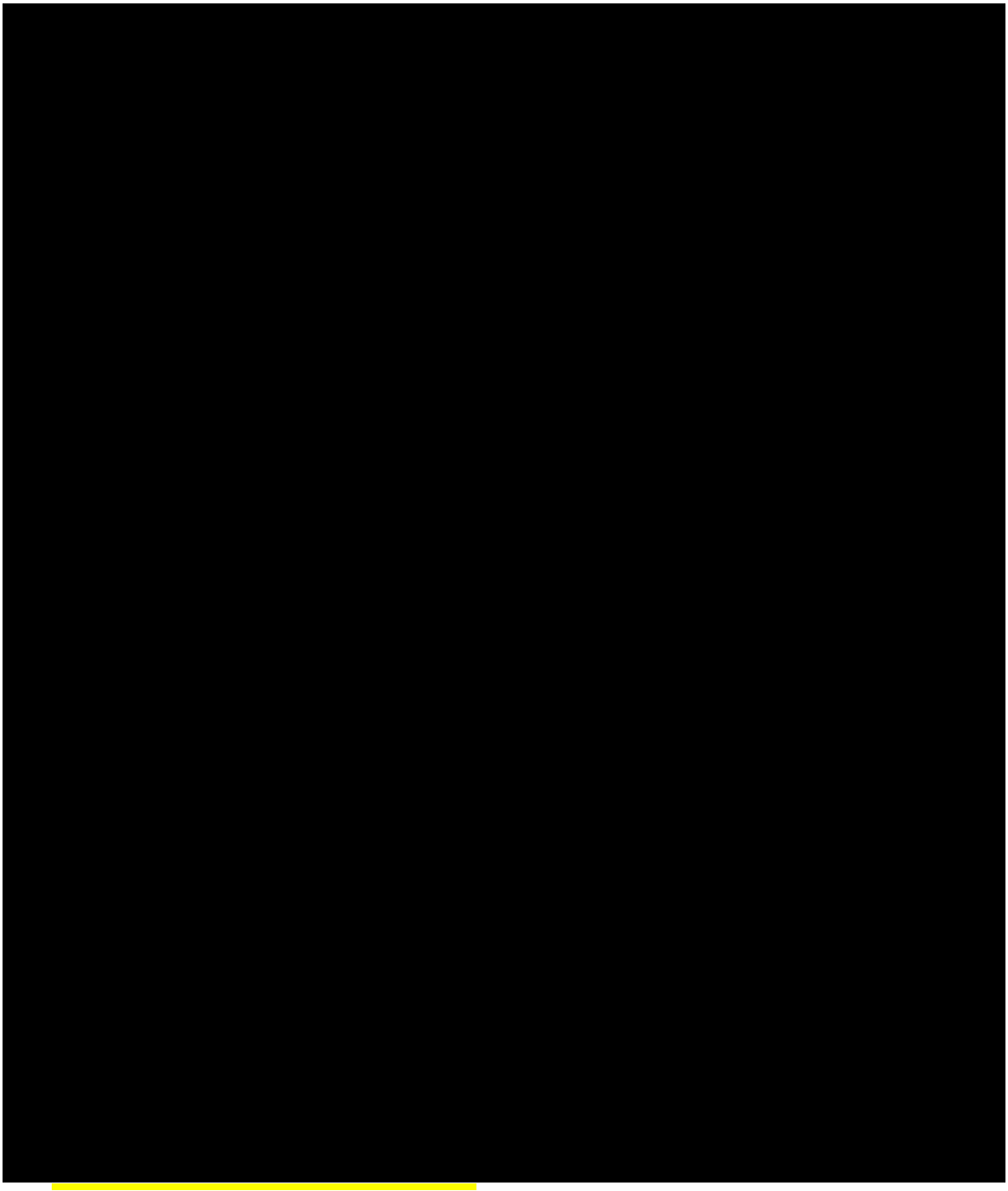

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1.6.3.6 Communications

The VM's communicates with the central system via Ethernet Interface. Communication via mobile network or WLAN is also possible if Ethernet is not available. The VM provides a SCADA interface for the Rail control discreet signals. The electrical level and function of the signals are to be specified and finalized during the system design phase. The VM provides protected inputs and outputs for this purpose.

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1.6.3.6.1 Cellular Modem (Option)

The VM's can be equipped with an industrial mini PCI express card enabling cellular (LTE) communications. The exact card is dependent on the cellular provider being used. INIT offers this optional modular 3G/4G cellular modem, supporting all 3G and 4G frequencies, on all major US carriers, as a backup communications channel. If exercised, INIT provides the modem for the agency-provided 4G/LTE cellular data service. When communicating in the wireless mode, all TVD and back office functions are the same as in the hardwired Ethernet mode.

1.6.3.7 Power Supply FFVM

The FFVM uses a modular COTS [redacted] Switching Power Supply. It is a 320W industrial AC/DC power supply designed to operate in a harsh environment with high dust density, humidity, vibration and altitude. It is housed in a robust aluminum case and fully potted with heat-conducted silicone. [redacted]

1.6.3.8 Software

This chapter provides details of the software used within the INIT Vending Machines.

1.6.3.8.1 Operating System

The operating system of the VENDstation is Windows© Embedded Standard 7. It will provide all system drivers needed such as Ethernet communication drivers. Special drivers which are necessary and not part of the standard Windows Embedded Standard 7 are developed and integrated by INIT. During startup of the operating system a self-test is initiated. Errors occurring

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during the self-test will be written into the Windows event log file. The system partition containing the Windows Embedded Standard 7 operating system is write protected with the "enhanced write filter" (EWF). This is to avoid system partition damage in the case of unexpected power loss or hard reset.

The VENDstation is equipped with two micro SD memory cards. The sales data is saved on two physically different memory cards to ensure redundancy.

1.6.3.8.2 Vending Machine Application

The VENDstation software is implemented in the programming language C/C++. To access standard functions, like file transfer or serial ports, the resources of the operating system are used. The main functionality of the VENDstation application is:

All functionality is provided in one executable application file. Additional configuration specific files the application software needs are provided in a software archive by INIT. The software archive is distributed via the usual data provision.

1.6.3.8.3 Transaction Records

The VM's generate, store and transmit a unique data record for each transaction performed. The record is stored locally in non-volatile memory until confirmation of receipt and database storage is received from the back office. [redacted] of transaction data is stored to support financial audits. Offline transactions are recorded as such in the transaction record, to support easy identification and tracking. The transaction record details will be finalized during the design review phase of the project. At a minimum, the unique transaction record will include:

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[redacted]

1.6.3.8.4 Audit Registers

The VM's employs audit registers for data tracking, verification and analysis. They store counts and values for specific events in non-volatile memory. The audit records are transmitted to the back office for reconciliation at a configurable time period, usually at the end of each service day.

[redacted]

1.6.3.8.5 Events and Alarms

[redacted]

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1.6.3.9 Operations

This chapter provides details in regards of the device operation of the vending machines.

1.6.3.9.1 Voice Annunciation

The VM is equipped with a headphone jack on the front panel customer interface. When used, it provides brief context-sensitive audio voice messages conveying the information on the screen for disabled customers. The audio tracks the change in transaction status as the customer navigates the screen flow. The voice annunciation supports the multi-lingual capabilities of the VM as finalized during the design review phase of the project.

1.6.3.9.2 Multi-Lingual Capabilities

The VM provides multi-lingual capability through the use of a display selection button. English is the default language and the alternate language selection is active at all times on all screens while the VM is in service. Pressing the button causes the display and audio messages to toggle to the selected language. INIT will implement the required languages and their corresponding audio and text translations.

INIT's proposal if fully compliant with the Voice Annuniciation requirements.

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1.6.3.9.3 Customer Operations

The VM performs the following minimum customer operations:

- Sell one or more tickets in a single transaction
- Accept specialty codes for promotional products
- Interface with other systems integrated with VM

The final list of customer functions is determined during the design phase of the project and will be worked out in close collaboration with the UI/UX consultants.

The VM displays a progression of simple, intuitive screens to complete a transaction. Available options are determined by the status and configuration of each VM. The information displayed is configurable by authorized agency staff.

Clear instructions guide the customer to the sequence of steps necessary to complete their transaction. English speaking customers complete their purchase in three (3) screens or less, guided by audio tones to provide feedback each time a button or screen is pressed. Sales transactions are generated and sent to the back office for reconciliation. Corporate Quick Card transactions are initiated by the Bank Card Processing Unit reading the customer's card and sending that data to the back office to generate a sales transaction.

To keep the purchase process simple, intuitive and convenient, the following operational features are provided:

- Idle Mode
    - Screen saver activated after programmable idle period
    - Screen saver terminates automatically when transaction initiation detected
- Degraded Mode
    - Transactions are stored locally until communications restored
- Offline Mode
    - TVD takes cash payments for fare products designated for offline sale
    - Send data generated in offline mode when communications restored
- Payment Features
    - Automatic detection of form of payment
    - Insert coins and bills in any sequence
    - Credit or Debit prompt, with PIN required for Debit
    - Bank card authorization prior to ticket issuing

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- If bank communications down – VM enters "cash only" mode
- Cancel transaction any time before full payment or authorization
- Failure during transaction automatically cancels with screen notification
- Cash returned and Credit/debit reversed for cancelled transactions
- Adjustable time-out period for no input between transaction steps
- Time from full payment / authorization to media issuance less than three seconds
- Time between successive media issuance less than two seconds
- VM readiness less than three seconds after completed or cancelled transaction

- Receipt features
  - Receipts are provided (configurable)
    - Upon customer request
    - Automatically for transactions above a configurable dollar value
    - Optionally for transactions below the configurable value
    - For every transaction
    - Never (when receipt stock is empty)
    - Within three seconds of completed transaction
  - Print format
    - Indication that not a valid ticket
    - Machine number
    - Date
    - Time
    - Purchase station name or location
    - Transaction amount
    - Machine unique sequence number
    - Additional info for bank card transactions

1.6.4 INIT's User-Friendly Customer Service Terminal

INIT will provide a COTS PC-based Customer Service Terminal (CST) with peripherals to support the Customer Service Offices (CSOs), remote use in the field, and the ORCA A[redacted]ncies mail center.

1.6.4.1 Hardware

The following table defines the Customer Service Terminal (CST) hardware components and quantities for the different applications.

INIT's COTS Full Featured Customer Service Terminal PC and Peripherals Overview & Quantities:

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QTY (Estimated)	CSO	Customer Outreach	Mail Center
	15	12	14
Computer	15	12	14
Docking Station	15		14
Keyboard/Mouse	15	Integrated	14
Touchscreen Monitor	15	Integrated	14
Closed Loop Media Processor	15		n/a
Closed Loop Media Processor	n/a	12	n/a
Image Capture	15	12	n/a
Document Capture Desktop	15	n/a	14
Document Capture Mobile	n/a	12	n/a
Secure Cash Storage	15	Agency Provided	Agency Provided
Bank Card Processing	15	12	14
Receipt Printing (Desktop)	15	n/a	14
Receipt Printing (Mobile)	n/a	12	n/a
Customer Display	15	n/a	n/a
EU Printer (400 card)	n/a	n/a	2
EU Printer (200 card)	15	n/a	n/a
EU Printer (100 card)	n/a	12	n/a
Cellular Communications	n/a	12	n/a
Uninterruptible Power Supply Desktop	15	n/a	14
USB Hub (10 Port)	15	12	14

INIT's COTS Full Featured CST PC and Peripherals Overview & Quantities

1.6.4.1.1 Customer Service Terminal Computer

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The recommended hardware to support deployment types in a customer service office, special location or a mail center, is a high performance, dockable laptop with the required peripherals integrated or added to create a fully functional customer service terminal. INIT is proposing a Windows 10 Professional, HP EliteBook x360 1030 G2. The EliteBook model provides a small, ultra-light, sturdy and flexible machine usable in any of the Orca Agencies' deployment intentions. Equipped with an Intel Core i5 processor, 8GB of RAM, 256GB Solid State Drive, and 13.3' Full HD touch screen, the EliteBook's small form factor and long battery life will provide flexibility and endurance and enjoyment for customer service representatives use. The proposed laptop has passed the test procedures of the MIL-STD-810G standard. This includes drop, functional shock, vibration category 4, vibration category 24, dust, humidity, altitude, high temperature, low temperature, temperature shock, sand, explosive atmosphere and freeze/thaw. INIT recommends using the same hardware model across all three customer service locations to leverage the benefits of a homogeneity across deployment, management, maintenance and overall system lifecycle. The agencies will also benefit from the flexibility and simplicity of asset re-deployments if a system is ever needed to be used for more then one purpose. If the ORCA agencies prefer a different primary computing platform, INIT is open to exploring other Windows-based alternatives that the agencies prefer.

1.6.4.1.2 Customer Service Terminal - Dock

HP Elite USB C docks will be used to facilitate easy connections to the required peripherals detailed below. Multiple USB ports, display connections and a wired network port are available in the driver-free dock. A USB-C dock leverages the latest docking technology and is the recommended docking solution for any mobile computing platform. As such, INIT believes the dock is useful in each customer service terminal location, including mobile, to provide an easier process for connecting the variety of peripherals needed without adding significant weight or cost.

1.6.4.1.3 Customer Service Terminal External Monitor

The Agencies indicated that in some deployment options, an external display may be desired to be added to the customer service terminal. INIT is proposing an HP EliteDisplay E220t 21.5-inch Touch Monitor. Reflecting the desires of the high definition, integrated touch screen on the HP EliteBook, the proposed 21.5 inch display boasts the same high definition and touch capabilities.

1.6.4.1.4 Customer Service Terminal – Keyboard and Pointing Device

For traditional installations within the Mail Center and Customer Service Office, an external, wireless keyboard and mouse combination will be provided. INIT proposes the Logitech MK520 Mouse and Keyboard combination. The keyboard and pointing device will connect to the Customer Service Terminal via Wireless USB interface.

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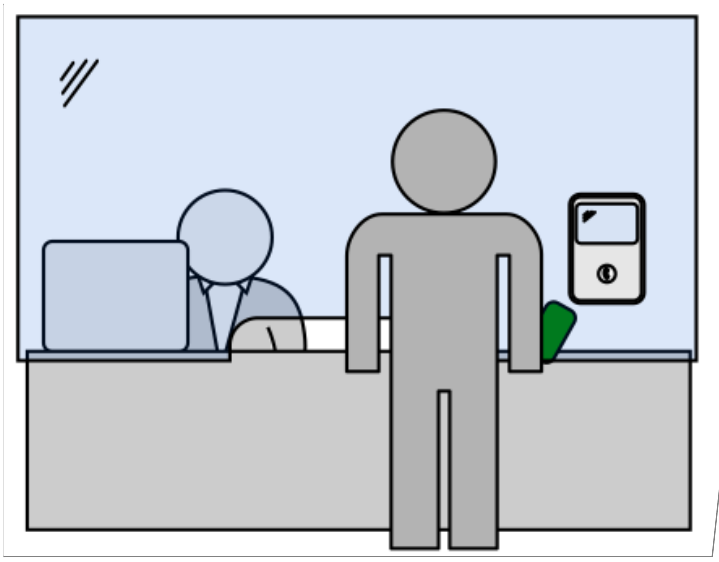
1.6.4.1.5 Customer Service Terminal - Closed Loop Media Processor

INIT proposes to use a PROXmobil3 validator as the Closed Loop Media Processor in the Customer Service and Mail Center environment. The validator can either be mounted on a desktop stand, against a wall or behind glass.

The major advantage in using a validator instead of a standard USB card reader is the ability to read virtual cards and Open Payment cards in a PCI compliant way. Additionally, riders will be familiar with the intuitive card tapping method through their ridership experience on vehicles and at platforms. The familiarity will re-inforce process, branding, user experience and design consistency.

For use within the mobile environment, INIT proposes to design a smaller form factor validator without a screen but using the same secure element and functionality of the PROXmobil3 validator. The newly designed enclosure dimensions for the secure element will be finalzed during design review; however, the agencies should expect a device approximately 1/3 smaller then the PROXmobil3. Similar ancillary benefits of using a full PROXmobil3 can be achieved using similar design and branding decisions.



Comment [DP11]: My understanding is that it cannot be powered by USB

Service Center Closed Loop Reader

1.6.4.1.6 Customer Service Terminal – Image Capture

For traditional installations within the Mail Center and Customer Service office, an external webcam for image capture is provided. While the agencies indicated that the integrated webcam will be used for special events installations, INIT recommends including the image

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capture device for all installation types to maintain standardization and quality and has included webcam's for all customer service terminals in the price. The use of the integrated image capture device will create variability in both the process and the quality of the images. The Logitech 4K Pro webcam has the quality, size, and flexibility to be used across all three proposed implementations of the customer service terminal. For fixed locations, the web camera can be attached to the top of a standard LCD monitor or be used with an unpriced camera tripod. For mobile uses, the camera comes with a carrying pouch, can be attached to the top of a laptop screen or could be used with an unpriced camera tripod.

1.6.4.1.7 Customer Service Terminal – Document Capture

For the purpose of document capture, INIT proposes the Epson DS-1630 Flatbed Color Document Scanner. With both flatbed and document feeding capabilities, the Epson scanner can scan in both color and black and white as well as either simplex or duplex at 25 and 10 pages per minute, respectively. (sing. The document capture device will connect via USB interface.

Epson DS-1630 Scanner

1.6.4.1.8 Customer Service Terminal – Portable Document Capture

For document capture in the mobile environment, INIT proposes the Epson DS-40 Color Portable Scanner. This hand-held, 1.1 pound scanner is designed for quick scanning of small documents in either color or black and white, with scanning quality similar to it's larger, desk-bound counterparts.. It will connect to the mobile customer service terminal via USB interface.

Epson DS-40 Scanner

1.6.4.1.9 Customer Service Terminal – Secure Cash Storage

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A secure cash storage device will be connected to the customer service terminal via USB. The MS-Cash Drawer USB Standard Duty Cash Drawer will be controlled by the Customer Service Terminal software.

1.6.4.1.10 Customer Service Terminal – Customer Display

In order to provide a customer friendly visual display, INIT has included an HP LV3000 Pole Display which provides a 7 inch, customer facing screen that connects to the Customer Service Terminal via USB.

Customer Display

1.6.4.1.11 Customer Service Terminal – Bank Card Processing

For Bank Card processing, INIT will provide the [redacted] Payment Terminal. The IPP350 is a PCI certified, technically advanced smart terminal that supports EMV, Chip and Pin, Magstripe and contactless media. The [redacted] is an ideal smart terminal to standardize on for both fixed and mobile payment solutions providing industry standard capabilities, in an attractive housing, with 15 key back-lit keypad and color LCD display.

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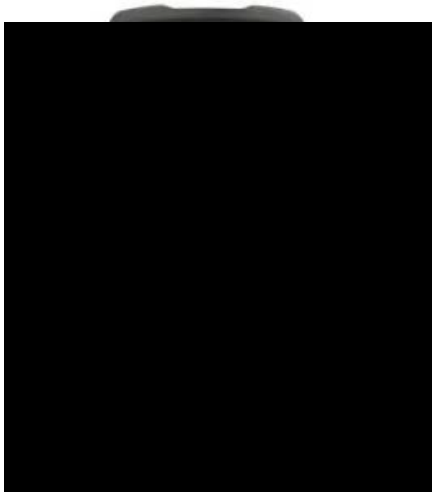
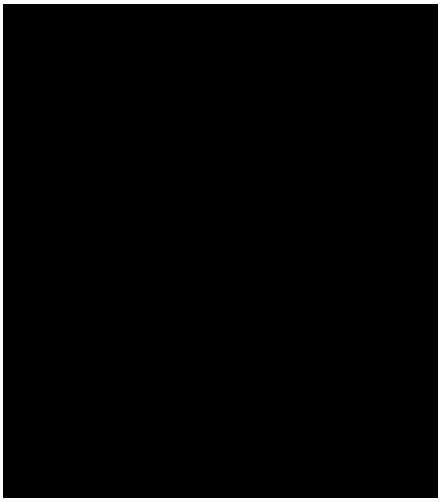


1.6.4.1.12 Customer Service Terminal – Receipt Printing

The [redacted] Receipt Printer is included as part of the Customer Service Terminal peripheral for receipt printing and check validation for traditional customer service office and mail center deployments. The [redacted] a high-performance multifunction printer with fast receipt printing, drop-in validation for deposit slips, checks, cashier checks and batch tickets, high-resolution graphics, superior slip handling, the highest reliability in its class and the industry's leading MICR accuracy.



1.6.4.1.13 Customer Service Terminal – Mobile Receipt Printing

The agencies indicated that a ruggedized, mobile receipt printer capable of being carried on a belt or carrying case would be an ideal solution for the special event installations. To address

this desire, INIT has included the IP54 rated [redacted] with power adapter/charger and carrying case. The direct-thermal technology receipt printer has broad system compatibility, bluetooth support, , external battery and carrying case accessories.

[redacted]

1.6.4.1.14 Customer Service Terminal - CSO – EU Smart Card Printing/Encoding

The [redacted] Printer and Encoder is a cost-effective and reliable solution that features a high resolution 600 dpi printing option for superior text and image quality and a 200 card hopper. The reverse transfer technology provides full bleed capability.. As requested in the price sheet, INIT has included a 1:1 printer to CSO ratio for a total of 15 devices. Some cost savings opportunities may exist through deployment in a one-to-many configuration using an unpriced print server.

[redacted]

1.6.4.1.15 Customer Service Terminal – Mail Center – EU Smart Card Printing/Encoding

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The [redacted] ID Card Printer and Encoder is the larger size 'sibling' to the previously identified [redacted] With similar feature sets to the [redacted] provides a higher transaction rate and larger card hopper of 400 cards. As requested in the price sheet, INIT has included a total of 14 printers for use in the Mail Center locations; however, recommends evaluating this requirement for several reasons. Cost savings can be achieved if there is the capability of sharing a single printer among several Mail Center terminals. Further, HID has recommended handling large volume requirements with multiple smaller [redacted] models instead of single large-volume models. Standardizing on one type of printer would ease deployment and maintenance costs, standardize parts and components, and simplify replacement if and when necessary.

1.6.4.1.16 Customer Service Terminal - Mobile – EU Smart Card Printing/Encoding

INIT has include the [redacted] as a smaller card printer to be used for the mobile CST operations based on the agencies note about desiring a more compact option for mobile usage. When card-printers are reduced to a certain size, the extent of the technology and capability are also reduced. While INIT considers the [redacted] superior printer in it's class based on speed, quality and ease of use, it is a different class of printer then the proposed solutions for both CSO and Mail Center. As such, there is an expected difference in speed and quality when leveraging this class of device, and INIT recommends the agency confirm its desire to prioritize size over product consistency. The [redacted] e is a single side, 300dpi, edge-to-edge printer with a 100 card hopper. INIT has included 12 of these devices as identified in the price sheet.

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[redacted]

1.6.4.1.17 Customer Service Terminal – Uninterruptible Power Supply

A [redacted] be provided for the Customer Service Operations and Mail Room deployments as required by the RFP. While the UPS can provide protection and limited uptime for some of the Customer Service Terminals and its peripherals, the built-in battery of the HP EliteBook laptops may make additional UPS' unnecessary.

1.6.4.1.18 Customer Service Terminal – USB HUB

A [redacted] hub is included to ensure enough USB connections and power for the variety of USB devices, printers, and peripherals included for the Customer Service Terminal.

1.6.4.1.19 Customer Service Terminal – Communications

Communications to the Customer Service Terminal will be through either the wired or wireless interface of the HP EliteBook laptop.

1.6.4.2 Software and Operations

INIT's VarioCSW is comprehensive for in-person customer support and as a POS. INIT proposes the VarioCSW to be used for Customer Service Offices (CSOs), remote field applications, and the mail centers for order fulfillment. The call center will use the Salesforce CRM application.

1.6.4.2.1 VarioCSW Overview

The core functionality includes:

- Selling all supported fare media to customers
- Loading and selling products and stored to transit accounts
- Query transit accounts based on diverse criteria (active, inactive, blocked, fare category etc.)
- Register and unregister transit accounts to/from customer accounts
- Generate transit account stored value adjustments

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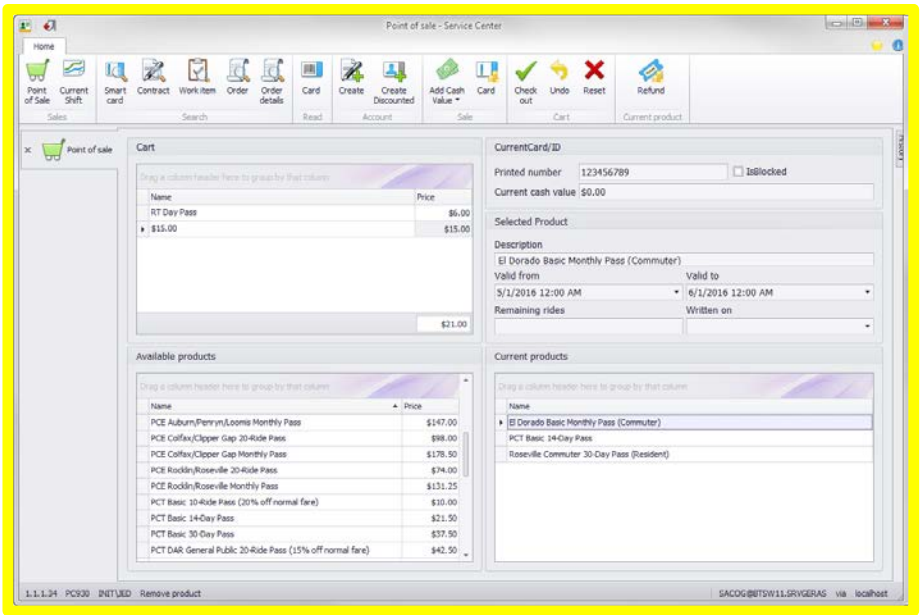
- View transit accounts transaction history
- View sales transaction and adjustment history
- Read and edit account information
- Generate fare payment cancellations/reversals
- Transfer value between transit accounts
- Blocking and un-blocking transit accounts (fare media)
- Viewing transaction and product loading history
- Configure/Add auto-load function for transit accounts and set the funding sources
- Generate sales transaction refunds
- Reading smartcards and display account information
- Replacement of closed loop fare media (associate the new card with the background customer account)
- Refunding transit accounts (refund maybe pending for a configurable number of days to allow all transaction to be processed)
- Processing smartcard orders (from the website or call center)
- Printing smartcards (with personalization)
- Adding or removing smartcard products or values

The screenshot below shows the main view of the VarioCSW POS software.



Point of Sale View of the CSW

In addition to selling ORCA products, VarioCSW has the capability to sell non-ORCA products like paper-based ticket books and other merchandise. Those products would need to be setup in the Tariff Management application before they can be sold.

The non-ORCA products can be serialized or non-serialized. If serialized products are sold the serial number may be entered during the sales process. This serial number is then attached to the sales details so that it can be used for further reporting

To provide an attractive looking POS interface for ngORCA, Anthro-Tech will review the current design and make suggestions for improvements.

1.6.4.2.2 Anti-Virus

The customer service terminal will be configured with ESET Endpoint Protection providing anti-virus, anti-malware, network access protection, botnet protection, and exploit blockers. Updates, configurations and monitoring is managed centrally by the ESET Remote Administrator deployed in the back office.

1.6.4.2.3 Security

1.6.4.2.4 User Interface

The MOBILEvario CSW is not a web portal, but a native application which uses MOBILEvario's APIs via HTTPS instead of direct database access. This means that the applications communication with the background system is web based, but the application itself runs natively on the workstation. This enables the workstation to be connected to diverse hardware such as cash drawers, barcode readers, payment terminals and cameras and printers.

The VarioCSW is a native application so that it can use the attached hardware (payment terminal, camera, scanner, card printer, ticket printer, card reader etc.) Applications running in web browsers do not have access to the PC's filesystem or hardware interfaces due to security issues. This is a fundamental restriction or feature of web browsers. Otherwise, a web page could steal one's personal files, install viruses or do other kind of harm. VarioCSW however uses the best of the both worlds, it uses the MOBILEvarios web based open architecture APIs and runs natively in order to access the hardware and assure the security of the device.

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The CSW has two main views, the Point of Sale view to be used at the front counter to sell cards, products and cash value and the Call Center view to support customer service in a call center environment.

VarioCSW requires an online connection to the MOBILEvario APIs in order to sell products.

1.6.4.2.4.1 Point of Sale

The Point of Sale view is designed to quickly sell products, passes and cash value loads in a customer service counter environment.

The point of Sales window is the main interface to perform sales to the customer in a fast and efficient manner. The Sale area consists of the Cart and the Available Products. The Available Products display a list of all items, which can be sold in the current context. Selecting an item will add the item into the Cart. The Cart collects all items of the current sale, so that they can be processed on block. The 'check out' completes the current sale. The Cash up dialog is displayed and further selections are provided to complete the payment (e.g. select split payments). Once the payment is completed, a receipt will be printed.

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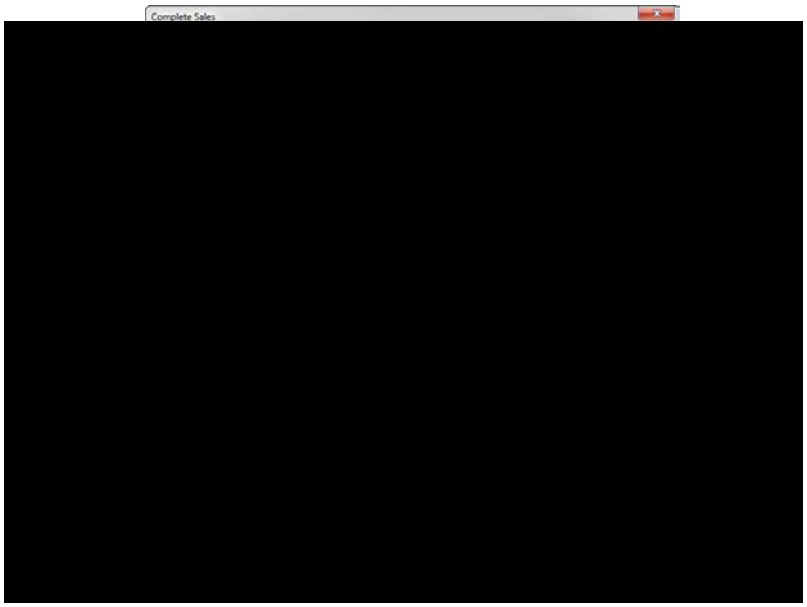

1.6.4.2.5 VarioCSW for Customer Support

Salesforce is used in the Call Centers and other necessary locations for customer support. VarioCSW also contains a Call Center View, but this is not relevant for ngORCA. Salesforce is described in chapter 1.8.3.

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[redacted]

1.7 INIT's User Friendly and Intuitive Website and Mobile Applications

Specifically for Website and Mobile Application (Scope of Work Section 5):

a. Provide your proposed subcontractor's development methodology for the following items:

i. Customer account website

ii. Content management system

iii. Customer mobile app

iv. Agency mobile apps

b. Provide previously designed website URLs and credentials to websites developed by the proposed provider.

c. Describe how the proposed UI/UX solution provider will design a common user experience across multiple platforms.

d. Provide a draft licensing agreement(s) for items in this section.

For the externally sourced applications, INIT is proposing:

[redacted]

', No

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~~1.7.1~~ Marathon's Proven AFC Websites

[redacted]

[redacted] AFC Website Development Methodology

Comment [JIH12]: Need to change the colors since they are unreadable

[redacted]

- Defined Requirements and expectations
- Defined Work Plans, with estimated hours, costs, and Phase milestones
- Defined Deliverables, by Phase
- Defined client Review and Acceptance procedures
- Scope Control through a defined Change Management procedure
- Defined Risk Management procedures
- Regularly scheduled Project Status Review Meetings with the INIT project manager and Agencies
- Written Weekly Project Status Reports, stating project actual performance versus the plan, identified risks and remediation plans, pending Change Requests, and Open Issues impacting the project
- Consistent emphasis on client Involvement throughout the project – client involvement is an essential component in all of Marathon's work. Marathon takes great care to ensure that important stakeholders are involved in the project and their input is included
- Effective Knowledge Transfer to client's staff

1.7.1.1.1 Management Plan

A [redacted] web portal project consists of the following phases: Analysis, Design, Development, Testing, and Deployment. Quality is built into each phase of a web portal project through close client collaboration, approved deliverables, and testing. Below is a description of each phase and how it contributes to producing a superb solution.

1.7.1.1.1.1 Analysis

In the Analysis phase [redacted] will work closely with INIT, INIT's UI/UX partner (Anthro-Tech), and the Agencies to validate the web portal requirements. The result of this analysis will include the detail output as defined by Anthro-Tech and a detailed Requirement Specification for which Marathon will define the build against. This document records the feature requests and how the web portal meets those requirements. This is accomplished in the following sections:

- **Requirements** – this section records each requirement that pertains to the web portal. Each requirement is mapped to a web portal feature or page that satisfies the requirement
- **Pages** – this section documents the global web portal features and each page required to meet client's requirements. Each page description includes a set of "ability to" statements and a list of use cases required to implement those "ability to" statements. Also, each item in this section is linked to a Test Case that ensures every "ability to" statement is met

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- **Use Cases** – this section documents each use case. The use case is a process flow that includes how the web portal interacts with the INIT MOBILEvario application and Agencies' chosen payment gateway

Finally, the Requirement Specification remains a working document throughout project execution and is kept up to date so there is always a clear understanding on what the web portal will include.

1.7.1.1.1.2 Design

INIT's UI/UX partner, Anthro-Tech, will guide the Agencies through a user-centered design process. As an output for this process and efforts, Marathon will produce the following design deliverables specific to the web portal:

- Style Tiles
- Site Map
- Wireframe / Mock-ups for each page

1.7.1.1.1.3 Development

[redacted] Development phase combines the work done in Analysis and Design to build out the web portal pages. Specifically, the Marathon Developer's use the UX/UI-approved Design Mock-ups and Requirement Specification to guide their work. Page development goes as follows:

1. Application set-up
   a. Set-up Umbraco content management system
   b. Set-up Development environment. Use the web portal base to save implementation time
2. Page Building
   a. Create pages in accordance with approved designs and requirement specification
   b. Customize web portal base to meet unique client requirements
3. Internal Testing – there are four steps of internal testing
   a. Design –validate page matches approved design
   b. Cross-Browser and Device – validate page works according to design
   c. Functional – validate the page meets the functional requirements
   d. ADA – validate the page meets WCAG 2.0 level AA standards for accessibility compliance
4. Rework and Issue Resolution – correct issues identified in Internal Testing

1.7.1.1.1.4 Testing

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This Testing phase corresponds to the web portal Factory Acceptance Test (FAT). In this phase INIT and the Agencies will use the Marathon Test Plan and Test Cases to validate the application meets the requirements. FAT process includes the following:

1. Build Test Plan and Test Cases. Map Test Cases to client requirements via the Requirement Specification
2. Setup the Test Environment and Deploy Applications
3. Review testing process with INIT and the Agencies
4. Commence Testing
   a. Marathon, INIT, and the Agencies execute Test Cases and record issues
   b. INIT, the Agencies, and Marathon review and triage issues. Categorize the issues into the groups fix, defer, and new requirement
   c. Marathon resolves assigned issues and updates application
   d. INIT and the Agencies verify issues are resolved
5. FAT is complete when all Test Cases have been executed and passed. A Test Case is passed when all assigned issues are resolved and approved by the Agencies

The above process is completed for each page and system required to deliver the portal requirements.

1.7.1.1.1.5 Deployment

After FAT there are several more phases of deployment and testing before the overall transit solution is deemed ready for the public. These testing phases are integration tests that include the INIT systems and the web portal. Also, these tests may include the introduction of end-users/customers in the later phases as defined as part of the user-centered design approach with Anthro-Tech. But each of these tests mirror the same process described in the Testing Phase. During this stage, Marathon will plan the test cases, configure the environment, deploy the application, run the tests, record any issues, and correct issues and update the software.

[redacted] Live AFC Websites

[redacted] has designed, developed, and deployed the fare collection portals listed below with URLs and user credentials. Each Agency was delivered both a customer web portal and an institution web portal.

To provide the agencies with greater control and flexibility in editing and managing the content of their websites, the portals were developed using the Umbraco Content Management System (CMS). The following information summarizes the key capabilities of Umbraco.

- Security

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  - Built on the Microsoft.NET and SQL Server Platform, a global standard for application development
  - Granular user permissions - You have full control over your users permissions to content and actions, removing the risk of user-based errors
  - Umbraco core team uses parameterized queries to prevent SQL injection
  - Every 6 months the Umbraco core team utilizes a security firm to do a penetration test
  - Any 3rd party security/penetration test reports are handled seriously by the Umbraco core team

- Usability
  - Powerful editing capabilities – editors are empowered to do more with intuitive editing tools, media management, responsive views and approval workflows to send content live
  - Media Management – your editors become designers with robust media capabilities of file management, easy drag-drop media insertion and responsive cropping, right inside the Umbraco back office

- Flexibility
  - Painless Integration – use the fully extensive API to seamlessly integrate Umbraco with any 3rd party service
  - The admin is built using AngularJS making it easy to customize. This means it doesn't require any .NET code. All the libraries are included so only code required for the control and custom HTML need to be written
  - Fully customizable data-types give complete control over the structuring of page types

- Scalability
  - [redacted] supports both traditional and cloud architectures
  - [redacted] can be used for small, simple websites to large enterprise sites
  - Can be configured within a load balanced environment

Further, the websites were built to be ADA and Section 508 compliant. The web portals meet the Web Content Accessibility Guidelines (WCAG) to ensure the content of the websites are accessible to all site visitors including those with disabilities. The target for the web portals is WCAG 2.0 level AA standards for accessibility compliance. This means web portals will be compliant with the World Wide Web Consortium (W3C) Level A and Level AA standards. Validating the standards were met was accomplished by performing iterative internal testing

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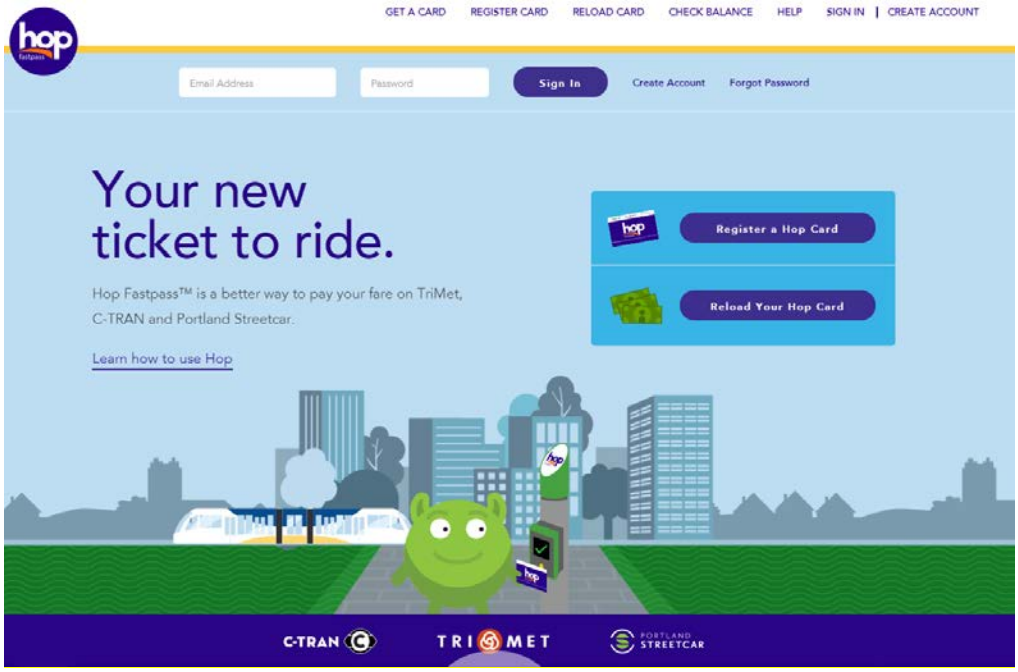
using accessibility auditing tools for automated testing during development. Further, manual testing was performed to ensure a thorough accessibility review.

The web portals are built on a reusable code base that enables Marathon to deliver a robust solution in less time. The features described in the *INIT Customer Fare Collection Web Portal Technical Description* and the *INIT Institution Fare Collection Web Portal Technical Description* represents the core application which can be extended to meet additional client requirements.



Example HOP Fastpass website – Home Page

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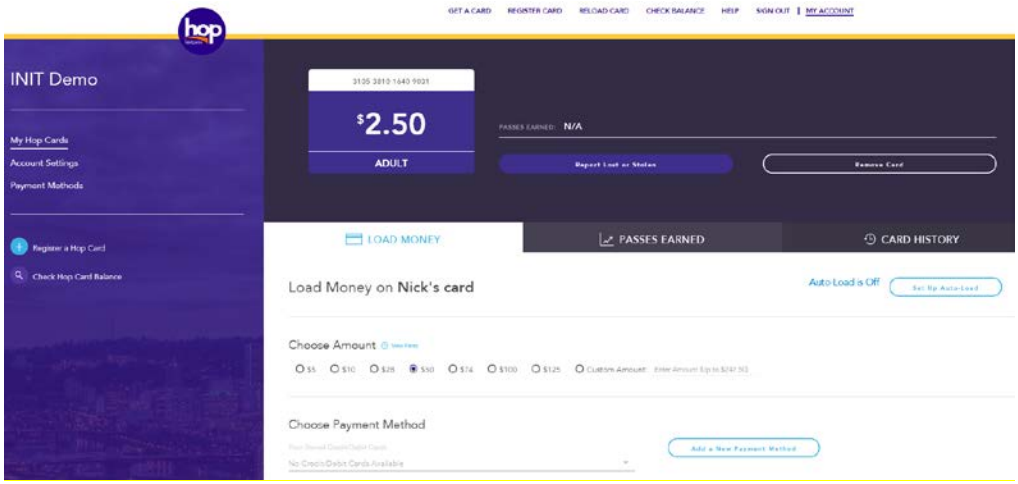

Example HOP Fastpass website – Account overview

Fare Collection Portals

1. Portland, OR
   Customer Website: https://myhopcard.com/
   Institution Website: Please contact INIT or TriMet for a demo of the institutional website

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1.7.2 Bytemark's Proven Mobile AFC Apps

Founded in 2011, Bytemark is an international provider of fare collection technology employing over 90 talented individuals globally located in offices in New York, Toronto, the UK, Australia, and India. Bytemark's core offering is a comprehensive suite of products that digitize transit passes, tickets and fare media in a variety of innovative ways. Purchase of these fare products by transit riders is simple and instantaneous by means of web-based and smartphone-based purchasing experiences. Agencies are provided with powerful fare validation solutions, and cloud-based access to a full-suite management portal to manage and report on their operation. Bytemark products have been implemented for over 20 transit agencies including New York Waterway, Toronto Transit Commission, Capital Metro Transit (Austin, TX), and King County Metro (Seattle, WA).

Starting in 2013, Bytemark and INIT have delivered a series of joint fare-collection solutions. Most recently, INIT and Bytemark have collaborated on projects such as The Rapid mobile app in Grand Rapids, MI and also similarly with The Flamingo Fares app with Hillsborough Area Regional Transit Authority (HART) out of Tampa, FL to provide an account management app. In both projects Bytemark utilizes INIT's account-based system (MOBILEvario) as the ticketing and customer account backend. Additionally, these projects also utilized INIT's MOBILEvario to deliver tokenized fare media to the Bytemark mobile app that is represented as a QR code or NFC payload. Through these deployments, Bytemark has successfully realized in-depth and service-proven integrations with INIT utilizing the MOBILEvario central back office and open

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API's. Through these efforts, together we have brought to market a proven solution of Bytemark mobile validation via INIT validators.

We believe our organizational and operational partnership has strengthened the mobile offering of both Bytemark and INIT. With over four (4) years of collaboration we have the capability to provide a best-in-class mobile ticketing application that integrates seamlessly with INIT's powerful back office. Bytemark and INIT joint deployments can be found in:

- Capital Metropolitan Transportation Authority — Austin, TX
- NYC Ferry —New York, NY
- The Rapid — Grand Rapids, MI
- Hillsborough Area Regional Transit Authority —Tampa Bay, FL
- Rhode Island Public Transit Authority — Providence, RI

To provide ngORCA with a robust Customer Mobile App, the proposed solution is an integrated Bytemark and INIT deployment. The INIT MOBILEvario Back Office will provide the customer account management features, and the Bytemark native mobile app will interface with INIT's MOBILEvario API's to enable these features in the mobile app user interface. The required features as required will include a user's ability to manage account information, password and password reset, reloading of fare media, purchasing fare products and new fare media, provisioning NFC credentials, etc.

For ngORCA, the INIT back office will be responsible for the delivery of account-based fare media to NFC-capable devices. For Google Pay, a "Save to Google Pay" button will be implemented in the mobile app to initiate the provisioning of fare media to the Google Pay app. The app will receive all information from the INIT back office to allow the user to sign into their Google account, authorize the provisioning of the transit card to their device, and have the fare media appear in their Google Pay app.

If applicable, we envision a similar approach for an Apple Pay integration.

1.7.2.1 Core Services and Products Produced

The Bytemark mobile ticketing platform encompasses smartphone apps, point-of-sale plug-ins, open APIs, mobile software development kits (SDKs), a back office module for user management, fare management, and a reporting engine. We provide clients with a PCI certified payment gateway that connects to a wide array of popular processors (First Data, Elavon, Chase Paymentech, Pivotal Payments etc.).

1.7.2.2 Proven and Ready

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Bytemark's mobile ticketing technology and applications are proven solutions, with mobile ticketing systems operating in:

- King County Metro - Seattle, WA
- Sound Transit – Seattle, WA
- Seattle Streetcar – Seattle, WA
- King County Water Taxi – Seattle, WA
- New York Waterway - New York, NY
- NYC Ferry – New York, NY
- Capital Metropolitan Transportation Authority - Austin, TX
- Northern Indiana Commuter Transportation District - Chicago, IL
- Massachusetts Department of Transportation - Boston, MA
- Metrolinx - Union Pearson Express - Toronto, ON
- Toronto Transit Commission - Toronto, ON
- York Region Transit - York, ON
- Hillsborough Regional Transit Authority – Tampa Bay, FL
- One Ticket – Edinburgh, Scotland
- Sacramento Regional Transit – Sacramento, CA
- Metropolitan Atlanta Rapid Transit Authority – Atlanta, GA
- Des Moines Area Regional Transit Authority – Des Moines, IA

Along with our existing deployments, Bytemark and its subsidiaries are currently developing / deploying mobile ticketing systems for:

- Seattle Monorail – Seattle, WA
- The Rapid – Grand Rapids, MI
- Rotterdamse Elektrische Tram (RET) – Rotterdam, Netherlands
- Warsaw Public Transport (ZTM) – Warsaw, Poland

1.7.2.2.1 Bytemark Experience with NFC Validation and Contactless Technology

Beginning in 2013, Bytemark has worked with NFC and Bluetooth technology as a method for fare validation. These solutions have encompassed both mobile generated fare media and custom validation solutions.

2013 - Bytemark delivered a proof-of-concept to Capital Metro Transit Authority in Austin, TX to present an NFC ticket in the CapMetro app and have it read by Bytemark's Merchant Mobile Handheld Validator. Android Host Card Emulation was used to emulate the ticket as a MiFare DESFire virtual card on only an Android device. Bytemark's Merchant Mobile Handheld Validator was integrated with a ISO/IEC 14443 Grabba attachment to read smartcards and NFC devices.

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2014 to Present - Bytemark's Merchant Mobile Handheld Validator is currently used in the field today by CMTA to read and validate MiFare Classic cards. The Fare Enforcement App that we deployed validates third party fare media from GenFare including MiFare Classic contactless cards as well as existing magstripe tickets.

2017 - Bytemark developed a proof-of-concept utilizing the NFC Value Added Service (VAS) Protocol to create NFC tickets on an Apple iOS device. The VAS protocol is a standard for NFC virtual loyalty cards. A virtual card was stored in Apple Wallet and brought to the foreground upon coming in near contact with a NFC reader. A validator was developed in-house with a Feig reader to read the NFC virtual loyalty card and display the validation results. The proof-of-concept was implemented for exploratory and demonstration purposes.

1.7.2.2.1.1 Bluetooth Validation for FutureRailway - UK Rail and Safety Standards Board (RSSB)

Bytemark subsidiary, ByteToken developed a Bluetooth LE validation system as a proof of concept for the UK FutureRailway group with funding from the Rail Safety and Standards Board (RSSB). ByteToken delivered their AirGate solution, a hands-free validation system built for gated and ungated environments.

AirGate comprises the following components:

- BLE Beacons
- Antennas
- 3D Camera
- Controller Module

The BLE beacons and associated antenna array locate the position of the user relative to the gate line, a 3D camera tracks the user as they approach, and a controller application manages the interface between the software components of the system, as well as the fare gate. These components can be configured to suit the requirements of the environment in which they've been placed.

To produce the prototype, ByteToken partnered with Thales, leading international fare gate manufacturer, who upgraded their latest smart fare gate, the Dreamgate PG600, to support the AirGate Bluetooth functionality.

AirGate is easy to use. A passenger, simply downloads the ByteToken mobile app and uses this to purchase their travel rights, which are then stored on the mobile app. As they approach the fare gate to enter the transport network the app will, without user intervention, communicate with AirGate. Once the AirGate software has determined that the user has valid travel rights, a signal will be sent to the appropriate fare gate to open. This enables a hands-free approach to

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checking-in and out of the transport network, increasing user throughput as they no longer need to locate and present their ticket.

1.7.2.3 Account Management Application

Bytemark is uniquely positioned to develop and deploy a mobile ticketing application for ngORCA. Bytemark has worked directly with Sound Transit and King County Metro since 2016 as a mobile ticketing provider. Over 45,000 users have purchased passes on the *Transit Go Ticket* mobile application.

Each Bytemark implementation is reliably based on off-the-shelf software—a product that has been perpetually refined over six (6) years of development.

1.7.2.3.1 UX/UI Integration

Bytemark will work with INIT and INIT's UX/UI partner, Anthro-Tech, to develop a customized solution for ngORCA which meets the functional technical needs while also complimenting the common user interface elements that may arise. As Anthro-Tech will ensure a common user experience across all customer facing interfaces (Mobile App, Website, etc.), Bytemark will work through the functional requirements in an integral manner. Upon launch, customers will instantly recognize ORCA branding and feel comfortable knowing they are using the official ORCA app(s).

1.7.2.3.2 Native App Development

Bytemark is proud to offer native apps for iOS and Android operating systems. Native apps take advantage of operating system specific features and functions. Automated dev environments can accelerate the initial development of apps, but they use a lowest common denominator approach to app development, only supporting features that are on both iOS and Android and rarely support taking advantage of device capabilities that require native SDKs to access. Apps created in an automated dev environment will always be slower as they do not access libraries of the OS directly.

The security of native apps exceeds apps created by automated development environments. Non-native apps are more susceptible to "man in the middle" attacks and are easier to reverse engineer. When a major iOS or Android upgrade or security patch is released, automated dev environment tools need to be updated first before apps built with those tools can be updated or patched.

1.7.2.3.2.1 Purchase Process

A user can complete their purchase using a personal credit/debit card or by linking to a mobile "wallet". Once a customer enters a credit card it can be saved with a nickname such as "My Debit

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Card" or "Work AMEX" for easy reference for the user. Users will be able to purchase multiple fare products from multiple agencies in a single transaction.

1.7.2.3.2.2 Split Purchases

For customers that may need to spread their monthly pass over multiple payment methods, we include the option to split a payment. The app interface allows customers to easily allocate funds across multiple payment methods.

1.7.2.3.2.3 Autoload & Subscriptions

Users will be able to create product or value-based Autoload for repurchasing fares or adding value. Products such as monthly pass can be re-purchased automatically the day after expiration. The customer is sent a confirmation email before the purchase to give them adequate time to modify or cancel the Autoload. The INIT system allows the user to designate primary and secondary funding sources.

1.7.2.3.2.4 Virtual Card Provisioning

For ngORCA, the INIT back office (MOBILEvario) will be responsible for the delivery of account-based fare media to NFC-capable devices. For Google Pay, a "Save to Google Pay" button will be implemented in the mobile app to initiate the provisioning of fare media to the Google Pay app. The app will receive all information from the INIT back office to allow the user to sign into their Google account, authorize the provisioning of the transit card to their device, and have the fare media appear in their Android Pay app.

We envision a similar approach, if applicable, for an Apple Pay integration. A physical card will not be a prerequisite to a user having a ngORCA closed-loop credential.

1.7.2.3.2.5 Registering & Linking Physical Fare Media

Users will be able to link physical fare media with their account and manage that physical fare media through the mobile app. They will also be able to convert a physical credential to a virtual credential if they so choose.

1.7.2.3.2.6 Virtual Card Management

The mobile app will allow a customer to procure a virtual card through in-app provisioning without the need for a physical card. The customer mobile app will also enable conversion of a physical credential to virtual credential.

After purchase, a product or value can be added immediately to the virtual account. As soon as the user brings their phone close to an NFC reader, Apple Pay (future) or Android Pay will

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automatically open with the Virtual Fare Card. This process will not require any manual user interaction to switch to another app or designate activation.

The virtual card residing in Google Pay can be used by the rider while the phone is offline. The security behind the virtual card solution will be the same, regardless if the phone is offline or online. When the device regains connectivity, it will sync up with the back office and download any changes on the account so the app and virtual card displays the most up-to-date balance and information.

A connection will be required when purchasing fare products or adding value.

1.7.2.3.2.7 Notifications

Notifications may be displayed in multiple ways within the mobile app. The app's home screen may be configured to display important travel alerts and notifications.

Notifications can be used to raise consumers' awareness to any changes in the operator's regular operations and suggest alternative routes if necessary. Providing riders with notifications allows them to make the best decision and ease their experience when problems occur.

Restrictions to notifications can be tied to in-app, email, or customers may elect to opt-out completely. Also available are notifications for operator or relevant area news as well as special offers (if available).

1.7.2.3.2.8 'More Information' Feature

More information allows the agency to include links to additional services and agency websites. Common links agencies include:

- Contact Us
- Customer Support information
- Call Center Hours
- Lost and Found Information
- Mobile App Tutorial
- FAQ's
- Terms of Service
- Rider Surveys
- Agency Website
- Route Maps, Schedules, Trip Planning Tools (can also be integrated more fully into the app)
- Agency Social Media

1.7.2.3.2.9 Settings and Profile Management

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Within the settings screen users are given full access to their profile and are provided the information tools they need to successfully use the mobile ticketing application. Settings are customizable on an agency-by-agency basis.

Users have full access to their account and profile details. Users can update their profile directly in the mobile application. This includes: changing and resetting password, adding payment methods, modifying notification settings, purchase history, and account sign-out options.

Customers will have the ability to reset their password. On the log-in screen the customer may select the Forgot Password button. A reset password link will be emailed to the address on the account with instructions. Customers can also contact Customer Service representatives for assistance. User's will also be able to report their fare media lost or stolen. Reporting their fare media lost or stolen will then deactivate that fare media and allow the user to transfer the balance.

1.7.2.3.2.10 Order History

For customer's records, reference and quick reordering of past trips, a full history can be displayed in the mobile app. The customer can tap any entry to view the complete record for the transaction or to quickly repeat the purchase. A downloadable record will be made available to users.

1.7.2.3.2.11 Initiating Customer Service Requests

Multiple methods of contacting customer service will be provided within the mobile application. A direct phone number will be provided and a pre-defined customer request form which stipulates the reason for the inquiry, the inquiry itself, and the customer's contact information. Customer service inquiries can be stored in MOBILEvario and for the purposes of this bid populate the ORCA Salesforce CRM.

The INIT system allows users to initiate an opt-out refund. This process can be automated or at the discretion of the agency. Optionally, it can require administrative approval prior to refunds being issued.

1.7.2.3.2.12 Passenger Information Tool

The integration of real-time passenger information tools is vital to the customer experience and is a primary driver of mobile ticketing adoption. The application may take advantage of operator-provided web services including real time bus locations and schedule listings. Other information that can be incorporated includes: next departing bus information, delays, and alerts that go beyond the typical trip planner to bring the most relevant information to a user as soon as they enter the application.

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We can integrate schedule information for trip planning purposes in a format that customers have become accustomed to with Google Maps and similar planning tools. By overlaying route and station information on an interactive map, customers can see an overview of the transit system, or zoom in on specific routes and stations. By choosing origin and destination customers can even see the next departure times for that route. Geolocation is utilized if the user chooses to share their location. Location data is used to find the nearest station and to show real time bus locations if provided.

Additionally, the app can be configured to link to multiple third-party trip planning tools, which can be defined by ngORCA. We will work to make those tools configurable, so the user can choose a preferred planner.

1.7.2.3.2.13 Language Support

The mobile apps will undergo an internationalization process and be built to support multiple languages. We do ask clients to provide translations of their own content such as FAQs or supplemental information. The language in the application will match the language default on the mobile OS. If the language is not supported, the app will default to English.

Content supplied directly from the back office, such as fare products would need to be translated by the INIT system. Although, we do not recommend translating fare product titles.

1.7.2.3.2.14 Design Examples

Below are screen samples how the native app may look like. As mentioned, Bytemark will work with INIT and INIT's UX/UI partner, Anthro-Tech, to develop a customized solution for ngORCA.

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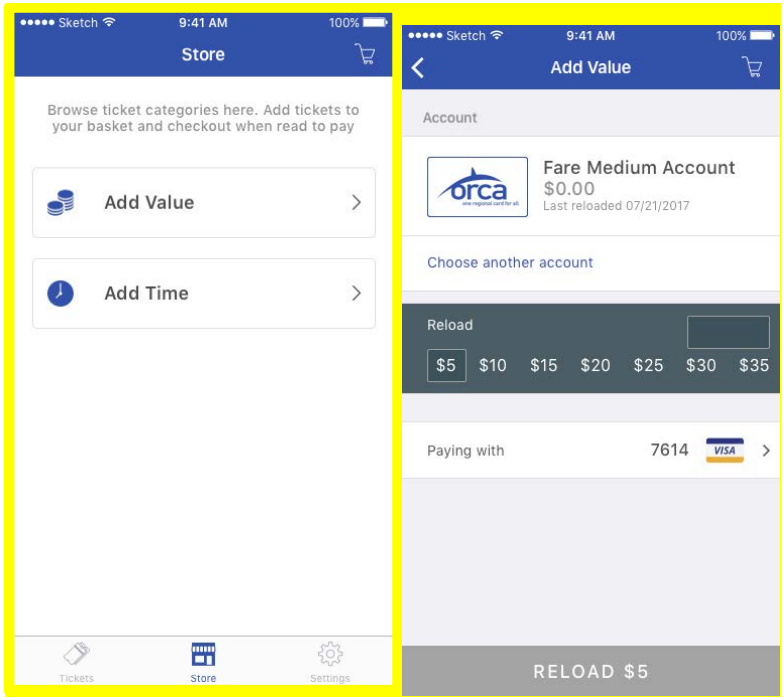
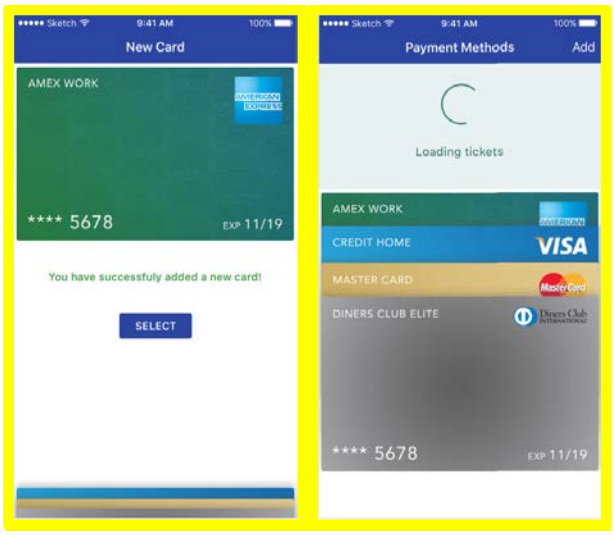


Adding Value



Adding a Payment Method

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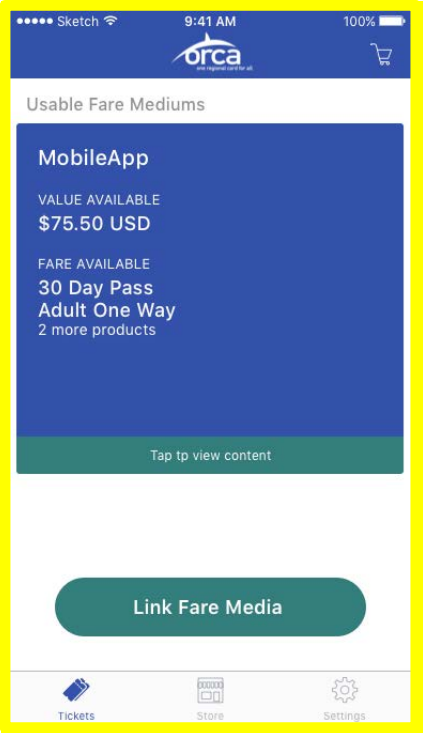

Card Overview

1.7.2.4 Accessibility – ADA Compliance

We believe it is important to highlight Accessibility features as part of the Core System for our passenger facing solutions. Bytemark is committed to developing transportation software that can be utilized by all segments of the international communities we serve. There are 100s of millions of aging adults and persons living with disabilities globally, and transportation is essential to increased productivity and independent living.

Bytemark's Accessibility guidelines are based on Section 508 of the Rehabilitation Act of 1973 as amended 1998, and the World Wide Web Consortium's (W3C) Web Content Accessibility Guidelines version 2.0 guidelines at the AA level (WCAG 2.0 AA). Additionally, we conform to international guidelines, such as the European Accessibility Act and Accessibility for Ontarians with Disabilities Act; while also upholding US State and Local Electronic Information Technology ("EIT") mandates for vendors contracting in business with government funded agencies.

ADA Federal Compliance

- New Federal compliance requirements for mobile applications are in effect as of January 17, 2017

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- Federal compliance requirements for mobile applications will be enforced starting January 18, 2018

From inclusive product design and usability features, to our developers utilizing the latest techniques for the Web and Mobile Accessible coding, with thorough review and Quality Assurance testing, Bytemark has defined a multi-step Accessibility implementation for all our products.

1.7.2.4.1 Highlights of Bytemark's Accessibility commitment

Operating system (OS) based implementation for screen reader usage for our iOS and Android applications.

- Color and Contrast
- Dynamic text and responsiveness
- Language and Content
- Navigation, Focus and Error Handling
    - Interface designed for consistency across screens
    - No Focus Traps
    - System auto-reads non-actionable yet important info: Expiration Date/Time
    - Labels have been substituted for text on screen

Web Accessibility formulary including specialized components for specialized products using AngularJS and WordPress.

- Animation functionality and compliance for our proprietary V3 tickets
- Development of a Corporate Accessibility policy integrated with the Corporate Product Roadmap
- Comprehensive Quality Assurance manual and automated testing
- Developing user testing and research sessions; as well as full participation with the Accessibility community and professional sectors worldwide.
- In an enduring commitment to corporate responsibility and sustainability, Bytemark is poised as the industry leader in these initiatives.

1.7.2.5 System Security

Bytemark was formed out of a former consulting company focused on mobile payments. From that experience, we have focused on three tenants:

- Secure customer data
- Secure payments
- Secure tickets

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Bytemark's focus on secure ticketing is demonstrated by our patent portfolio which focuses on securing tickets via visual, electronic, and contactless methods. Our issued patent on visual ticketing encompasses 34 claims for validating a computerized ticket.

1.7.2.5.1 Restricted Access

Only a limited group of administrators with our company can access production environments on a need-to-know basis. All individuals with such access undergo background checks, must be thoroughly trusted, and must acknowledge in writing the importance of securing the system's data, why the data needs to be secured, and the ramifications of any leak, compromise, or breach.

1.7.2.5.2 Mobile Payment Security

No personal information—particularly payment card information—is stored within the mobile applications. Bytemark's proven methods of protecting Personally Identifiable Information (PII) ensure that the card payment information and other personally identifiable data is handled in a secure manner and may not be compromised during processing or during storage. All communication between the mobile applications and the back office are secured over SSL channels and is monitored at all times for security breaches or unusual activity.

1.7.2.5.3 In-app Error Tracking

Mobile application monitoring software, Crashlytics, is used to send alerts to our development teams about potential issues that arise in production. Crashlytics is used by numerous top mobile app development companies to monitor when crashes occur as well as what the root cause of the crash. Crashlytics provides deep and actionable insights, even the exact line of code the app crashed on. We use Crashlytics real-time analytics to quickly address issues as they arise.

Crash Reporting — It will record every single crash and its stack trace

Crash Logs— when a user causes a crash in-app, all the information about the crash is sent to Crashlytics's servers and provided to our developers

Crashes are monitored and their cause recorded. If a specific crash occurs for a large subset of users the issue can be addressed before it becomes something users have a large-scale complaint about.

Crashlytics is part of the mobile toolset we use to constantly monitor how users are using the app. Bytemark engages in an extensive QA and customer feedback process to monitor User Experience flow, customer retention, repeat usage, where customers stop using the app and

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whether the customer encounters a technical issue that is specific to them or part of what could be a subset of usage problems.

This data is quickly translated by our support team to our developers for analysis, repair and submission to the QA team. We aim to deliver constant improvements on our consumer facing apps and the backend infrastructure as the feedback is provided to us. Bytemark's platform is dynamic and constantly improving based on new customer requests, the latest security threats and improvements in technology solutions for the end user. System improvements are paid for by recurring maintenance & support costs, new feature requests and customizations will be considered a change order.

On the whole, Bytemark constantly strives to improve our platform in meaningful ways that ensure our customers have software that does encounter issues of obsolescence. With software delivered to consumer devices that are changing every few months with new mobile operating systems and new functionality, it is insufficient to deliver a piece of software and assume its function for the next 5-10 years with only minimal or minor updates – as has been common in ticket vending.

Bytemark's platform is dynamic and always improving as part of our administrative responsibilities because we feel mobile-driven ticketing solutions will drive the transportation industry over the next decade. This can only happen with a platform that is routinely reviewed and updated to meet evolving consumer market expectations of what an app does on their mobile device.

1.7.2.6 Hosting & Uptime

The Bytemark Platform is a PCI/ISO-compliant, three tiered, load balanced, and auto-scaling system. These segments are divided by functionality, with redundancy across data centers. Amazon Web Services (AWS) provides us with an unprecedented toolbox to provide scalability not only locally but globally through Amazon's network operations centers spread around the world. Scaling procedures and network architecture is reviewed bi-monthly to identify performance bottlenecks and to ensure that load is being distributed effectively.

A key component of the AWS platforms that we utilize are load balancers. Load balancers can automatically distribute incoming traffic across our multiple API pool of server instances. They scale automatically to provide the amount of load balancing capacity needed in response to the actual incoming app traffic. Load balancers also provide fault tolerance by automatically rerouting traffic away from unhealthy server instances in the event of software instability or issues on the underlying hardware. The load balancers will restore traffic back to those instances automatically when they come back online. Multiple API instances can be allocated based on the amount of incoming traffic as well.

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1.7.2.7 Bytemark's Project Management Methodology

The Project Manager, and lead technical resource have the overall authority and responsibility for managing and executing this project per the appropriate parameters. Project Management Body of Knowledge (PMBOK) methodology is heavily employed throughout the project lifecycle. This includes full implementation of the practices of: risk management, project scheduling, issue identification, status reporting, change control, resource planning, communication planning and other industry practices to successfully bring projects to completion.

The project team will consist of our personnel from the development group, PMO and testing group. The project manager will work with all resources to perform project planning. All project and subsidiary management plans will be reviewed and approved by the project sponsor. The project sponsor will also make all funding decisions. Any delegation of approval authority to the project manager and systems architect should be done in writing and be signed by both the project sponsor and project manager. Tool usage will range from traditional task tracking software, Gantt chart creation, Risk Register creation and monitoring software.

A dedicated Project Manager will be responsible for providing timely project updates, reports and serve as central contact person for all project related activity. All project related documentation will be readily available to the Agency and their partners. Documents will be stored in a secure but shared workspace and will have appropriate versioning. Documents will be produced in widely accessible format.

1.7.2.7.1 Project Kickoff

Prior to an onsite kickoff meeting, Bytemark in partnership with INIT and Anthro-Tech will conduct onboarding evaluation to aid in jumpstarting the project. The onboarding evaluation is meant to gather basic information that will be discussed during the onsite assessment. Key members of the Bytemark staff shall kickoff the project by meeting with key stakeholders. The focus of this meeting will be to review the scope of the project as well as to provide Bytemark with the agency's long-term vision and goals. We will review the onboarding evaluation and complete any outstanding items with the appropriate agency departments. A successful project kickoff is one of the most vital stages of the project and it is important all stakeholders are available and participate.

Bytemark in partnership with INIT will also go through a fit-gap analysis to determine where business requirements align with existing platform functionality. The RFP scope and the compliance matrix shall serve as the basis of the fit-gap review to determine what components need to be customized to meet the ORCA's needs. Efforts will be made to make alternative recommendations where necessary to meet business requirements utilizing existing functionality or features.

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1.7.2.7.2 System Implementation Plan

An implementation plan will be put in place during the Startup Phase of the project, here is a high-level sample implementation plan:

Upon Notice to Proceed, Bytemark will begin preparations for the project including planning out staffing levels and incorporating ORCA's anticipated development into our project development cycle.

1) Before kickoff, Bytemark will conduct an onboarding evaluation to aid in jumpstarting the project
2) Bytemark will conduct a project Kick Off Meeting with the project's key stakeholders. At this time, we will review the scope of the Project as well as review long-term goals for the agency. Together we shall review the onboarding document and complete any outstanding items
3) Bytemark will work with Anthro-Tech and stakeholders in the design process
4) Bytemark will quickly take the information provided during the design phase to create prototypes and testable features
5) Bytemark will develop an iOS and Android apps with appropriate branding, interface requirements, and functionality
6) Bytemark will conduct system integration with INIT's MOBILEvario system
7) Bytemark, in partnership with INIT will train agency staff on all facets of the system required to fully test mobile functionality
8) Bytemark will coordinate with ORCA staff to carry out internal testing of the apps
9) Bytemark will work with ORCA staff to coordinate public testing of the apps (if required)
10) Bytemark will launch the apps to the public

Throughout the project, Bytemark will gather feedback from all stakeholders to refine processes and our systems.

1.7.2.7.3 Approach to Completing Work on Time

The project Coordinator is responsible for resource management across the portfolio of projects. The Project Coordinator and Project Manager will work together to ensure that the appropriate resources will be assigned accordingly to the project, in order to meet agreed deadlines and deliverables.

The common adage that everything takes longer than you think rings especially true for large projects with multiple vendors. There will always be a wide range of goals and to pursue all of them will take considerable resources by us *and* inside the agency – project management, QA, stakeholders input and so on. It is easy to underestimate internal resources that are required that may pull staff away from their already burdened schedules.

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With the release of a mobile ticketing app, the agency will have a very powerful and flexible tool for engaging with passengers that internal staff will be excited to tap into. There will be internal pressure to advance individual agendas to add features and modifications to the base contract. One lesson is to focus on the original scope to ensure that it is completed on time and within budget. Shifting priorities and seemingly "minor" change orders can stack up and disrupt the original schedule.

1.7.2.7.4 Change Management Plan

The following steps comprise Bytemark, Inc.'s change control process for all projects and will be utilized on the project:

- Identify the need for a change (Any Stakeholder)
- Requestor will submit a formal change request in writing to the project manager
- Log change in the change request register (Project Manager)
- The project manager will maintain a log of all change requests for the duration of the project
- Conduct an evaluation of the change (Project Manager, Project Team, Requestor)
- The project manager will conduct an evaluation of the impact of the change to cost, risk, schedule, and scope
- Submit change request to Project Sponsor
- If a change is approved by the Project Sponsor, the project manager will update and re-baseline project documentation as necessary as well as ensure any changes are communicated to the team and stakeholders

Bytemark shall perform, but is not limited to, the following technical services under change orders or task requests:

- Provide requested training of agency personnel
- We will submit a customized training plan for any specific training a task order will indicate a necessity for
- Extensions to functionality
- Assistance in the selection of alternative components and or software to those originally provided for the Platform
- Modifications to the look and feel of the customer application

1.7.2.7.5 Risk Management

An emphasis on Risk and Roadblock Management provides assurance that our organization can create and implement an effective plan to prevent losses or reduce the impact if a loss occurs. A good risk and roadblock management plan includes strategies and techniques for recognizing

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and correcting these threats, solutions for both preventing and solving bad situations, and indicates financial opportunities. Issues and potential roadblock are evaluated, mitigated against and plans communicated.

The Project Manager will determine what action should be taken for each risk as it is brought to attention through weekly team meetings and database reports. The Agency Project Manager shall determine whether to keep the risk, delegate responsibility, or transfer the risk responsibility up the project organization chain. The Project Manager, if necessary, may transfer a risk(s) to external organization if that organization is best suited to handle the risk.

1.7.2.7.6 Quality Management / Test Plan

All members of our project team will play a role in quality management that is executed in conjunction with Test Planning. It is imperative that the team ensures that work is completed at an adequate level of quality from individual work packages to the final project deliverable. The following are the quality roles and responsibilities for the project:

- The Project Manager is responsible for approving all quality standards for the project. The Project Manager will review all project tasks and deliverables to ensure compliance with established and approved quality standards. The Project Sponsor will sign off on the final acceptance of the project deliverable.
- The Project Manager will work with the project's quality specialists to establish acceptable quality standards. The Project Manager is also responsible for communicating and tracking all quality standards to the project team and stakeholders.
- The Quality Specialists are responsible for working with the Project Manager to develop and implement the Test Plan, which informs Quality Assurance. Quality Specialists will recommend tools and methodologies for tracking quality and standards to establish acceptable quality levels. The Quality Specialists will create and maintain reports from QA testing that will be delivered to project stakeholders.
- All stakeholders will be responsible for assisting the Project Manager and Quality Specialists in the establishment of acceptable quality standards. They will also work to ensure that all quality standards are met and communicate any concerns regarding quality to the Project Manager.

Quality control for the project will utilize tools and methodologies for ensuring that all project deliverables comply with approved quality standards. The Quality Specialists will assist the Project Manager in verifying that all quality standards are met for each deliverable. If any changes are proposed and approved by the Project Sponsor, the Project Manager is responsible for communicating the changes to the project team and updating all project plans and documentation.

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1.7.3 [redacted] Proven Mobile AFC Apps

[redacted]

INIT will approach the design of the apps in partnership with Anthro-Tech and the efforts undertaken to define and establish a common UI/UX interface for ngORCA.

Quick summary which company is responsible for which app / website:

- Public responsive website: Marathon
- Public native Customer Management App for iOS and Android: Bytemark
- Non-public managed Inspection and Validation App: [redacted]

1.7.4 INIT's Agency Focused, Cost-Effective Licensing Agreements

[redacted]

The mobile applications and websites supplied by these subcontractors will be licensed to Sound Transit in the same manner as other INIT supplied software. described in the ORCA Commercials & Legal Items "INTELLECTUAL PROPERTY PROVISIONS" section of Systems General Conditions.

1.8 INIT's Back office: Open-Architecture and Interchangeable Modular Applications

Specifically for Back Office (Scope of Work Section 6):

a. Describe in detail each component of the proposed back office including details such as:

i. System hardware

ii. Interfaces

iii. Operating system

iv. Databases

v. Applications software

vi. Supported functionality

b. Identify any proprietary hardware, interfaces or software utilized, indicate whether

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industry standard equivalents are available, and if so, describe the benefits justifying use of the proprietary product.

c. Considering the information provided in Scope of Work Section 6.3, explain in detail the reasoning for choosing the proposed CRM solution including why other solutions were not proposed. For example, if you are proposing a CRM solution that does not leverage another agency's existing CRM application, explain why the agency's existing CRM software was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions.

d. Considering the information provided in Scope of Work Section 6.7, explain in detail the reasoning for choosing the proposed financial management solution including why other solutions were not proposed. For example, if you are proposing a financial management solution that does not leverage another agency's existing financial management application, explain why the agency's existing financial management application was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions.

e. Describe in detail the proposed systems for providing the full range of services including:

i. Monitoring and management of field devices

ii. Authorization of payments, debit and credit networks

iii. Data collection from devices

iv. Timely and accurate transaction processing

v. Clearing and settlement between participants

vi. Third-party billing and funds collection

vii. Financial reconciliation

viii. System management and monitoring

ix. Indicate which applications and functions are already operational, and which have to be developed. Also, indicate which applications have been purchased from industry vendors and which have been or will be developed on a proprietary basis.

f. Describe the proposed reporting system and the types of reports that will be provided to meet the system needs including KPIs, device health, and asset inventory reporting.

g. *Describe how the agencies will be able to generate custom reports using provided data and standard report generator tools*.

INIT's back office system is comprised of MOBILEvario (which provides the fare collection specific functions), and Commercial-Off-The-Shelf (COTS) systems – such as, the Customer Relationship Management (CRM) and Financial Management Application (FMA). This section related to the back office generally follows the order of the Scope of Work Section 6, Back Office Applications.

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The information requested above in 8.e.i-ix is addressed in the associated subsystem (for instance, subsection i, "Monitoring and Management of Field Devices", is included in the System Manager section (i.e., Section 1.8.5).

1.8.1 System Hardware

The proposed Fare Collection System requires a robust network and information technology infrastructure to provide system availability and performance expected by consumers. The infrastructure and systems proposed below meet or exceed functional requirements while considering agency provided constraints and assumptions. While INIT is confident that the hardware and software proposed below meet requirements; INIT recognizes the rapid pace of technological advances between initial concept and design review may introduce desirable modifications. Further, the duration of the contract ensures technological advancement whose impact and inclusion cannot be estimated. INIT intends to provide the current available technologies, software and components within the offered price framework that meet the system requirements. Further changes and modifications may be necessary due to product obsolescence, incorrect assumptions, or additional constraints added by the agency. Iterative, collaborative design modifications can be made with the input of the ORCA agencies' during design specification and review phase.

1.8.1.1 Concept of Operations

The next generation ORCA information technology back office design consists of a highly available server, network and storage infrastructure built on enterprise class hardware located in two separate data centers in the Downtown Seattle and Tukwila area and a third, out-of-region data backup location. INIT recommends locating both operating datacenters within the ORCA operating region to provide extremely low-latency options between all agency networks and the back office infrastructure. Further benefits extend to consumers as response times dependent on latency-variable cellular networks. With two local datacenters connected by a low-latency network, INIT recommends a hybrid approach to business continuity and disaster recovery by combining load balancing, data replication, and failover capabilities into a resilient and flexible infrastructure.

The proposed back office servers are configured in a highly available virtual cluster providing high availability, performance and redundancy. The capacity and capability of the server and storage infrastructure is duplicated at the secondary site. Redundant networking load balancers, gateways and switches allow for the highly available, stretched cluster between these two separate datacenters. This allows for the parallel operations of external back office applications such as customer facing websites, vehicle facing services and other API services. Standalone systems and databases operate at a single datacenter with fluid migration or failover to the

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secondary datacenter. Connectivity between the agencies networks and the back office locations can be accomplished through a variety of wide area connection options including carrier grade options [redacted].

While a multi-datacenter strategy provides premium disaster avoidance and resilience, additional data protection is required to ensure against data loss in the unfortunate and rare event of a regional disaster. This is accomplished through backup technology built specifically to support a virtual infrastructure and move it to a secondary, geographically different location. This strategy supports the data-protection 3-2-1 rule ensuring, 3 copies of the data, 2 different storage types and 1 offsite copy. Data and virtual machine image backups will be performed at one of the Seattle locations, compressed, de-duplicated and copied to the primary site and replicated to the secondary site after being compressed and de-duplicated. This level of data protection ensures recoverability following a disaster which requires recovery or data discovery from a previous point in time.

All hardware and software required includes support and warranty throughout the duration of the contract and hardware refresh and/or upgrades have been included at regular intervals throughout the duration of the expected operational period.

1.8.1.2 Servers

The physical servers providing the compute resources of the multi-site, virtual cluster supporting all back office operations are Dell PowerEdge R740, with dual Intel Xeon Gold 5118, 12 core processors and 256GB of RAM. VMware will be installed and run from 2 redundant, 64GB SD Cards. Further enterprise class redundancy extends to dual, hot-plug power supplies, redundant storage controllers, and redundant network connections. The specific number of host servers and their final configurations will be determined during design review based on resource requirements and available technology available during the implementation phase.

The physical servers providing the compute resources for the testing facility environment and out-of-region data backup locations are Dell PowerEdge R730xd, with dual Intel Xeon, 8 core processors and 128 GB of RAM. VMware will be installed and run from local storage comprised of a combination of SSD and NL-SAS drives providing enough capacity to run all virtual machines or store the off-site data.

1.8.1.3 Storage

Enterprise class storage using industry standard RAID and Hot Spare drive capacities is configured in a stretched storage configuration across both datacenters. A stretched storage cluster is implemented in specific hosting scenarios when downtime is not acceptable and application owners look to infrastructure solutions to provide disaster avoidance and

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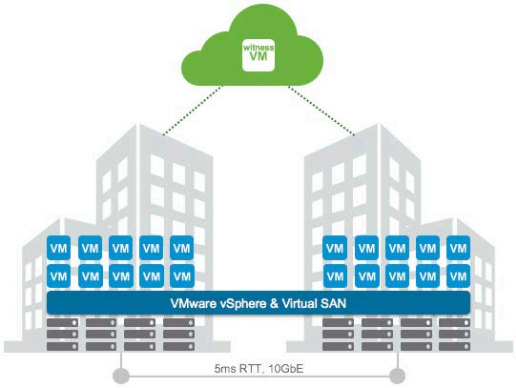
recoverability generally unavailable at any other technology layer. While specific storage consideration and design will not occur until design review, stretched cluster, replication and redundancy configurations provided by hardware such as the HPE 3PAR 8200 or VMware vSAN technology will be used to create the highly available back-end storage, accessible from either primary or secondary datacenters. Using tiered storage strategies combining solid state drives (SSD) and near-line SAS (NL-SAS) drives, the stretched storage solution provides the right performance and reliability of the back-end storage, to whichever virtual machine or application needs it, wherever that service happens to be running. Capacities are configured in a way that a failure of a drive, server, array, or site, will not impact the availability of the customer facing back office, and will automatically triage any affected stand-alone virtual machines to surviving resource hosts. This effectively creates a self-healing storage strategy capable of automatically responding to and triaging traditional availability-limiting events.



Storage

1.8.1.4 Network

Enterprise class networking services for data and storage networking is provided by Cisco Nexus 3000 10GB switches deployed in high available pairs in both back office datacenters. The Cisco Nexus 3K device family are high-performance, high-density 10Gbe data center switches running Cisco's NX-OS providing both layer 2 and layer 3 switching and routing capabilities at ultra-low latencies. As dedicated and fully managed devices, the Nexus switches provide single-tenant networking with enterprise class features enabling the multi-site routing and failover between the datacenters.

1.8.1.5 Firewall

Firewall and gateway security is provided by a highly available pair of Cisco ASA 5515X firewalls. Cisco, the leading manufacturer of enterprise-class networking equipment, has extended the

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ASA firewall product line beyond traditional layer 3 firewalling, introducing next generation features such as integrated intrusion prevention capabilities. Each datacenter site receives a pair of CISCO ASA devices configured in an active/standby configuration.

1.8.1.7 Operating System

INIT's back office infrastructure servers leverage Microsoft Windows Server 2016. Windows Server offers a proven enterprise class datacenter platform that can scale to run the largest workloads. Windows Server will provide the operating system, file management, security, directory services, and DNS services to the INIT applications and supporting infrastructure. INIT licenses Windows Datacenter Server allowing for unlimited virtual machines and virtual machine migrations throughout the infrastructure.

1.8.1.8 Databases

INIT's back office infrastructure is built on enterprise class database technology from Oracle (Oracle Enterprise Edition) which provides services for the storage, organization and retrieval of data. Oracle is a premier relational database system underlying critical databases around the

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world. INIT implements Oracle within a virtualized environment which provides improved capacity, availability, flexibility, scalability and recoverability for the system.

Capacity and Performance - Database capacities are scalable and flexible and provided by the underlying enterprise-class storage which is designed for high-performance and high availability through redundant drives and storage processors.

Security – [redacted].

High Availability – [redacted]

[redacted]

Flexibility – Implementing Oracle within the virtual environment allows for high flexibility of resource allocation as well as creating either permanent, temporary or ad-hoc test environments from production resources. The Shareplex solution can also be used to provide improved flexibility of data access by facilitating transaction level data replication to test environments, data warehouse environments, or other non-production, database instances.

Scalability – Implementing Oracle within the virtual environment allows INIT to scale database size and performance based on observed need. Allocating additional resources is both simplistic and quick, allowing for efficient allocation of resources on demand instead of allocating and dedicating unused resources up front.

Recoverability - In addition to the high availability and recoverability provided by Quest Shareplex, a virtualized Oracle instance also allows for quick and efficient backup and recovery. Leveraging virtualization specific backup technologies, the Oracle database is capable of being backed-up on an aggressive schedule to a separate off-site storage location. These quick, non-production impacting backups provide an additional layer of protection ensuring that any catastrophic loss of system will have a minimal impact to data loss.

1.8.1.9 Back Office Applications Software

The following chapter focuses on the back-office application software.

1.8.1.9.1 Microsoft Windows Server

Servers will be equipped with Microsoft Windows Server 2016. Windows Server offers a proven enterprise class datacenter platform that can scale to run the largest workloads. Windows Server will provide the operating system, file management, security, directory services, and DNS services to the INIT applications and supporting infrastructure.

1.8.1.9.2 [redacted]

[redacted]

1.8.1.9.3 VMware vSphere Enterprise Plus 6.5

VMware is a leader in virtualized infrastructure solutions and has been widely adopted across both large and small IT infrastructures. VMware abstracts server hardware resources and makes them shareable among the virtual machines that comprise the Fare Collection system. This helps decrease application downtime through efficient scheduling of resources, capacity optimization, workload isolation, and data protection. VMware is a key component of providing highly available, resilient, self-healing private cloud architecture.

VMware's High Availability (HA) clustering reduces the cost and complexity of traditional clustering solutions while providing cost-effective failover protection against hardware and operating system outages. HA is used to reactively, but automatically restart a failed VM on a surviving host. VMware's vMotion live workload migration tool allows moving an entire virtual machine from one physical machine to another without downtime. This seamless migration transfers the virtual machines active memory and precise execution state between physical hosts.

VMware vCenter provides centralized management of virtualized resources including hosts, storage and networks. It provides unified management of all hosts and VMs from a single console and aggregates performance monitoring of clusters, hosts, and VMs. The management console provides key performance indicators, predictive analytics, performance management and capacity analysis. vCenter is a key component of VMware's core feature set and its management features are available through a web browser. INIT intends to deploy vCenter Server with VMware's purpose built VCSA appliance in a High Availability configuration.

1.8.1.9.4 [redacted]

[redacted]

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1.8.1.9.8 Solarwinds Network Performance Manager (NPM)

SolarWinds NPM is an essential component of the monitoring infrastructure. NPM provides network mapping, management, performance metrics and fault management for the network devices and connectivity required for system service delivery. Additional capacity forecasting and trend reporting provide actionable, proactive information allowing engineers to prevent network issues from impacting service delivery. Integrated with both SAM and DPA, SolarWinds NPM is critical to the ongoing operation of the Fare Collection system infrastructure.

1.8.1.9.9 Solarwinds Server Application Manager (SAM)

SolarWinds SAM is the primary server monitoring, analysis and fault management software for the ongoing support and optimization of the virtual machines. SAM monitors availability, response time, CPU, memory, and disk usage and includes capacity planning and metrics to assure proactive notification of potential capacity problems. SolarWinds SAM is part of SolarWinds Orion and integrates with both NPM and DPA.

1.8.1.9.10 Solarwinds Database Performance Analyzer (DPA)

SolarWinds DPA for Oracle provides a database performance monitoring and management tool used for visibility into the supporting system databases. Insight into database response time, system health, trend analysis and specific analysis of concerns of running virtualized databases, DPA provides INIT IT and Development staff the tools necessary to optimize and ensure the

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databases are running effectively. SolarWinds DPA is part of SolarWinds Orion and integrates with both NPM and SAM.

1.8.2 MOBILEvario – INIT's Service-proven AFC-specific Back Office Applications

MOBILEvario is a powerful back office system, which is (among other features) an accounting and payment administration system.

MOBILEvario covers the traditional administration applications for revenue management (sales control and the keeping of accounts), fare management (products and matrices), seller media, user accounts, clearing house functions, personnel administration, various reports and access control.

All tabular representations can be exported in a variety of formats so that the ORCA Agencies can use this data in additional third-party software packages.

The modular architecture of the system results in future orientation and flexibility, resulting in investment certainty.

The following figure shows the main components of MOBILEvario central system on a very general level.

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1.8.2.1 INIT's Service-proven Open Architecture APIs for Communications with the Back Office

A core aspect of INIT's account based systems is the use of Application Programming Interfaces (API). The RESTful (Representational State Transfer) APIs provide an open architecture that supports vendor independence and streamlines integration with other payment channels. The APIs provide functionality for any 3rd party devices and networks to sell and validate fares. The client devices or customer interfaces all use INIT's APIs to sell and validate fares.

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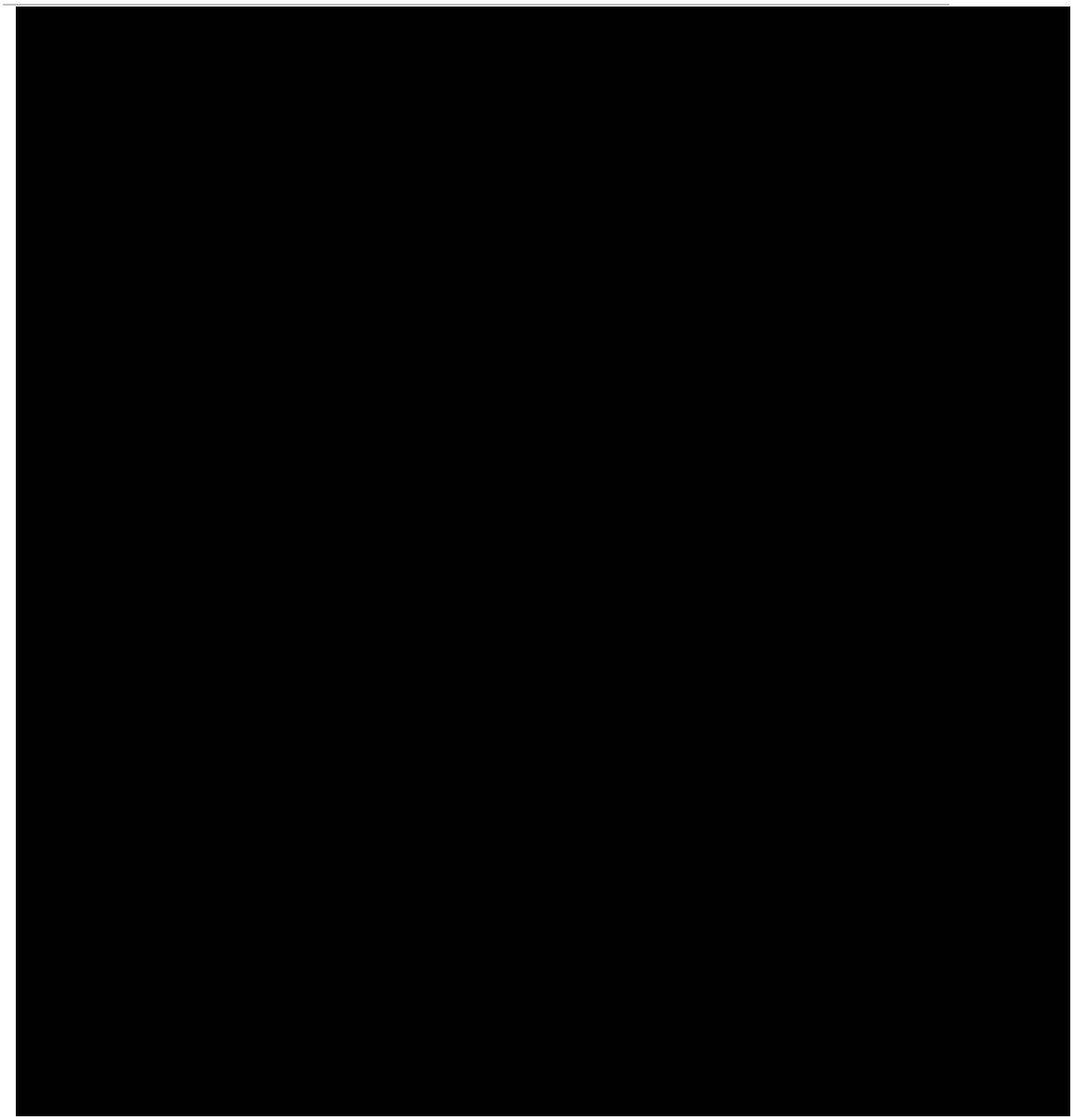

OVS and API Server are both REST API Servers that together provide the ATP functionality. OVS is optimized for fast response times to serve hat validators, while the API server provides the more higher-level APIs to manage transit and customer accounts.

Testing facilities allow the next generation ORCA team or Third Party Vendors to design and test their solutions. This protects Agencies' valuable investment for many years to come as it allows them to enhance the system autonomously.

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The APIs provide a standard and easily understandable interface to the proposed system. These APIs demonstrate the open architecture of the system. The APIs provide the next generation ORCA Agencies full flexibility to integrate 3rd party sales and fare validation solutions if desired in the future. The following table lists some of the main APIs of MOBILEvario.

Specification	Description
Product API	API is tasked with product related operations. This API is mainly used to block certain products or set-up and auto-load for a product
Fare Distribution API	(or Sales API) API for selling fare products and adding stored value on transit accounts. All sales clients that add products or stored value to the transit accounts use this API. This includes Website, CRM, CST, Retail Sales Network, etc.
Fare Payment API	(or Validation API) API used by platform and vehicle validators for real-time fare validation and stored value usage
Fare Inspection API	API used by fare inspection devices to check if a given fare media has a valid transit product
Transit Account Management API	API used by POS devices, web portals and CRM system to list transactions do value adjustments etc.
Customer Account Management API	API used by web portals and CRM system to manage registered users
Cardholder API	API used to query and modify data maintained on cardholders
Device Management API	API for remotely managing and monitoring devices in the City system

1.8.2.2 Online Validation (Account-based Transaction Processing)

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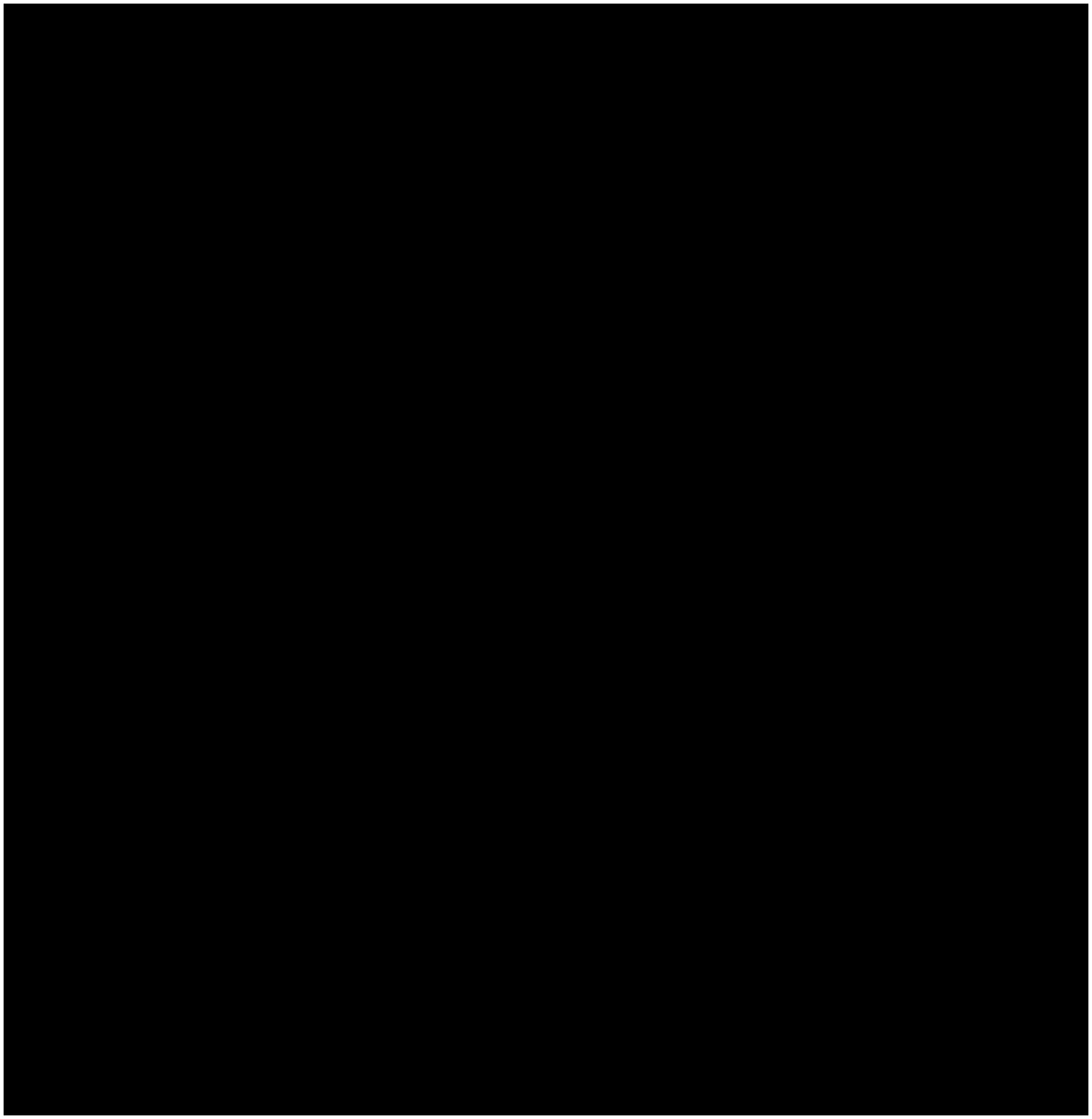

1.8.2.3 Fare Table Management

With MOBILEvario's Tariff Management Application, the next generation ORCA project would have a very strong tariff management tool that fulfills all current and future project needs. One of the core principles when designing INITs backend application is to provide the customer with

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full configurability of the product that is purchased. Tariff Management is the best example for this principle. With Tariff Management the region will be able to manage all fare products, all transfer rules, capping pots, accounting rules and many other business rules of the system. Changing those parameters is easy and does not require any system changes.

INIT evaluated the business rules of the current ORCA system and only sees minor adjustments needed to the current Tariff Management implementation. Those minor adjustment are related to the PugetPass product.

Our engineering team already evaluated what changes are needed to implement the PugetPass in the INIT system. PugetPass products will be managed the same way than all other products, with the difference that there will be an extra attribute that will hold the 'PugetPass value' (e.g. $1.50). When the product is used, the system will allow all rides that are valued lower than the 'PudetPass value'. For fare payments with a higher dollar amount than the 'PugetPass value' the system will automatically charge the respective upcharge / extra charge. INIT is familiar with upcharges and uses this in several projects.

Other ORCA specific programs like the Business Passport program can be implemented without any development modifications of the system.

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Many of INIT projects are using distance-based tariffs. Distance and zone-based tariffs are configured using the Matrix Editor (MX). See the chapter 'Matrix Editor' for details and an ORCA specific example.

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1.8.2.3.1 Overview of functionality

To ensure the next generation ORCA project can utilize all business rules necessary to support enforcement of each unique fare policy, the Fare Management (FM) module creates, edits, and manages all products and fare data. The FM module includes but is not limited to the following functions:

[redacted]

[redacted]

1.8.2.3.2 Example for a Configuration Change

[redacted]

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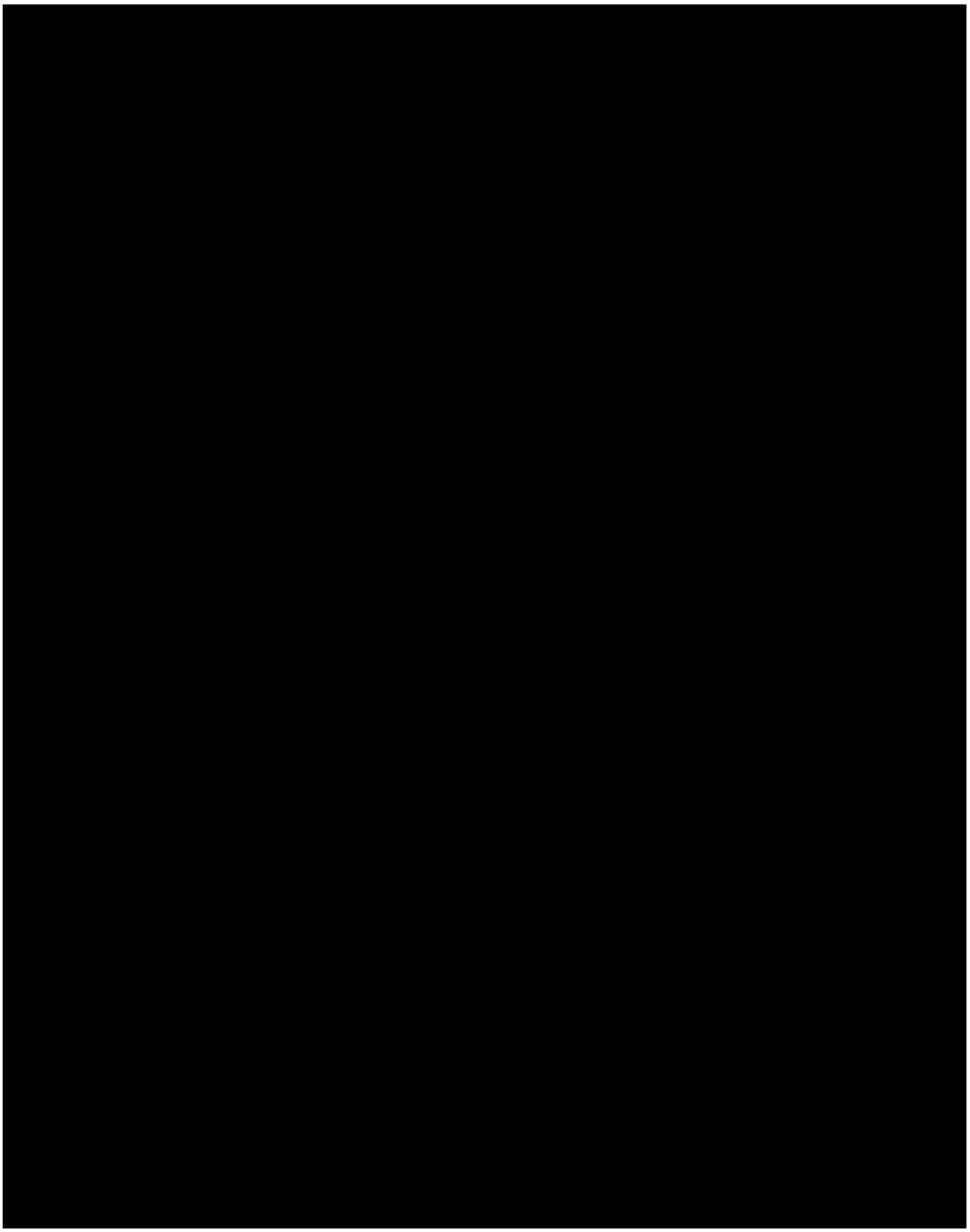

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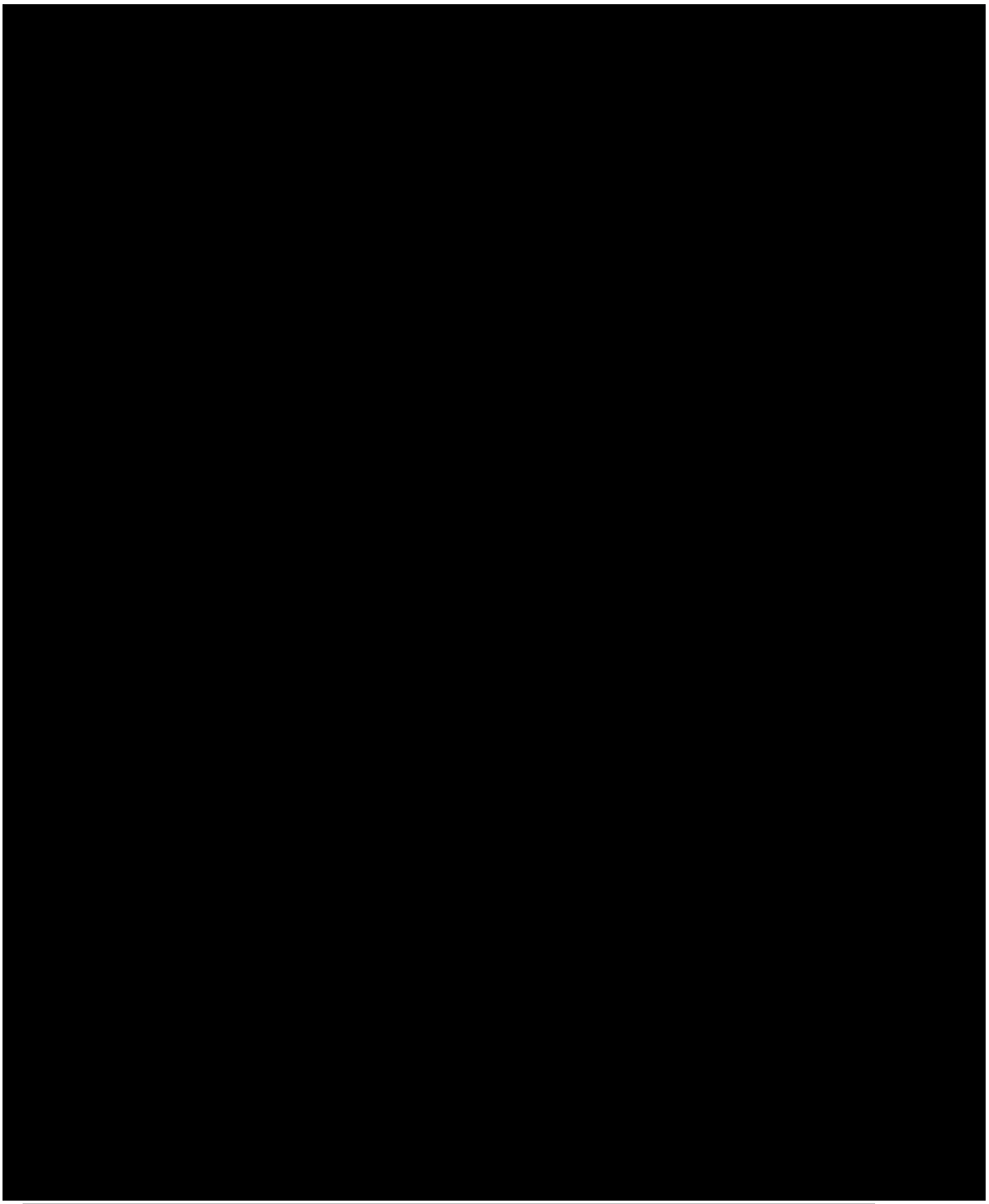

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1.8.2.4 System Administration

The MOBILEvario Admin Tool is used to administrate all central and general settings of the MOBILEvario system. Generally, the main functions of the Admin Tool are:

- User Administration (defining users, groups and their access rights)
- System Parameter configuration (configuring the values of the operational and policy parameters of the system)

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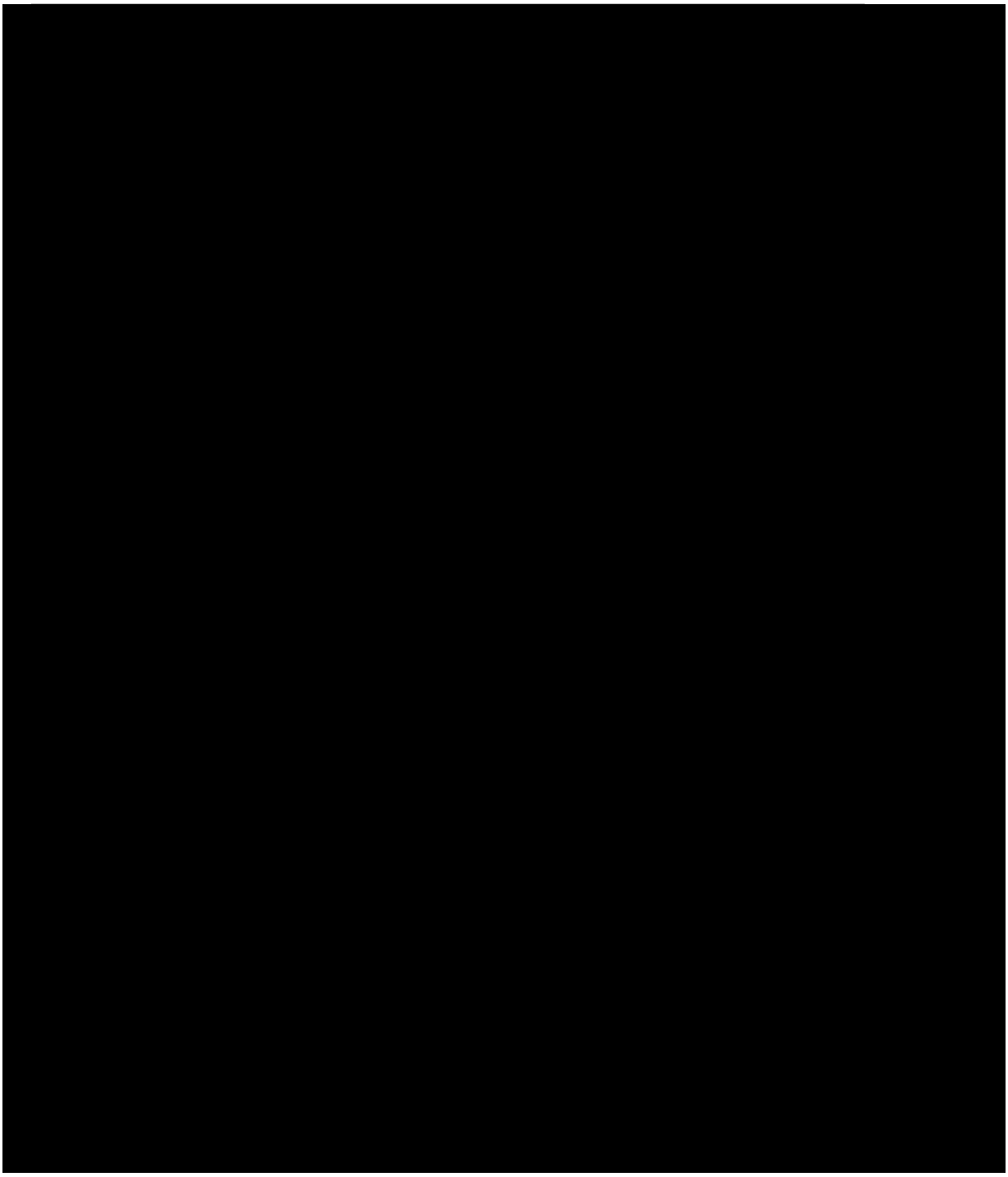

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1.8.2.5 Revenue Management

MOBILEvario Revenue Management provides a user interface to filter, group and list transactions based on sales channel, device, sales person etc. While Revenue Management is not an accounting tool, it is a very useful module for troubleshooting and producing ad-hoc reports and data exports from the production database. It is an invaluable tool when performing validity checks.

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With Revenue Management, it is possible to review sales data and perform statistical evaluations in real time. The sales data originates from the integrated distribution channels: Web sites, Validators, Mobile App, etc. Individual transactions and summary data are readily accessible by channel, vehicle, and even by the specific processing devices. Results can be printed or exported for use in other applications as needed.

Revenue Management provides Sales control and Debtor (Distribution channel) Account Management. This is essential for tracking accounts and collections for 3rd party sales channels like a local convenience store. You can define maximum credit allowances for each entity and track their performance. Here you can also block sales should they not honor their responsibilities (e.g. bad debtors).

The sales control module provides various functions to display and control sales data for each agency.

All sales records include the sales channel as well as values, date/time, locations and other pertinent information for reporting and analytical needs. Sales Accounting is handled by MOBILEvario's accounting module.

Each agency only has access to the sales data provided by their service or sales points. A set of specific users may be granted access rights to see all transactions in the system. We would expect this to be an oversight committee of the next generation ORCA project.

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1.8.2.6 System Parameter Management/Configuration Management

All device parameters are managed in the MOBILEvario Parameter Management tool on a regional or agency specific level. Those parameters are e.g. the passback time of the validators or specific parameters like the time until the device shuts down once the vehicle is turned off.

MOBILEvario Parameter Management is a web-based tool and enables modifying predefined system parameters and thresholds as well as assigning and transmitting them to the necessary devices.

1.8.2.7 Master Data Management

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1.8.2.8 Sales Personnel Management

Master Data Management is needed to import bus stop/line names and numbers. Sales Personnel Management (aka. Debtor Management) is not relevant for ngORCA.

Removed chapter 1.8.2.8 Sales Personnel Managementl details.

1.8.2.9 Form Designer

The MOBILEvario Form Designer enables configuring the layout of forms for smartcards, customer emails and reports. Following screenshot shows the main elements of the user interface:

(1) Toolbar and window name, indicating the currently opened form and the name of the application, (2) Tab bar, (3) Form list, (4) Report explorer and field list, (5) Toolbox, (6) Variable work area, (7) Property grid, (8) Group and sort.

The form designer enables you to configure e-mails and smartcards which are available as predefined templates. The following predefined templates are available:

Template	Use	Description
Account related mail	E-mail	
Autoload related mail	E-mail	

Template	Use
Cardholder related mail	E-mail
Contract related mail	E-mail
Default receipt	Sales receipt
New card	Customer cards
New report	Any
Order related mail	E-mail
Smartcard related mail	E-mail

1.8.2.10 Revenue Processing System

Card/FareMedia Inventory management is described in chapter 1.8.6

The following chapter focuses on the Revenue Processing System.

1.8.2.10.1 Revenue Recognition and Apportionment

The following diagram provides a high level overview of the steps and accounts involved in the revenue management and reconciliation process:

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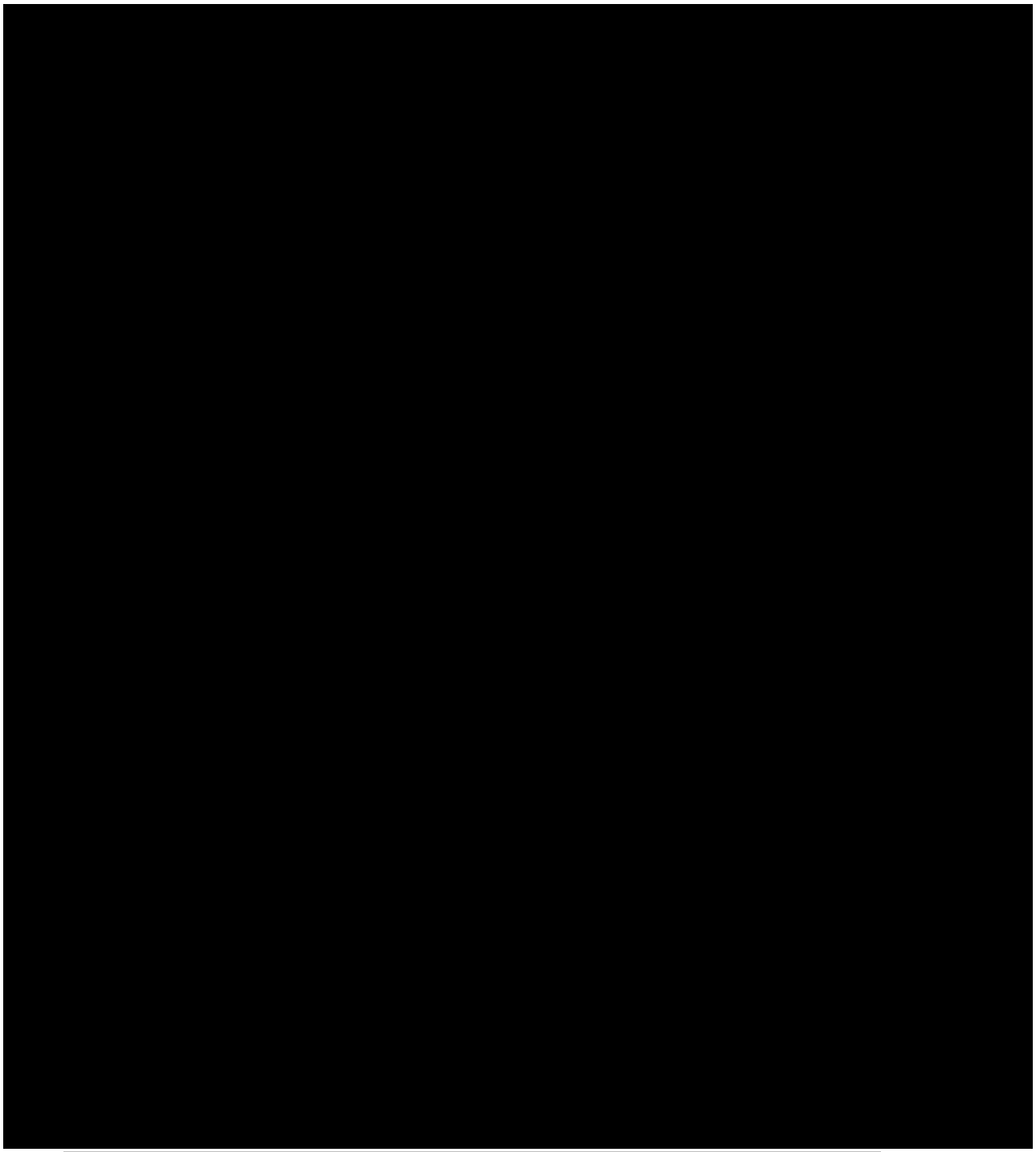

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1.8.3 Customer-Service Focused CRM

Considering the information provided in Scope of Work Section 6.3, explain in detail the reasoning for choosing the proposed CRM solution including why other solutions were not proposed. For example, if you are proposing a CRM solution that does not leverage another agency's existing CRM application, explain why the agency's existing CRM software was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions.

INIT evaluated the following COTS CRM solutions for next generation ORCA:

- [redacted]

INIT recommends, and has included as part of its main offer, the use of a cloud based, Software as a Service (SaaS) [redacted] solution because it fully meets the requirements in the Scope of

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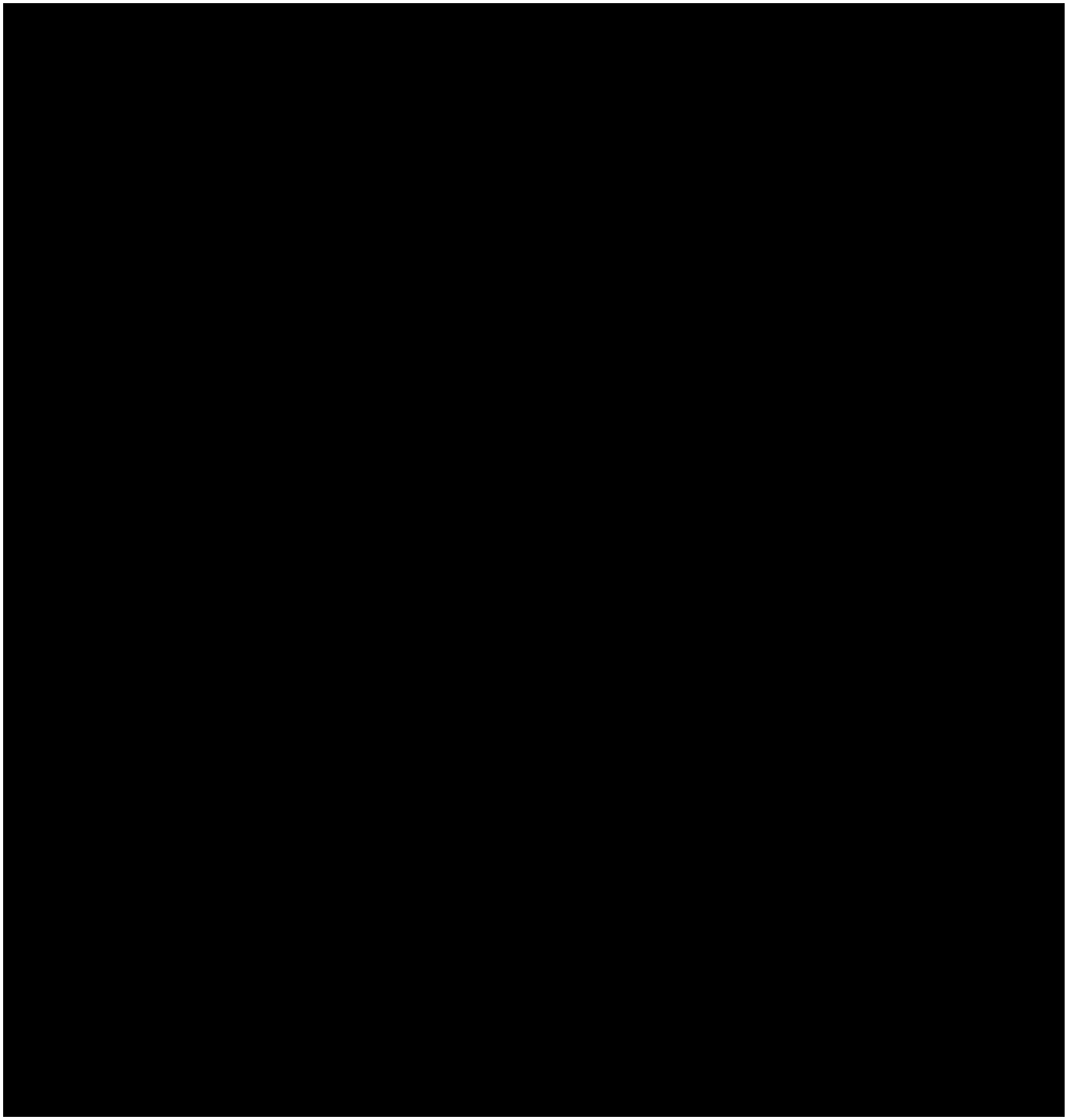
Work Section 6.3 and is rated number one by several independent software research firms – including, Gartner, Forester, and Software Advice, which states that:

- [redacted] is more highly recommended by customers (79% vs. 51%)
- Customers rate [redacted] ease of use higher than Dynamics
- Customers rate [redacted] customer support higher than Dynamics.

[redacted]



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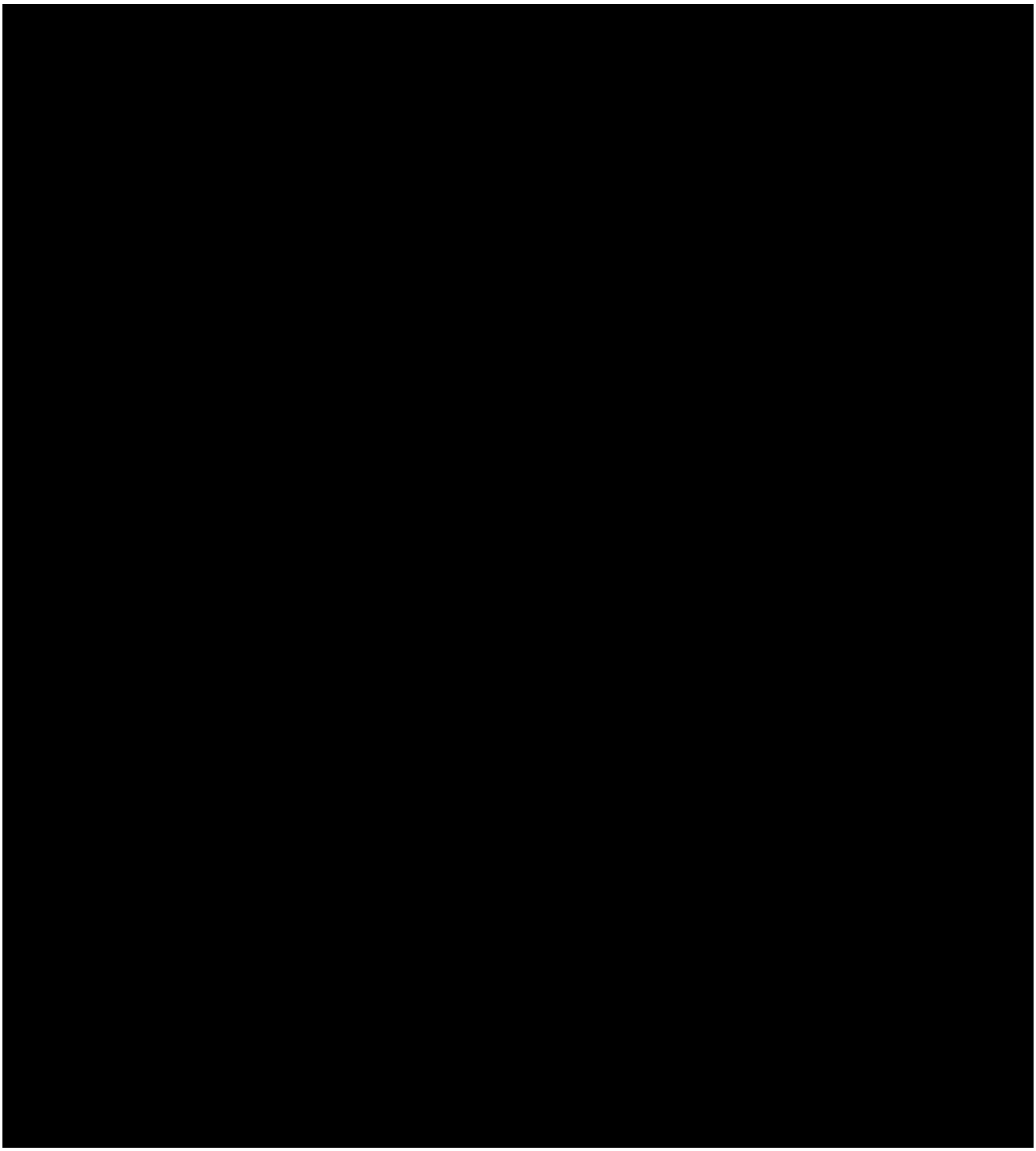

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1.8.4 Asset Incident Management (AIM) Application

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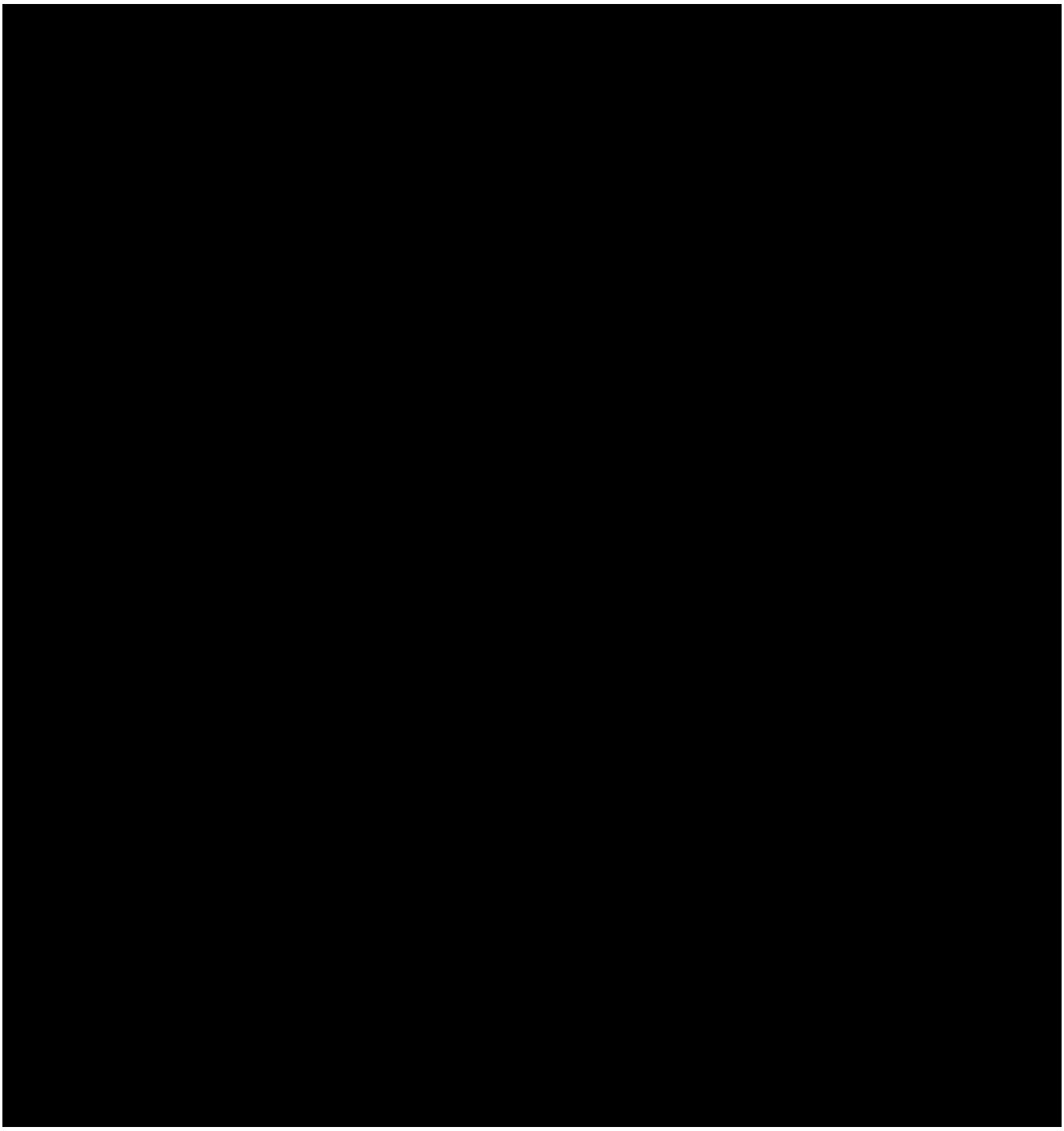

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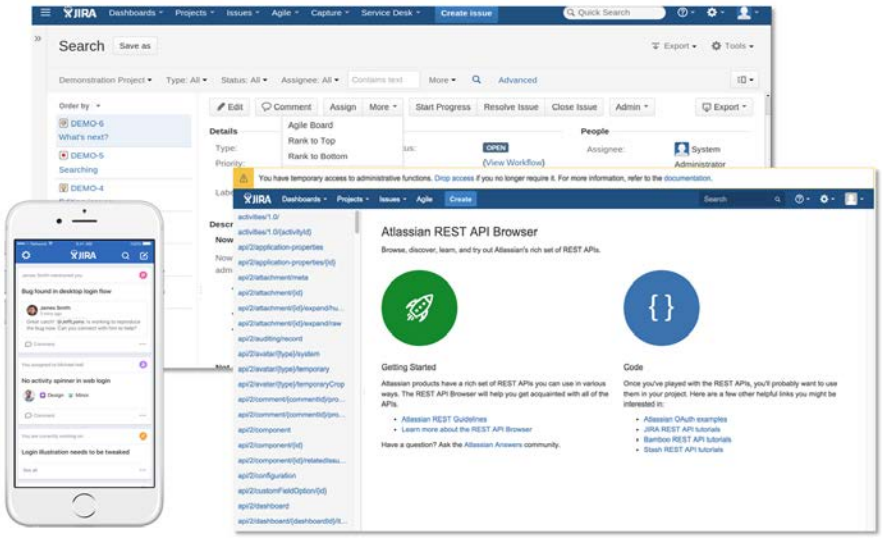
[redacted]

1.8.4.1 Incident Management (JIRA)

INIT proposes to use JIRA for the incident management application for its status as industry leader in incident management and its wide adoption in world-class companies across many industries. Jira is currently implemented company-wide at INIT for issue management. INIT also successfully uses Jira in projects where customers can issue tickets directly in their project specific Jira instances. The key to effective incident management is a process that records, categorizes, prioritizes, responds and resolves. JIRA provides the framework for capturing the details required for each step of the process as well as the workflow to move the process along effectively. Combined with good documentation and automated inventory and status', JIRA combines the people, process and technology required to manage the inevitable incidents.



Incident Management

Together with the Insight asset management software, the two modules also provide an asset incident management with superior usability and scalability. Benefits for the next generation ORCA system:

- Industry standard incident management system with proven track record
- Large customer base with excellent references including many public transport agencies
- Excellent open API support - perfect addition to INITs open architecture model.
- Low risk solution since INIT is already deploying Jira internally and externally
- Excellent configurability for workflows
- Easily understandable user interface with drag'n'drop functionality for workflows.
- Many extension modules available in the Atlassian market place ("app store")
- Mobile clients available in Android and Apple stores

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1.8.4.2 Asset Management [redacted]

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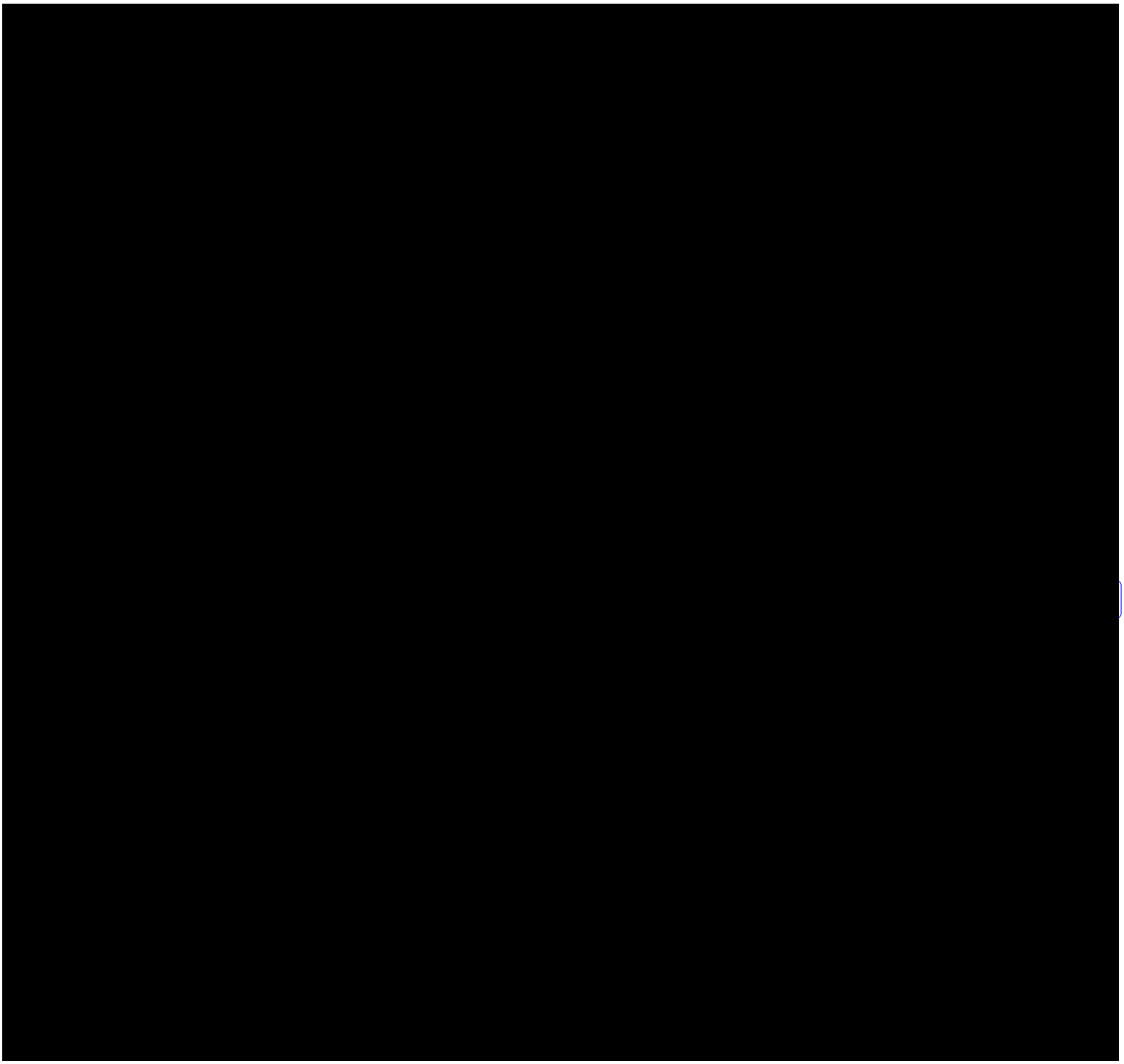

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1.8.5 System Manager - Automatic System Monitoring

INIT's System Manager, MOBILEsymon is a web-based, systems monitoring application which provides system monitoring, dashboards, reporting, and alarms for system assets and performance tracking. MOBILEsymon is a sophisticated monitoring system which provides real time status information and alerts for the AFC system including:

- Backend hardware
- Backend software and databases
- Wayside Validators
- Vehicle hardware
- Frontend software system components

MOBILEsymon works in conjunction with other system monitoring tools including INIT's MOBILEguard process monitor and SolarWinds Network Performance Monitor to provide a single pane of glass for asset status. MOBILEsymon collects, monitors, presents and distributes the consolidated data to next generation ORCA agencies. By defining alarm conditions and actions, the responsible persons will be notified of potential system issues via established email or optional SMS distribution groups so that corrective actions may be taken. In addition to the web-based dashboards, MOBILEsymon can also distribute information to several external sources including existing customer-owned network management systems and with the Asset Incident Management system through API integration.

As shown in the diagram below, MOBILEsymon acts as both a receiver and distributor of information including from MOBILEguard. Both MOBILEguard and MOBILEsymon have configurable alerts. Other monitoring systems such as SolarWinds can also forward SNMP based information for inclusion in MOBILEsymon which can distribute it to a variety of endpoints. Distributing to an existing monitoring system already in use by the Region should not pose any significant difficulties; however, the technology, methodology and network connectivity required may add additional efforts or costs.

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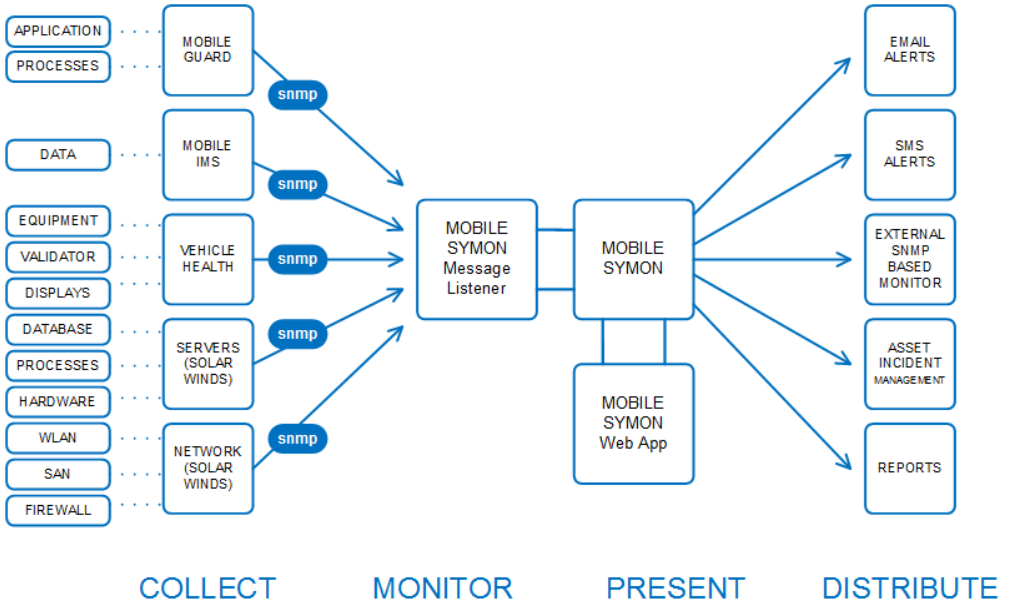

MOBILEsymon

1.8.5.1 Dashboard

The dashboard is a configurable page which gives an overview of the monitored systems status, messages and status changes. Available are a System and a User dashboard.

System dashboard Provides an overview of system groups. The system dashboard can only be adjusted by the administrator.

User dashboard Each user can create several dashboards for his/her responsibility area. For each group different widgets can be added and their position changed. The system can be configured to only alert certain users.

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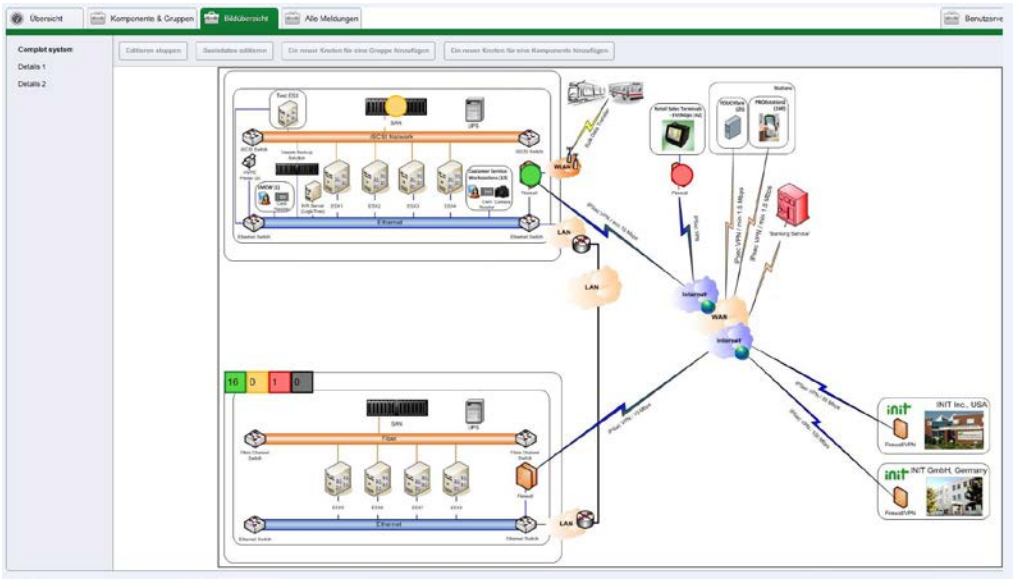
MOBILEsymon dashboard with intuitive KPI's



MOBILEsymon's graphical dashboard shows VM status at a glance

1.8.5.2 Automatic alerts

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To manage issues in real-time, a user configures automatic notification about status changes to be sent via e-mail and/or ORCA provided SMS service. The user assigns alerts to be issued when certain conditions are met. If the condition is satisfied, the action(s) will be carried out.

1.8.5.3 Components & Groups View

In the Components & Groups view, the user can access all visible components. Components can be combined into groups and one component can be part of several groups.

In the configuration tab, the user configures the warnings, errors and alerts generated for each component type.

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Details are available at a device level and include device details, device history, location history and relevant alerts for the individual alerts.

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1.8.5.4 MOBILEguard

MOBILEguard monitors and controls the ITCS databases, the ITCS processes, the hosts and the file systems. The application is accessed via a standard web browser making it available to any user with user privileges. MOBILEguard is based on the Java JMX (Java Management Extension) and can therefore be managed through all JMX enabled tools or accessed via RMI (Remote Method Invocation).

MOBILEguard includes the following features:

Database monitoring	The online databases are constantly monitored. In case a database requires more space, a volume is automatically added and an alarm is generated. In the case of database problems, an alarm is generated.
Process control	Java applications are monitored, started and stopped automatically. If problems are detected, an alarm is generated. In the case of a crash, the Java machine is automatically restarted. Online monitoring of live data communication is possible with the ability to manually restart an

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	application.
Host monitoring	Using Peer To Peer technology, MOBILEguard will automatically check the heartbeat of all other services encountered in the network. If a service fails, e.g., a server is down, an alarm is generated. An alarm is generated when the server returns.
File System monitoring	Specified storage devices are monitored. In case a device is not accessible or in case a device may become full, an alarm is generated. Predefined directories are checked for file activity. If log files are not written to within a defined period, an alarm is generated. Old log files and database backups are automatically deleted according to ORCA defined requirements.
Alarm management	Using Peer-2-Peer technology, alarms can be distributed to all MOBILEguard services on the network. Alarms can be configured to be forwarded via e-mail, SMS as well as being sent to MOBILEsymon.

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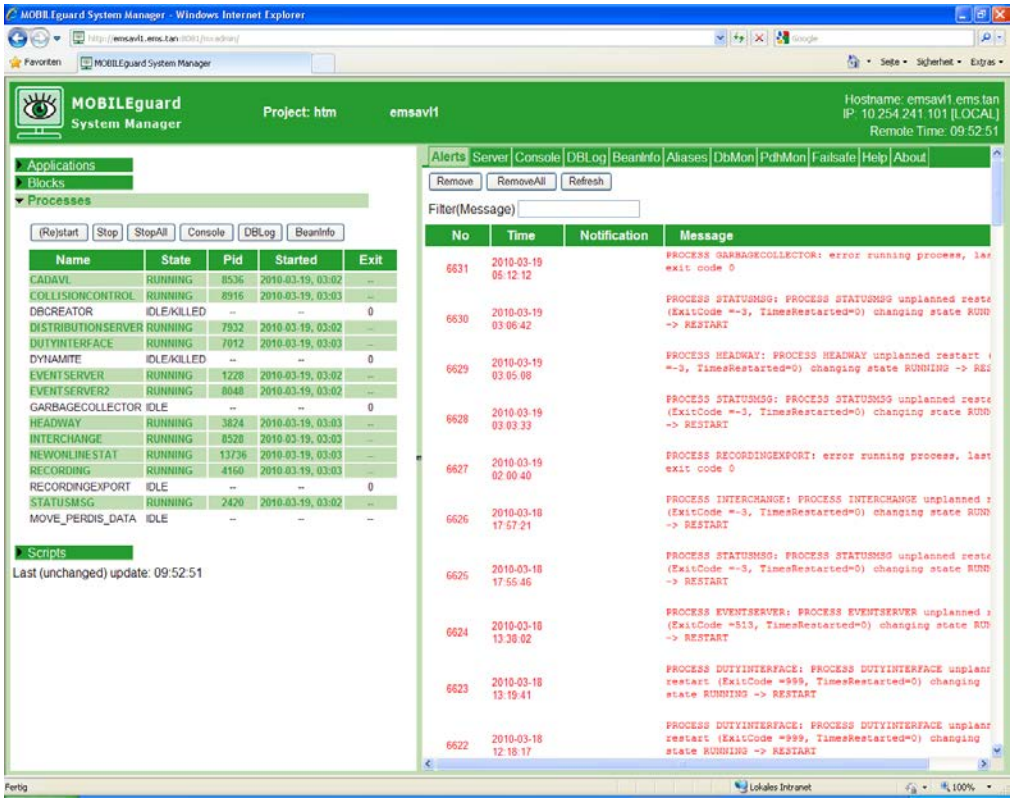

MOBILEguard's Dashboard

1.8.6 Fare Media Management Application

The MOBILEvario suite has a web-based module called Card Inventory Management. This module has a proven track record, having worked very effectively on all of our AFC systems. The tool provides full inventory functionality to control all fare media inventory.

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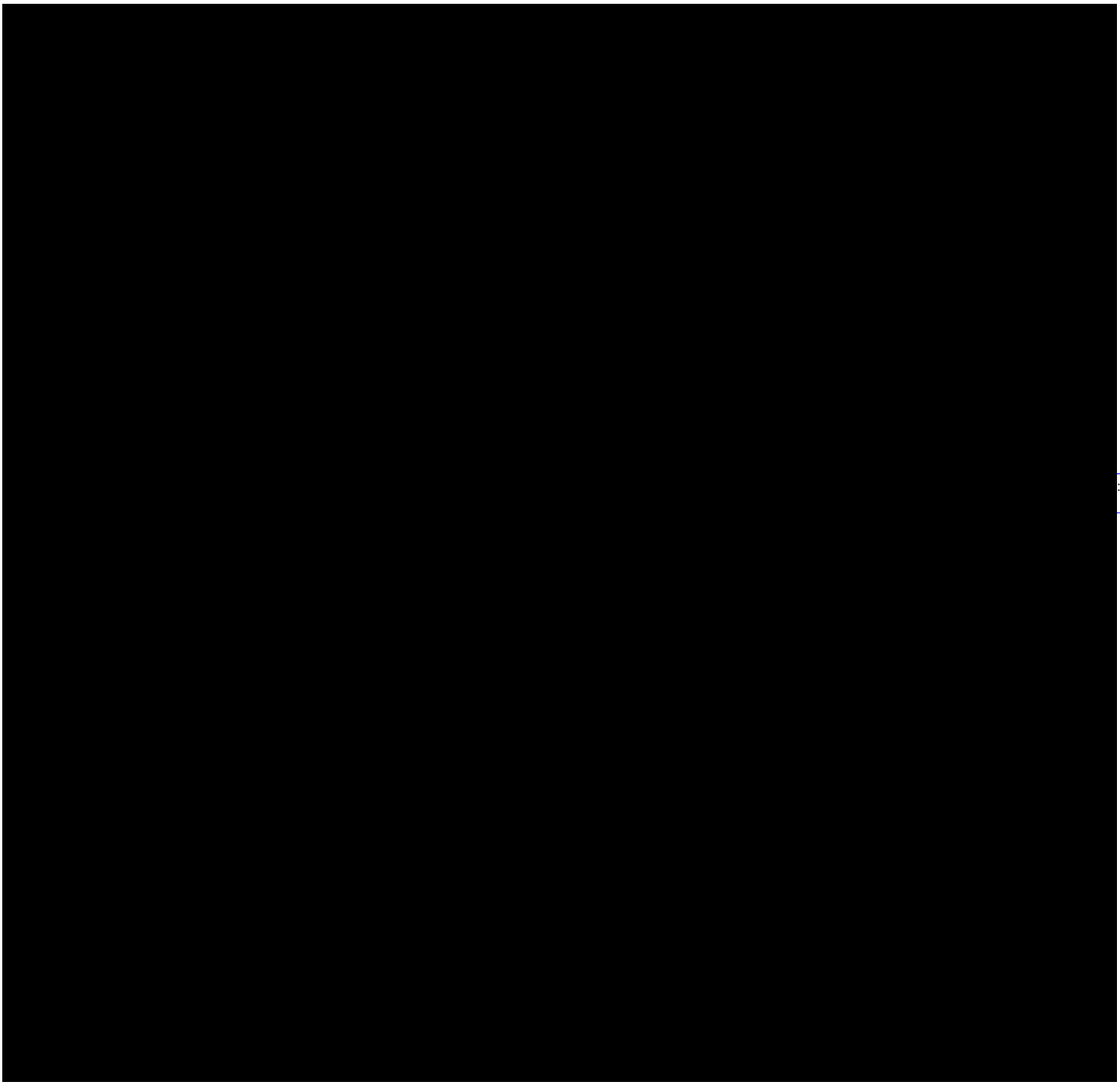

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1.8.7 Best Value Financial Management Application

Considering the information provided in Scope of Work Section 6.7, explain in detail the reasoning for choosing the proposed financial management solution including why other solutions were not proposed. For example, if you are proposing a financial management solution that does not leverage another agency's existing financial management application, explain why the agency's existing financial management application was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions.

INIT evaluated three COTS applications for the Financial Management Application for next generation ORCA system:

[redacted]

[redacted]

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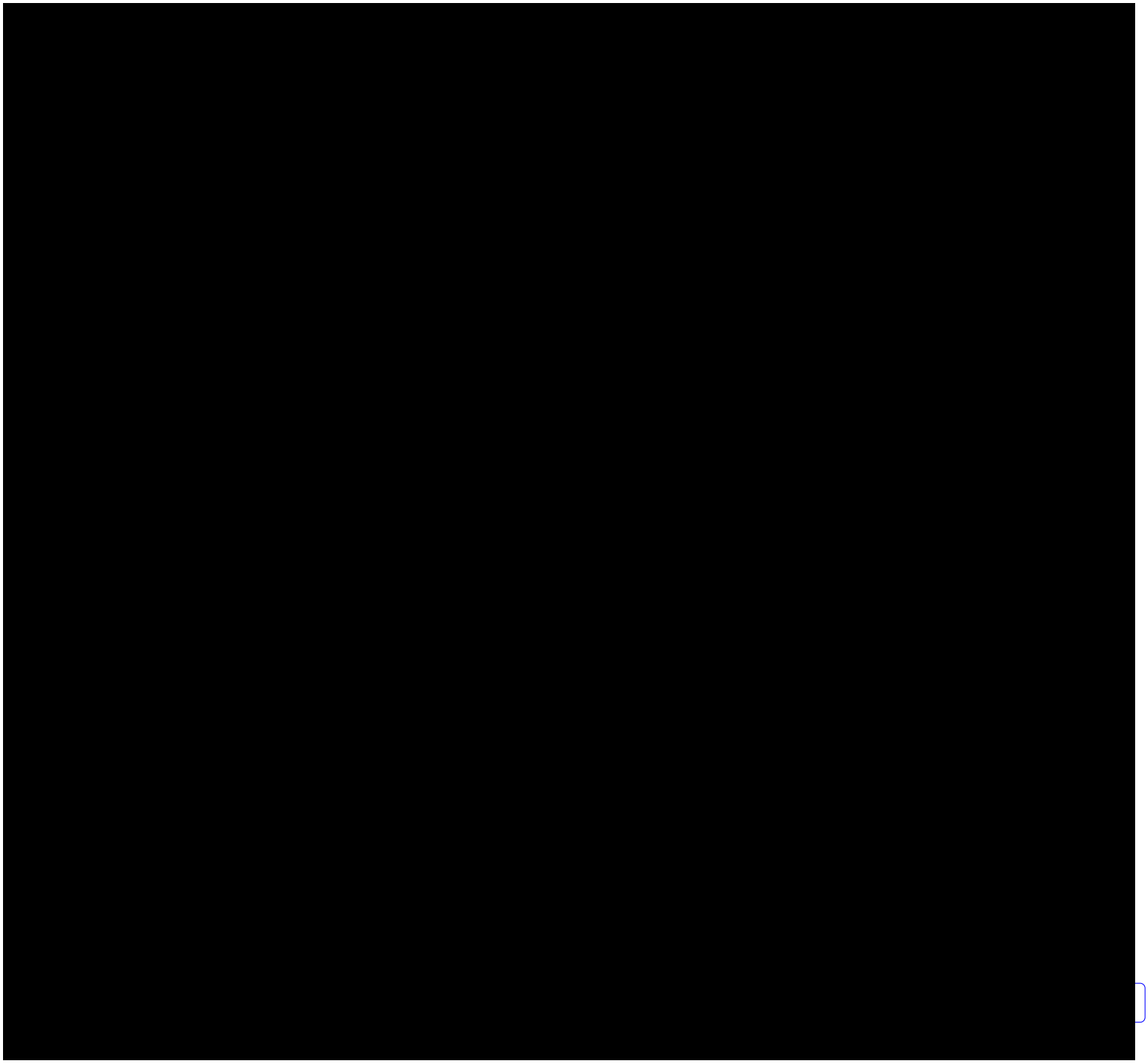

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- [redacted]

1.8.7.2 Accounts Receivable & Order Entry / Billing Module

[redacted]

e.

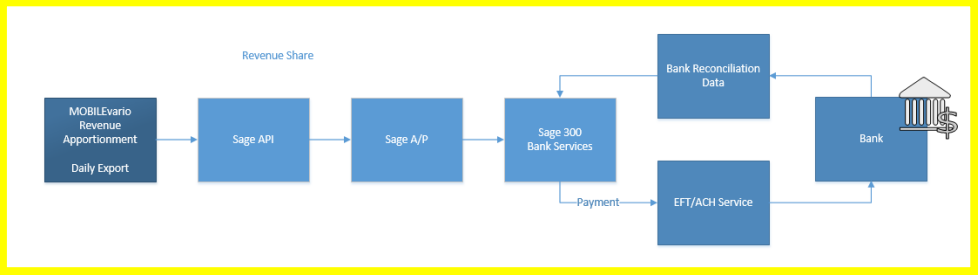
[redacted]

[redacted]

1.8.7.4 Accounts Payable Module

As defined in the scope of work, the Sage accounts payable module will support vendor management, voucher and vendor invoicing, refund processing and general accounts payable functions.

Accounts payable handles the revenue share and clearing to the partner agencies. The following diagram shows the different modules involved to revenue share and clearing



[redacted]

[redacted]

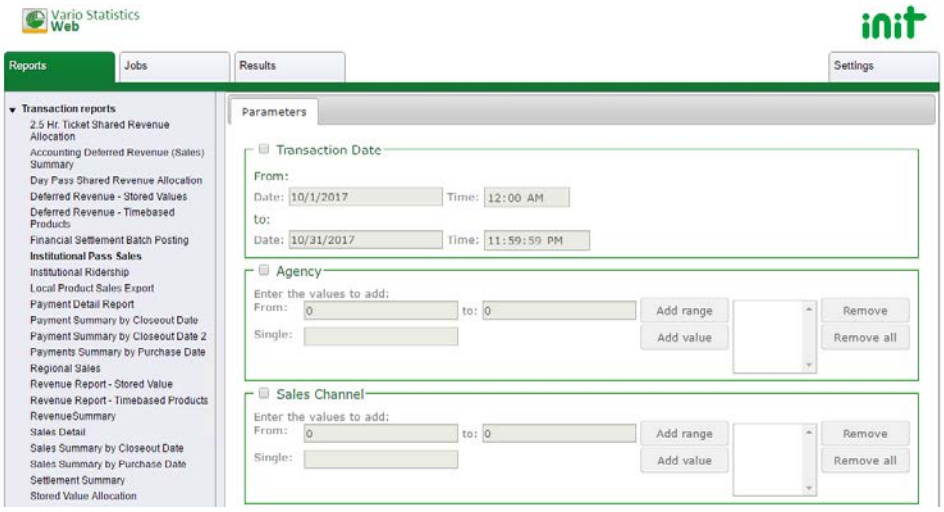
1.8.7.5 Payment Reconciliation

[redacted]

1.8.7.6 Financial Reporting and Query Module - VASAweb System Reporting

INIT's tool to provide access to customized and canned reports is called VASAweb. The web-based tool makes it easy to run, schedule, view and download reports in all standard formats like Microsoft Excel.

Customized filters can be applied to all reports so that they can be run for a specific date range or for a specific agency. The underlying technology for VASAweb is Crystal Reports. All Crystal Reports can be integrated into VASAweb.



VASAweb Reporting tool

1.8.8 Central Payment Application

As part of the MOBILEvario product suite, INIT is providing a central payment application to process all credit card and ACH payments. The central payment application is using APIs to

connect to all devices that need to initiate payments. The central payment application is used for all internal payment initiations (e.g. for autoloads) too.

The most important factor when designing the central payment application is to keep PCI scope in mind. INIT has a unique approach to keep the PCI scope of the system as low as possible. To achieve this, credit card information is encrypted on the device side or is directly entered on the banks server (hosted page solution). In addition, credit card information is never stored in the system.

1.8.8.1 Payment Gateway

In order to provide reliable, flexible and versatile 100% PCI compliant payments, INIT recommends to use the CreditCall payment gateway. The credit call gateway provides the P2P encryption and tokenization and serves as the payment interface for both card not present (CNP) and card present (CP) payments.

With CreditCall as a Payment Gateway, INIT could implement OpenPayment functionality on the validators in Phase 1, without additional costs.

INIT's understanding is that the Payment Gateway and all transaction costs are not part of this scope of work. INIT will provide a Central Payment Application that connects to a Payment Gateway. INIT prefers to use CreditCall as the Payment Gateway, but the INIT Central Payment Application could work with other Payment Gateways too.

1.8.9 Configuration & Change Management Application

INIT proposes Atlassian's JIRA Service Desk with Bitbucket, which is a COTS SaaS solution, for the next generation ORCA Configuration and Change Management Application. The use of this solution offers significant advantages, for example:

- Utilization of the system administration applications (i.e., Asset Incident Management, issue management, and configuration and change management) on a single Atlassian platform, with a single user interface / user experience and easily shared data
- INIT is very experienced using Jira. INIT currently uses JIRA for issue management and change management on all its customer projects (well over 100)

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The Atlassian IT Service Desk template comes with a change management workflow. This workflow ensures that change requests are recorded, assessed, approved, and implement in a tracked way. We recommend starting with our default workflow and adapt it to the project's business needs. The IT Service Desk template connects certain requests to a change workflow. We set up the workflow to complement the following change management process. Use the workflow to transition change request records alongside these ITIL recommended activities:

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- reviews
- planning
- approvals
- implementations

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The JIRA service desk provides a default change management workflow that can then be adapted to the ORCA requirements during the system design phase.

1.8.10 Performance Reporting

INIT utilizes Crystal Reports for its underlying reporting platform. INIT will provide following canned KPI reports on a monthly basis starting at SAT:

- Device reliability
- Device accuracy
- Device availability
- Back office accuracy
- Back office availability
- Server authorization rate
- Maintenance response times

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The reports will include tables and graphical charts showing the current and historical performance of each device or system under measurement. The reports will include a calculation of credits to be assessed in the current month based on current and prior performance. The System will allow the Agencies to run, view and download reports. Additionally, INIT has budgeted 100 hours for agency-specific modification of canned reports.

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INIT's Proven Methodology and Approach to Implementation and Operation and Maintenance Services

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

Confidentiality Statement

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CONFIDENTIAL SECTIONS:

2.2 The INIT Team Organizational Chart

2.3 INIT's Highly Qualified and Experienced Key Personnel

2.4 INIT's Key Personnel are Available and Accessible

2.5.2 Implementation Services

2.6 INIT's Proven Transition Methodology and Approach

2.7 Operational knowledge transfer and excellence through effective O&M manuals

2.8 INIT's Experienced and Proven Risk Management Approach

2.9 Discuss any special considerations or challenges

2.10 An Achievable Project Schedule

2.12 INIT's Partnership with ROOT for Effective Operation and Maintenance

2.14 INIT's Sample Disaster Recovery Plan

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2 Methodology & Approach to Implementation and Operations & Maintenance

As a global leader in transportation innovation and technology, we believe you will find INIT's combination of service-proven implementation, technology and user experience design, as well as our industry leading secure, open, extensible system architecture to be advantageous in meeting the needs of ngORCA. Equally important is our success in creating and delivering an experienced, collaborative, and agile project management methodology; ensuring that our team's focus on the critical factors of overall project success are always at the forefront.

With legacy ORCA nearing end-of-life, schedule and focus on the core requirements are essential in order to deliver a modernized, customer-focused, secure system with cost-efficiencies as well as minimal disruption of the current operation Puget Sound riders have come to enjoy and expect. As the System Integrator (SI) for several of our fare collection projects, we believe INIT is equipped to do just that.

The pace with which technology moves in today's competitive environments is often faster than people do or are prepared for. As such, in addition to our Research and Development group, we have built into our Project Teams the capacity to build a robust focus on helping our customers translate technological visions into real-time benefits for their patrons.

Changes in technology are inevitable; this is why we have built-in flexibility as part of our overall system architecture with user experience at the forefront. INIT's vast experience in partnering and collaborating with technology experts and vendors in their given field(s) and integrating them as part of the overall solution further expands the capacity for us to accommodate changes that arise. We will work with the Agencies to identify areas in which configuration or implementation changes are the most cost-effective with an eye specific to risk mitigation.

With over 30 years of experience in driving transit innovations, it is clear that both transit and technology are our passion. Pointedly, rather than wait for technology to change and drive our business, we seek to be part of that passion and drive and deliver the change with our customer in a manner that is mutually beneficial for the customer and their patrons.

INIT is poised to deliver for ngORCA an innovative, seamless, extensible, and accessible customer-centric solution.

2.1 INIT's Capability Conformance - Matrix Tab 1

INIT's Capability Conformance Matrix can be found in the Appendix.

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2.2 INIT's Evolving Maturity to Deliver Complex Projects

INIT has made numerous strategic and tactical changes to our business over the past few years in an effort to increase our ability to meet the evolving needs of our customers. We acknowledge a past that was reflective of a company transitioning from a startup mentality to a mature organization. Now in our 35th year of business, INIT can demonstrate significantly increased capacity, capabilities, and consistency in our products and projects. Much of this stems from INIT's evolution from being a single-source ITS provider to that of a true Systems Integrator, acknowledging the fact that all of our Customers have requirements for multiple solutions which require seamless integration to perform effectively across the enterprise. Some of these changes include:

- Establishing Seattle as a Regional office with Senior Management presence
- Adding significantly to our PM capabilities and capacities
- All INIT PMs are either PMI certified (PMP or CAPM), or on a path to earn it
- Dedicating lead System Engineers to projects, so that technical leadership is both committed and consistent
- Adding to our Systems Engineering teams, including a new college hire program
- Adding sales staff in the region, so that we can respond more quickly to customer changes requests
- Hiring staff with backgrounds in system integration and complex deployments
- Hiring an INIT training manager and engaging 3rd party training firms to bring a more sophisticated training strategy
- Internal knowledge sharing groups specific to fare collection projects
- Adding Executive Project Sponsors in Karlsruhe to ensure projects have resources and priority to meet schedule, budget, and quality requirements

These strategic changes have allowed INIT to better handle ever evolving projects, including multiple projects of the same type (CAD/AVL, Fare Collection, APC, etc.). In fact, it makes it a strength of ours as we can leverage lessons, resources, and experience across the company. Over the past year, we were able to publicly launch two fare collection systems as well as continue development on three more. This is certainly proof that these changes have had a positive effect on INIT and our Projects.

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2.3 The INIT Team Organizational Chart

INIT's approach to project oversight is very similar to the ORCA organizational structure. We have identified INIT Executive Sponsors and an internal Steering Committee. Our hope is to form an integrated group of Executive Sponsors and a Steering Committee working toward common goals.

The Sponsors and Committee shall maintain a broad and consistent oversight of the Project. The Steering Committee shall ensure that the project retains the required visibility and attention throughout its duration. The Committee shall be apprised by the other Project Team members on a regular basis of the project's status—and shall intervene only when a matter is escalated to them directly, or when they see causation or action required to maintain the overall expectations of the project.

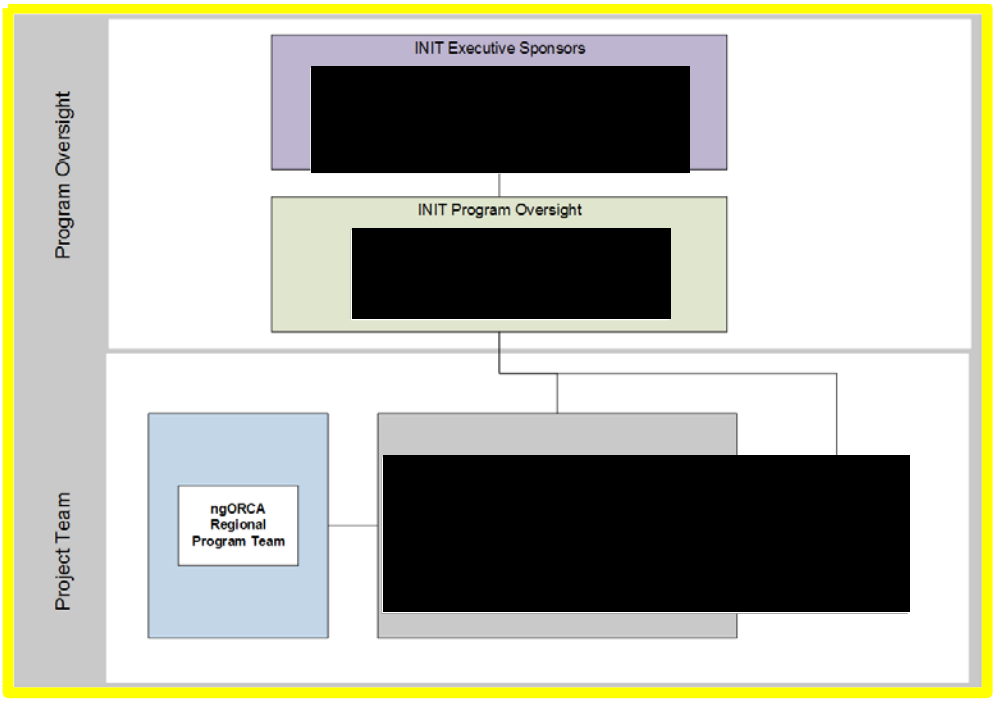

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Figure – INIT Program and Project Teams

The INIT Project Management Team, comprised of proactive, determined and innovative professionals, align the principles of Project Management set forth by the Project Management Institute (PMI), while ensuring the on-time delivery of INIT's high-quality projects.

INIT will be responsible for assigning all necessary resources to meet its obligations under the ngORCA contract. As a central component of this effort, INIT has assigned to the Project a team of highly qualified personnel having the management skills and technical expertise to work with the ngORCA team in a professional and highly responsive manner. INIT shall provide the team with the lines of communication and authority required to ensure that INIT's obligations are completed expeditiously using its most qualified personnel. As this is a project driven by schedule constraints, legacy system approaching end-of-life and new stations and locations opening, INIT's Project Manager will be the primary advocate internally with INIT. Additionally, the Project Manager will have monthly project reviews with the INIT sponsor with which schedule will be of the utmost importance. At any point should risk to schedule become apparent the sponsor will alert and escalate to the INIT Executive Board.

The following organization chart has been developed to provide the ngORCA team with a comprehensive overview of the INIT organization, project controls, planning methods, and schedule.

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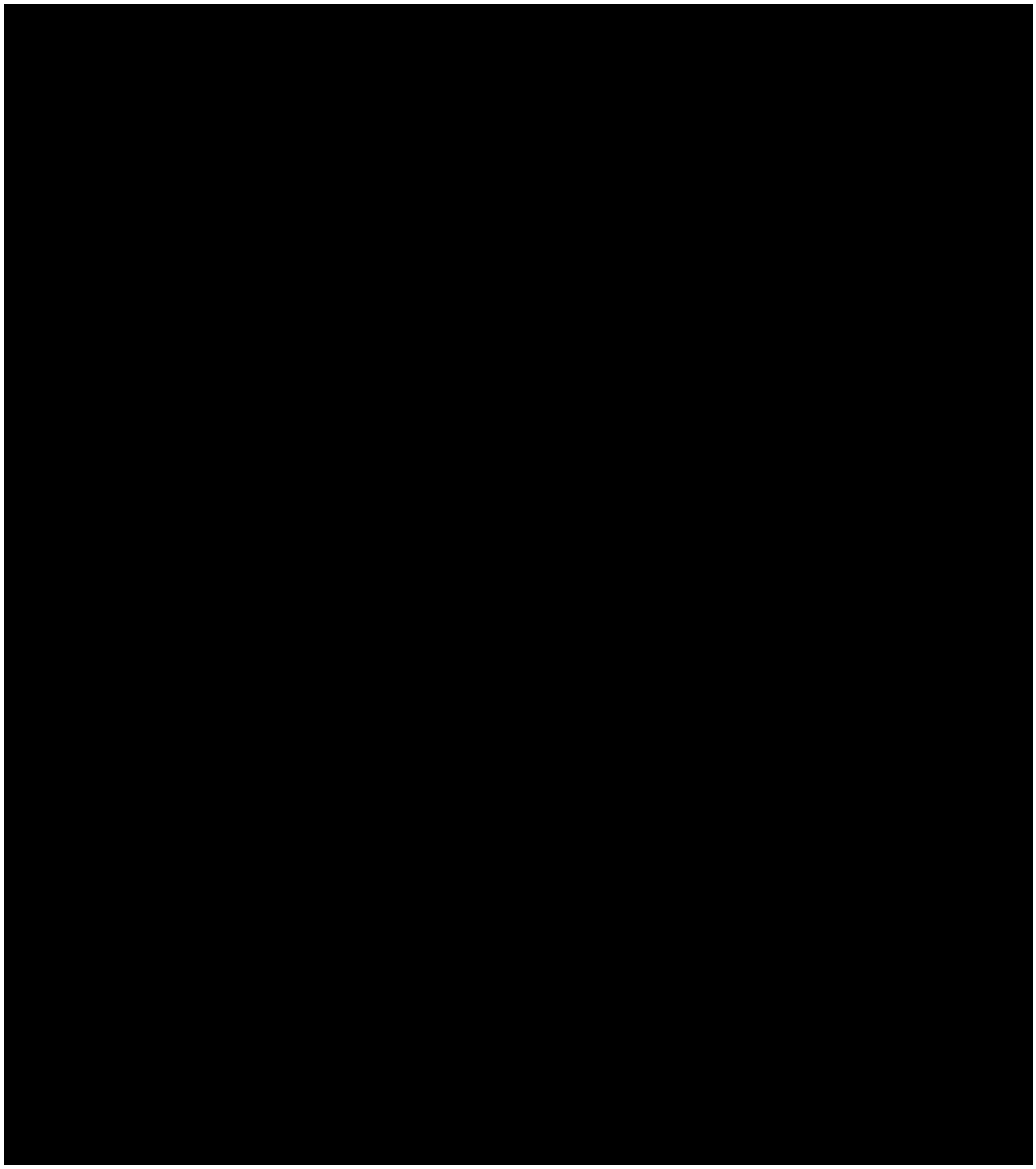

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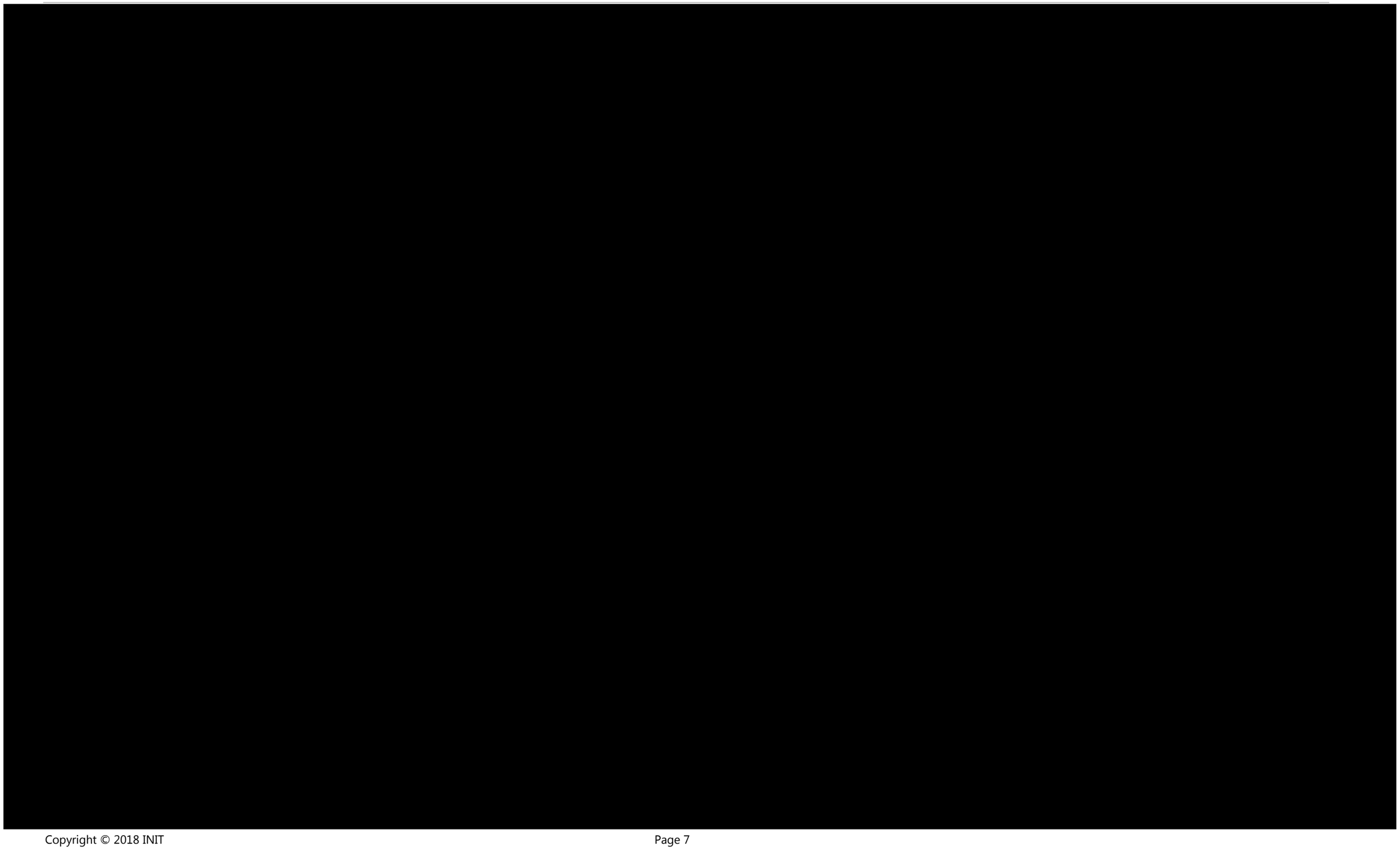

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2.4 INIT's Highly Qualified and Experienced Key Personnel

Table 1-1 - INIT's Highly Qualified and Experienced Key Personnel

Name	Description of Key Individuals' level of involvement in the project	% on this project	% of time in Seattle
[redacted]			

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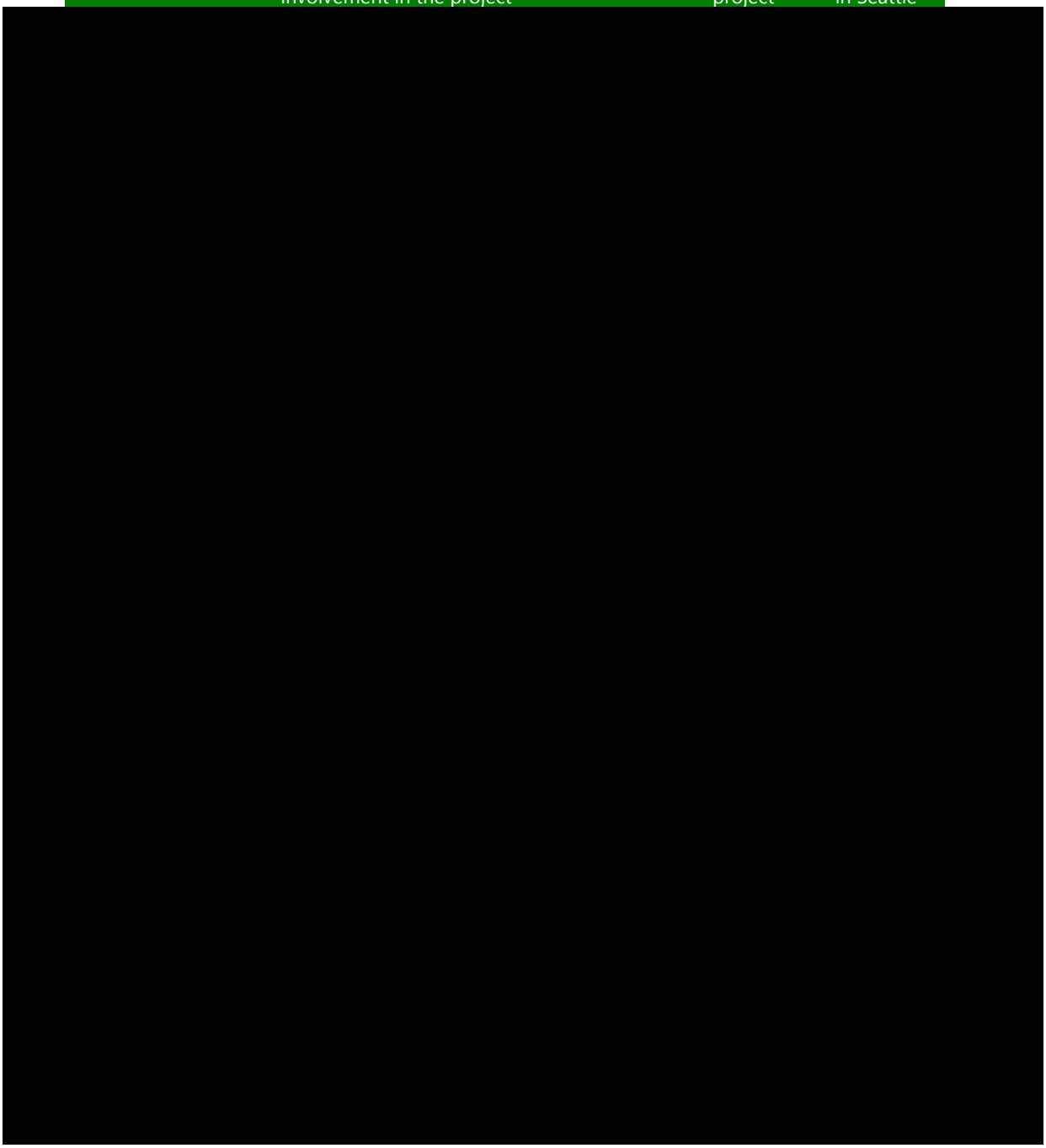
Name	Description of Key Individuals' level of involvement in the project	% on this project	% of time in Seattle



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Name	Description of Key Individuals' level of involvement in the project	% on this project	% of time in Seattle
[redacted]			

2.5 INIT's Key Personnel are Available and Accessible

Table 1-1 lists INIT's highly qualified personnel assigned to the ngORCA project and details their percentage commitment and expected time in Seattle. This team is empowered with both the authority and the open lines of communication necessary to collaborate with ORCA's Project Team to ensure that obligations are met without negative impact to the Agencies or their customers.

Regarding the definitions in Table 1-1, percentage on the project relates to total hours per year dedicated to project activities. "Percentage of time" in Seattle is the estimated percentage time the resource will physically be in Seattle. What is not detailed is the percentage of project time the resource will be at a Sound Transit location or INIT's offices (a short 5-minute walk away from each other). Ideally, we will be able to have a project office located in Sound Transit's offices so that the combined ST regional and INIT teams can work most collaboratively. However, we understand that may not be an option due to space considerations. In any regard, INIT is highly flexible and looking forward to working in a way that is most collaborative, most effective, and most efficient.

In addition to the Project Team, INIT proposes an Executive Steering Committee be assigned to the Project. This Committee is comprised of Executives, the Customer and INIT. The Committee maintains a broad and consistent oversight of the project and ensures that the project receives visibility and attention throughout its duration. The Steering Committee is informed on a regular basis of the project's status and intervenes when necessary to maintain the velocity and expectations of the project.

2.6 INIT's Experienced Methodology and Approach to Implementation Services

2.6.1 Explanation of Section Numbering

In this section we provide our response detailing INIT's methodology and approach to the Implementation Services specified in the ngORCA Scope of Work (SOW), Section 2. For ease of comparative review and evaluation, in order to maintain a one-to-one numbering sequence

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between this section 2.5 and the SOW Section 2, we have advanced the section numbers in this document. In so doing please note INIT's first sub-section reference below of 2.5.2.1 has the third and fourth integer corresponding with the SOW Section 2.1. For the sections that follow, the third and fourth integers will increase accordingly so that they map to the SOW sections that follow (e.g. 2.5.2.2 equates to SOW Section 2.2 Design Review & Approvals).

2.6.2 Implementation Services

2.6.2.1 Project Management

Nothing is more important to INIT than having satisfied customers. We achieve this by working in close cooperation with our customers and partners; strictly adhering to our ethics. Our corporate culture is linked to our ethical guidelines which we proudly publish on our website. These ethical guidelines build the framework of our daily actions and commitment to quality.

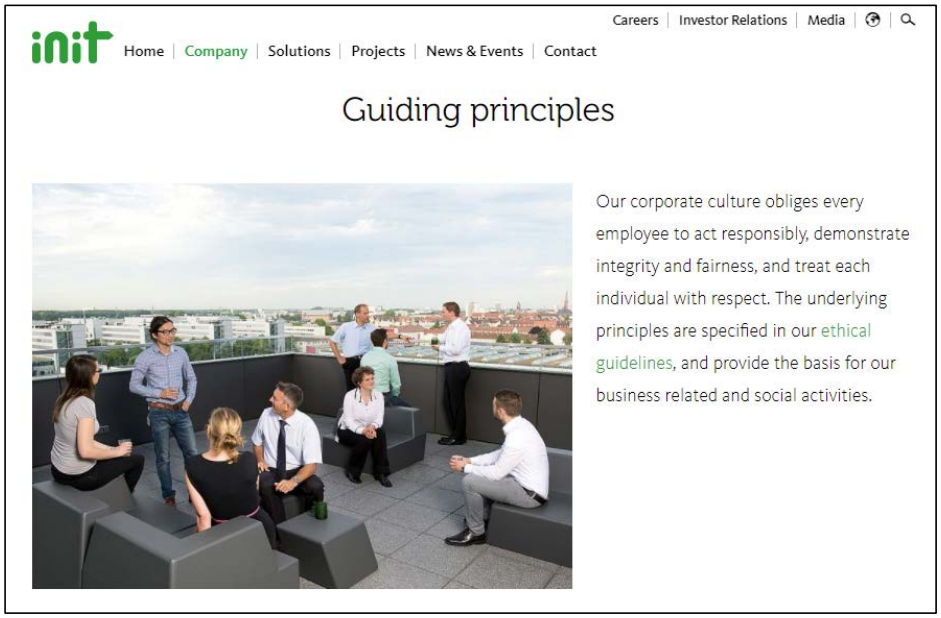

Figure 1-1: INIT Corporate Website

INIT's methodology and approach to planning, execution, tracking, and reporting of all tasks will begin with a sound Project Management Plan (PMP). The PMP will include the baseline for setting up, carrying out, monitoring, and delivering all the elements associated with project deliverables. This methodology, based upon the Project Management Body of Knowledge (PMBOK) augmented with INIT's years of experience deploying complex AFC systems has proven

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to be successful in our past performance on other projects. The Project Management Plan, also identifies and designates critical communications between various project partners, including essential customer, contractor (prime and subcontractor), as well as any external communication links. Our PMP includes a collection of formal detailed documents, clear communications channels, task lists, target start and end dates, budget overview, and a list of required resources. It also introduces our risk management methodology, which helps to identify the potential challenges, and threats, by recognizing, exposing, and mitigating risks impeding successful timely execution of the project. Our approach will also convey to ngORCA transit agencies that we clearly understand the Agencies goals, objectives, and requirements as set forth in the RFP.

2.6.2.1.1 Project Manager & Lead Engineer

INIT is a proven industry leader in designing and delivering high-quality solutions for our public transit partners and INIT's Project Management Methodology is integral part of our success. The INIT Project Management Team, comprised of proactive, determined and innovative professionals, align the principles of Project Management set forth by the Project Management Institute (PMI), while ensuring the on-time delivery of INIT's high-quality projects.

In conjunction with the Project Management Team, INIT proposes an Executive Steering Committee be assigned to the Project. This committee is comprised of executives from both the ORCA Joint Board and INIT. The committee maintains a broad and consistent oversight of the project and ensures that the project receives visibility and attention throughout its duration. The Steering Committee is informed on a regular basis of the project's status and intervenes when necessary to maintain the velocity and expectations of the project.

INIT's Project Executive, [redacted] is INIT's West Coast Regional Director and possesses over twenty years of systems experience–including significant experience on system implementation and large-scale system migrations. [redacted] has overseen two successful fare collection launches while with INIT and with that, understands how to support the Project Team and navigate the internal INIT teams to support with any escalation. Specific to ngORCA, [redacted] will support [redacted] in the overall schedule advocacy. [redacted] is also located in Seattle and will be there for the entire duration of the Project, from the Project Kick-off through Final Acceptance.

INIT's Lead Engineer, [redacted], is a Senior Systems Engineer with eight (8) years of electronic fare collection experience. [redacted] was recently the Lead Engineer for INIT on our [redacted] which the proposed ORCA system is based on. These systems involve multiple points of open integration with third party systems and devices. [redacted] will be responsible for all technical aspects of the project and have all INIT's project engineers report directly to him.

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INIT's Lead Project Manager, [redacted], is a Senior Project Manager at INIT with ten (10) years of fare collection experience. Prior to her time with INIT, [redacted] was able to gain insight and knowledge of the Agency's working group and also the legacy ORCA system during its initial implementation.

During her tenure with [redacted]

[redacted]

2.6.2.1.2 Project Meetings

INIT understands the importance of effective communication and realizes that it is a key factor in successful project delivery for large-scale complex projects such as ngORCA. As such, we strongly agree with ORCA's requirement for regular project meetings and frequent and direct communications. To conduct project meetings efficiently, INIT provides an agenda prior to each meeting and meeting minutes (including action items) following each meeting.

As part of the initial planning for ngORCA, INIT proposes the following meetings as critical to successful and engaged communication:

- Project Kick-off
- Weekly coordination / status meeting
- Monthly progress review meeting
- Phase transition / planning meeting
- Ad-hoc technical and administrative meetings

While in total, the quantity of meetings planned for this project may seem high, it is important to note that the target audience for each will vary. Taking this approach ensures that stakeholders across the spectrum have appropriate engagement and status knowledge opportunities based on their level of engagement with the project. As you'll see, some meetings are meant at a higher level which are designed more for informative purposes, while others are meant to be decision drivers or detail level discussions. However, meetings in general are typically open to a broad range of stakeholders which allows flexibility for optional attendance (e.g. an Agency CEO may not be required for weekly project meetings but may want them in their calendar to attend and listen in on occasion). Provided below is additional information about each meeting as well as to whom the intended audience is proposed.

Project Kick-off

Target Audience:	Project Teams and Key Stakeholders
Attendees:	INIT Core Project Team, ngORCA Core Project Team, Consultant Team and Key Stakeholders

INIT will conduct the ngORCA Project Kick-off meeting no later than 14 calendar days after Notice to Proceed (NTP). Additionally, in parallel to the planning and coordination of the ngORCA Project Kick-off, INIT will launch an Internal Project Kick-off with all INIT Project Team

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members (including all key project management and engineering personnel) to outline the project plan, begin scheduling internal technical and planning meetings, validate task assignments, and so forth so as to ensure preparation for adherence to the near-term project deliverables for a timely and effective start.

The ngORCA Project Kick-off with the ORCA's key stakeholders will set the stage for project communications, ensuring an understanding of the scope and schedule of the project, and the expectations and responsibilities of all parties.

The meeting will occur once and at a time and location mutually agreeable by the parties. The content of the meeting will include at minimum, the following agenda items:

- Introduction of key ORCA and INIT personnel
- Review of the project roles and responsibilities
- Review of INIT's scope of work
- Presentation of the draft project baseline schedule and near terms planning activities
- Identification of risks and project concerns
- Propose initial meeting dates and time for recurring meetings

Weekly Coordination and Status Meeting

Target Audience: Project Teams

Attendees: INIT Project Manager and Lead System Engineer, ngORCA Core Project Team, Consultant Team

Optional: Key Stakeholders, INIT SMEs

Effective project communications are enabled by Weekly Coordination and Status Meetings. These meetings facilitate the coordination of project activities, provide status of project schedule and other deliverables that are due or may become due, as well as provide a forum for decisions that must be made prior to the next Monthly Progress Review Meeting.

INIT will prepare and submit an agenda two (2) business days prior to the meeting. INIT's lead project staff (e.g. Project Manager and System Engineer) will be in attendance in person while other designated personnel may attend (either in person or remotely based on location) based on the pre-determined need outlined in the agenda.

INIT will document minutes during the meeting and submit to ORCA via email for review three (3) business days following each meeting for review and notation of any changes needed.

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Meeting agenda, minutes, and action logs will be saved to the collaboration site for ease of access.

Monthly Progress Review Meeting

Target Audience: Executive / Steering Committee, Key Stakeholders

Attendees: INIT Project Manager and Lead System Engineer, ngORCA Core Project Team, ngORCA Leadership Team(s)

Optional: Key Stakeholders, INIT SMEs, INIT Leadership

INIT will conduct an executive-level in-person Monthly Progress Review Meeting at a designated ORCA location through the lifecycle of the project. If required, additional video or teleconference meetings can be scheduled.

In preparation for this review INIT will submit the agenda and a Monthly Progress Report five (5) business days prior to the meeting. This report will provide a high-level overview of progress of the overall project from the previous calendar month.

Content will include such items as:

- Minutes of prior meetings
- Project schedule updates
- CDRL content, submittal list and schedule
- Action item log and Master Issues List
- Progress and issues arising since last meeting
- Sequence of critical work and manufacturing schedule
- Budget, milestone and invoice status
- Corrective actions to maintain schedule
- Assessment, review and update of:
    - Engineering, manufacturing and quality control
    - Safety Assurance Program
    - Risk Plan and Risk Register
- Other priorities that require immediate attention

INIT will document minutes (including action items) for all monthly Progress Review Meetings and submit to ORCA three (3) business days following each meeting.

Phase Transition Planning Meeting

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Target Audience: Project Management Teams

Attendees: INIT Project Manager and Lead System Engineer, ngORCA Project Manager, Consultant Team, ngORCA SME/Technical Team

Optional: INIT SMEs, ngORCA Core Project Team, ngORCA SMEs

In the project schedule INIT has detailed several key milestones which represent various phases of the overall program delivery. As preparation for the next phase (e.g. design to development, project to operations) INIT will coordinate and schedule transition meetings to evaluate and discuss the key deliverables, schedule, and other information specific to the pending work.

This is a project level in-person, small group meeting with key personnel from both INIT and the Agencies who are critical to the planning and oversight of the upcoming activities.

Ad-hoc Technical and Administrative Meetings

Target Audience: TBC by Host

Attendees: INIT Project Manager, Lead System Engineer, or topic SME, Agency SME(s)

Optional: TBD by Host

To facilitate ongoing discussions to address various elements of the project delivery, additional ad-hoc meetings may be necessary to mitigate schedule impacts or to discuss technical matters between subject matter experts. The nature of these meetings is defined by scheduling party and may result in a 1:1 attendance up to a large group or audience.

2.6.2.1.3 Project Management Plan

The Project Management Plan will serve as the key document to plan, execute and control the project. It will provide the following elements:

- Organization chart identifying key project personnel and contact information
- Master program schedule, identifying key program milestones and activities
- Schedule for all project design and manufacturing elements that require agency approval
- Project meeting schedule
- Methodology to control program schedule, scope, cost, and risk
- Project risk management processes and risk register, including identified project risks and actions required to mitigate them
- Transition and change management processes and procedures
- Safety processes and procedures

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- Quality assurance processes and procedures to ensure that the requirements of the contract are being met
- Subcontractor management and communications
- Document and Master Issues List (MIL) control processes and procedures, including version and traceability controls
- Configuration management processes and procedures for all submittals and subsequent revisions

The content of the Project Management Plan as well as its responsibilities are ultimately owned and led by the Project Manager. However, the Lead System Engineer and INIT Project Team will be collectively responsible for ensuring adherence to the guidelines or processes defined and agreed.

For example, the Project Manager will organize and facilitate the scope of work and commercial agreements for the INIT subcontractors. In so doing the Project Manager has taken the necessary steps to align the scope of the ngORCA work with that of the subcontract (as applicable) as well as any relevant commercial terms that are appropriate (e.g. Agency approval, prevailing wage, security, etc.). Following that the Project Manager will engage the INIT SME and coordinate handover for execution of the project plan as defined in the subcontractor's scope of work. The Project Manager and INIT SME will communicate regularly on status, progress, risk, etc. Should no concerns arise, and the work is carried out according the project plan then no intervention is undertaken by the Project Manager. However, in the event issues arise the Project Manager is informed, and the appropriate escalation path is undertaken based on the nature of the issue.

As project work is carried out the INIT SMEs and Core Project Team will routinely monitor and manage the scope and processes. All issues or concerns will be escalated to the project leadership team for decision making or issue resolution.

The INIT Core Project Team will have routine weekly internal meetings to track and manage the execution of the work and the Project Manager will validate these efforts are carried out according to the processes and methods as defined in the Project Management Plan. Additionally, the Project Manager will report to the Executive Steering Committee once per quarter to report and track the same.

2.6.2.1.3.1 Master Schedule

The proposed preliminary master program schedule, covers all project activities and milestones for the duration of the contract includes:

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- Work item description
- The work item sequence, showing successor and predecessor relationships
- Work item duration
- Critical path of work completion

If INIT is the successful proposer, INIT will add the narrative explanation of the work involved and the basis for estimated time duration as part of the PMP.

The preliminary master program schedule indicates tasks that ORCA is responsible for, and the version that would be submitted as part of the PMP would identify the task breakdown between INIT and the subcontractors.

The detailed master program schedule is created and maintained in Gantt format using Microsoft Project. To provide a solid project plan, INIT has, in some cases, added slack as provision for additional challenges or unforeseen events. INIT has also assumed that all design submittals require resubmittal, should ORCA add additional design changes after receiving the initial design packages or further clarification become required.

INIT has included an electronic version of the preliminary master program schedule on the USB flash drive delivered with each proposal. The initial version is shown in *Section 1.11 An Achievable Project Schedule* below.

2.6.2.1.3.2 Scope Management

The Scope Management Plan as part of the PMP and ensures scope is both well-defined and in line with the contracts requirements. This plan will be the foundation for all necessary change management discussions and change orders.

The content of the Scope Management Plan will provide the process description for the scope verification, and scope control of the ngORCA Project. The plan documents the scope management approach, roles and responsibilities as they pertain to project scope, scope definition, verification and control measures, scope change control and the project's work breakdown structure.

INIT utilizes Scope Management as a set of processes to ensure the Project Team identifies and performs all of the tasks required to complete the project as defined in the Contract and the Technical Specifications while excluding work that is out of scope and updating the scope baseline as an output of the Change Management Plan. The Scope Management Plan details how the project scope is defined, developed, and verified. The plan clearly defines who is responsible for managing the project's scope and acts as a guide for managing and controlling the scope.

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Project scope management typically includes a five-step process of requirements collection, scope definition, creation of a work breakdown structure (WBS), scope verification, and scope control. INIT understands that the Agencies completed the requirements collection and scope definition as part of this RFP. Upon Contract award and Notice to Proceed, INIT would then responsibility for the remaining steps which include 1) creation of a Work Breakdown Structure (WBS), 2) scope verification; and 3) scope control.

2.6.2.1.3.3 Requirements Traceability Matrix

As part of the Scope Management Plan, INIT will develop and include a Requirements Traceability Matrix (RTM). The RTM is a Microsoft Excel spreadsheet created and maintained by INIT. By using Excel, INIT can easily modify or edit content based on the stage of the project as well as share it with multiple parties without the concern of custom-software or access rights and privileges.

It serves as a cross-reference, which links each requirement and deliverable with the applicable System Design Document(s) / ORCA Program Document and test procedures. The RTM is updated throughout the project and utilized during design, implementation, test and project close out.

INIT utilizes a RTM to map the requirements specified in the contract to specific deliverables. It provides bi-directional traceability between the contract and design documentation, allowing users to determine the origin of each requirement and track that each contract requirement has been fulfilled. It is accomplished by examining the ORCA contract for all requirements and entering them into a Requirements Traceability Matrix (RTM) template. The Project Team then reviews and assigns the responsibility of each requirement and distributes the RTM to appropriate parties. By completing the RTM, the goal is to:

- Fully understand the requirements
- Improve the quality of the product currently being developed
- Ensure that all requirements will be met
- Facilitate change management, especially changes that may impact cost and/or schedule

All Changes will also be added to the RTM and the work carried out as part of the Change Management Plan processes.

2.6.2.1.3.4 Cost Management

The Cost Management Plan is part of the PMP and describes the framework, tools and processes INIT uses to monitor and control the project budget and manage costs throughout the project lifecycle as well as outlining the process for approving changes that affect cost and identify who

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has the authority to approve those changes. It will also outline the format and metrics for how project costs are measured, reported, and controlled.

There are several factors that will comprise the overall project budget as well as performance metrics to evaluate progress; these will be further elaborated as part of the Cost Management Plan. In general, the Program Manager will be responsible for managing and reporting on the budget for the duration of the project.

Costs will be managed based on the Control Accounts outlined as part of the Work Breakdown Structure (WBS). INIT will utilize Earned Value Management calculations as the means and methods to measure, report, and control project costs. As a general approach, the following calculations are preferred:

- Schedule Variance (SV)
- Cost Variance (CV)
- Schedule Performance Index (SPI)
- Cost Performance Index (CPI)

Cost and schedule variances will be tracked and monitored for adherence to stated thresholds.

2.6.2.1.3.5 Risk Management

INIT will provide a PMP that includes a risk management plan to control project costs, maintain project schedule, and improve project performance.

The Risk Management Plan is an integral part of risk management for the overall project. Effective project planning requires identification and assessment of risks, and the actions necessary to mitigate the risks. As part of the Risk Management Plan, INIT will undertake the requisite planning activities involved in establishing the infrastructure to support effective risk management. The primary activities are:

- Establish the risk management organization and assign roles and responsibilities
- Evaluate the capability and availability of project staff to perform risk assessment to determine whether additional resources are required
- Plan an initial assessment and periodic monitoring/audits. The periodic audits are proactively aligned with key project checkpoints where audits uncover the highest severity risks

The Project Team (INIT and ORCA personnel) works closely to identify members of the Risk and Issue Management team that is responsible for risk management. Table 1-2 provides risk

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management roles and responsibilities that will be updated with ORCA during the development of the project management plan.

Table 1-2 - Risk Management Roles and Responsibilities

Role Names	Role Definitions
Project Manager	• Drives the risk management process for the entire project with early start • Participates in risk identification, mitigation, and tracking progress • Accepts or rejects the level of risk for the project • Updates the risk register
Project Team	• Performs the risk management process for the project • All members of Project Team will be encouraged to convey any risks they identify
Risk Identification Process Team	• Provides input to the process for identifying risks • Includes representatives of all affected groups involved in the project (including the Project Team, Steering Committee, Joint Management Committee, organization management, etc.), as well as any others expected to have insight into risks for this project (such as Internal Audit, and/or external reviewers)

To facilitate documenting and tracking risks, INIT will establish and update the ngORCA Risk Register. The Risk Register is a pre-formatted form designed for the identification and tracking of project risks. All project risks are cumulatively recorded and tracked using this form. On this form, a risk will have an assignee who is responsible for defining the actions necessary to manage the risk. Accordingly, the assignee will be responsible for the required actions as defined or agreed in the risk register.

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Risks can be identified at any time and reported by any member of the Risk Management Team, the Project Teams, or stakeholder groups throughout the project lifecycle. Additionally, for the ngORCA project, the INIT Project Manager will regularly review the project as an additional project risk mitigation effort; identifying potential risk factors and providing counter-measures to deal with identified risks. These additional reviews are performed on a weekly basis, and jointly with ORCA and the Risk and Issue Management Team monthly. Identified risks and counter-measures are noted within the associated meeting minutes and recorded in the project's risk register.

2.6.2.1.3.6 Change Management

The Change Management Plan is part of the PMP and will describe how INIT and the Agencies will manage and control changes to the existing system baseline. This plan will describe how a Request for Change (RFC) is initiated, approved, and processed.

INIT utilizes a formal change control system as part of its overall quality and control processes. In so doing, changes are introduced, discussed, and approved in a controlled and coordinated manner prior to implementation. This method and approach reduces risk, ensures planned changes are fully scoped with an assessment and impact analysis thereby limiting the introduction of defects or faults within the system or unnecessarily causing impact to the project schedule.

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While any Project Team member can make a suggestion for a change, a formal Request for Change must be submitted by the Agency designee so that INIT is clear on the intent and build the requisite proposal. Once a formal request has been made, INIT will be responsible for managing and administering the change control activities including updating the change log and keeping the Agencies up to do on progress. These activities will encompass formal control and approval of changes to documentation, drawings and diagrams, hardware, or software; all requested changes will be managed in a central configuration management database.

2.6.2.1.3.7 Safety Assurance

INIT's Project Management Plan will include the Safety Assurance Plan. This plan identifies all safety processes and procedures to identify safety risks, the responsible party for managing the risks, and all corresponding mitigation plans.

INIT's Safety Engineer [redacted] will oversee the project delivery from a safety perspective. The Safety Engineer documents, reviews and approves all system safety analyses to insure hazards are adequately identified and their impact is eliminated or controlled. Jim will validate that INIT's staff and its subcontractors have received the requisite training applicable to needs of the project and that the training is in conformance with the applicable standards, rules, codes, and regulations. In effort to ensure compliance the Safety Engineer will perform periodic audits and report the findings to the Program Manager.

2.6.2.1.3.8 Quality Assurance & Control

To ensure a high level of quality on a consistent basis, INIT has implemented a certified Quality Management System that adheres to the ISO 9001 global standard. INIT has maintained an active ISO 9001 certification since 1997. INIT is responsible for the quality of its products and work, as well as that of its subcontractors. Issues with quality experienced at a project level are tracked and managed by the INIT Project Manager. Items specific to manufacturer concerns or OEM products are escalated through the INIT Logistics and Procurement manager.

The dedication of the INIT team in providing quality products and exemplary customer service is fully supported by the company's Mission, Business Principles, Quality Principles and Quality Strategy as follows:

Mission

We support transit companies in their task to shift the growth in traffic to public means of transport. Innovative solutions make bus and rail more efficient, user friendly and thus more competitive compared to individual transport.

Business Principles

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- Our products meet the highest quality standards and offer long-lasting value
- Our company satisfies real needs
- Quality is the responsibility of all employees
- Quality management is a prime responsibility of our Management Team
- Honesty and reliability are an integral part of our company and a deeply rooted tradition
- Protecting the environment is a priority for us

Quality Principles

- Our performance fills our customers with enthusiasm
- Our products and services offer high levels of performance and impeccable quality
- The benefit to the public transit agency and its passengers is our focus
- Our capable and creative employees master the transit industry challenges of the 21st century through their own capabilities and continuous job training
- Continually increase market share through successful implementations and satisfied customers

Quality Strategy

We reach higher levels of quality through:

- Including a Quality Control Engineer, [redacted] to provide reviews and analysis outside of the Project Team itself. He will report to [redacted] the project, and manage items such as systemic reviews, failure analysis reports, etc. These will be reported on during normal project reviews and when issues arise that need additional analysis.
- Close cooperation and constant communication with customers and partners
- Standardization of services and products
- Continuous efficiency control and improvement of processes
- Individual quality objectives for our employees
- Promoting training and further education of employees
- Excellent working environment and the latest tools
- Appreciation of special efforts

INIT understands the importance of quality in all aspects of the project. Ultimately it is the quality of INIT's products and services that will allow ORCA to perform the critical functions that are essential to day-to-day operations of the ORCA service. Upon request, INIT will gladly

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provide a more detailed description of our Quality Assurance and Management Process, including a thorough explanation of INIT's ISO process.

2.6.2.1.3.9 Subcontractor Management

INIT reviews subcontractor's performance history, quality control processes, safety controls, financials and references to ensure subcontractors will be able to meet performance criteria and deliver per schedule. Where special skills or processes are required, INIT reviews subcontractor training and certification records to ensure their personnel are qualified to perform these functions.

The PMP includes a Subcontractor Management Plan that identifies all subcontractors and the tasks they have been tasked to perform. As with the general content of the PMP, it is the responsibility of the Project Manager to monitor and control the Subcontract Management Plan. Further, the Subcontractor Management Plan provides an overview of INIT's approach to working with suppliers and subcontractors. All subcontractors on the ngORCA project are subject to the reporting and performance criteria outlined in this program.

This plan also includes the procedures for organizing and communicating with subcontractors, including the sections of the technical specification in their scope of work they are performing. They are also contracted with the expectation of adhering to the project schedule in the context of the overall project implementation. INIT's subcontractors are available for all required meetings, as indicated in their schedule, and other meetings that may require their attendance.

The Subcontractor Management Plan will also detail the associated Disadvantaged Business Enterprises (DBEs), the tasks they have been selected to perform, and the revenues associated with that DBE throughout the project lifecycle.

As noted above, INIT will ensure subcontractors are informed of all applicable requirements in the specification and that appropriate engineering and project management tools are utilized for coordination and communication. Any plans, specifications, drawings, schedules and documents relevant to any subcontractor's portion of the work will be shared. The proprietary nature of any Agency or INIT intellectual property will be protected by a requirement for a Non-Disclosure Agreement whenever appropriate.

The following communications and reports will be required of all subcontractors:

- Provide at weekly and/or monthly status reports as agreed;
- Provide frequent updates, as agreed in writing, during critical project phases such as equipment installations or testing;

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- Attend safety orientations, pre-job meetings or kick-off meetings provided by INIT prior to any work beginning; and
- When appropriate, participate in ad-hoc technical or troubleshooting meetings and discussions.

The Subcontractor Management Plan will also include the process and procedures, including risk mitigation or recovery strategies, required to replace subcontractors should it become necessary at any point during the life of the project.

2.6.2.1.3.10 Communications Management & Document Control

This Communications Management and Document Control Plan is part of the PMP and will describe the framework for controlling project communications for the ngORCA project as well as outlining the document repository and system used to file all project documents that are formal in nature.

Communications is one of the most critical aspects of a project. To ensure a high quality of communication throughout the delivery of this project, INIT subscribes to a general list of goals as follows:

- Easy exchange of information through informal communications
- Documentation of formal communication (major issues, resolutions and/or agreements)
- High quality, reliable tracking, and easy access to high quality, reliable tracking, and easy access to formal and informal project documents

Communications will be of the highest priority in executing this project. Project communications includes meetings, reporting, tracking action items, issue resolution and so forth. The purpose of Communication Management is to identify the types and frequency of communications specific stakeholders should receive and who should respond as well as how said communications should be delivered. As the ngORCA project is comprised of varying levels of stakeholders, establishing a clear and effective plan will be central to ensuring appropriate, measured, and timely response as well as successfully distributing project information and status.

At the onset of the Project, INIT suggests the following methods for communications:

- Monthly Reports - an executive level report will be provided on a monthly basis from the start of and through the conclusion of the project. This report will include high level progress information for the previous months activities, risks, contract / scope modifications, and schedule.
- Meeting Minutes - detailed minutes and actions will be drafted using Microsoft Word and Excel for each scheduled/planned meeting with the Project Team (e.g. weekly meetings,

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design reviews, etc.) and distributed to attendees; additionally, for ad-hoc meetings, minutes will be recorded and provided to meeting attendees, format may vary based on the nature of the meeting.

- Email – regular communications are maintained by email and exercised by the Project Team; first paths of escalation are also provided by email for informative purposes
- Letter Correspondence – formal communications are reserved for purposes of specific approval, informative matters, escalation, or other similar matters (e.g. approval of a new subcontractor)

Communication Management will include, but not be limited to, processing, design reviews, team meetings, submittals, correspondence, sharing of critical project management plan components, such as risk, QA/QC, scope control and the general involvement of ORCA review/approval persons. The processes of Communication Management that will be deployed include the following:

- Communication planning – Identify the stakeholders, determine the information and communication needs, expectations and resolve the issues
- Project structure – Published project organization structure, responsibilities and escalation paths
- Status Reporting – Collecting and distributing status reporting information available to project stakeholders in a timely manner
- Meetings – Planning and publish project meeting schedules with the ORCA, Subcontractors, INIT and other stakeholders

As part of the Document Control process, INIT will set up and administer a collaboration website as a project resource for document storage and sharing including sub folders to address the various needs of the project (e.g. design reviews, operation manuals, installation guides, etc.). During the design review INIT will create a Document Control Sheet (DCS) using Microsoft Excel. This sheet will be used to track the creation and submission of all required documents (e.g. CDRLs) throughout the project lifecycle. This sheet will include the ID#, document title, version number, last approved iteration / date (e.g. FDR), owner, and other pertinent information as it becomes available (e.g. comment regarding additional update needed pending a future Change Order).

The DCS is managed and maintained by the INIT Project Manager and Lead Engineer. As noted in the section below INIT will also track and manage a Master Issues List (MIL). The MIL will be created for each design or iterative phase of the project using Microsoft Excel. When comments are received, they are allocated to the associated SME for review and are addressed based on the phase of the project lifecycle. If for example, comments are received as part of a formal

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design review, such a Final Design Review (FDR), INIT's responses and suggestions for addressing the comments are collated from each SME by the Project Manager. Responses and suggestions are then peer reviewed by an appropriate technical or subject-specific resource prior to finalization. Thereafter, the vetted responses and suggestions are then resubmitted to the Agencies in accordance with the procedure and process as defined by the design review CDRL.

Due to the magnitude of this effort, INIT enlists the support and engagement of the SMEs, an appropriate peer review, and Project Management oversight. INIT will often hold internal workshops to further discuss and evaluate the nature of the comment.

Comments or questions are documented in MIL so that they can be tracked from initiation to closure. Comments may only be closed via Agency confirmation. Further, where applicable the change control and scope control processes may overlap as a result of the discussions or actions identified in the MIL. During this time INIT's Project Manager may add items to the Change Control tracking sheet in order to address the MIL; however, based on the outcome of the MIL and the specific actions, an item could then be removed from the Change Control Tracking sheet (e.g. change in scope opted to not be pursued).

Additionally, the MIL will be maintained on the collaboration site so that all Agencies can access it at any time. Further, the Agencies can, collectively or individually, also add items during the project meeting(s) or by emailing the project manager.

2.6.2.1.3.11 Master Issues List

The INIT Project Team maintains a log of all identified items that require action through the time of project completion. The Master Issue List (MIL) is used as a status tool for all project meetings. No action item shall be assigned to ORCA without prior notification and concurrence. Each action item in the log contains:

- Item Number
- Action Required
- Description
- Assigned Responsible Party (individual and firm)
- Origin Reference (correspondence number, meeting, conference call, etc.)
- Requesting Party
- Date Opened
- Original Due Date
- Current Due Date

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- Status (Open / closed / in progress / deferred, etc.)
- Date Closed
- Progress Notes and History of Activity

The MIL will be updated by INIT, and made available on an unlimited basis, via our issue tracking tools with read/write access for Agency designees.

2.6.2.1.4 Change Control

INIT's change control process will follow our Change Control Plan as defined in the PMP which includes all INIT and subcontractor-supplied equipment and software.

During the design phases INIT will detail and document the low-level requirements necessary to carry out the work associated. In some instances, an iterative and agile approach can be undertaken to as to ensure the lowest level of detail is clear as well as time allocated for usability testing and validation to be incorporated where applicable.

Based on the maturity of the design and schedule dependencies, INIT will make suggestions for design freeze to the Agencies for consideration. Upon mutual agreement and clear understanding of all dependent factors a date or dates will be selected to reflect a point in time when the system design is substantially complete, and the Change Control process initiated.

2.6.2.1.4.1 Change Control Process

The Change Control Plan will identify how INIT will receive, record, document, and monitor changes to the scope baseline. Included will be procedures for identifying, documenting, requesting and approving a change. Those steps are outlined at a high level as follows:

- Initiating request by ORCA or INIT designee
- Receipt and acknowledgement by INIT
- INIT adds request to issue management system and assigns to INIT Lead Engineer
- Technical clarification, schedule and impact assessment by INIT
- Scope evaluation, configuration items affected or needing to be updated, and level of effort estimations by INIT
- Issue request updated and assigned to INIT sales
- INIT sales builds detailed proposal and submits for review
- ORCA review, decision to either move forward with change or discard

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- If approved, ORCA issues a change order which is executed by both parties; if discarded, INIT closes request in issue management system and maintains the proposal as part of the project documents on the collaboration site
- If change order issued, INIT creates a new issue ticket to track the work and then updates the scope, schedule, and cost baselines as well as the Requirements Traceability Matrix and any system test documentation
- Work is carried out in accordance with the agreed change and monitored and tracked in the issue management system

The regional test facility will be made available to facilitate agency validation testing. However, if the change is requested prior to certain integration phases of the project, validation testing will be carried out in accordance with the relevant test cycle. Once integration testing is underway and the regional test facility online, all changes will be validated in the regional test facility. INIT suggests that the Agency designee validate the change once INIT has performed the pre-validation testing and is able to ensure the change works as expected. Following Agency validation, the change is then progressed through the change control process to the deployment operations process. If said process is in the production deployment phase, the work is validated in production as well.

At a high level, implementing a change and tracking through the issue management tool INIT will utilize the following status flows (note, the status can move through each step at varying intervals based on the dependent factors present):

Status	Description
New	The ticket was created and processing must be confirmed by INIT
Investigating	The processing of the ticket has been started
Need Information	Agencies to provide additional information or take some type of action before the ticket can be processed further by INIT
Deferred	Handling of the ticket was postponed
Resolved	A solution has been provided and INIT considers the issue closed
Closed	The solution was delivered and the Agencies agree the issue is closed
Review Required	Review team to discuss the issue and help resolve/reconcile any differences in opinions as to the issue or solution being delivered or address any open questions stipulated
Ready for Delivery	A solution is ready to be delivered to the ORCA designated system
Approved for Test System	Customer agrees with the solution and approves the delivery to the ORCA regional test facility
Resolved in Test System	A solution has been delivered to the ORCA regional test facility

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Status	Description
Approved for Production	The Agencies have tested the solution and approve delivery to the production system (if applicable)

As noted above, only the Agency designee can close work items in the issue tracking system. Changes introduced by a subcontractor will also follow the above workflow; however, additional documentation may be required for test validation.

The test system deployment process will differ from the production system deployment process as the production deployment exposes the system and its users to more risk just by its very nature. In light of that, INIT proposes, as part of this plan, the introduction of a Change Control Board (CCB) comprised of a short list of INIT and Agency representatives. This is a subset of the Project Team comprised of, at a minimum, the ngORCA Program Manager, INIT's lead PM, and INIT's Lead Engineer. The goal of this group is to consider changes without the entire Project Team and consider issues related to schedule, cost, and quality. It is the expectation that there will be really good ideas that are considered as part of this project but not envisioned at the start and we want to track them as ideas to be considered after the system is live. Generally speaking, key stakeholders should be involved; however, a clear structure of representatives and designation should be discussed and agreed as part of the design review. In all cases, changes must be mutually agreed to by Sound Transit and INIT.

As part of the Weekly Progress and Status Review Meetings, the INIT Project Manager will keep and maintain a change control log for changes requested, irrespective of their formality. As part of that, INIT will disseminate detailed status updates and next steps for formal requests in process. Additionally, as part of the monthly progress report INIT will also summarize the requests for change and change order status including noting those recently approved.

2.6.2.1.4.2 Hardware & Software Versioning

Version Control is critical to the success of the project. INIT's Version Control plan as defined in our Project Management Plan will maintain version number, revision history, author/developer, and reason for the change.

All software and project documents will be assigned a unique transmittal number, which INIT will assign consecutively while maintaining a correspondence index.

All database scripts added to the database will have a clear versioning number assigned so that any database changes are trackable.

Different hardware versions are clearly defined on the serial number label on every device.

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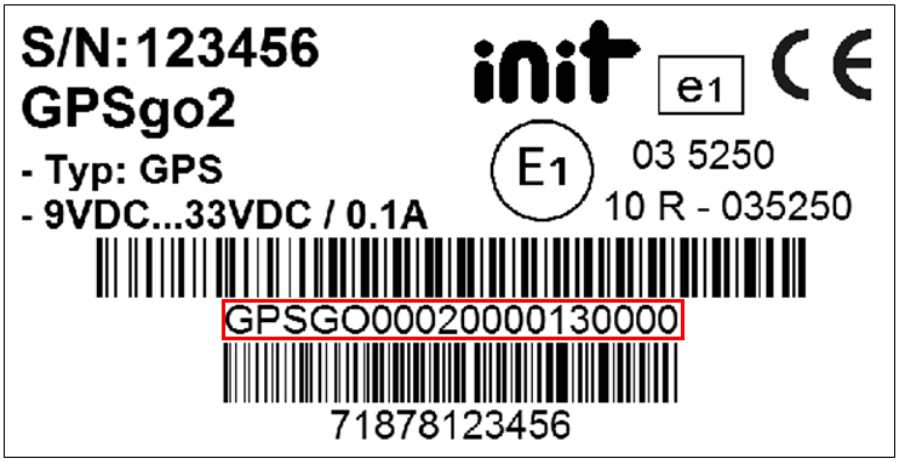

Figure 1-2: Serial number label with hardware version highlighted

2.6.2.1.4.3 Component Identification

The ngORCA system implementation will include deployment of several thousand units of equipment to meet the system interface needs at each Agency as well as to address region-wide equipment and with that installation, support, and maintenance needs spanning the Puget Sound region. To ensure successful tracking and identification of each unit of equipment, INIT will development an Equipment and Component Identification and Labeling Plan.

Each item of equipment, regardless of the manufacturer will be labeled at minimum with the supplier's name, part number, and serial number. Note however that INIT does not supply Electronic Serial Numbers (ESNs) for its equipment. Because there will be multiple suppliers and Original Equipment Manufacturers (OEM), the label itself will vary in appearance.

Every device will be labeled in duplicate. One label will be visible from outside and easily accessible for auditing purposes and one label will be hidden (e.g. on the back of the validator between the device and the mounting plate).

Coordination and tracking of each item of equipment is managed with AIM. For importing the data into AIM, the Agencies will be supplied with a MS Excel spreadsheet outlining the equipment being delivered. Additionally, the Agencies will receive an updated MS Excel spreadsheet together with the delivery of additional or spare components.

In the event a device requires repair, replacement, or analysis, these identifiers will be used in the ngORCA AIM System to ensure appropriate tracking and history information is maintained.

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For units of equipment where production runs are performed simultaneously, the label will provide a sequential series of serial numbers. If production runs are broken out there will be similar number styles or format; however, a break in the number sequence will likely occur. As an example, if unit X has a run of five devices they could be identified using the following serial number pattern: X1231, X1232, X1233, X1234, and X1235. If at a later date another two (2) devices are ordered, the sequence could be adjusted to the following: X3231 and X3232. The differentiating element in this hypothetical example is the second integer, changing from a one (1) to a three (3) to account for the gap in the manufacturing run.

2.6.2.1.4.4 Issue Management

JIRA is a flexible and scalable Issue Tracking System provided by Atlassian. Starting with the first project delivery, the JIRA Ticket Tracking System will be set up and accessible for the member agencies to enter any occurring issues. Issues can be reported by email/ phone and will be entered into the JIRA Ticket Tracking System by INIT personnel OR directly into the JIRA system by the agencies. The JIRA Ticket Tracking System generates a specific ticket number, in which issues are tracked to completion.

When a project is completed, the project moves into a maintenance support phase, in which issues are handled by the helpdesk. The JIRA Ticket Tracking System will also be used during this maintenance support phase.

As an integral part of customer support and our Quality Management system, INIT uses JIRA as our issue tracking system for the reporting, investigation, and remediation of incidents as described below.

All issues are assigned to a person responsible for managing corrective action who will then involve the appropriate team members. JIRA workflows tailored to the identified issue help manage the process by defining and tracking the issue through its various steps to resolution. Typical workflows include gathering information, identifying root cause, and creating a plan with action due dates. All activities are captured in JIRA and email alerts are sent automatically to stakeholders.

Overviews of all project issues and the associated corrective actions are clearly indicated on various dashboards in JIRA to track progress.

After System Acceptance, the project moves into the warranty and support phase where the JIRA Ticket Tracking System will also be used.

2.6.2.1.4.4.1 Create an Issue

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The “Create Issue” dialog is shown below. In this example, a new feature has been requested. The workflow associated with this new feature will include approvals, estimates, design reviews, incorporation into the traceability matrix, documentation updates, quality gates, agency approval and more. This form will be customized to the ngORCA members’ preferences.

Figure 1-3: JIRA - Create Issue

2.6.2.1.4.4.2 Issue Tracking Workflow

A sample Issue Tracking Workflow is shown below. The ngORCA actual workflows will be customized to meet your needs. After the issue is created and assigned to a team leader, it

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undergoes an information gathering process. The result may be that the root cause is identified and the team begins to work on the resolution. In the testing phase or even once considered resolved, it may be determined that more information, engineering and testing is required. It is even possible that circumstances in the field warrant the issue to be reopened. Less critical issues may be postponed but will remain in the system to be tracked until resolved. Whatever the path, JIRA tracks the progress with reports identifying how long an issue has been open and what activities have occurred. ngORCA stakeholders will have access to the system to track and monitor progress.

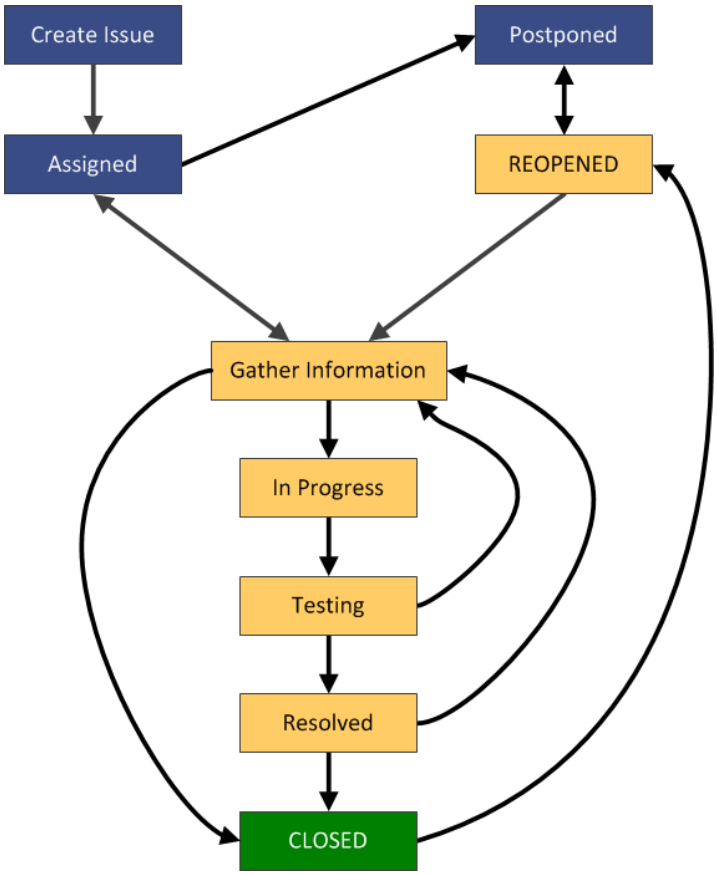

Figure 1-4: Example JIRA Workflow

2.6.2.1.4.4.3 JIRA Issue Details

Shown below is a typical issue dashboard. This issue was a concern about how the backend system will react during the Disaster Recovery system, System Check. As you can see, this was a subtask of the Disaster Recovery (DR) system check and assigned to the TOND team.

Users can add comments, change the issue, add drawings, attach documents and more.

Below, the activity tabs show [redacted] a comment as he researched the issue. The switchover worked just fine and the issue was closed.

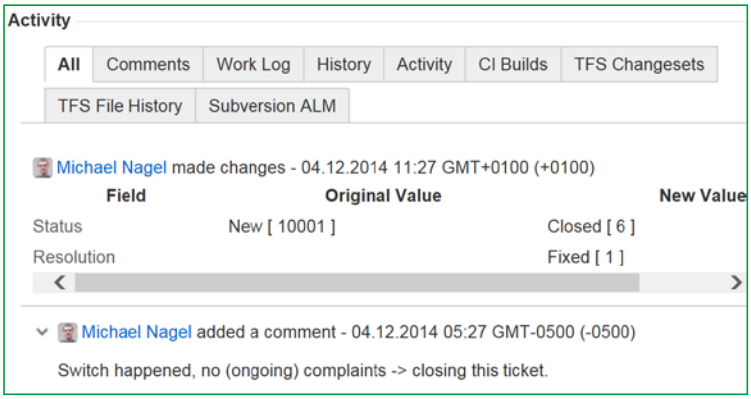

Figure 1-6: Issue Details - Bottom half

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More features are shown in this section broken out from the right side of the screen.

Starting at the top you can see how the data can be exported as XML, WORD and printable format.

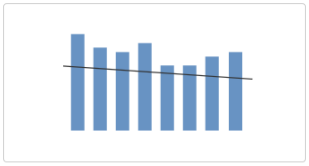
Created by [redacted] and assigned to Raja, this issue has 2 watchers. The two individuals signed up as watchers and receive emails whenever activity occurs. Authorized ORCA personnel, can click on the field and add themselves as watchers. They can also review the history and contribute with comments.

The date the issue was created, last updated and resolved is also provided.

[redacted]

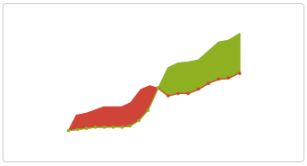
2.6.2.1.4.4.4 Reports

JIRA provides built in reports useful for analyzing trends and status.



Average Age Report

Shows the average age of unresolved issues for a project or filter. This helps you see whether your backlog is being kept up to date.



Created vs. Resolved Issues Report

Maps created issues versus resolved issues over a period of time. This can help you understand whether your overall backlog is growing or shrinking.

Pie Chart Report

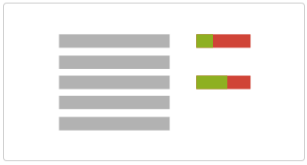
Shows a pie chart of issues for a project/filter grouped by a specified field. This helps you see the breakdown of a set of issues, at a glance.

Recently Created Issues Report

Shows the number of issues created over a period of time for a project/filter, and how many were resolved. This helps you understand if your team is keeping up with incoming work.

Resolution Time Report

Shows the length of time taken to resolve a set of issues for a project/filter. This helps you identify trends and incidents that you can investigate further.



Single Level Group By Report

Shows issues grouped by a particular field for a filter. This helps you group search results by a field and see the overall status of each group.

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As seen below, the ngORCA JIRA Issue Tracking system can include the reports listed. Custom reports can be easily defined and saved. All reports are exportable to spreadsheet compatible files, PDF and printable.

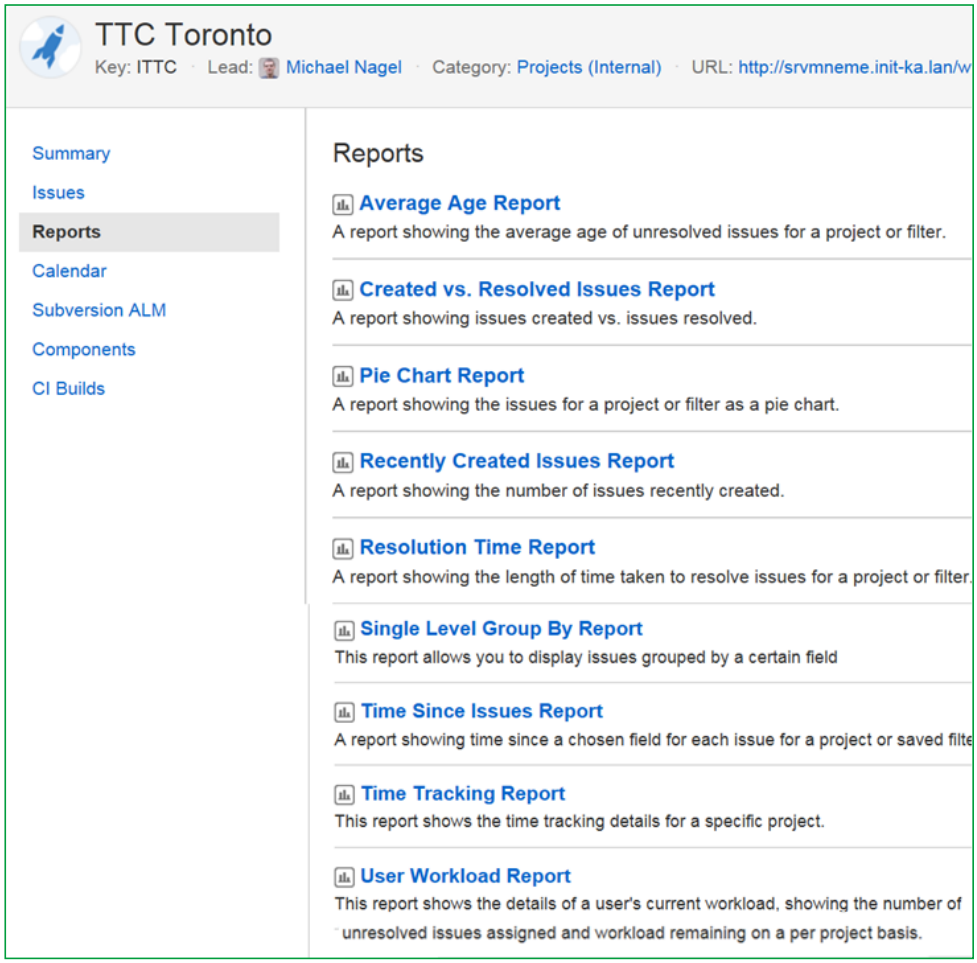

Figure 1-7: JIRA Report List

2.6.2.2 Design Reviews & Approvals

INIT's project management and technical team possess extensive experience in the design of complex, large-scale account-based fare collection systems. Additionally, INIT has partnered with a UX/UI firm to help ensure oversight and implementation of common design practices and guiding principles for key user interface elements.

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While time-intensive for many stakeholders, INIT has found that a comprehensive design review process is one of the keys to mitigating overall project risk. As part of this process we will address all functional and technical requirements, review possible scope changes or other considerations, identify unknown risks, and maintain a clear path of the schedule's requirements and dependencies.

The first phase of the ngORCA project is comprised of three specific design reviews: Conceptual (CDR), Preliminary (PDR), and Final (FDR). These formal design reviews will include the review of System Design Documentation, hardware samples, and functional software demonstrations of INIT's existing comparative systems or prototypes.

To appropriately progress the design of the system and to limit risk to the overall project schedule, INIT proposes to allow the documentation to run in parallel paths. For the purposes of simplicity at the start, INIT proposes to submit its design documentation in two packages; the first will be inclusive of system design documents that are further progressed based on INIT's existing implementations that are in similar scope to ngORCA whereas the second package is meant to allow for additional time for newer areas of the proposed system or for the occurrence of information gathering sessions (e.g. installation, training, etc.) with the Agencies for inclusion in the reference documentation.

At each stage the Agencies will formally approve INIT's proposed design before moving to the next phase of its evolution; however, due to the parsing of the system design packages, different documents may progress sooner than others. In so doing, INIT will validate that the ngORCA system elements are on track to meeting the technical, functional, and operational adequacy requirements of design and that the approach undertaken will sufficiently track against the requirements of the Scope Baseline as stated for delivery in the project schedule. Additionally, by progressing design that can be achieved in earlier stages, development efforts may also be initiated without additional or unnecessary risk.

In addition to submitting all the specified materials during the design phases, INIT will also submit a Requirements Traceability Matrix (RTM). The RTM will outline how the design is addressed in each of the specified requirements. The RTM will also serve as a risk mitigation tool by ensuring that all the requirements addressed during the design phase are documented and made part of each next phase of the project lifecycle.

2.6.2.2.1 General Requirements

Managing a balance of cost, risk, change, and schedule can be quite challenging. However, addressing and engaging in a thorough and robust design process ensures that all such factors are transparent, known, and documented.

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The Design Review Plan will be written with the intention of meeting both the design needs of each particular phase(s) of the project as well as taking into consideration the relative maturity of the subject of the specific document area and the design phase it is being reviewed. In some instances, certain elements will be more advanced than others whereas some may require more clarification in a given design phase then initially planned.

Regardless, in order to successfully move through the design review phase INIT's plan will focus on both quality and efficiency so as to best maximize the project schedule while also adhering to the technical, functional, and program requirements as set forth in the SOW.

The first iteration of the Design Review Plan will be provided within 30 days of NTP and, outline in more detail the format for how the various design review stages will occur. As part of that, INIT will define which documents will include subsequent demonstrations or prototype reviews as part of the stated design review phase.

For tracking and management purposes INIT will provide and maintain a document control tracking sheet. This sheet will outline the design review package for each phase (which is to be submitted not less than 21 calendar days prior to any review meeting); denote the requisite documents, their submission / review / approval state, and the state of approval in the specific design phase. Where applicable INIT will also provide estimates on the level of completion of the document in order to be considered for design approval and also needed for work initiation. Additionally, following review the Agencies will then in turn provide INIT with the first iteration of the design review MIL, documenting any questions, comments, concerns, or requests for clarification.

One of the key documents to be addressed as part of this process is the first iteration of the ORCA Business Rules as this document details the relevant fare structures, revenue sharing and apportionment tied to system launch. The final fare structure configuration will be documented and approved within 120 days of integration testing of the applicable components.

As part of each design review stage INIT proposes the parties plan and engage in a series of in-person meetings with a frequency appropriate to the subject and resources associated. In some instances, routine SME meetings can be established and carried out through the design phases, such as training, installation, UI/UX etc. Additionally, INIT also proposes that the parties engage in a roughly week long (or duration specified and agreed based on the material), in-person design review workshop per phase at the Agency's meeting location. As part of this design review, INIT supports all stakeholder groups' participation. The specific structure of the workshops will be detailed further in the design review plan but these more in-depth discussions will be an opportunity for INIT to involve additional technical resources (e.g. hardware and software engineers) for "deep-dive" discussions. Taking this approach enables

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INIT to bring in resources from other locations outside of our Seattle office to participate (including vendors where applicable) which also extends the capacity for direct small group discussions, brainstorming and other technical clarification methods, as well as address design concerns or considerations in real-time. INIT believes that a combination of these design approach discussions will ensure frequent and routine engagement where possible while also providing the Agencies with direct access to our engineers for critical decision making and clarification. Where possible, INIT can also supplement the in-person/on-site meetings with follow on tele/web-conferencing as needed or required.

During each phase INIT will strive to ensure feedback is heard, logged, and addressed by all those impacted. In so doing we believe we can both mitigate the need for rework as an outcome of unclear and/or undocumented requirements or business needs and as such avoid missing detail that might otherwise not be known until implementation - which becomes more costly as time in the project has progressed. It is expected that each document will undergo various iterations within each design phase. If the design document packages are revised as required they will be resubmitted within 14 days of completion of the design review meetings.

Those discussions points, issues identified, and decisions made will be documented and addressed during the specified design meetings where possible in the MIL. Residual issues will continue to be tracked in the MIL and actively worked until resolved during future iterations of the design review process. The Agencies will be responsible for final closure of all logged issues in the MIL. Following successful closure of identified issues, the review package can be made available for Agency approval.

2.6.2.2.2 Conceptual Design Review

The Conceptual Design Review (CDR) will meet the objectives outlined in the RFP of familiarizing the ORCA agencies with the proposed system design. As CDR occurs in the very early stages of the project, certain documents will require the design review workshop in order to detail certain sections of the submittal documents. Such sections will be referenced with placeholders.

Following the submission of CDR, the Agencies will have 21 calendar days to review and comment on each specific document prior to the occurrence of the design workshop. Agency comments will be tracked in the Master Issues List (MIL) which is uploaded to the ngORCA project collaboration site where the Agencies can review at their convenience. In so doing the Agencies can further guide as appropriate the progress and structure of the design approach.

INIT and the Agencies will participate in CDR workshops, at Agency-designated facilities. During these workshops INIT will have onsite relevant subject matter experts (SMEs). The aim of the workshop will be to have clear direction and understanding of the necessary next steps for the

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Preliminary Design Review (PDR) submission as well as identify any gaps, actions, next steps needed to close out the CDR phase.

2.6.2.2.3 Preliminary Design Review

Following the CDR approvals INIT will begin the planning and delivery of the system documentation necessary for the Preliminary Design Review (PDR) phase.

For the PDR submission INIT will continue to update all relevant documents and include responses to Agency comments from the MIL to ensure all areas of concern, question, or revision are included and/or addressed from CDR to the extent practicable. Additionally, updates made to the PDR documentation will be done with the intent to provide approximately 75% of the systems design.

Following INIT's submission of PDR documentation the Agencies will again have time to review each submittal and comment as appropriate. INIT and the Agencies will schedule a second workshop in support of PDR, to be held at Agency-designated facilities. During this workshop INIT will bring relevant subject matter experts (SMEs) including but not limited to INIT resources and key personnel, INIT subcontractors, or other vendors supplying portions of the ngORCA integration.

INIT will provide the following during the PDR:

- Specifications for all proposed equipment
- Narrative descriptions of the major systems and subsystems
- System block diagrams identifying all interfaces between system components, including external systems that will not be provided by the INIT but will interface with the system
- Responsibilities and schedule for completion of detailed system interface definitions
- Software designs, including software block diagrams for key system components
- INIT's understanding of the intended operations and maintenance environment
- Master schedule to review and discuss primary milestones and risks
- Customer and operator user interface specifications, flow charts, and messages for all Contractor-supplied devices and systems, including accommodations for all boundary and error conditions
- Interface and communication specifications for all internal and external system interfaces
- Specifications for all configuration control systems
- Specifications for access control systems supporting back office operations;
- Requirements traceability matrix

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Prior to the PDR, INIT will conduct site visits, station inspections, and additional requirements analysis activities as needed to further advance the system design documentation.

As with CDR updates for PDR, following the PDR workshop INIT will review the document MIL's and update the necessary materials accordingly and in preparation for FDR. Ideally, the framework and necessary steps for FDR at this stage will become clearer and requirements tied closely to the build phase planning.

2.6.2.2.4 Final Design Review

To prepare for FDR, the narrower requirements may necessitate sub groups to continue to break off so that clear outcomes and use cases can be illustrated in between the design review formal workshops. The FDR workshop will be scheduled to follow the FDR submittal, for the review and confirmation of the systems intended design.

The requirements of this review will be INITs provision of the final design updates and that all comments, questions, or clarifications from the MIL's provided by the Agencies are addressed and all action items closed out and validation that the UX/UI principles and guidelines have been adhered to.

During this final formal design workshop INIT will bring relevant subject matter experts (SMEs) including but not limited to INIT key personnel, subcontractors, or other vendors critical to the eFare integration. The FDR meetings will seek to close as many gaps as possible, clarify the last requirements necessary for the system's final design and set the framework for development, procurement, fabrication, installation, testing, training, implementation, and deployment.

Activities of the FDR will include the following:

- Schedule compliance review and discussion of variances or delays
- Assembly drawings for all INIT-supplied devices, down to the Lowest Level Replaceable Unit (LLRU)
- Electrical schematic drawings for all INIT-supplied devices
- Preliminary "as-built" drawings and prototypes for all device mounting configurations
- Final system architecture drawings
- Detailed software specifications for all back-office systems with software module descriptions in a narrative format and data flow diagrams to the lowest level of decomposition
- Detailed specifications for all application programming interfaces (APIs) supporting frontend and back office operations
- Detailed specifications for all system transaction formats

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- Detailed descriptions of all message formats and data elements for device and system events and alarms
- Interface control documentation for all systems and subsystems
- Complete data dictionary and detailed database design documentation, including all tables, views, and materialized views for all database schemas in the system, in electronic format (e.g., ER Studio)
- Documentation of database programming features including, but not limited to; queries, query formats, triggers, jobs, functions, and procedures
- Requirements traceability matrix
- Installation plan

INIT has found greater success with collaborative communication during meetings and documentation revisions thereafter being submitted to the Agencies as opposed to ongoing back and forth without personal engagement. However, if after review, the material does not meet the stated requirements of FDR completion and additional comments or clarification are necessary, INIT will continue the resubmittal process until ratification is achieved.

2.6.2.3 Installation & Transition

Integrated within INIT's program management plan is the transition and change management plan. The transition section of this plan describes how the old system will be transitioned to the new system; including all operations for ORCA, the public and all external stakeholders. Included in the plan are risk mitigation procedures for the transition process, including any additional equipment and/or staffing requirements for ORCA.

2.6.2.3.1 Installation & Transition Strategy

Essential for a seamless transition for customers from the customer's legacy ORCA system to the next generation ORCA system is a rapid transition period where mixed validators (legacy and new generation) operate concurrently within the system. To achieve this, INIT plans to perform detailed prototyping of every unique vehicle make/model/type and unique platform validator type far in advance to the fleet installation to ensure that for each installation type, the new validator mounting, and cabling are considered. The outcome of the prototyping will be detailed installation plans for each installation type.

Due to the limited space available, INIT proposes reinstalling the legacy validator after prototyping is complete. This will allow INIT to preorder all parts and cables needed for the fleet installation without expanding the timeframe of operating with mixed validators in the system.

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2.6.2.3.1.1 Onboard Validator Coach Installations

INIT has reviewed the existing on-board validator installation locations for the legacy validators and is confident that the existing installation brackets/stanchions can be reused. This will make the installation process very easy and time efficient.

For coach installations, INIT will mobilize 10 technicians (5 two-member teams). Manpower and estimated times assume the reuse of existing cabling where possible:

- Validator & DDU installs: 2-member team, 2.5 hours/vehicle
- Validator only installs: As requested, KCM and CT maintenance will perform these installs

2.6.2.3.1.2 Platform Wayside Validator Installations

INIT is planning to install new masts/mounts but would reuse the existing infrastructure where possible to avoid complicated and time-consuming installation of floor anchors etc.

For wayside validator installations, INIT will mobilize 10 technicians (10 one-member teams). Manpower estimates are below:

- Replace mounting poles utilizing existing anchoring, reuse existing cabling and install validator 1-member team, 3 hours/wayside

2.6.2.3.1.3 Vending Machine Installations

INIT is planning to re-use the existing infrastructure where possible to avoid complicated and time-consuming installation of floor anchors etc. INIT proposes replacing all platform validators before installing Vending Machines in the field.

For Vending Machine installations, INIT will mobilize 10 technicians (5 two-member teams). Manpower estimates are below:

- Utilize existing anchoring, reuse existing cabling and install vending machine, 2-member team, 8 hours/wayside

2.6.2.3.1.4 Customer Service Terminal Installations

Installation of the customer service center may be completed within one weekend to avoid having different systems running concurrently.

2.6.2.3.1.5 Driver Display Unit Installations

ngORCA DDU installations will be included in the on-coach installations for: Everett Transit, Kitsap Transit & Pierce transit and will be performed by the SI.

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Community Transit and King County Metro will both have Single Sign-on, integrating their existing CAD/AVL and ngORCA functions into their INIT-provided DDU. Community Transit will have completed their fleet upgrade to the INIT DDU in time for the ngORCA integration.

King County Metro has yet to begin their INIT DDU upgrade and it is planned for the same time as the validator installations performed by KCM maintenance. INIT assumes that KCM will install both the DDU and the Validator. Site surveys and installation plans per vehicle type will be provided by INIT.

2.6.2.3.2 Phased Back-Office Parallel Transition

[redacted]

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- [redacted]
- [redacted]
- [redacted]

[redacted]

[redacted]

[redacted]

2.6.2.3.5 Site Surveys

The ngORCA agency provides data on the correct operation of all power and signal cables, switches and routers, etc. they are providing. During the site inspection, plans for ingress and egress of the installations are determined.

Initial vehicle, station, terminal, and wayside platform surveys will be completed as a part of the design review process. As part of FDR, INIT will submit the installation details and specifications for all equipment installations for agency review and approval.

Pre-inspection activities include testing existing systems, to which INIT must interface, as well as recording damage or other existing conditions prior to equipment installation. During pre-inspection, INIT identifies any modifications or additional provisions needed for installation of the System equipment and related system components but will work as much as possible within the limits of intended location.

INIT performs detailed site surveys and inspection for, all vehicle types, back office install locations, wayside install locations, and Customer Service Terminal locations, to document the procedures of each installation type required.

Using the information provided in the RFP Appendix #1, we estimate the following number of vehicle site surveys will be required:

	KCM	PT	KT	ET	CT	ST
Vehicle Types	10	7	6	4	8	13

For wayside validators and vending machine installations, we estimate the need to visit each site during the design phase. We will also need to review collect from agencies as much information as is currently available regarding location details, mast/mounting details and existing cabling details.

Wayside surveys will indicate variability in installations across agencies. To assist, agencies will be asked to provide:

- Schematics from each agency on communication, power and networking details
- Location names and addresses

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- Different types of Mast or mounting configurations per location
- Determine level of waste/recycling for each decommissioned wayside
- Determine level of concrete work

Vending machine surveys will indicate variability in installations across agencies. To assist, agencies will be asked to provide:

- Schematics from each agency on communication, power and networking details
- Location names and addresses
- Existing Vending Machine make, model & specifications
- Decommissioning instructions for Existing Vending Machines
  - Clearing out cash
  - Special decommissioning procedures
  - Floating time for all transactions to settle
- Mounting schematics
- Disposal

Agency CST location surveys will indicate variability in installations across agencies. To assist, agencies will be asked to provide:

- Schematics from each agency on communication, power and networking details
- Location names and addresses
- Different types of mounting configurations per location
- Determine level of waste/recycling for each decommissioned customer service terminal

2.6.2.3.6 Prototype Installations

Per the installation plan, INIT performs a prototype installation of the field devices in each of the different field environments in which the equipment will be installed, including a prototype installation of all bus equipment for each vehicle type. At this point, INIT has assumed three different station types requiring prototype installations. The prototype installations remain in service for at least one (1) week to ensure the integrity of the installation design.

2.6.2.3.7 Onsite Work Requirements

All INIT employees and subcontractors, working within operating rail stations, platforms, and rights-of-way, will comply with applicable rail safety and operations rules and regulations. All personnel engaged in Installation activities will have attended ngORCA's safety training and will

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be dressed appropriately. INIT will deliver and execute the safety access plan for all onsite work. Safe access will be afforded to construction equipment, vehicles, and personnel in accordance with ngORCA policies and OSHA regulations. All access plans will be submitted to the Agency for review and approval. INIT is responsible for compliance with all Regulatory requirements applicable to the design, construction, Installation, and testing, including the application and granting of all applicable permits.

2.6.2.3.8 Installation Procedures

INIT will submit installation procedures unique to each agency for all hardware and software to be installed, in accordance with the approved installation plan, agency rules, and guidelines.

These procedures will include an installation procedures manual for each agency. The procedures will detail how any modifications made to agency-owned facilities and equipment as a part of equipment installations will be sealed and corrected in order to preserve the integrity of the infrastructure.

2.6.2.3.9 Shop As-built Drawings

INIT will submit shop drawings used in its manufacturing and assembly facilities to fabricate, assemble, and/or install components of the system. This is true for items manufactured from raw materials, items purchased as raw materials, or items purchased in ready-to-use condition. Shop drawings and their projected delivery dates are noted on the master program schedule.

Part of the work necessary to define the drawings will include site visits and surveys; INIT will coordinate and work with the Agencies, at each of their designated locations or facilities to ensure we understand the scope of the work involved. During this time INIT will make inquiries regarding the Agency's processes and gather available existing information to understand the specific nuances of each element of the installation efforts. Additionally, during this time INIT may also share information pertaining to the methods or efforts engaged, how information will be conveyed in the drawings and other similar informational materials or instructions.

No work indicated by any shop drawings will be commenced until drawings have been marked as "Approved" or "Approved as Noted." INIT will document each device installation in the form of an as-built drawing. The as-built documentation will identify equipment location information, wiring connections, and all additional information needed to maintain the newly installed infrastructure. All drawings will contain dimensions, physical details, connections, and other information pertinent to system diagnostics, maintenance and troubleshooting. Where applicable, the substance and detail contained in the drawing as well as how to review and manage the index will be provided as part of the system maintenance training.

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For each set of as-built drawings, the Program needs the SI to submit prior to final acceptance:

- One (1) copy on electronic media, in a format approved by the Agencies
- One (1) reproducible CAD-generated hardcopy

A master index of drawings is submitted to ngORCA agency, clearly indicating the organization of the shop and as-built drawings, listed by drawing number. The master drawing index also provides cross-references to related drawings, and the hierarchy of all drawings and drawing layers.

2.6.2.4 Testing

INIT employs a rigorous test regimen to ensure that all assets delivered to the ngORCA agencies are fully functional upon initial delivery. This establishes the foundation for reliable system performance and high availability. We use that experience to deliver a test plan to the ngORCA agencies to fully demonstrate compliance with the requirements. INIT plans, performs, and documents all tests to proof the design of all components and subsystems, and the integrated system as a whole.

Once a piece of software is ready it will go through a series of test steps. At the time of the system integration phases, following the scripted tests each release thereafter will include a two-part test approach, functional tests and regression tests. The functional test will validate the quality of the proposed change while the regression tests will ensure the continuity of system performance is unchanged. Once INIT has performed these tests and can validate the quality of the release, the testing is then available for the Agencies. Each system component will have a subset of regression tests and accompanied by an assortment of system-wide regression tests. Taking this approach ensures the integrity of the affected component and also overall system health. Additionally, if during the scripted tests occurring as part of the test phases noted below a failure occurs, the retest once the corrective action has been implanted will include both a functional test as well as component level regression tests. In some cases, later in the project, when a fix is introduced, depending on the nature of the fix, further integration-based regressions tests may be required to ensure no breaking changes have been introduced.

The project testing will occur in three (3) distinct test phases, functional, integration, and acceptance testing. During the functional test, INIT or the relevant vendor, will demonstrate that each system component is able to meet the requirements as stated in the scope of work, as independent elements – this includes the relevant environmental and compliance test of physical equipment. During this first phase there will be several independent test cycles occurring for the different parts of the system and at different times. Additionally, during this test phase usability testing to validate the user-centered design approach undertaken with the

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UI/UX efforts will also occur. Following each system components completion of the functional test there will be important information and low-level detail gathered and brought forward in preparation for the integration testing.

As noted, the functional testing will occur at varying intervals based on the readiness of the components. Once through the functional test and readying for the integration tests, there will be less variance though still some. However, by the time of the integrated field test, the majority of these components must be available and integrated in order to appropriately perform the test. The websites and mobile apps will continue usability testing iterations up through the final implementation. Additionally, during this test phase the system will undergo load testing, stress testing, and/or failover testing for the different elements of the system. The integration test will ultimately indicate the successful functionality and performance capability of the system.

Once the Pilot Test has been completed successfully, the system will move into the acceptance test phase. During this time the system is live and in peak usage; in this state the system is intended to demonstrate its capability in meeting the stated performance requirements over a fixed duration. Upon achievement and completion of any open points remaining, the project will be complete and ready to move to operations and maintenance.

2.6.2.4.1 General Requirements

INIT will not begin any portion of system testing until all prerequisites have been successfully completed and approved in writing by the ngORCA agencies. While all testing phases will be completed in their entirety for each phase of deployment, the packages or content included in certain test phases will be broken out into smaller subsets. This breakout allows INIT to more aptly progress various pieces of the system by allowing them to progress at different paces based on their relative maturity and the effort needed. Taking this approach INIT can stave off unnecessary delays or down-time that would come as the result of waiting for all system components to be ready at the same time. Further, certain system components will be more complex or require varying levels of integration with multiple systems and as a result require more layers of a certain test phase. Progressing both the development and test phases in an agile and iterative fashion will help to mitigate schedule risk as well. However, no single test phase will be considered complete until all system components have entered and successfully passed that phase.

INIT will provide all labor and materials required for system testing, including fare media, payment cards, support services, and facilities required to stage, inspect and test all hardware and software being supplied. As part of the overall testing regime:

- INIT tests and verifies that they can successfully utilize the agency-provided communications networks for deployment of the system as designed.

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- During all conducted tests, any and all hardware or software not passing inspection or test will be replaced, or otherwise corrected by INIT and retested.
- Prior to the start of any formal testing, INIT will conduct "dry-run" testing to identify and resolve any issues that arise before formal testing commences.
- Successful completion of each phase of testing will be subject to agency approval based on approved test criteria.

INIT will ensure that the Test Plan covers all inspections and tests to be performed, including those performed under the Quality Assurance plan. No tests will be performed until all the required prerequisites have been met. Test results will be submitted for review after completion. In the event corrective action or remediation is required prior to acceptance, INIT will coordinate and plan said activities in cooperation with the Agencies including schedule for installing fix in test, the required testing (component or integration-based regression tests), and the confirmation that the test has passed.

2.6.2.4.2 Test Documentation

In order to ensure continuity and consistency from design to test, INIT will develop the test documentation from the system design documents approved as part of the FDR. Using the design documents, INIT will detail each individual requirement and use case needed for test. Further test iterations will continue to build off the associated test plan so that there is traceability of each test and outcome. Additionally, INIT will also utilize the Requirements Traceability Matrix and track the progress of the test cycles there.

As noted, INIT will prepare and submit to the ngORCA agencies detailed test procedures for each test. These procedures will include the following:

- Information provided in the test plan (repeated)
- Mapping or references to the design documents and functional requirements related to the test
- Test methodology, including input and expected output
- Equipment and instrumentation to be used for testing
- Detailed breakdown of all hardware and software components under test
- Detailed test scripts
- On-line and off-line diagnostics
- Any related documentation (drawings, prints, supplier specifications, and recommendations)

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- Forms for recording data, including fields for date, time, location, and name and signature of persons conducting or witnessing the test
- All other information required to monitor and manage the inspection and testing
- Name and signature of the person who prepared the test procedure

Additionally, the INIT team will submit the Test Plan which will identify the inspection and testing to be performed at for each test. We will ensure that information provided for each inspection and test includes the following requirements:

- Test title
- Reference to contract requirements section requiring the test
- Organization performing and responsible for the test
- Inspection/test location
- Test objectives
- Test pass/fail criteria
- Test schedule
- Test procedure submittal
- Test start date
- Test duration
- Test report/certification submittal

During the design review INIT will provide test samples used on previous projects to demonstrate the methods and process for documentation.

2.6.2.4.2.1 Inspection & Test Plan

INIT will submit a draft Inspection and Test Plan for the ngORCA agencies review and approval during the design reviews. The Inspection and Test Plan will provide the schedule, methodology, strategy, and planning in detail for each of the associated test phases as well as ancillary testing intended to be undertaken during the project delivery. The Inspection and Test Plan will detail the documentation, test procedures, scripts, and reports required for each phase (Factory, Integration, and Acceptance Testing).

The Inspection and Test Plan creation and management will be led by the Lead Engineer from INIT; however, the individual test scripts and procedures will be the responsibility of the individual developers and/or vendors. As with all documents, the test procedures and documentation provided by the developers or vendors will go through a peer review and

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evaluation; this is performed first by the Lead Engineer or associated designee and then provided to the Agencies for evaluation and/or comment.

Prior to each individual test cycle (occurring within a test phase as detailed below), INIT will submit a test procedure providing a detailed outline indicating the sequence of each test, module being tested, where and when each test will take place, and the number of INIT-provided staff covering each test, including any vendors:

Test Phase 1: Factory Testing

1. First Article Configuration Inspection (FACI)
2. Factory Acceptance Test (FAT)
3. Production Acceptance Test (PAT)

Test Phase 2: Integration Testing

4. Functional Unit Testing (FUT)
5. System Integration Test (SIT)
6. Field Integration Test (FIT)
7. Pilot Test(s)

Test Phase 3: System Acceptance Testing

8. System Acceptance Test (SAT)
9. Final System Acceptance (FSA)

The Inspection and Test Plan will include the number and range of tests that will need to occur as well as the criteria for acceptance of each phase of testing. All performance measurement procedures and acceptance criteria, including the number and type of failures allowed in each phase of testing, will be in accordance with the requirements of the technical scope of work and subject to the ngORCA agencies review and approval.

The Inspection and Test Plan, in addition to the tests occurring in the above stated test phases will also include scope for volume or stress testing, for applicable devices, that simulates peak ridership and transaction volumes as required based on the projected ridership numbers provided by the Agencies during design review. The Inspection and Test Plan will also include detailed test scripts for each test case to be performed. Test scripts include test case setup instructions and preconditions, step-by-step instructions for performing the test, and expected results for each step. Embedded within the detailed inspection and test procedures are references to the design documents and functional requirements related to the test.

2.6.2.4.2.2 Inspection & Test Procedures

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As detailed in the Inspection and Test Plan, INIT will submit an Inspection and Test Procedure for each test in the stated test phases, subject to review and approval by the Agencies. Creation of each test procedure will be drafted by the responsible subject matter expert (SME) utilizing the most recent system design document approved by the Agencies.

Prior to each test, INIT will need to prepare the required test facility to ensure the appropriate equipment, database, configuration, and media are present and ready for test execution. To provide the Agencies with a clear understanding and outline of what is required, INIT will submit a software installation plan and test setup diagram for those tests not occurring at the Agencies local test facility and, a software installation plan and system configuration diagram for the agency test facility. These documents will be submitted as part of the procedures for the specific test phase or test itself as applicable.

Each test procedure submitted to the Agencies will include detail on the following:

- Test scripts for each test case to be performed as part of the test
- Setup instructions and preconditions
- Module reference (e.g. CRM, CST, Web Portal)
- System Design Document reference
- System Design Document section reference for the specific test case
- Responsible person for test execution
- Date of test execution
- Step-by-step instructions for performing the test
- Expected results for each test step
- Agency personnel present to witness the test

During the test, each test script will be classified as having either passed or failed; however, in some instances the test may be deferred by the Agency. Deferring a test is uncommon but may be required if for example the Agencies have requested additional time for final design requirements to be made (e.g. automated email because marketing has not yet finalized the copy for the email's content) but going forward with the test is critical to schedule adherence and, the test does not adversely impact or cause risk the progression to the next test phases.

In the event a test has failed, INIT will be required to initiate corrective action and/or remediation prior to requesting a retest. The scale and method of re-testing will be at the discretion of the Agencies once the corrective action has been implemented. For example, INIT may request to retest the single failure for a specific Agency designee or the Agency may request that the functional test of the failed item be undertaken along with a small sampling of additional tests to ensure breaking changes have not been introduced.

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In addition to INIT's scripted tests, the Agencies may develop additional testing or test scenarios on an ad hoc basis during all phases of testing and have access to the test facilities, as available.

2.6.2.4.2.3 Inspection and Test Reports

To validate successful completion, INIT will submit a test report at the conclusion of each inspection and test performed. For continuity in the different test cycles, the test report will be derived from the test procedure. The primary changes to the test procedure will include the following data gathered and documented during the test:

- Test result (pass, fail, or defer)
- Agency designee witnessing and validating test performance
- Comments or actions (e.g. requests made during the test which modified or added to the predefined procedure)
- Changes required to the test setup
- Specific test data not previously included (e.g. card numbers, login credentials, etc.)

If any additional comments or other data are generated but not inherently specific to a test case, as part of this report INIT will also provide, copies of all data generated during the test. All transaction data generated during testing is submitted as part of the report, in Excel format to allow for simple storage and analysis by the ngORCA agencies.

An Inspection and Test Report may be updated after a retest to include the exception of the initial test, detailing explanatory information, failure descriptions, corrective action implemented, as well as a provision of all transaction data generated, detailed failure descriptions and resolution, modifications or repairs pertaining to the components or systems being tested, and any re-test results.

Inspection and Test Reports are delivered at the conclusion of each test within the associated test phase(s) for ngORCA agencies for review and approval. No test or phase of testing will be considered complete until the associated reports have been approved by the ngORCA agencies.

2.1.1.1.1.1 Test Waivers

INIT understands test waivers could be requested for components or subsystems that are substantially similar to previously tested components or subsystems, if agreed to by the Agencies. As INIT has some system components, similar to those intended for ngORCA, currently in operation as well as those that have most recently passed a series of factory tests for other projects, review and consideration of waiver options should be undertaken as this could more positively impact schedule constraints. To ensure timely review, INIT proposes that an

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initial review or discussion occur during the Conceptual Design Review phase. Actions or considerations of next steps can be further review or considered thereafter.

Irrespective of examples provided or broader conversations undertaken with the Agencies, it is clear specific testing requirements for each system component will be considered individually. Waivers issued, if any, will be done so on an individual test and component basis only. The Agencies reserve their right to not grant an additional waiver for any of the other tests or test phases pertaining to the component granted a waiver for a previous test.

For example, in the event that INIT was to be granted a waiver for environmental testing of the Validator, which occurs during FACI, INIT may not assume that the Agencies have granted a waiver of the Validator for the entirety of the FACI test. As such certain cycle or performance tests may be required if they were made part of FACI Inspection and Test Plan. Further, should the Validator be granted a waiver for the entirety of FACI, INIT may not assume that the Validator need to undergo FAT or PAT testing.

While applicable to the Factory Test phase, waivers are not appropriate for and as such will not be granted for integration or acceptance phase testing. The ngORCA design and implementation will be a unique system, as such, integration testing of each and every component in multi-staged environments is essential. Further, the performance metrics required of this unique and specific system cannot reasonably be replicated.

2.6.2.4.3 Agency Test Facility

In order to appropriately test the functions, configuration, and integration of the ngORCA system, a local, accessible test facility for both Agency and INIT personnel is required. The provision of this test facility could be undertaken in a couple of different ways; however, INIT understands that the location and provision is our responsibility. Further, it is understood that the test facility will need to be available for agency access during normal business hours and, upon special request to the extent practicable, after hours, on weekends, or during holidays.

One location option would be something similar to what the Agencies have experienced with the current legacy system; hosted inside the offices of the vendor. While an independent location could potentially be identified, INIT believes this option to be cost-prohibitive and logistically challenging. The second option of test facility location could within an Agency office (e.g. Sound Transit) or building. As there are various considerations that can be made for either option, INIT has provided a few points and both pros and cons to each below.

INIT Office

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If hosted in INIT's office in Seattle, INIT would first need to source a new office location as the current building is insufficient in size, there are no freight elevators, and there are likely some power accessibility limitations. However, if this is the preferred approach INIT would upon notification of contract award, need to undertake the necessary steps to identify new location options. The new office would aspire to be centrally located and be sufficient in size, power, accessibility, access to a freight elevator, secure requirements for access, and include the capacity for storage.

Positive aspects in taking this approach include the following:

- Agency agnostic
- Centrally located for the Region
- Limit risk to Agencies in the event the test facility is accessed by unauthorized personnel, an item of equipment or personal belongings are the subject of theft, or other similar risk

Some of the negative aspects could include:

- Access limited based on requiring an INIT representative be present; either an INIT staff person would need to be in the office at the date and time specified or the Lead Engineer or similar Project Team staff accompany the Agency; additionally, the building allows free access between the hours of 8AM to 5PM only
- Location remote to INIT Lead Engineer (as they are present in the offices of ST); if issues arise in the test facility, they will need to travel etc. in order to inspect the issue or support the resource in their test
- Location unknown and may require some travel for all Agencies; costs for parking or commutes also unknown

Agency Office

In order to consider there to be an option to host at an Agency facility, first and foremost there simply has to be the interest and then as important, logistically there must be the space available or to become available in the timeline it is required. And that use is in accordance with the long-term needs of ngORCA. That said, similar to the above, there are always pros and cons to consider; provided below is a summary of a few points.

Some positive considerations for hosting at an Agency location are:

- If at either Sound Transit or King County Metro, the location is central for the Region

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- Access is agnostic of or not inherently limited by INIT (office) or INIT's attendance
- If at Sound Transit, the location is immediately accessible to the entire Project Team (ngORCA and INIT)
- If at Sound Transit, INIT's Lead Engineer is more readily available to support during a test
- If at Sound Transit, INIT's Lead Engineer can more easily demonstrate or train Agency staff should the need(s) arise
- Stringency of security is at the discretion and control of the Agencies
- Wireless network setup and access may be easier or more convenient

Some negative points that could arise if hosted at an Agency facility to consider are:

- As noted before, if a location is simply not available or not available for the duration of the need
- The location available may have power or space limitations; may not have a freight elevator
- Not Agency agnostic
- If not at Sound Transit of King County Metro, the location could be more remote than that which is desired or preferred
- An Agency may have access limitations for security reasons not otherwise present with INIT or at INIT offices
- In the event of theft, a security breach, or power outage, the hosting Agency may absorb more risk than palatable or even allowed from a policy perspective

Location specific considerations aside per the RFP, INIT will identify and provide a secure facility in Seattle at a location approved by the Agencies. As stated, the purpose of this facility is so that both the Agencies and INIT can test current system hardware, software, and perform integration and regression tests as needed or desired.

The test facility will be connected to the INIT back-office as described in Tab 1 "Technical Proposal of INIT's Account Based Open Architect System" of this proposal. Also, any media or test setup necessary to facilitate testing, including required labor or personnel, will be provided by INIT.

The test facility back-office will include hardware identical to the production system (but will not require redundancy), be equipped with the account-based transaction processor, and have the ability to connect directly to the merchant acquirer (or other processing entity) to fully test credit and debit transactions without processing transactions such that they will be reported by the processor.

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The ngORCA equipment installed the test facility will include separate hardware and software replicating the Agency-specific system configuration, including any existing equipment (*e.g.*, CAD/AVL system, MAR, mobile device) that is integrated with the new System. It is noted however, that Washington State Ferries will maintain their own Wave2Go test facility separate from this system and as such is not required as part of the ngORCA test facility.

Based on the current understanding of the Agency-specific configuration, the test facility should include the equipment and software as noted below. However, it is important to denote that some equipment will need to be supplied by the Agency as it is not in scope to INIT:

Community Transit

- Onboard Validator
- Driver Display Unit
- Bus-in-the-Box
- Platform Validator
- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Everett Transit

- Onboard Validator
- Driver Display Unit
- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

King County Metro

- Onboard Validator
- Driver Display Unit
- Bus-in-the-Box

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- Platform Validator
- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Kitsap Transit

- Onboard Validator
- Driver Display Unit
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Pierce Transit

- Onboard Validator
- Driver Display Unit
- Platform Validator
- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Sound Transit

- Onboard Validator
- Driver Display Unit
- Bus-in-the-Box
- Platform Validator
- Customer Service Terminal

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- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Washington State Ferries

- Validator or validation set up if required
- Driver Display Unit
- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

In addition to the above noted configurations and setup, INIT believes that Agency staff, INIT Project Team, and ngORCA personnel should also have reasonable access to a functional work space (table, chair, power, etc.) for recording test results or other ngORCA documentation, bathroom facilities, and also consideration of space for meal consumption or access to water for hydration. Additionally, and to be determined in the design review, some consideration of additional equipment to facilitate witnessed tests should also be considered. For example, access to white boards or an easel with large note paper, telecommunications access or speaker system for remote participation, and a projector or similar Audio/Visual equipment or display screen.

During the project delivery test phases, following the Factory Test phase all testing thereafter will be performed locally on site. Specific to any lab tests, the expectation is that those tests be held in the Agency test facility. However, depending on the size of the audience witnessing the test, other temporary considerations could also be considered if necessary.

To facilitate some of the testing INIT would also like to suggest the Agencies consider the provision and configuration of legacy ORCA equipment as part of the Agency test facility. While some considerations or variation might need to be made with respect to management or maintenance, having both legacy and ngORCA equipment will help INIT to better perform or demonstrate the integration test phases prior to INIT becoming the system of record. This also in turn mitigates some of the unknown risk(s) of operating or transitioning of two separate systems. INIT understands that there are many factors to consider with such an approach.

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Should there be questions or further clarification needed, INIT will make the appropriate resources available for any further technical or logistical discussion.

With regard to test facility maintenance, INIT will be responsible for and provide all maintenance support for the equipment, systems, and interfaces through Final System Acceptance, and maintain the test facility software configuration throughout the terms of the warranty and software maintenance agreement for all devices and modules down to the Lowest Level Replaceable Unit (LLRU). INIT anticipates that most of these activities will be undertaken by the local Lead Engineer with support from the remote INIT IT and database support team.

2.6.2.4.4 Factory Testing

The Factory Testing test phase includes the following:

- First Article Configuration Inspection
- Factory Acceptance Test
- Production Acceptance Test

Each test associated with the Factory Testing phase will not be performed on site at either the Agencies facilities or the Agency test facility due to the nature of the tests themselves. The location detail and other relevant information pertaining to these tests will be identified in the Inspection and Test Plan.

To continue to drive the overall ngORCA program schedule, INIT does not anticipate that the Factory Testing occurs collectively for all system components. As such, we will not recommend the test cycle occur within a specified, single time frame. Rather, testing schedules and plans will be drafted in a manner which allows those components that are ready for test, occur without delay. However, the test itself will not be considered 'complete' until all tests and reports have been approved within the specified phase. For example, if the Validator has successfully passed the three test phases noted previously but the Driver Display Unit has yet to complete the FAT, INIT may not submit for approval neither the FAT or PAT and collectively, the Factory Test phase.

As there are multiple factors which will impact the pace with which each system component is tested, we are not able at this time to indicate timelines or specific dependencies. However, we will provide estimates and assumptions as part of the project schedule and plan to have more detailed discussions as part of the design review phase.

2.6.2.4.4.1 First Article Configuration Inspection

The First Article Configuration Inspection (FACI) testing is the first of three (3) tests in the Factory Test phase. Ultimately, the FACI intends to validate that the system hardware meets the

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specified configuration and quality requirements in accordance with the scope of work. To initiate the FACI, a provision of the first unit of equipment must be available of the first production units of system equipment. For ngORCA, this equipment includes the onboard validator and associated mounting hardware, wayside validators and associated mounting hardware, driver display units and mounting hardware, vending machines, customer service terminals, and back-office equipment and sub-systems. After the first article equipment has been produced, INIT uses the manufacturing drawings to check that all parts and the top assembly are produced per the manufacturing drawings.

Since the FACI test for each item of equipment must occur at the location of assembly, the FACI test schedule may include different test timelines. As part of the FACI, INIT will also provide the Agencies with the quality inspections performed and the results associated, whether performed by INIT or vendor.

FACI Test Prerequisites:

- INIT has delivered the FACI Test Procedures and they have been approved by the Agencies
- One production unit or prototype of each device type has been produced and is available at the test site
- A complete set of approved drawings of each device type is ready for the inspection
- Where applicable, a Bill of Material (BoM) will be provided
- Where applicable, a Buy America certificate will be provided

The FACI will be performed on a mechanical prototype or the first production item for each type of system equipment. The FACI will establish the baseline for hardware design and the quality of workmanship that shall be maintained throughout production. The test will verify that the devices comply with the approved drawings and design. In addition, INIT will perform manual quality tests to verify the results of the prototype production. The tests will cover for example the inspection of the voltages on the mainboard or the verification of the brightness sensors.

The equipment being inspected must meet 100% of the requirements of the manufacturing drawings and the FACI approved by the Agencies before the start of Production and Factory Acceptance Testing begins.

2.6.2.4.4.2 Factory Acceptance Test

Following INIT's successful completion of FACI, the test procedures for the Factory Acceptance Test (FAT) must be provided. As INIT has successfully performed FAT on every system delivered, we are confident in our ability to meet the ngORCA agencies requirements for the test. The

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components to be tested in FAT are from the first run of production units and are not modified prior to the test. In the event the design of the unit is changed, a retest to validate the equipment continue to meet the stated requirements will be required. FAT is conducted at either INIT's facility or a subcontractor's facility selected by INIT. The test setup, configuration, labor or other materials such as test equipment or fare media required for test execution will be provided by INIT.

The FAT is intended to verify that the system equipment to be produced meets the specified human factors, environmental and maintainability requirements defined in the technical specification. INIT performs these environmental tests to demonstrate compliance with the ngORCA agencies operating environment requirements. Maintainability testing demonstrates compliance with the ngORCA agencies maintainability requirements.

FAT Test Prerequisites:

- FACI successfully completed and accepted by the Agencies
- INIT has delivered a FAT test plan which has been approved by the Agencies
- All Test Waiver Requests delivered by INIT have been approved by the Agencies
- One production unit or prototype of each device type is available for testing

Human Factors Testing is designed to verify that the equipment to be produced for ngORCA meets the specified ergonomic requirements, ease of use, and ADA compliance. Test cases will include steps to test sight, hearing and touch elements of the equipment. To complete the Environmental Tests, INIT will provide documentation to confirm that the onboard validators, driver displays, vending machines, and relevant terminals or back-office equipment comply with the requirements of the SOW. For Maintainability Testing, INIT will confirm that devices and device components can be exchanged within the specified time-period. These tests will also cover ease of access, tools (special tools as needed) required and if applicable labeling and safety instructions of each device.

INIT is responsible to maintain reports of all tests conducted throughout FAT. The reports are submitted to the Agencies at conclusion of the FAT for review and approval. Results not meeting specified requirements are fully documented and explained, and a corrective action plan is submitted. In the event of test failure, once remediation has taken place and a re-test available, INIT will plan and coordinate with the Agencies.

Successful completion of FAT is a prerequisite for the manufacturing of production system components. INIT updates Production Acceptance Test (PAT) procedures based upon experience gained from previous testing and/or system component operation. Test procedures are expanded to focus on areas that prove to be, or have historically been, troublesome.

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2.6.2.4.4.3 Production Acceptance Test

PAT represents the third and final stage of the Factory Test phase. INIT and its subcontractors perform Production Acceptance Test (PAT) on each system component as an integral part of the QA program prior to each shipment. Ultimately, the test(s) will verify that the metrics established during FACI and FAT are met for each produced unit and that INIT and its subcontractor certify each unit is produced to at least the same quality level as the unit presented for the FACI and FAT.

PAT Test Prerequisites

- FAT and FACI completed and accepted by the Agencies
- INIT has delivered a PAT test plan which has been approved by the Agencies

Successful completion of each PAT will verify that each system component contains the correct materials, are assembled properly, and function in accordance with the requirements of the SOW, prior to delivery to the Agency. At a minimum, the following functions are tested:

- General device operation and performance in all modes
- Data generation and transfer
- Alarms generation and transmittal
- User interface control and display

The ngORCA agencies may choose to observe, participate in, conduct, or repeat testing on any item to confirm the validity of INIT's test results. the ngORCA agencies may also perform, at their discretion, ad-hoc tests to ensure the quality of the system components. INIT will provide appropriate access to support ad-hoc testing, if required. Successful completion of a PAT is a prerequisite for installation of that equipment at the ngORCA agencies facilities.

2.6.2.4.5 Integration Testing

The Integration Testing test phase includes the following:

- Functional Unit Testing (FUT)
- System Integration Testing (SIT)
- Field Integration Test (FIT)
- Pilot Test(s)

The integration test phase is where the independent timelines and progression of system components need to start to come into alignment. Like a zipper, each test phase represents a further tightening of the system's schedule and completion; to the point where the FIT cannot complete until full alignment. Of additional note, during the integration testing all tests are to

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be performed either in the Agency test facility or within Agencies premises. Generally speaking, the FUT and SIT will consist primarily of lab-based tests and as such occur in the Agency test facility while the FIT test occurs as it sounds, in the field.

During the integration tests INIT will also undergo the required redundancy validation, system load and performance, and usability tests.

The vision with this test phase is to confirm the system components are able to operate and function in an integrated manner in accordance with the system requirements, the system can be validated as scalable and obsolescence resistant, and, in the end, is ready for live operation capable of providing end-users with a secure, reliable, and technology-thoughtful in design.

2.6.2.4.5.1 Functional Unit Testing

Where the Factory Test phase focused on the system hardware, the Integration Test phase looks more at the performance of the software meant to operate on the unit and then how the complete picture performs. During the Functional Unit Testing (FUT), INIT will first demonstrate the performance, function, and operation of the developed software. As this is the first stage of the integration testing, this test is performed in a controlled laboratory environment where no changes or design scope are introduced. However, in the event of a design change or test failure, component-level regression testing will be performed after the formal test cycle.

Prior to test execution, INIT will provide for Agency approval the FUT test procedures. The test procedures will include step-by-step instructions of every test, including entry and exist criteria, and test location or specific configuration details in accordance with the stated requirements of the SOW and approved Inspection and Test Plan. Due to the volume of testing to occur, INIT anticipates testing to occur in groups, FUT-1, FUT-2, FUT-3 based on readiness and appropriateness for the test (e.g. Validator Hardware and Software must be ready in order to be in a test group; they should not be divided between FUT-1 and either FUT-2 or FUT-3). Based on our experience on other projects, we anticipate this testing to take approximately 3-4 weeks in total though divided over blocks of specified time for the test set up and configuration of the facility, the test execution, and then any follow up or ad hoc tests.

FUT Test Prerequisites

- Successful completion of Factory Testing
- Completed component-level software development
- Test bench including all system components delivered and installed in agency test facility
- FUT Test Procedures have been submitted and approved by the Agencies

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FUT performance will occur on the first production equipment that has successfully passed Factory Acceptance Tests. Additionally, all software versions are those that have passed any required QA processes and is ready for revenue service. Interfaces between systems may be simulated if said interface(s) or back-office configuration is not ready for testing, for the purposes of the lab environment and the general nature of a lab-based test and phase of the project.

Testing of equipment functionality is intended to utilize the full range of fare media and fare structure prepared by the Agencies and approved as part of Final Design Review (FDR). This fare structure may include the fares for each Agency, plus inter-agency and regional fares and stored-value. Since all fare media to be used is provided by INIT. INIT will document and inventory the, its type and usage during testing. Where applicable this test data will be included in the test procedure and report.

Following the conclusion of FUT, including any sub-group FUT testing, INIT will draft and submit for Agency review and approval a detailed Test Report. Using the test procedure as the framework, INIT will indicate, among other things, the outcome of the test, remediation or corrective action needed to complete a test, date and token of personnel executing the test, notes or comments regarding the test performance or script, and the next action, if any, required. Coupled with the Test Report will be any other relevant data, comments, discussions or decisions, relevant to the test occurrence.

The ngORCA agencies, at their discretion, may assign staff or representatives to witness and/or audit FUT testing their names and associated Agency or ngORCA project affiliation will be included as part of the test report data

The functionality of the test is meant to include equipment capabilities under normal operating conditions as well as equipment response to induced failures and other abnormal conditions. Each type of equipment shall undergo an independent test with results reported separately. To perform the test, sample data will be used representing the full spectrum of events and alarms.

Upon completion of the required transaction testing, INIT will undergo another set of cycle tests to demonstrate the equipment continues to be capable of operating under the environmental conditions specified in the technical specification. These environmental tests will be performed on the Onboard Validator, Driver Display Unit, Wayside Validator, and the Vending Machine. INIT suggests performing two sets of environmental cycle tests. The equipment temperature tests and the sunlight test. All other environmental tests cannot be performed in combination with the cycle test as the test setup will either compromise the environmental condition or will not follow safety requirements for the test personnel.

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The temperature test will be performed by putting the equipment into the temperature chamber and bringing it to the temperature required in the technical specification. Once the temperature is reached, the equipment will be taken out of the chamber and then the tests will be performed. During testing, the CPU temperature will be watched and if the device temperature drops under 5°C of the original temperature, the device will be put back into the temperature chamber.

The sunlight test will be performed with a sunlight simulator. INIT will not use a third-party laboratory to perform the environmental cycle tests. The performed tests will be documented by video and photo.

INIT will provide the detailed Test Report to the Agencies for review and approval. The Test Report must certify that there were no failures or variables introduced during the test and that the performance is in accordance with the requirement in the SOW and FDR.

2.6.2.4.5.1.1 FUT Devices

The devices required as part of the scope of the FUT testing are as follows: onboard validators, driver display units, wayside validators, vending machines, and customer service terminals. As part of INIT's draft and submission of the FUT test procedures, each component and associated test script will have pre-defined criteria or expected result in order to successfully pass. The specified structure and criteria will be reviewed and mutually agreed prior to test execution.

As part of the FUT, INIT will perform cycle tests on each item of equipment. As noted, the full scope will be as agreed with the Agencies. For reference, INIT has included samples of criteria for our project in Honolulu:

Validator & Driver Display:

- 8,000 transactions
- Validator will have a wired connection to background system
- Only Closed Loop cards will be used for testing
- Pass Back time will be disabled for the test
- Log File analysis of the Validator and Driver Display will prove the successful tap

To execute 8,000 transactions on an onboard validator, INIT will use a spinning wheel which simulates the tap of a customer. The fare media will be mounted to the wheel. While spinning, the cards will periodically enter the communication field of the reader and therefore creating a tap. INIT suggests the following configuration for the fare media and transit accounts linked to them:

- (2) Fare Media loaded with Stored Value

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- (2) Fare Media loaded with a pass product

Every transaction will be shown simultaneously on the driver display. The PROXmobil3 uses an Ethernet port to communicate with the driver display. To analyze the successful taps, the recorded transactions will be written to several files on the device. INIT suggest splitting the 8,000 transactions in online and offline transaction to ensure both ways of validation.

Beside the audit register counts of the device, the test setting provides an external counter to track the expected number of card taps.

Vending Machines:

The cycle test for the TVMs will cover 8,000 transactions. INIT will perform manual tests which will cover:

Test Case	Number of Transactions	Description
Top Ups	2000	Spinning wheel to perform top up transactions. The payment for those transaction will be simulated.
Pass Loads	2000	Spinning wheel to perform load transactions. The payment for those transaction will be simulated.
Fare Media Sales	300	Scripted test that automatically issues a card from the dispenser.
View Account Status	700	Spinning wheel to perform an account lookup.
View Transaction History	1000	Spinning wheel to perform a lookup of the transaction history.
Text to Speech	70	Perform 10 TVM menu transactions per language.
Audio Jack	230	The TVM must automatically enable audio instructions when headphones are plugged into the audio jack.
Audio Button	200	Enable audio instructions when pushing the audio button.
Coin Acceptance	300	Test coin acceptor on a per accepted coin type basis.

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Test Case	Number of Transactions	Description
Bill Acceptance	400	Test bill acceptor on a per accepted bill type basis.
Maintenance Tests	800	Exchange coin vault, exchange bill vault, exchange card dispenser magazine, load receipt paper.
Total	**8000**	

Customer Service Terminal:

INIT does not see a way of automating the Customer Service Terminal; therefore, unless we are able to identify a new solution, we suggest performing the tests manually.

2.6.2.4.5.1.2 FUT Back Office & Website

FUT testing for the back-office applications, mobile apps and website covers functionality of each component individually. INIT may use test data and may stimulate interfaces to other software component for FUT testing; each test must demonstrate 100% accuracy in performance of both data exchange(s) and display. The criteria to consider a test as 'pass', must not result in any failure or discrepancy to the agreed functionality as approved in the FDR or otherwise stated in the SOW.

2.6.2.4.5.2 System Integration Test

Once all system components have undergone and successfully completed the FUT, INIT can initiate the System Integration Test (SIT). This test will be performed in the lab, in a controlled non-production environment.

In order to adequately perform the SIT, all devices and system components must be available as defined in the SOW for launch; this includes the installation and configuration of the back office applications, web portal, retail network, agency-specific interfaces, onboard system integrations including CAD/AVL, Washington State Ferries field equipment, DARe, and also the availability of the updated Legacy ORCA back-office and incumbent vendor supplied updated software for validation integration. Further, the system will be provided with test data simulating the Agencies' databases for purposes of this test.

As part of the Inspection and Test Procedures, INIT will include the required test configuration(s), detailed test steps, entry and exit criteria, fare media required, and system

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integration components. Additionally, during this test phase INIT will being to coordinate with the Agencies on a regression test procedure for future integration test validation. Ultimately, a successful SIT will demonstrate the installed, integrated system is capable of performance and operation under test conditions.

In order to simulate this kind of performance, the test must include continuous testing across a pre-determined period of time (e.g. where the validator is online and performing validation test for three (3) days without disruption) whereby a prescribed quantity and type of transactions occur, across each device or unit type without failure.

Simulated transactions must occur on the onboard validators and driver displays, wayside validators, vending machines, mobile fare inspection app, mobile fare validation app, and customer service terminal. Each device must experience test validation using each specified fare media type and exercise the fare structure as provided and agreed by the Agencies during FDR.

It is important to note that while the testing nomenclature focuses a great deal on successful test execution, such successes will also be confirmed in the context of system failures, alarms, or parameter violations. During these tests INIT will confirm the boundary conditions and parameters are met during the test, that the appropriate alarms, warnings, alerts, etc. perform in accordance with the agreed design.

SIT Test Prerequisites

- Successful completion of FUT
- Back office system completely integrated into the Agencies network
- One complete test bench with at least one of each component type installed in the test lab

SIT will cover data transmission tests, system monitoring exercises, verification of accounting processes, payment transactions and database performance. Any software modifications will need to be approved by the Agency after the completion of SIT.

Load Testing

To simulate the proposed ngORCA system's peak volume plus the required 200% of peak volume as agreed during design review, the test data will be generated by automated scripts, executed by INIT. The type of data, number of accounts and associated transactions can be discussed and agreed as part of the Inspection and Test Plan during design review as well. To facilitate the discussion, INIT proposes the following for a load testing approach:

- The simulation will produce a steady load of usage and sales transactions

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- The test goal is to verify that this load will not exceed any system component or lead to reduced response times for any participating sales channel
- The load is created by a scripted process that will call the online validation service and sales API functions
- The transactions will be exported to the accounting system according to the defined rules

Based on the determined, agreed active, frequently used cards in the system, the simulation will first fill the database over a course of time (e.g. 7 days) with accounts loaded with cash value, day passes and annual passes in a ratio in alignment of the figures relevant to the perceived load.

After the first predefined step noted, the simulation will keep creating cash and pass loads and new accounts over a period of time, however with reduced numbers. In addition to that the simulation will perform fare validations over an evenly distributed time over the course of a day for a defined period.

Disaster Recovery and Redundancy

During the FIT, INIT will draft and submit the plan for performing and demonstrating the Disaster Recovery Plan, including accuracy testing (required for INIT becoming the system of record) and accuracy testing between the AUT and relational database for the specified application and data storage location, as defined during design review as well as any individual system component failover / recovery redundancy measures. As part of the plan, the redundancy or recovery parameters will be predefined and agreed. This test will be a performance and implementation of that plan the specified parameters. Further, the testing will also demonstrate atomicity, consistency, isolation, and durability of the database.

Due to the time critical nature of the project, if during SIT any changes are made to the software, whether to address design change needs in Change Orders or as a result of remediation or corrective action undertaken by INIT or affiliated vendor, the system change will need to be reviewed, demonstrated, tested, and approved. In this stage, INIT recommends the introduction of a Change Control Board (CCB). While at the discretion of the Agencies, this practice lends a layer of oversight, ensuring risk is limited as project launch planning and occurrence is approaching.

During integration testing, each software change will first be delivered to the Agency test facility and be tested prior to deployment. As part of that initial planned delivery, INIT will discussed in advance with the Agencies and when the package is ready, INIT will provide a detailed software delivery paper and installation instructions. The delivery paper will include the tracking ID of the

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change, the nature of the change, personnel making the request, as well as any device specific information such as version, dates, file sizes, etc.

Successful completion of SIT is one of the critical path items in the overall program schedule; as such, once SIT is complete the ability to maintain system stability and predictability is essential. Procedurally, this means INIT or any vendor may not under any circumstances introduce a change, no matter its size, without prior written approval of the Agencies. Further, changes should be prioritized by level of need and urgency. Where possible, changes should be tabled for post-launch implementation.

2.6.2.4.5.3 Field Integration Test

In the absence of a detailed technical design discussion about the Field Integration Test (FIT), Pilot Test, and Transition Plan (parallel back-office approach), describing or defining them as independent elements poses several challenges and may lead to some confusion.

As stated in the SOW, to perform the FIT, the back-office needs to be up and operational, and all configuration and integration of the system components (all devices, back office applications, website, retail network, interfaces, integrations including CAD/AVL, Washington State Ferries field equipment, DARe, the Legacy back office and all other aspects of the System) is complete and functional in what will become the production system.

To initiate the FIT, the necessary successive test steps (Pilot Test, INIT as system of record) need to also be clear and fully defined. During the FIT, INIT will demonstrate a production-like setting but can only test with simulated tests without otherwise impacting Agency accounting and reconciliation efforts because there is already a live production system. There may be some discussion with the Agencies around a fixed set of tests, using specified media, where somehow, we simulate production and process live/real transactions in advance of the formal Pilot Test, but cannot be detailed at this stage. As we cannot scrub the database, the lost revenue from the test is less of an issue but the Agencies ability to reconcile and deal with the output from an accounting perspective is unknown at this point and will likely place demand on those resources.

In the SOW, it is noted that the back-office system must be, “fully deployed and operational before the first validator can be operational in the field”. However, once the back-office is operational, where or how any equipment can be deployed and connected in the field is unclear during the FIT test. The FIT test environment restricts how many devices can be installed because the INIT supplied equipment cannot yet accept production transactions without layers of complexity. Further, the tests must be controlled and constrained to predefined procedures and outcomes and as such cannot be widely accessed by the public without risk to muddying data integrity or test performance.

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That said, INIT understands as well that there are new stations and services that will be built and 'ready for revenue service' prior to the successful completion of these test phases. To accommodate what might be needed there, INIT-supplied Vending Machines and validators, as well as what is defined as part of this test phase, there may be some equipment that is live and available to support this test. Albeit in a modified or restrictive fashion.

To perform FIT, there a subset of 'test' equipment that is installed in production but is restricted in access, must be available. To validate the integration, agreement on how the data is transmitted and processed, and agreed criteria for test completion or pass criteria must be defined in the test plan. Unlike the tests in the controlled lab environment, this test is more restrictive and yet of vital importance as we want to validate those same integration tests work as intended in a production state and where possible out of Agency facilities and locations.

Regardless of the constraints and the absence of specificity to offer for this test at the moment, we are confident that our discussions at a technical and project prioritization level with the Agencies can iron out how best to plan and execute the test. Ultimately, there are two key drivers that need to be realized in this test; one, INIT's ability to perform a full system integration test in a production / production-like environment and two, INITs ability to successfully plan and test the Transition Plan and parallel back-office, in a brownfield environment prior to execution of the transition itself without otherwise negatively impacting the Agencies ability to collect and reconcile transactions or customers' ability to access and manage their ORCA experience.

One key point to note, should the Agencies preferred transition approach (parallel back-office) change during design review or other discussions, then what we propose will need to be adjusted or modified accordingly.

The above factors aside, INIT understands the general requirements of this test and will work with the Agencies during design review to define the plan and approach for successful execution. As part of that, in preparation of this test INIT will work with the Agencies to define the test procedures and scripts, test set-up and environment including exact locations or configurations, and the necessary entry / exit criteria which will be submitted prior to the test for Agency review and approval. We will estimate the test durations as well during design review; however, the exact proposed and agreed test procedure may be further defined as the specific nature of the test becomes more clear and imminent.

The test procedures will provide for the following categorical inclusions:

- Validation of the back-office configuration and operational readiness
- Installation checklists for equipment intended as part of the test

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- Confirmation of data provisioning capable of simulating full operational load of the central system
- Schedule for continuous integration testing with systems online 24-hours per day
- Pre-determined quantity of transactions per system component (onboard validators, driver display units, wayside validators, vending machines, customer service terminals, fare inspection mobile app, fare validation mobile app)
- Pre-determined quantity of transaction type and fare media type per system component
- Method for testing a pre-determined quantity of transaction through the different user interface elements (CRM application, web portal, customer mobile app, and agency mobile apps)
- Method for testing all available functions of each different user interface element as stated in the previous bullet
- Validation that system alerts or other boundary conditions as defined are adhered to
- System redundancy and recovery validation
- Disaster Recovery Plan simulated demonstration
- Database accuracy validation; demonstrate accuracy between the AUT and relational database
- Atomicity, consistency, isolation, and durability of the database

Additionally, the test data, data volume, and data transfer methods will be stated in the provided test procedure as well as the pass / fail criteria for each test. Following successful completion of this test phase, it is INITs understanding that the next stages are the final validation steps available to ensure the planned transition from the legacy system to INIT as the system of record, and subsequently the soft launch of ngORCA, goes as planned. As such, the outcome of this test and the capability of determining the successful completion will largely be based on a combination of stringent factors. Subsequently, INIT recommends, following the completion and approval of the test, that the parties engage in a transition meeting and evaluate the test results and forthcoming tests to determine any risk mitigation or other strategies that may need to be deployed or administered. These are purely preventative or cautious considerations and not otherwise required.

2.6.2.4.5.4 Pilot Test(s)

Performance of the Pilot Test as defined poses a series of logistical challenges due to the brownfield nature of this project in general. The Pilot Test, which occurs following approved completion of the FIT test noted above and is the last test in the Integration Testing phase, requires the back-office system is up and running while the field equipment is required to be only partially installed or specifically limited to test-only access. The key distinction for the Pilot

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is that it needs to occur or validate in some respects, production or production-like environment while not interfering with legacy ORCA performance, transaction processing, or accounting and data reconciliation.

To achieve the Pilot Test to the extent possible INIT proposes a series of controlled, low-impact tests of the following system components, performed quite similar to that which would occur as part of the FIT. Test validation and connection to the back-office as well as data processing will need to be more clearly defined so that it can progress, in a limited fashion, beyond the controlled scripted test. To support the discussion in how to design this plan, INIT proposes for consideration the following test setup(s):

- Web Portal, specific test group with preset scripted test functions to perform for a final 'usability validation' test
- Fare Inspection and Validation Mobile Apps, loaded on a minimum defined number but at least one (1) per Agency that performs the function
- Customer Mobile App, loaded on a minimum defined number of devices and execute performance of a 'usability validation test'
- Customer Service Terminal, temporary set up at each Agency facility, outside of normal office hours
- Vehicle prototype, on either out of service or new buses not yet commissioned
- Vending Machine prototype, on a select station outside of high impact commute hours
- Wayside Validator prototype, on a lower impact platform and outside of high impact commute hours

INIT will work collaboratively with the Agencies to develop a Pilot Test Plan that accomplishes the needs of system testing in an installed basis within the chosen transition approach. Ultimately, the timing and agreed approach for the Transition Plan will govern how specifically the Pilot Test can occur and at what pace full system installation will need to undertake.

It is noted that following completion of the SIT and prior to the completion of the Pilot Test the system will enter a settling in period. During this time, INIT can proceed with the fleetwide system installation and the Agencies can perform their own ad hoc tests. However, in this same time frame, to achieve the transition plan (using the back-office parallel approach) as currently understood, INIT must become the system of record prior to the full fleet installation.

If INIT is not the system of record and system-wide installations are required, the INIT supplied equipment would not be able to 'speak' to the legacy back-office. As such, installations would be required in a side-by-side state and decommissioning of legacy equipment could not occur until the start of the SAT. Further, in this scenario the INIT installation would not be able to

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repurpose the existing installation materials driving up both cost and schedule as well as a potential unforeseen impact to ORCA riders.

Second to that, if the Agencies are performing ad hoc tests, the scope and data for the tests needs to be carefully coordinated and planned. While not intending to limit the Agencies test capability, if the system is not 'live' for ngORCA, similar to the previous integration phase, the same production-based constraints apply and need to be considered in the planning of such tests due to the reconciliation or settling action required.

While it may be that INIT's understanding of the test and Transition Plan are not in full alignment with the Agencies, it is important that in the absence of additional clarification, that INIT make clear the constraints we are seeing currently based on what we envision the system transition to look like for Agency consideration.

That understood, based on INIT's understanding of the Agencies preferred transition approach and the way in which the data should be handled we propose that the following occur:

- Pilot Test is approved
- During the Pilot INIT provides validation that it can reconcile the ngORCA back-office in preparation for the transition with that of the legacy ORCA system
- INIT becomes the system of record and all processing is now managed and handled by the INIT provided system (ngORCA is realized)
- System Settling In starts
- INIT and the Agencies begin the system-wide installation efforts
- The Agencies perform ad-hoc testing as desired

Once 80% or so of the system equipment has been installed and the system has been able to validate performance against the metrics provided for acceptance testing, the Integration Testing phase should be concluded and approved.

Notably, the percentage of installation completion should likely include full installation of all Customer Service Terminals and Vending Machines; however, since King Country Metro and Community Transit are performing their own installations, INIT cannot control the schedules of completion for both their onboard and wayside validation equipment. Conversely, both Agencies could complete their installation work in advance of INIT and as such, 100% of equipment is factored.

Currently, the possible variances are not possible to be determined at this point but if there are challenges to system-wide installations that INIT cannot control or impact, consideration to start the acceptance test should be reasonably undertaken.

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2.6.2.4.6 System Acceptance Testing

The System Acceptance Testing test phase includes the following:

- System Acceptance Test
- Final System Acceptance

As noted in the previous section, INIT proposes some modification or detailed clarification of the steps meant to occur when moving from the Integration Testing phase to the Acceptance Testing phase. We believe a solid plan and approach can be determined and executed but some detailed discussing during the design review is warranted.

Specifically, as noted, prior to the fleet-wide installation efforts planned as part of FIT, INIT will need to become the system of record. However, the activity where INIT becomes the system of record is marked as the start of the System Acceptance Test (SAT).

Irrespective of a test 'phase', once INIT becomes the system record as noted previously, this initiates a series of logical next steps. In consideration of the test phases, this can conceivably initiate the SAT; however, neither INIT nor the system can validate adherence to the required performance metrics. With that, in consideration there are some variables that need to be factored so that INIT may provide a clear test plan for each phase and provide for Agency review and approval.

Irrespective of the above stated points, INIT understand that in general, the SAT will be performed in the production environment with all components, subsystems, and third-party networks completely functional, operational, online, and in service; fundamentally the ngORCA system must be live.

As with each test phase, INIT will provide the requisite procedures and also test reports. In this case, the report will validate the test criteria and that it was met and the test passed based on the stated preconditions or metrics.

2.6.2.4.6.1 System Acceptance Test

The System Acceptance Test (SAT) is intended to validate the performance of the fully installed system as required for project completion. While intended to be complete as part of the final integration test phases, any existing functionality requiring deployment must be in place and the requisite tests approved, prior to the actual start of the SAT. To be clear, the system could be live and fully functional by ORCA riders and still not meet the criteria required to start the SAT.

Since the SAT serves to verify that the System and all provided equipment meet the performance requirements for project completion. INIT understands we are responsible for

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supporting all elements of SAT and as part of that will meet regularly with the Agencies to discuss progress, outcomes, and status of the test(s).

INIT's submission of the SAT Inspection and Test Plan will detail the system components, tests and data collection, and metrics intended to be validated as part of performance criteria. During the SAT, and as validated by the supplied test reports, the metrics must be adhered to; meeting or exceeding not less than the stated minimal performance standards. In the event INIT's performance of the SAT is sub-standard, as with the previous test phases, remedial action will take place and provided as part of the in-scope requirements to the project.

In the event INIT is unable to meet a performance metric during SAT, it is understood that the SAT duration may be extended until all performance requirements are met. The performance requirements and test durations will be those mutually agreed-upon with the Agencies and made part of the Inspection and Test Plan.

2.6.2.4.6.2 Final System Acceptance

Achievement of Final System Acceptance (FSA) tends to comprise a combination of factors including initiation of the start of warranty if not done so already. Specific to the test phase, FSA cannot be achieved without signed written agreement the SAT has been carried out successfully and approved by the Agencies.

While the SAT is often the primary driver of FSA due to the rigorous nature and system-wide validation that is undertaken as part of the test, there are often varying other factors that exist such as: sign off that all system equipment in scope to INIT has been installed, tested, and operational, equipment or spares and fare media have been delivered in accordance to the agreements set forth, training has been validated as delivered and approved, demonstration of the Disaster Recovery Plan has in fact been performed, validated, and approved, as well as any other system component delivery has been made in full.

INIT's creation and use of a Requirements Traceability Matrix (RTM), mapping the requirements through the design, build, and test phases, has been a useful tool in helping to organize and sign-off system acceptance.

In addition to the system validation points noted above, there are additional FSA-based activities that need to be undertaken to ensure full compliance with the overall project deliverables. Activities include but may not be limited to INIT's compliance against all contractual requirements (technical or otherwise), the required deposits to escrow have been made, and resolution or agreement to resolve for any open or outstanding issues to be made part of a software release have been agreed. It is important, with respect to the final point

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regarding software deliveries, that FSA completion not be unduly withheld for issues that are low priority or not otherwise made part of the SOW.

Following INIT's provision of validation that the above stated items have been met, INIT shall then submit for Agency approval a formal request for project completion or FSA. Upon completion, the Agencies will provide the associated certificate of completion.

2.6.2.5 Training

As an experienced integrator of Electronic Fare Collection and Computer Aided Dispatch systems for the transit industry, INIT understands the importance of training to the overall success of the project. Proper training allows ORCA staff and other stakeholders to fully understand the features of the new system, it's current benefits and how, as the agencies offer to the riding public increased operational efficiencies, the system will continue to provide increased rider convenience and satisfaction.

2.6.2.5.1 General Requirements

INIT will provide a comprehensive training plan and subsequent program that meets the training needs of the agencies. The training plan will emphasize modern, modular training delivered across multiple environments. Our plan will define each course including: instructor credentials, course methodology and approach, class content, training aides, and evaluation criteria for the attendees.

The training program is designed with consideration of multiple and distinct target audiences, learning methods, and presentation techniques. Working with the ORCA team and key stakeholders from each member Agency, INIT will facilitate a series of specialized stakeholder interviews and coordination meetings to discuss critical business processes related to planning, operations and maintenance of tariff / fare collection activities. The business processes that emerge will be folded into the training materials to reflect end-to-end procedures that span multiple organizational units, member agencies, software/information system, operations and maintenance groups. We have found, in developing training for payment systems, that a business process may apply to more than one software application, and that a software application may be used by different organizational units within a single organization. Our training method is business process oriented to target role-based training.

Our approach ensures that the transitions between organizations and applications are accounted for including manual and hand-off requirements. Incorporating the end-to-end business processes in the training provides a clear and coherent view of each training participant's role within the ORCA program.

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Figure 1-8: Modern, Modular Training delivered across Multiple Environments

The diagram above is intended to represent INIT's capabilities to provide quality training using multiple delivery methods including classroom instruction, written training manuals, Web based e-learning and Webinars. The selected method of instruction depends on the audience, logistics, customers preferences and other customer driven requirements.

INIT's approach to creating a comprehensive training program includes a combination of app-specific content (e.g. Validator Operations), functional role (Customer Service), and on-the-job or similar small demo or walk-throughs. At the start, we will approach the content and functional role training first; from there, we customize the method of delivery according to need. Taking this approach, we can ensure trainees have a solid understanding of the technology, equipment, and functions they will interface with or need to undertake as part of their job or role within the ngORCA system and its operation or service.

While each Agency is unique, as well as their roles and responsibilities, for the purposes of understanding INITs methodology for training, we have outlined a summary level of roles of a system similar to what ngORCA will entail. Taking this approach allows us to guide the understanding of the audience a little further, especially when reviewing the courses in the section below:

- **Vehicle Operator** – persons that will operate on-board equipment such as the validator and DDU; they will need knowledge of these specific components and may find benefit from seeing and learning about the Web Portal and Mobile App
- **Equipment Maintenance** – persons that will be responsible for the repair, maintenance, installation, decommissioning, monitoring activities of equipment; they will need

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knowledge of these processes and may find benefit in early participation in design discussions and also in learning about the vehicle operator targeted learning

- **Customer Service / Mail Center / Call Center** – groups of staff that provide direct customer service engagement whether in person or through push/pull actions (e.g. fulfillment at the Mail Center or phone support via the Call Center); they will need specific knowledge of the different applications (CRM, CST, Web Portal, Mobile Apps) but could also benefit from an understanding of the equipment functions
- **Finance** – persons responsible for the accounting and processing of system revenue, apportionment, settlement, and the various rules and integrations associated; key account-based functionality is critical, but an understanding of other applications may be beneficial as well (e.g. Web Portal)
- **Institutional Administrator** – persons that manage the large business, school, and/or social services accounts that provide transit benefits or other ridership opportunities for their constituents; integral knowledge of the CRM and the Institutional portion of the Web Portal are key while a common understanding similar to that of a customer service resource would also be valuable
- **System Administrator, Operations** – back office technical staff responsible for the overall system health and performance and will possess and integral knowledge of the overall system architecture and configuration parameters; commonly engaged in the software deployments and testing a core knowledge of the specific system components is important to supplement their knowledge of the system
- **System Administrator, IT / Network / Database** – back office technical staff responsible for the overall system architecture, network infrastructure and connections, and database administration and health including uptime and disaster recovery; a detailed knowledge of the app installation and configuration is central to their role while a complimentary understanding of the application function is also very helpful
- **Integration Support / API Administrator** – during the project phase INIT will govern this role more dominantly; however, because an account-based system relies heavily on integration, a resource with in-depth knowledge of the APIs and integrations will prove valuable, especially in the event of future integration endeavors or opportunities
- **Fare Inspection** – persons responsible for validating fares region-wide will need a detailed understanding of the Fare Inspection App and the individual Agency policies that result in action thereafter; a supplementary understanding of fare payment methods and the means by which value and products can be acquired will also be helpful
- **Promotion and Marketing** – persons that will be responsible for the brand, awareness campaigns, and/or other advertising opportunities; while a common understanding of the customer interface points is important, a detailed knowledge is not inherently required.

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However, if persons in this group will be responsible for managing Web Portal content via the in-app CMS (Umbraco), a detailed understanding of the site and the CMS software is important. Similarly, they should have a detailed understanding of the Mobile App to ensure the common UI/UX interface efforts undertaken in design are maintained through operations

INIT suggests that the delivery of training starts with the classroom sessions for the most part. For those that may have difficulty attending, these sessions can be interactive online via a web-conferencing set up. For the external hardware, such as the wayside or onboard equipment, it will likely be proposed in two portions where the operator training is in a classroom while the maintenance and repair on-site. In taking this approach we can optimize the content and delivery in a some-what controlled environment.

As trainees and teams have a more comprehensive understanding of the ngORCA system and Agency trainers attending the train-the-trainer courses have had the opportunity to deliver their Agency-specific courses, we will then take the next steps of soliciting and collating feedback. Through this approach we aim to identify the 'what was missed' items or gap analysis. In some cases, it may mean only that a refresher of the material is needed. As we gather this feedback INIT will then work with the Agencies on defining the next iteration of training which may entail supplemental app-specific training, expansion of a use-case to include some additional information that may have been missed, or a hands-on walk through. While the need to more clearly identify the method, generally speaking these supplemental elements will be supported by an onsite system engineer from INIT or via e-learning as part of a web-conference.

When the transition and cutover to the live ngORCA system is nearer and the training need more sporadic, it is important to note that the INIT staff of engineers are on-site and available for questions, clarifications, or on-the-job training as well. These efforts may be less formal; however, INIT will continue to be a presence to ensure successful implementation of the system and knowledge transfer for successful Agency operation.

The design and development of the training program will be comprised of several INIT team members although the Training Plan itself will be led [redacted] (an INIT subcontractor brought on specifically for ngORCA as a Business Analyst) and [redacted] INIT Technical Trainer and documentation specialist) specifically.

Utilizing her extensive background in facilitating meetings and analyzing business process needs [redacted] will head the requirements gathering, needs analysis discussions, and interviews with the Agencies. [redacted] an added layer of organizational and technical expertise having provided business analysis that is incorporated in planning, manuals or training materials for account-based payment systems (including financial systems, cash collection, operations /

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maintenance for bus, light and commuter rail, multiagency roles and responsibility, and cross organizational operations / maintenance).

With more than 20 years of combined experience in technical training and writing as well as an intricate knowledge and understanding of INIT systems, software and hardware, [redacted] will compliment [redacted] findings and apply the appropriate INIT-specific knowledge, source materials, lessons-learned, and be able to navigate the INIT environments and processes.

Combined both Ms. Okunieff and Mr. Stone will identify with the INIT Project Team the appropriate resources necessary for course delivery. Instructors may include but are not limited to both [redacted] ne, [redacted]. Additionally, it may be determined for INIT to source additional technical expertise to support some of the in-depth and extensive back office systems and administration courses.

2.6.2.5.2 Training Plan

The training program is initiated by INIT as part of the first design review following notice to proceed. This first draft of the Training Plan will outline INIT's suggested approach and methodology specific to ngORCA. Based on our experiences and in consideration of the specific technology and systems that will comprise ngORCA, we will propose the courses, materials, equipment and so forth as well as timing for when courses could occur. Our approach overall is to provide a training program that is solution specific and meets the needs of the Agencies.

As soon as we are able or as part of the first design Review (whichever comes first) INIT will begin to coordinate a series of meetings with Agency training SMEs or designees to discuss further the specific and unique needs of ngORCA. These discussions will occur collectively to ensure the needs of the region are clear as well as individually to cross-validate the unique or specific needs of the associated Agencies individually. From these discussions INIT will refine the Training Plan in an iterative manner until a robust, comprehensive program has been established with clear and concise deliverables.

As we initiate these first steps, INIT will look to address the broader ngORCA (regional) needs which we anticipate to generally speak to the collective group and core system elements. Once we have these requirements clearly outlined and established we will then take further steps to engage with each Agency individually and perform a gap analysis. In so doing we aim to ensure we have a foundational understanding of each Agency's unique needs so that we can validate with them the courses that have been established that will meet their needs and better tailor our

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delivery of the material so as to fill any gaps and/or ensure heightened concerns are fully addressed. In some instances, it may be more fluid to adapt a regional training course to include some additional detail to address the needs of an Agency whereas other instances may require other alternatives (e.g. on-the-job training after core training has been delivered for a more hands-on experience).

In these early stages INIT will suggest a rough timeline for when we believe the training should occur; however, we will not specifically detail the individual courses until they have been defined and agreed with the Agencies. We take this high-level approach at the start to both reduce confusion as well as ensure the Agencies are clear that we will find a time and date format that meets their specific business need(s). Once this information is available and agreed, the schedule as well as the plan will be updated. Generally speaking, we find that the Training Plan is best served as an evolving or living document.

INIT's training plan will incorporate an approach to distribute training to the Agencies directly from our experienced staff and from our major subcontractors. The training plan will meet the following core objectives:

- Training shall include course development, instructors, and all handouts, materials and classroom aids required to conduct the training
- Practical training on equipment shall occupy a significant portion of all training classes
- The training presentations and material shall be in English
- Instruction shall cover equipment familiarization and systems operation. The minimum training is that which is necessary to bring those employees designated to the level of proficiency required for performing their respective duties including:
    - Familiarization with the general system design concepts and features
    - Hands-on training using the actual system or simulators
    - The ability to recognize any transit specific alerts designed into the system
    - Thorough and clear demonstration of the use and operation of the on-board equipment
- Train-the-trainer Instruction shall prepare agency trainers for delivery of classroom and hands-on training, as required, using the relevant hardware and software
- Deliver instruction on the setup, operation, and configuration of the training equipment as required
- Ensure through testing or demonstration, that agency trainers and trainees have ability to perform each task associated with all system functionality. This is to be an objective for each task learned within each class

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The INIT Training System provides trainers and trainees with all instructional material and equipment necessary to conduct training within their organization.

2.6.2.5.3 Training Materials and Equipment

To appropriately facilitate and complement the training course being delivered, INIT will supply the Agencies with a series of course materials as well as the requisite equipment and software to facilitate a hands-on experience during the training course. Both the material and equipment will be designed or provided with the appropriate level of Agency customization.

For example, to support the courses listed in the section below, INIT would draft and create the following operational manuals:

- Customer Account Management Mobile App Operations Manual
- ORCA Web Portal Operations Manual
- Customer Relationship Management (CRM) Operation Manual
- CRM Salesforce Integration Manual
- Point of Sale (POS) Operation Manual
- Customer Service Workstation (CSW) Operations Manual
- Finance - Sage Accounting Interface Manual
- Finance - INIT Accounting System Integration Manual
- Finance - Revenue Management Operation Manual
- Finance - VASA/Reports Operation Manual
- Fare Inspection Operation Manual
- Validator Operations Manual
- Driver Display (DDU) Operations Manual
- Ticket Vending Machine (TVM) Operations Manual
- Vehicle Equipment Maintenance and Repair Manual
- Wayside Equipment Maintenance Manual - Validator
- Wayside Equipment Maintenance Manual - TVM
- Tariff Management Operation Manual
- Master Data Management (MDM) Operation Manual
- Admin Tool Operation Manual
- Device Data Manager (DDM) Operation Manual
- Parameter Management Operation Manual
- Online Crypto Manager (OCM) Operation Manual

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- Form Designer Operation Manual
- Asset Manager Operation Manual
- Card Inventory Operation Manual
- SAIT - Back Office Architecture Manual
- SAIT - Network Architecture Manual
- SAIT - Database Design and Operation Manual
- SAIT - CRM App Manual
- SAIT - Customer Mobile App Manual
- SAIT - Web Portal Manual
- SAIT - Fare Inspection App Manual
- SAIT - Back Office Apps Manual

In addition to the manuals noted above, each classroom course will typically include a PowerPoint presentation as the means to navigate the material being addressed. The slides below are examples from a typical presentation during a classroom style training course (entire course not shown):

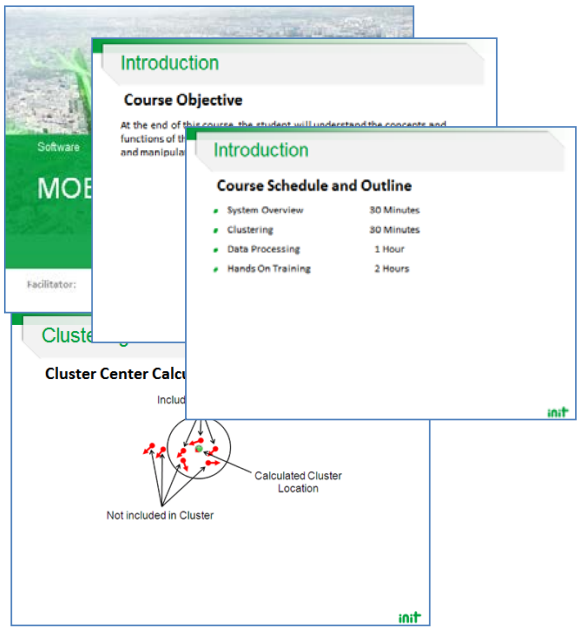

Figure 1-9: Sample User Training Materials

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To further facilitate a classroom session, INIT will also provide guides for both the instructors and trainees. In some instances, quick reference guides will be provided as well but depends on the topic of the course and the usefulness a quick reference guide would provide.

Training equipment can either be utilized from other sources and returned or purchased solely for the needs of the training program. To deliver the courses as outlined below, the training in the classrooms will need to be equipped with computers capable of being loaded with the applicable software and peripherals, mobile devices such as tablets and smartphones, applicable fare inspection device or a smartphone capable of operating the fare inspection app, and also the various ngORCA system equipment such as smartcards, the validator, DDU, and vending machine. Additionally, each onboard set up will need to be configured with a Bus-in-a-Box (BiB) to support Agency integrations between the validator and the DDU. However, due to the size and general footprint of the vending machine, the training itself can vary in its methods (e.g. onsite at a vending machine in the field or in the regional test facility).

To provide a brief outline and description of the various materials, including documentation and equipment, please note the table below.

Table 1-3: Instructional Materials Included

Training Materials	Description
Instructor Guides	The Instructor guide leads an instructor though a training class providing recommended verbiage and when to show each PowerPoint slide.
Power Point Presentations	The power point document is the primary presentation material for instruction. This document is matched directly to the Instructor guides.
Trainee Guides	The trainee guides leads the trainee or student (core user) through the training class. This guide shall be used as a compliment to hands-on and classroom training provided by instructor.
Hands On Training	Where applicable, INIT shall provide hands-on training on actual equipment or through the use of training equipment to simulate the actual behavior of the equipment for day-to-day operations.
Instructor Evaluation Sheet	INIT shall provide trainer evaluation comment sheet to assess the training course and preparedness of training instructor.
Operation Manuals	INIT shall provide copies of all user and training manuals as they pertain to the specific training class. One

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Training Materials	Description
	complete manual set per student shall be provided per course.
Quick Reference Guides	Where applicable, INIT shall provide quick reference guides for each training course. INIT intends to provide guides for specific areas of instruction related to specific user operations. INIT shall provide the quick reference guides for the following groups of users: Operators Ticket Inspectors Customer Service to include the Customer Mobile app Vehicle Maintenance VM Maintenance

2.6.2.5.4 Training Courses

As described above, INIT will undertake a multi-step process with the Agencies to design and draft the Training Plan; to define the materials and equipment needed, identify the training staff, locations(s), courses, and schedule. In effort to provide the Agencies with additional insight and to illustrate one example as to how INIT initiates and plans training, below is an outline of how we might approach 'Customer Service'.

Step One: **First draft of Training Plan**

The first draft of the training plan will detail our two-prong approach: first, suggest app-specific training for all Customer Service staff and second, suggest a manager-level of train-the-trainer functions course.

App-Specific Customer Service Courses

The app-specific courses will give trainees the hands-on experience of each system touch point (hardware and software) for their role; at the moment these courses would be the CST, CRM, and then a combined course of Web Portal and Customer Mobile App. This course is not designed for use cases or 'what if' type scenarios but rather to teach trainees the specific functions and actions of the software.

These are courses geared primarily for Customer Service staff members; however, they can also be helpful to marketing or promotional staff as

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well as system administrators. Irrespective of audience, these courses will be a pre-requisite for the function-specific course described below.

The updates to the Training Plan for the courses as noted above would then include the following detail:

- **Audience**: Customer Service Representatives and Customer Service Managers
- **Purpose**: provide customer service staff the necessary knowledge and understanding of the software, applications, and equipment they will use or that customers will encounter
- **Method**: Train-the-Trainer
- **Setting**: Classroom
- **Equipment**: at least one computer and mobile device per 2 persons, internet connection, access to apps (pre-loaded)
- **Materials**: Operations Manual, Instructor Guide, Student Guide, and a PowerPoint Presentation
- **Size**: 10-12 participant maximums

Function-Specific Customer Service Manager Course

Once users understand the various applications associated with the customer service functions, the next step is understanding at a macro level how a CSR can perform the functions of their job holistically.

This course will be designed with the Agencies and their input specifically; while INIT will endeavor to provide a broad range of use-cases for this course it is important to note that different Agencies could have some unique treatment of specific steps based on their standard operating procedures. Because of that, and the myriad of possible use case samples, we propose this course as a train-the-trainer and/or Customer Service Manager level training. Using this course as a foundation for managers can then allow Agencies to customize further either their material or course as needed to further address the nuances of their Agency or constituency.

For example, if a patron has lost their card and come into an Agency ticketing office for support it will be important that the Customer Service Representative understand what the patron may have done or experienced on the Web Portal or Mobile App and then will need to know

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the necessary actions to be performed on the CST or within the CRM. At an Agency customization level, they may want to add some additional points or steps to compliment that.

The updates to the Training Plan for the courses as noted above would then include the following detail:

- **Audience**: Customer Service Managers or Trainers
- **Purpose**: provide managers with the knowledge and understanding of how the applications are used in day-to-day operation as well as the skills and information necessary for them to train and manage their staff
- **Prerequisites**: CRM, CST, Websites, Mobile
- **Optional**: equipment specific courses (e.g. Validator Operations), System Overview
- **Method**: Train-the-Trainer
- **Setting**: Classroom
- **Equipment**: at least one computer and mobile device per 2 persons, internet connection, access to apps (pre-loaded)
- **Materials**: Process Guide, Instructor Guide, and a PowerPoint Presentation
- **Size**: 5-8 participant maximums

Step Two: **Requirements / Needs Analysis and Information Gathering**

Once the first draft of the Training Plan has been reviewed and evaluated by the Agencies, INIT would then look to engage in a series of meetings with the training-specific SMEs. During these discussions we would want to review the Agency feedback and discuss in an open forum, identify misses and revisions needed, common points of interest or concern, and so on. During these discussions INIT would hope to obtain the document-specific feedback and also understand more information such as:

- How many Agencies need this training / have a Customer Service office and/or staff
- How many Customer Service offices there are, locations
- How many Agency staff per office and in total
- Describe the role of the CSR in the context of your Agency

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- Describe the role of the CRS in the context of ORCA for your Agency

Step Three: Materials and Equipment Provisioning

To facilitate the efforts associated with the preparation and delivery of these courses, we would propose the following equipment and materials be utilized:

- Operations Manual (app-specific) to describe the functions of the application
- Presentation for trainees to follow along with the course content
- Instructor Guide to provide the trainer with a flow of the course as well as key points to address or discuss
- Trainee Guide to provide the trainee with a flow of the course content and space for notes or questions
- Process Guide to describe functional examples and use cases or 'how to' scenarios for actions that require the use of more than one application and where applicable clear understanding of where the INIT-provided system ends and other Agency interfaces or procedures begin
- CST environment, mobile devices such as a tablet or smartphone, computer with the CRM software (if different from the CST environment)

In light of the above process and with our current understanding of the ngORCA system, below is a table of courses we believe are best suited to meet the needs of the Agencies. In this table we have organized it by target audience, provided the anticipated durations, identified a secondary audience, proposed quantity to be delivered, and what methods they should be delivered in.

Table 1-4: Training Courses

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2.6.2.5.5 Training Course Materials

2.6.2.6 Manuals

INIT will provide instruction manuals that describe and illustrate in detail how to manage, operate, and maintain the next gen ORCA System delivered under the contract. The manuals will include detailed documentation for all equipment, systems and software and will be submitted in hard copy and electronic formats as defined during design review. Sample manuals can be found on each USB flash drive that are submitted with each proposal copy and originals.

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Most documentation will be provided in Microsoft Word while supplementary materials will also use such formats as Microsoft Excel, Visio, PowerPoint, and Adobe Acrobat. If sensitive information is included, INIT will indicate as such; however, no data or information will be encrypted. The file format will depend somewhat on the type of document; below is a general breakdown with a macro-view:

- Manuals and illustrated parts catalog(s) (PDF and Microsoft Word)
- Electrical Computer-Aided Design (CAD) (PDF)
- Schematic drawing(s) (PDF)

Some documentation may include Visio diagrams as imbedded images. The native files will be provided to the Agencies as either an exhibit or separate file.

2.6.2.6.1 Manual Content & Format

INIT understands the importance of well written precise documentation written in terms that are meaningful to users. Care will be taken to provide easily understood explanations and step-by-step instructions with cross-references to all drawings, diagrams and photographs.

The schedule and submission of the manuals as described below will be in accordance with the delivery requirements defined in the contract. Revision control of each manual will be recorded on a control list in the front of each document. The list will be updated with each revision and will show the date of each revision and the page reference. INIT will maintain all updates or revisions in the document control lists for each document. Prior to release to the Agencies, INIT will ensure each document has been peer reviewed by an appropriate technical level resource or professional technical write to ensure the accuracy, completeness, and thoroughness of the content is obtained and relevant for Agency review and consideration.

Each manual provided will include a combination of tools to best communicate and where needed educate, the reader in all matters related to the material such that the Agencies will be able to operate, maintain, troubleshoot, diagnose, and perform repair of the system and its components elements. Such tools may include but are not limited to:

- Narrative text and descriptions
- Step-by-step procedures
- Illustrations, drawings, diagrams, images, or schematics
- Parts lists
- Troubleshooting guides
- Repair and replacement procedures

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In many cases a document will use a combination of the above to provide the best possible explanation or instruction for the reader. Where this occurs, care will be taken to ensure cross-references are provided.

While training courses will use the operator and maintenance manuals as a key source of education, supplemental materials specific for training such as instructor guides, student workbooks, presentations, or quick reference guides will be separate. Where applicable or in support of the readers understanding, references and cross-references will be provided.

The manuals will be concise and complete as possible ensuring that information gathered during installation and acceptance testing, and throughout the warranty and Software Maintenance Agreement (SMA) terms, will be incorporated into the manuals to be submitted to the Agencies.

As the different phases of the project continue, it is likely that revisions and other adjustment may be required of the documentation to reflect changes in or clarification of the actual implementation. In consideration of such circumstances, the information gathered from system installation activities, System Acceptance Testing, and the Warranty Period will be incorporated as needed to ensure appropriate reflection of the system.

2.6.2.6.2 Required Manuals

The system manuals that INIT will provide will be organized initially into high level categories in effort to guide its intention and/or user or audience. Those categories are: Functional Operation and User, Repair and Maintenance, Parts and Component Catalog(s), Special Tools, and Original Equipment Manufacturer (OEM).

Functional Operation and User Manuals (Operations)

Operation manuals are written with the intent to provide the reader clear and concise information on the form, function, and purpose of the given system component. The general outcome of each manual will be such that the reader has a core understanding of the subject and is able to use it for the general purposes of their role. Collectively, the operation manuals that INIT provides will ensure a complete understanding of:

- System equipment and associated peripherals
- Location, function, and operations of all controls and indicators
- Setup instructions, login, and shutdown procedures
- Troubleshooting, diagnostics, and isolation for the identification and repair of faults
- List of user messages, errors and descriptions

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Operations manuals required for the ngORCA system include the equipment, systems, and integrations provided below.

Equipment:

- Onboard Validator
- Onboard Driver Display Unit
- Wayside Validator
- Vending Machine
- Customer Service Terminal and associated peripherals
- Back Office Hardware

Equipment Software / Applications:

- Validator Operations
- Driver Display Unit Operations
- Vending Machine Operations
- Fare Inspection and Validation App Operations
- Customer Mobile Account Management App Operations
- Web Portal and CMS Operations
- Customer Service Terminal Operations
- Customer Relationship Management Operation
- Financial Management System Operation and Sage Integration

The detailed operating instructions and procedures on the ngORCA System will be provided to the Agencies' System Administrators and IT personnel. These groups will be responsible for the operation and maintenance of the back office and its applications and system components.

All documentation provided will include functional and technical information relevant to the target audience ensuring the material is meaningful to the user. Each application program and its use will be explained along with step by step procedures detailing the configuration and parameter differences and the associated impact, if any, when they are changed or modified. The following operations manuals will be provided for the back-office systems:

- System Administration and Configuration
  - Tariff Management
  - Master Data Management
  - Admin Tool

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- Device Data Manager
- Parameter Management
- Online Crypto Manager
- Revenue Management
- Form Designer
- Asset Manager
- Card Inventory Management
- Web Portal CMS
- Application Interface Integration
- VASA Report Access and Management

- System Administration and Architecture
  - Network Architecture
  - Database Design and Architecture
  - Customer Relationship Management Application
  - Fare Inspection, Mobile Application
  - Fare Validation, Mobile Application
  - Customer Management, Mobile Application
  - Web Portal Application

Repair, Maintenance, and Installation Manuals

Prior to the draft of an Installation Manual, INIT will first perform a Site Survey. During this activity, INIT will document locations, unique elements, or other consideration necessary for the guide. Site Surveys are typically done for each new location, vehicle type, or equipment type. As an example, if a Site Survey has already been completed and approved for bus type 1 and the Agencies later receive a new model of bus type 1, now bus type 1.1; INIT will visit that bus and verify the installation location information. If needed, a new document will be drafted.

Additionally, during a Site Survey INIT will detail information necessary to support the installation in its entirety and include information related to the site, access, or installation materials such as conduit, screws, etc.

It is important that no installations take place without Agency approval of the planned installation guide. Further, installation completed are in accordance with the approved guide. Ensuring 100% compliance will minimize inaccuracies when using the repair and maintenance manuals for troubleshooting or repair.

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The repair and maintenance manuals will be specific to the item of equipment installed at a location. Such items of equipment will include the onboard and wayside validators and driver displays, vending machines, customer service terminals, and back office servers and switches.

To ensure the Agencies are equipped with the necessary knowledge and reference material, each repair and maintenance manual will include:

- Troubleshooting guide providing errors and screens for common failures
- Common fault descriptions and best practices
- Unit swap instructions
- Preventative or periodic maintenance guidance

Where necessary the repair and maintenance manuals will expand detail on some functions and features of the equipment described in the Operations Manuals. The point and purpose is such that the user is able to become increasingly familiar with the micro detail necessary to perform the functions in their role. Such detail may include block diagrams or a list of error codes typical to a sub-component or assembly.

Each repair, maintenance, and/or installation guide will provide sufficient detail to ensure appropriate and accurate diagnosis down to the lowest level replaceable unit (LLRU). The LLRU is known by the Contract as a complete assembly provided by INIT or an OEM supplier for spare parts.

Repair and maintenance manuals required for ngORCA include the following system equipment and components:

- Onboard and Wayside Validator Repair and Maintenance
- Onboard Validator Installation Procedure
- Onboard Validator Decommissioning Procedure
- Wayside Validator Installation Procedure
- Wayside Validator Decommissioning Procedure
- Onboard Driver Display Unit Repair and Maintenance
- Onboard Driver Display Unit Installation Procedure
- Onboard Driver Display Unit Decommissioning Procedure
- Vending Machine Repair and Maintenance
- Vending Machine Installation Procedure
- Vending Machine Decommissioning Procedure
- Customer Service Terminal Repair and Maintenance

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- Customer Service Terminal Installation Procedure
- Customer Service Terminal Decommissioning Procedure

Back-office maintenance documents will include the system alerts, alarms, error, and so forth will be described along with the necessary troubleshooting and/or repair steps for recovery and reinstitution to typical operation. Furthermore, in the event a system restart or failure is required, the manuals will also provide sufficient information on the restart, reconfiguration, or other power-up tasks required. Additionally, the user will be instructed on the purposes and means for exporting data and log files, 'diagnostic data dumps', from the system. The documents to support maintenance of the back office are as follows:

- Software Maintenance
- Back Office Equipment and Systems Preventative Maintenance

As more fully detailed system backup and redundancy and disaster recovery design, the process for backing up and cutting over to the Disaster Recovery System will require support and knowledge from all parties. The System Administrator manuals will however, provide the detailed procedures and step by step instructions for such occurrences. The cutover may take different forms depending on the root cause or scale of the occurrence.

Parts and Component Catalog(s), Special Tools, and Original Equipment Manufacturer (OEM) Manuals

In support of the installed equipment, hardware, wiring, and applicable sub-assemblies, INIT will supply the Agencies with a parts and component catalog as well as a special tools catalog or list. Depending on the materials and sub or part document may be provided in compliment to the primary operations manual or cross-referenced (whichever is preferred by the Agencies).

In addition to the manuals noted above, INIT will also provide all available / complimentary documents which are in support of any OEM system component software, hardware, or integration. The format and structure will be determined as information or detail is available.

2.7 INIT's Proven Transition Methodology and Approach

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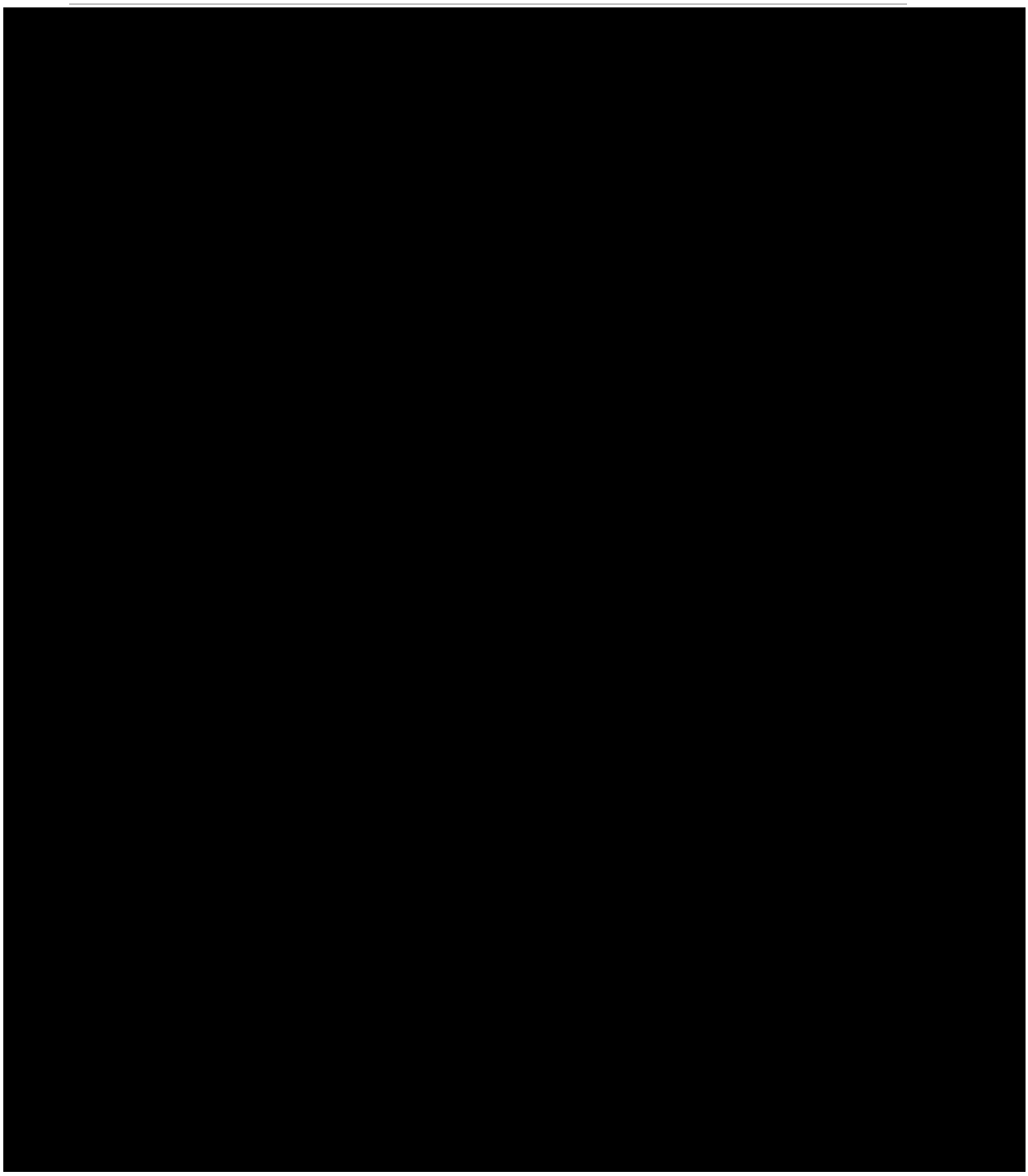

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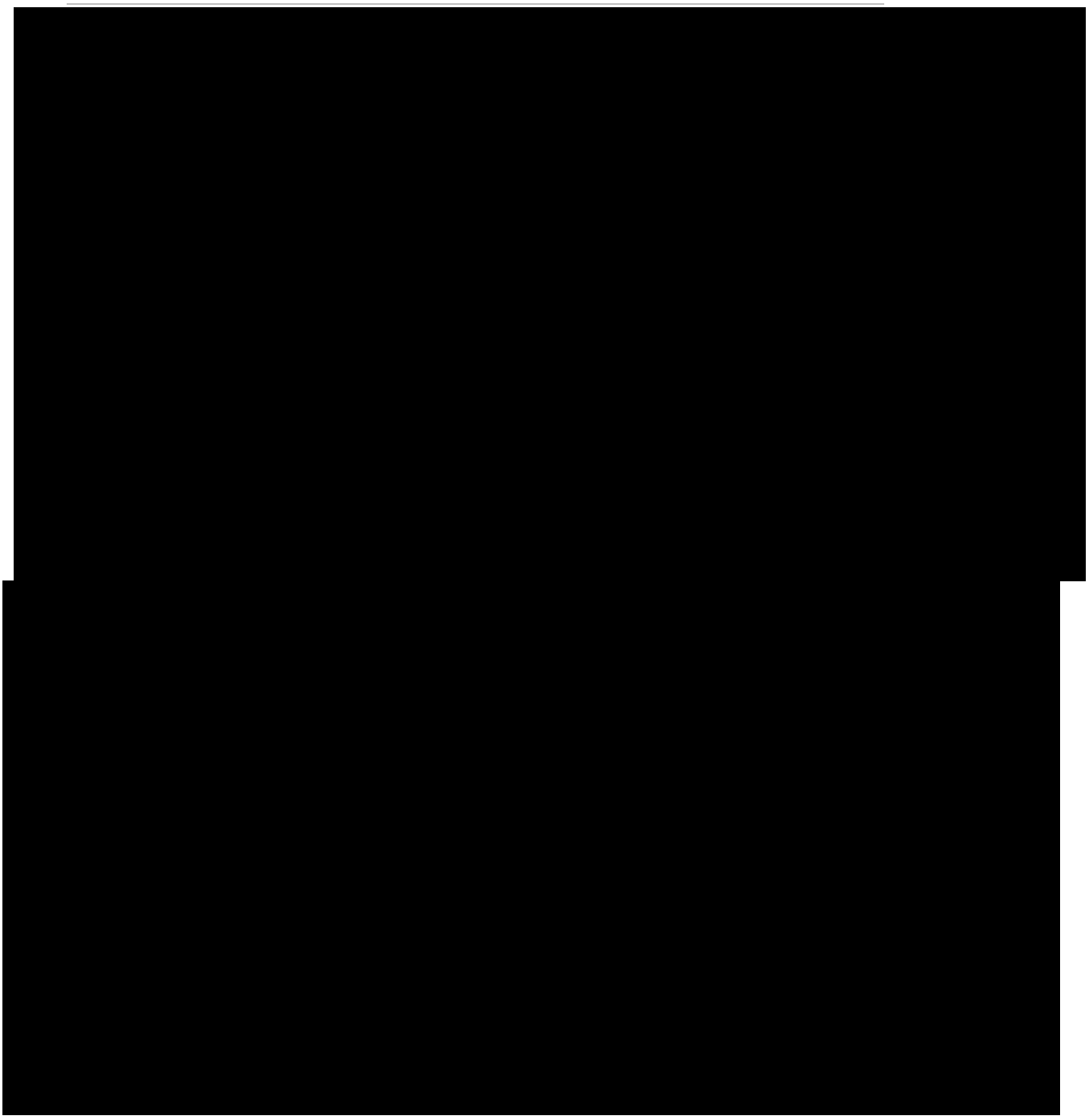

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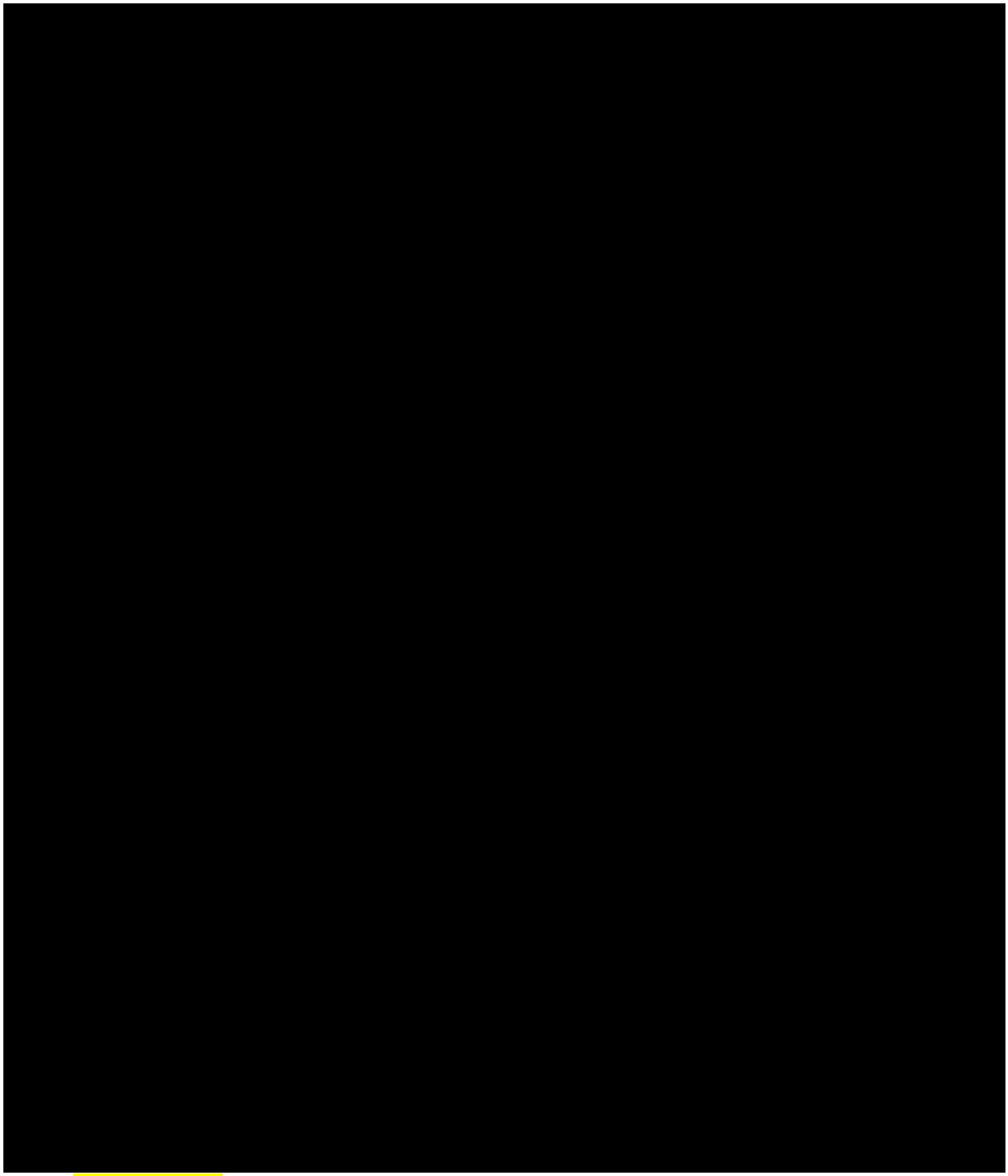

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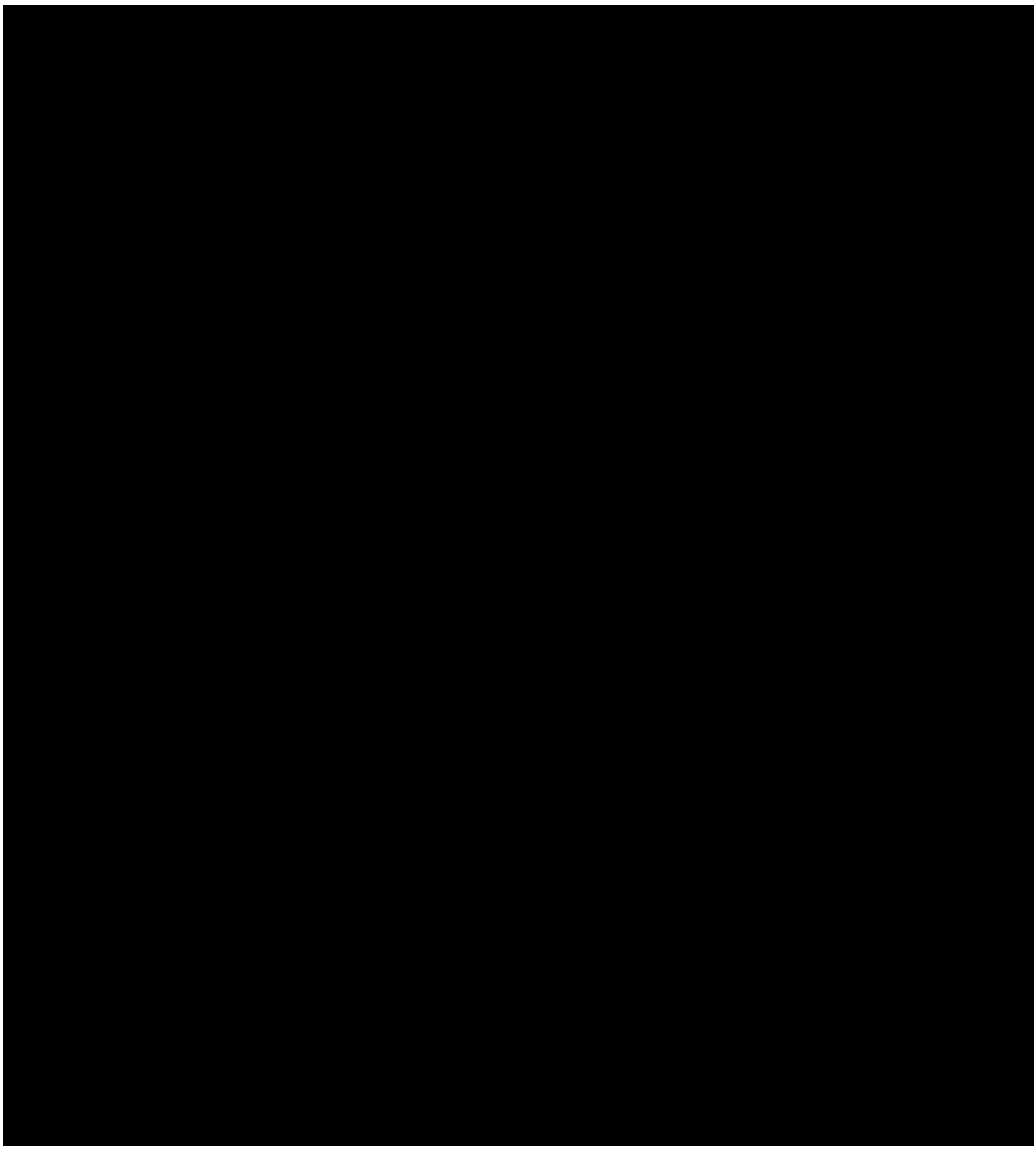

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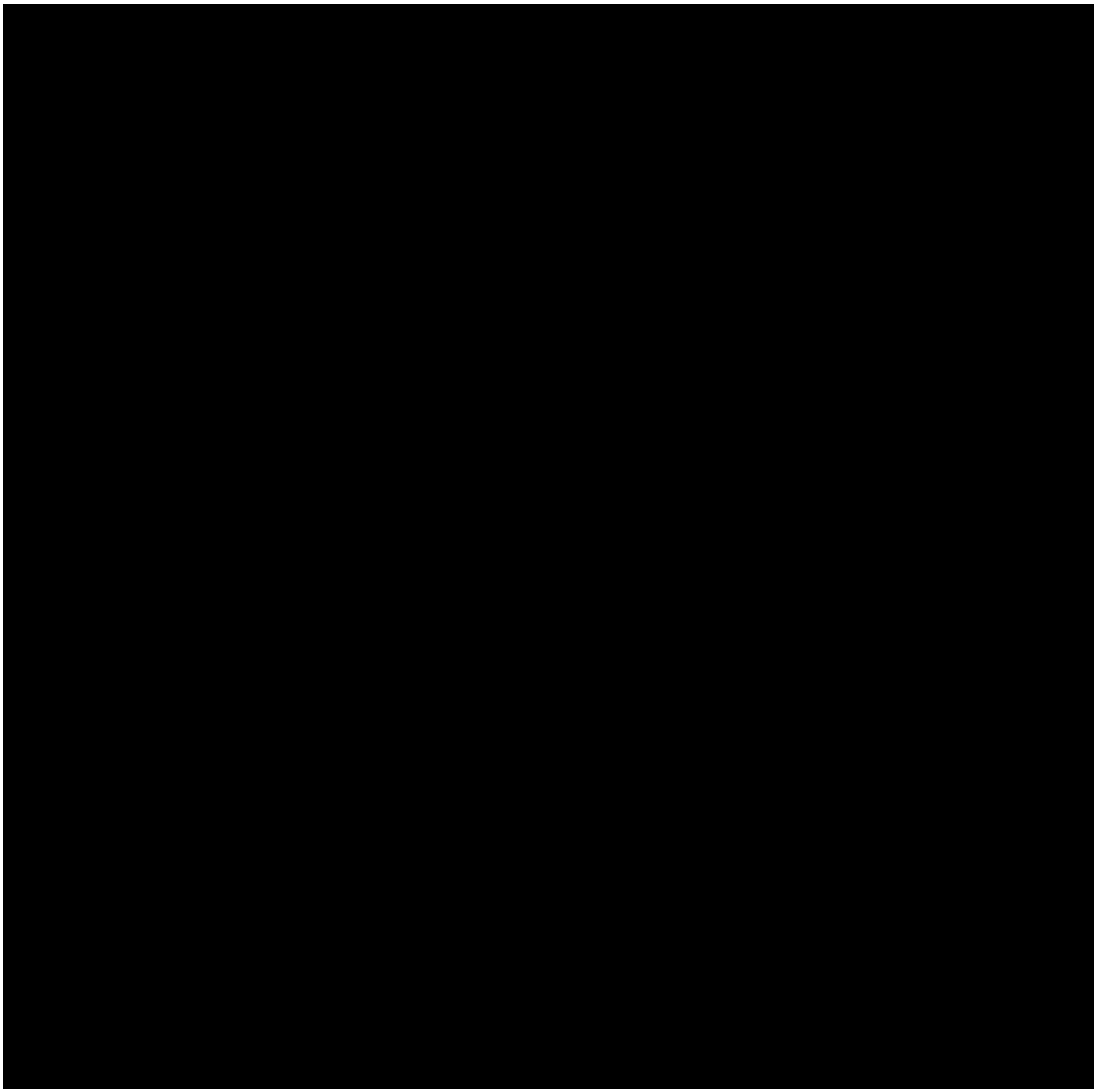

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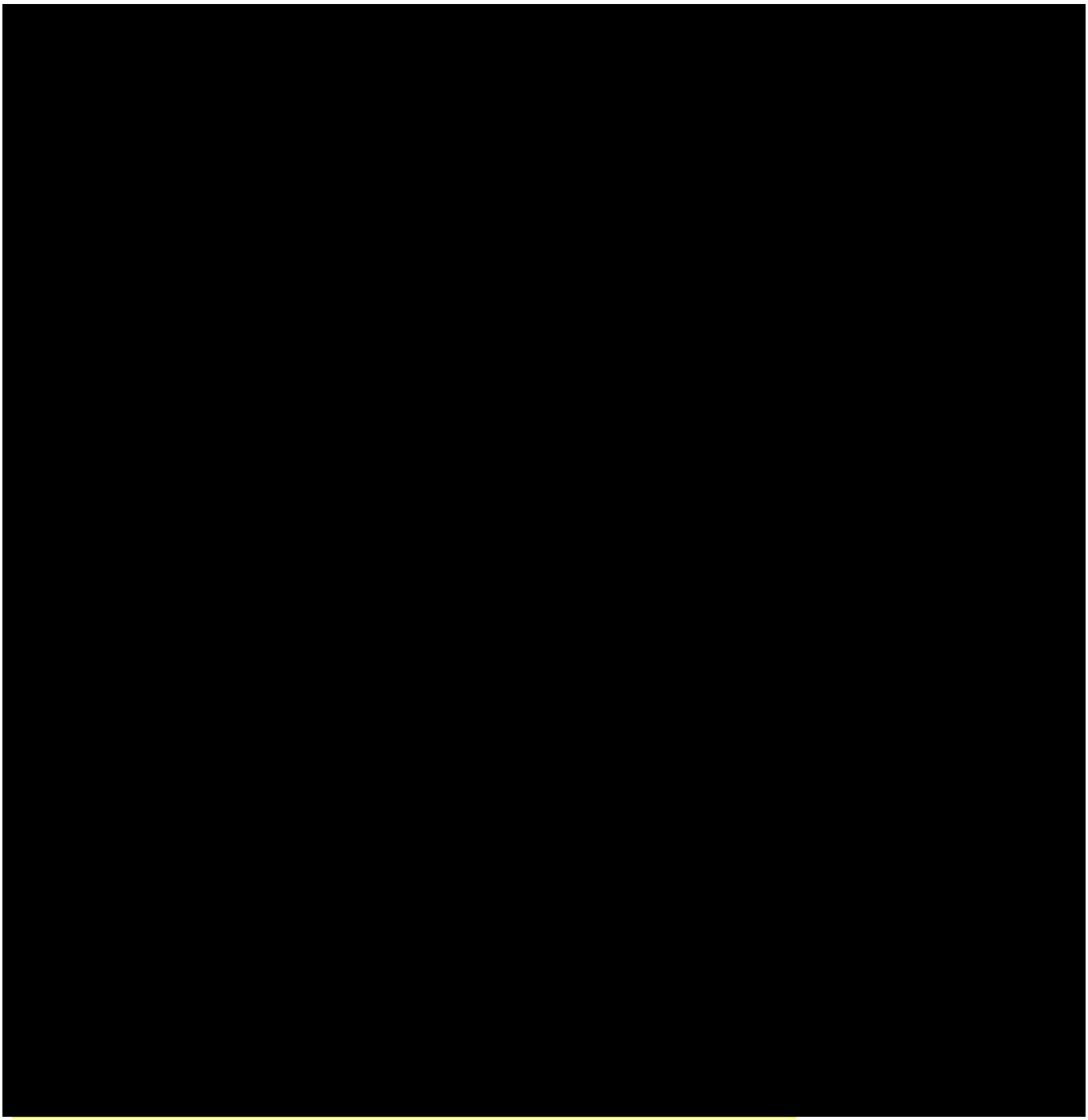

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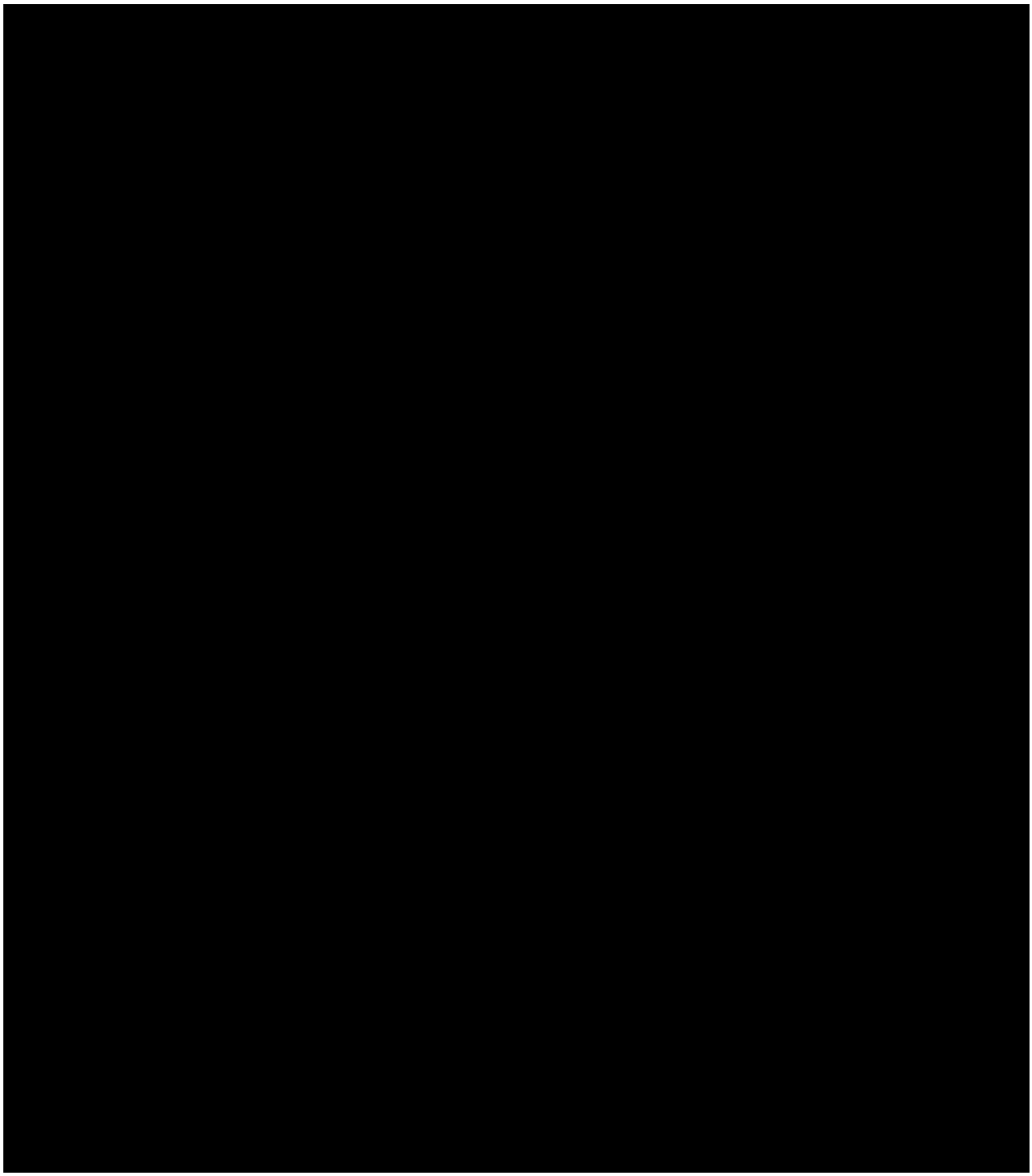

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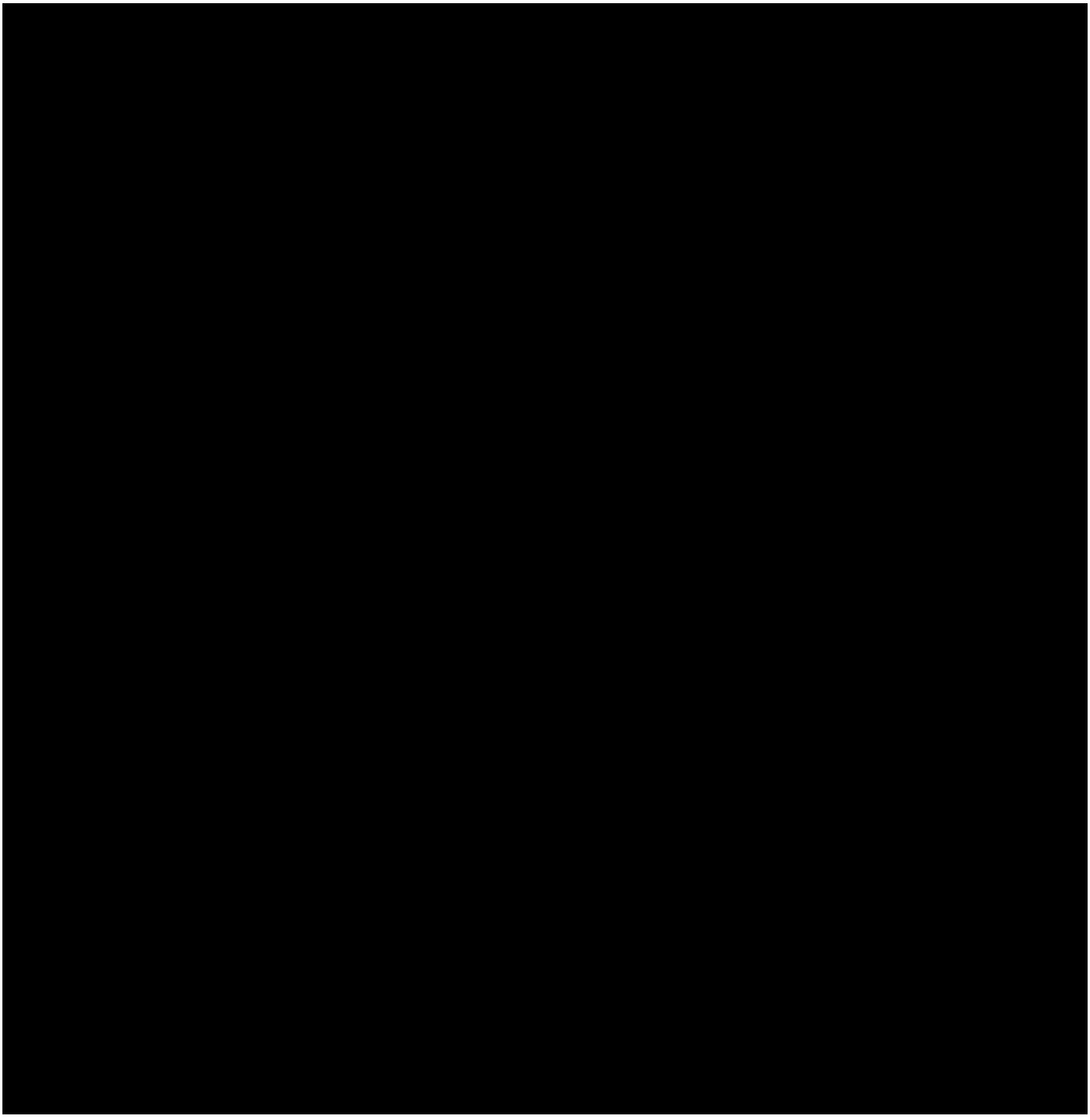

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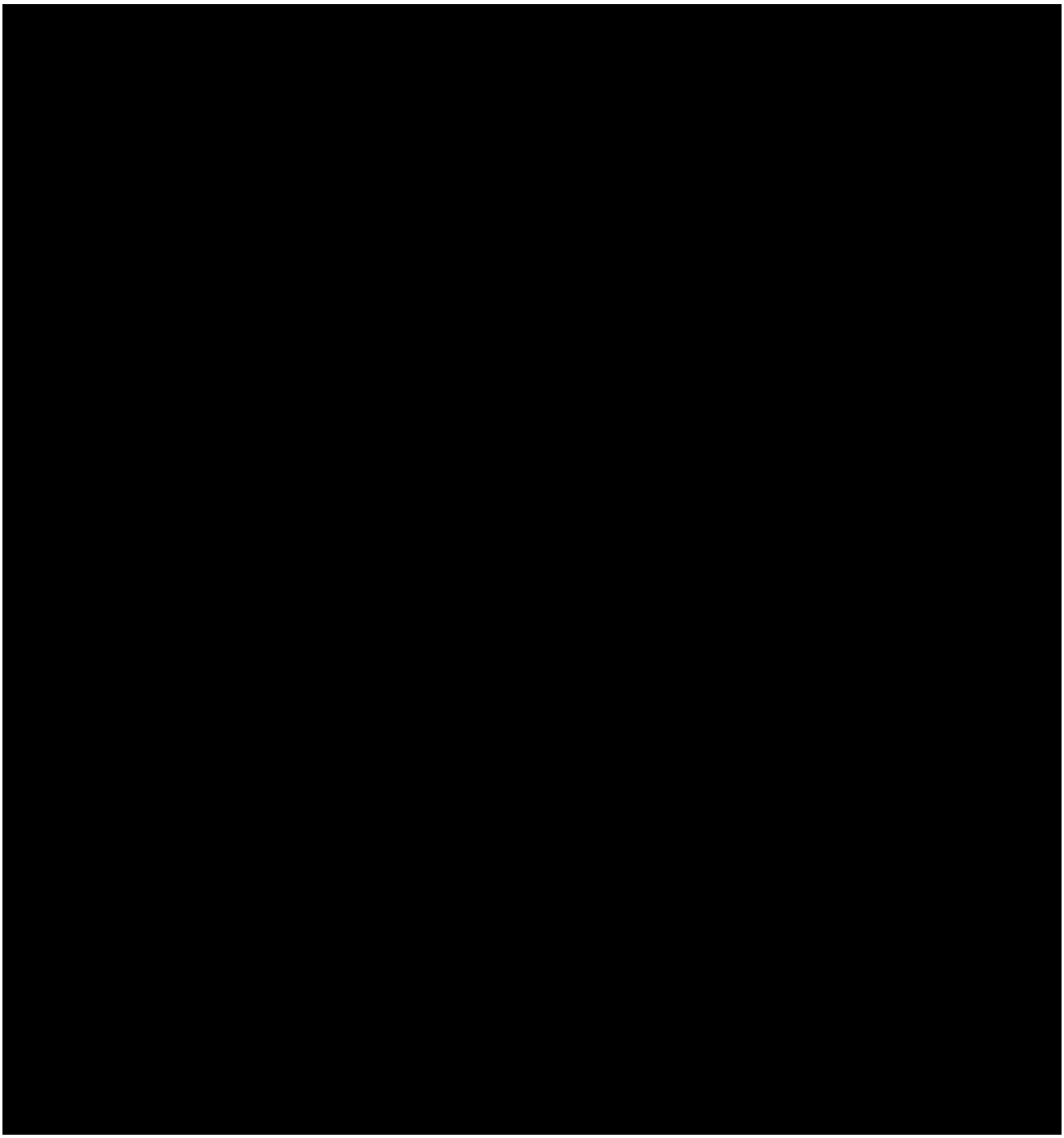

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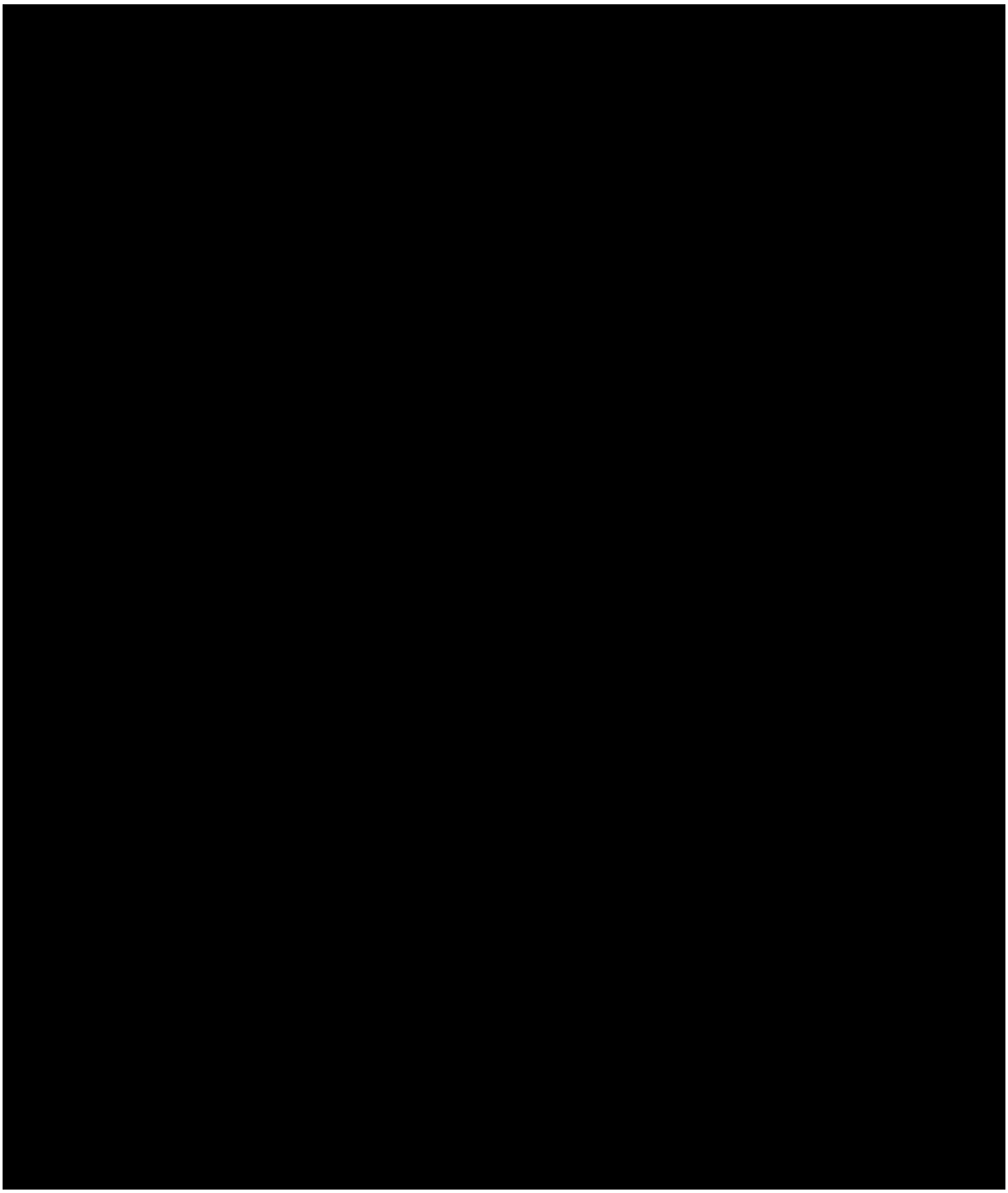

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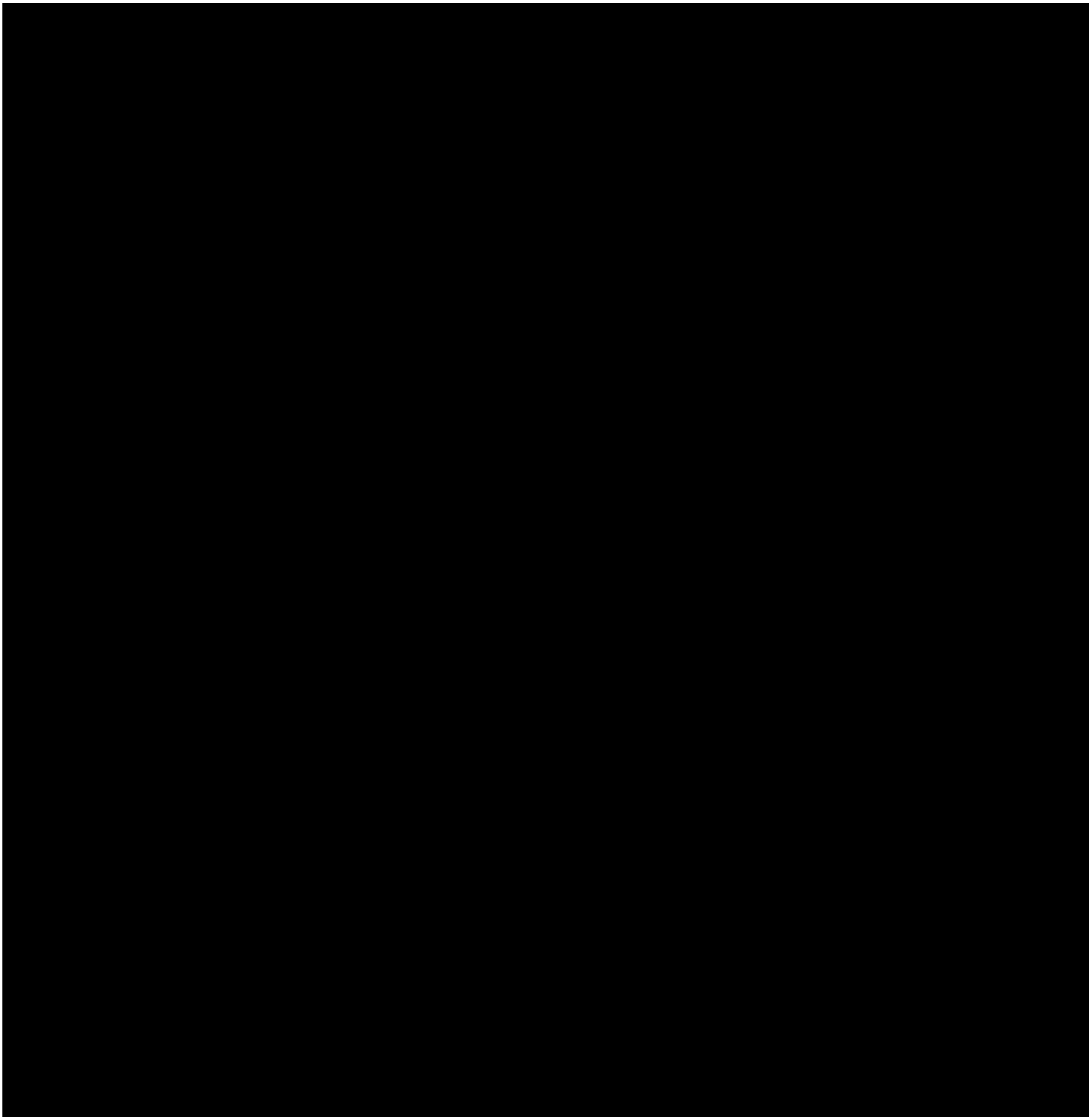

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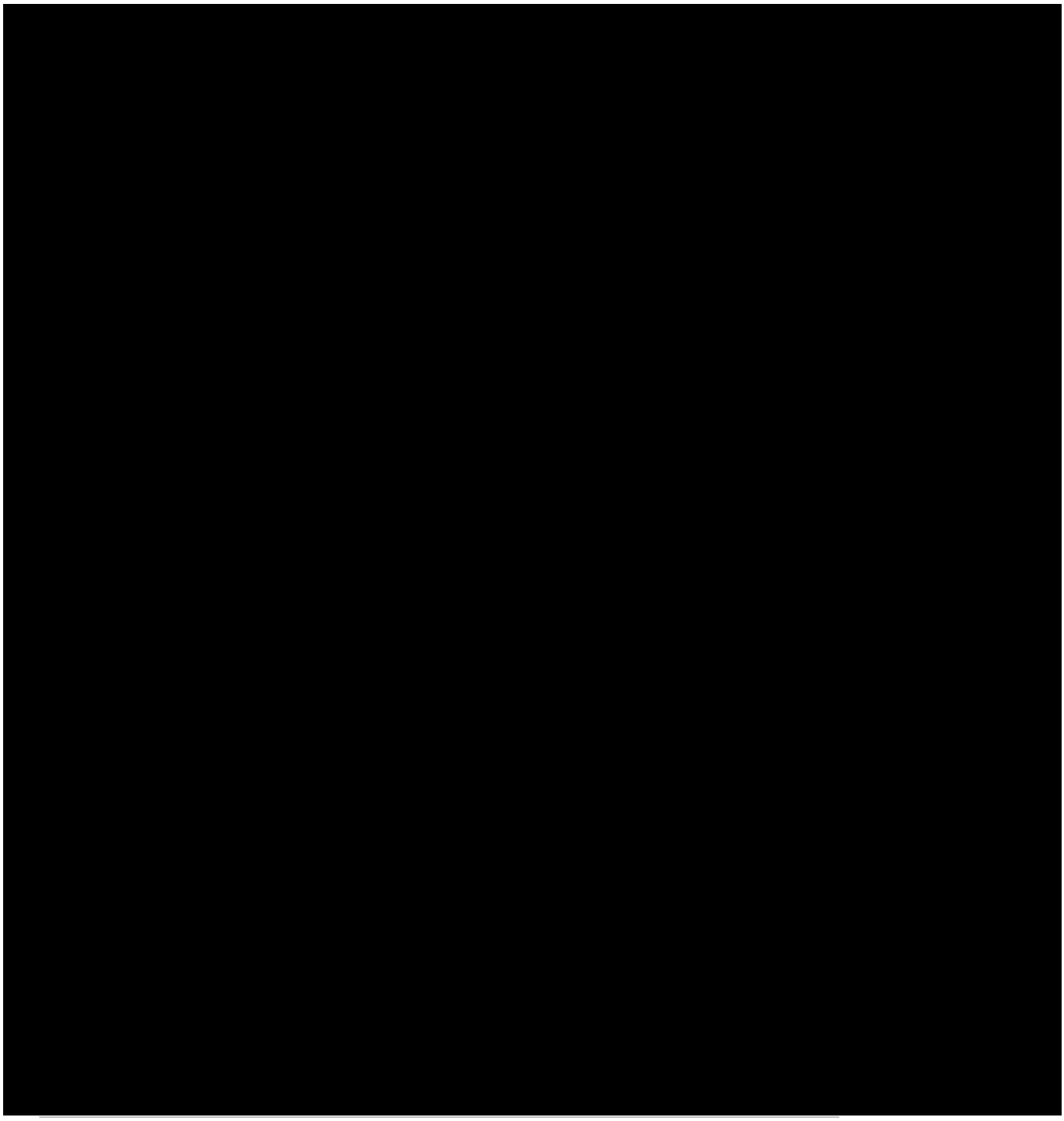

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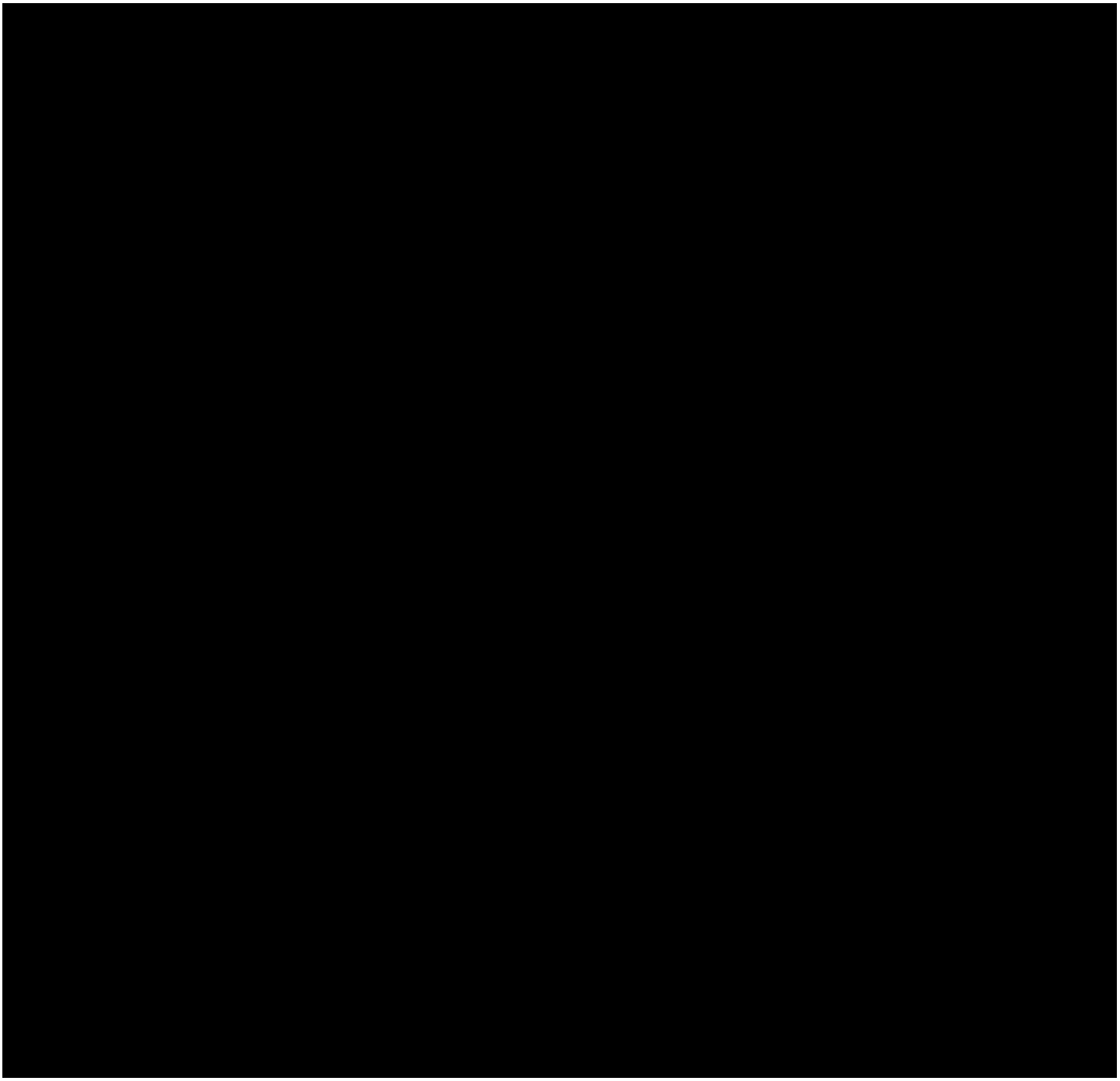

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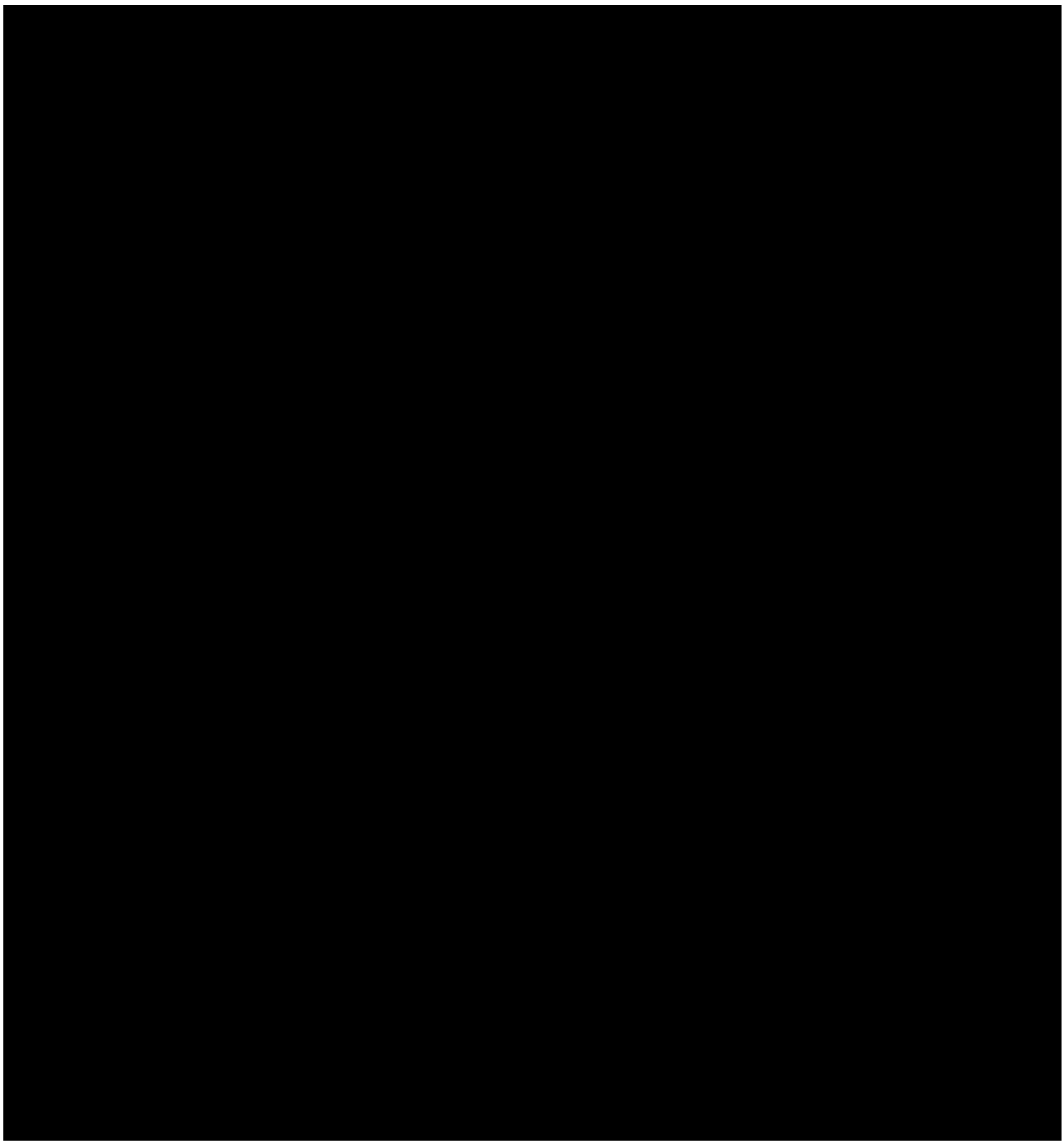

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2.8 Operational Knowledge Transfer and Excellence Through Effective O&M Manuals

Attached to each proposal please find a USB flash drive containing the following manuals written for a similar project INIT performed on for Metro-Link in Portland, Or.

- eFare_MaintenanceManual_v1_2
- Manual_MOBILEvario_CSW_1.0
- Manual_MOBILEvario_Parameter_Management_1.0
- Manual_MOBILEvario_Tariff_Management_1.0
- Sample_FAT_TestPlan_PROXmobil3_v1
- INIT's ngORCA Preliminary Project Schedule

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The manuals provided above were provided as examples of the quality of manuals INIT will deliver to the ORCA agencies if awarded the project were not meant to reflect the final content of the ngORCA specific manuals that will be provided under the scope of this project.

2.9 INIT's Experienced and Proven Risk Management Approach

Crucial is the successful handling of project risk. The risks involved here consist of completing the scope of services within each project on-schedule, within budget, and in full compliance with applicable requirements. In addition to the Risk Management Plan described above in section 1.6.2.1.3.5 above, INIT has incorporated various risk mitigation strategies to the contract provisions, including payment terms. Milestones payments are performance-based, i.e. made on the basis of project deliverables. Additionally, there is a milestone payment retainage to be used as a trust fund for the payment of any claims owed at the end of the contract. Additional risk mitigation and protecting for both parties is included in contract with clauses for such things as Indemnification/hold harmless, Limitation of liability, Liquidated Damages as well as Performance Incentives.

Each Project Manager oversees the Risk Management Plan for their project. The responsibilities for risk management are held within the Project Management Team, which is composed of personnel from both the ngORCA Transit Agencies and INIT (specifically the INIT Project Manager and the five (5) Team Leads listed directly below in the org chart provided in section *1.3 The INIT Team Organizational Chart* above).

Key personnel from the Agencies include its Project Manager as well as Subject Matter Experts (SMEs) from Operations, IT, Accounting, Finance, Procurement, and other departments as needed. Key personnel from INIT are the Project Manager, System Engineer(s), Functional Managers, and any Technical Lead(s). Each member of the INIT team's responsibility for risk management is clearly assigned and explicitly incorporated in their respective job descriptions. For example, if there is risk pertaining to procurement or installation, then the INIT Supply Chain and Installation Lead would notify the Project Manager and the collective Project Management Team; however, an Agency personnel member working on the installation may also identify a risk and notify the ngORCA Program Manager. From the point the in which the risk has been identified and a Project Manager notified, the risk is then added to the matrix as defined in the Risk Management Plan description above.

Apart from unforeseeable technical and customer-specific difficulties, the punctual completion of projects depends on the availability of sufficiently qualified personnel. External suppliers and subcontractors in the process create both risks and opportunities with regard to staffing, schedule, price, and quality. The INIT Project Management Team is directed to escalate any

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crucial issue(s) to the project's Joint Management Committee in a timely manner. This ensures that INIT management is involved and can initiate corrective measures for risk minimization.

2.10 Special Considerations or Challenges

2.11 An Achievable Project Schedule

The Master Schedule we have proposed as the System Integrator has taken the ngORCA program in its entirety into consideration. As such, we have represented the key tasks provided as part of the ORCA project timeline and imbedded our schedule so that it is integrated as a component of that; giving the ORCA agencies the purview of the overall project detail.

Taking this approach, we believe we clearly articulate the timelines needed to deliver INIT's portion of the overall program while also creating space to include the dependent factors and activities inter-related with the other major aspects of the system (e.g. DARe, Retail, etc.). This demonstrates INIT understands the key points in the schedule which contribute as a major driver to key program milestones.

In addition to this approach, INIT has also taken into consideration the Agencies point that this is a schedule-driven project due to the imminent nature of the current legacy system going end of life. With that, we have evaluated our overall delivery scope and note that there are certain aspects more mature (with respect to their final design) than others. However, there is a critical point where these systems and components must be integrated. We believe our schedule ensures just that.

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To aid in the Agencies review of both the schedule as well as the critical path associated with the work of the System Integrator, INIT has included a column titled 'Critical'. If the column is marked with a 'Yes' then the activity is deemed to be on the critical path and the Gantt chart will reflect a red progress bar.

Also of note, as part of INIT's schedule submission, in addition to the System Integrator Master Schedule we are including two (2) other reports with the aim to facilitate both a comprehensive and quick reference review. They are the Critical Path and High-Level Project Timeline.

Lastly, please note that we understand as part of Section 2.1.3.1 Master Schedule, the schedule is intended to be cost-loaded based on the guidelines of 2.1.3.3 Cost Management. At this early stage we wanted to look at the schedule and INIT's pricing model in parallel with an eye towards integration once each are near their final state.

2.11.1 Milestones

The primary milestones of the ngORCA program are comprised of six (6) core stages:

1) Procurement Phase
2) Design
3) Development
4) Testing
5) Deployment
6) Operations and Maintenance

Within items 2, 3, 4, and 5 are a set of key milestones; they are at the top of each section and denoted by green colored font. Where possible we have included the dependent relationships between the other ngORCA vendors and the stages of the program; however, because the specific detail in stages 4, 5, and 6 are not known, creating durations to try and map to the stated Start and Finish dates from Section 1.6 of the RFP would be manufactured and as a result be quite long. In so doing, this would inadvertently displace the System Integrator critical path which we understand is a vital part of Agency review.

2.11.2 Procurement Phase

The Procurement phase has been added at the start so as to provide a clear understanding of when Notice to Proceed will be issued for the start of the System Integrator work and also, to denote the other vendors that will also be integrated as part of the overall ngORCA program.

2.11.3 Design

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During the design phase many major decisions will be made as well as a multitude of small to medium ones; those decisions are critical but can also be difficult to do when other constraints exist. We understand that time is a valuable asset to Agency stakeholders; with that in mind, as well as to maintain as much efficiency as possible, in the schedule we have proposed our industry-leading approach to system design. While not explicitly noted in the schedule, another major aspect of our design review will be the early engagement of our UX/UI partner as their involvement will be filtered across many elements of the overall system design.

We have taken into consideration the schedule-driven aspects of the program, the necessity of clear and thorough documentation, as well as the maturity of each system component. With that, as well as the existing service-proven implementation of significant portions of the INIT design and subsystems, we believe we can provide the most schedule and design advantage in the industry and successfully parse the design into at minimum two (2) separate 'packages'. In so doing we can work towards approval on specific documents and move those through the design review at a greater pace.

When reviewing the different design review stages, you will notice a staggered approach. We plan to attempt approval of package 1 sooner than package 2 at each interval. However, each design review stage in its entirety will not be formally 'approved' until all documents in both package 1 and package 2 have been formally approved. INIT's Project Team will create and manage a document control and tracking sheet that will keep the Agencies apprised to the various states and stages of each document.

In pursuing an agile approach at INIT we have found we can find more time to allocate to system areas which require further discussions, clarification, stakeholder buy-in, and so forth without impact to the overall design review and schedule as a result. In fact, we have found that we can actually gain some schedule advantage and increase the pace of the overall delivery. Additionally, as part of this approach we will begin to outline during CDR, where dependent decisions need to be made, where points of the design intersect, and where relevant, critical-path impact points.

Also of note is that each design review stages have a series of workshops to occur on site at the Agencies designated location(s) in the Puget Sound region. At each design review stage these workshops will vary in their approach. During CDR we will likely only have one primary week and will be attended by the core INIT Project Team and also key subject matter experts (SMEs) from both our US and German teams. We bring our SMEs to the discussion during these workshops as we have found this approach to on one hand, create efficiency in communication and collaboration and secondly, to begin to build the relationships necessary to extend the workshop interaction into effective discussions when they must be remote due to location differences.

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Moving into PDR and FDR these workshops may be staggered between onsite and remote meetings, or a combination of both. Further, the occurrence of these workshops or other SME meetings will be greater as the fine tuning of the design becomes critical for the build stage.

2.11.4 Development

INIT takes an approach to system design that allows for the greatest flexibility for the longest duration. In order to maintain the schedule, at certain points decisions have to be final; however, we do not believe you have to compromise the integrity of the business needs in order to do that. With INIT you will experience thoughtful and creative technological and business solutions while also engaging in a collaborative process.

During the PDR stage INIT will begin some of its development in order to better fine tune and understand the decisions that will need to be made during the following stages. Also, as the System Integrator the INIT API's are major factors in the overall ngORCA program implementation. Fortunately, INIT has built many of the API's required for ngORCA's needs and are currently in live operation in other projects. In light of these factors INIT will build upon their maturity in the early development stages so they are available as early as possible for other partners to build against. Along similar lines the back office is also a major part of the ORCA transition. As with the APIs, there are key dependencies that will have impact on the overall schedule necessitating conversations and plans be made earlier in the process. Fine tuning will continue to occur, but those major decisions will need to be outlined early on so that the path forward is clear.

As part of the build stage INIT will work on the testing and procurement of the system equipment. Equipment will go through the requisite pre-testing (environmental, shock, vibration, etc.) prior to their manufacture, have procurement, assembly and test stages at varying pace, as well as their own installation schedules. For the moment, this level of detail is not yet added to the schedule in significant detail but will be added as the final deliverables and schedules are established with line items per Agency, per item of equipment and so forth.

Additionally, the training program content will also become clearer as the development of system components are further along. With that, INIT will begin creation of the system manuals that form the basis of the training documentation. During this stage INIT will begin to submit and review with the Agencies these materials. Later iteration of the schedule will summarize the document packages associated with each training course and the courses themselves as well as their quantity will be built into the schedule, by Agency where appropriate.

2.11.5 Testing

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There are several different stages that comprise the test phase of the program. Generally speaking, INIT will undertake functional testing first and as part of that execute on the various test stages that articulate the different needs of the system which can occur in varying timelines based on what factors are present. Following that, the system will undergo the integrated testing. Here INIT has added additional slack time specifically because this is often one of the most complicated elements of the schedule as it is the point where all elements need to come into alignment. INIT will elaborate the detail of the schedule (rolling-wave planning) as preparation for this phase comes into light and the detailed break-out of each test stage are clear.

Of critical importance is the balance between integrated lab testing and making the decision to move to a production state of this integrated test (field test). In so doing key decisions have to be made, the financial management application and reconciliation in place, and so forth as this testing becomes part of the production system.

2.11.6 Deployment

The deployment phase is comprised of multiple key factors. It is ensuring all the requisite equipment has been installed, tested, and functions according to the requirements of each stated test plan. During the more advanced tests in the Integration Testing phase (e.g. FIT or Pilot Test), the deployment will validate the system design and development have occurred and are working in an integrated and stable manner with equipment in production connecting in a simulated back-office production environment.

To support the integration and transition, INIT has noted the perceived benefits of including the legacy ORCA equipment as part of the Agencies ngORCA test facility implementation. Should this be possible, INIT proposes a small beta test in the lab prior to moving the full scope of the Pilot Test to the production environment. During the Pilot Test, the deployment is still within the confines of the limited roll-out and remains as such until the completion of the test and the system has reached the point in which INIT will become the system of record.

Once the system has gone through a beta test, if applicable, and successfully concluded the Pilot Test, and any residual issues or functions have been deployed, we then move to the public launch – the scope of which can be mutually defined – and initiate the point in which INIT becomes the system of record. This is an exciting point in the schedule but also a critical point as the system-wide installation is initiated without restriction and any future changes must be factored with both risk and impact due to the quantity of users engaged in the system. During this stage INIT will work with the ORCA agencies on deployment strategies and management to ensure the best possible outcomes.

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The next key test phase is the system acceptance test; during this time INIT will report on the system health as determined by the performance metrics (KPI's) of the contract. During this stage the system is live and must adhere to these metrics and fall within the framework of the contract's requirements. At the moment the detail here is to simply note the acceptance test period, however, in future iterations of this schedule each KPI will be added as well as its associated test documents.

Outside of the above acceptance testing, there may be a punch list of items necessary in order to achieve final system acceptance in its entirety. As those activities are known they will be added so that the path for the project completion is transparent for all stakeholders.

2.11.7 Operations and Maintenance

While there are many steps necessary to be in place in order to stand-up and transition the project to operations, these details will be further articulated as part of the system documentation and later discussions. For the purposes of the schedule, Operations and Maintenance are noted to start upon achievement of Final System Acceptance.

2.11.8 Summary

In closing, we believe the ORCA agencies will find INIT's proposed schedule to be competent in meeting the needs of the ngORCA program timeline while also balancing the required time and dependencies for successful delivery of the required deliverables and outcomes within each specified stage.

With the experience of having delivered account-based fare collection projects with stages similar to what ngORCA needs, we are relying upon real experience, lessons learned, and the success of witnessing first-hand what results out of implementing best practice approaches to these complex systems.

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2.11.9 High Level Timeline

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Figure 11: INIT's High Level Schedule correlates with ngORCA's Schedule Driven Timeline

2.11.10 Critical Path Timeline

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2.11.11 Detailed Timeline

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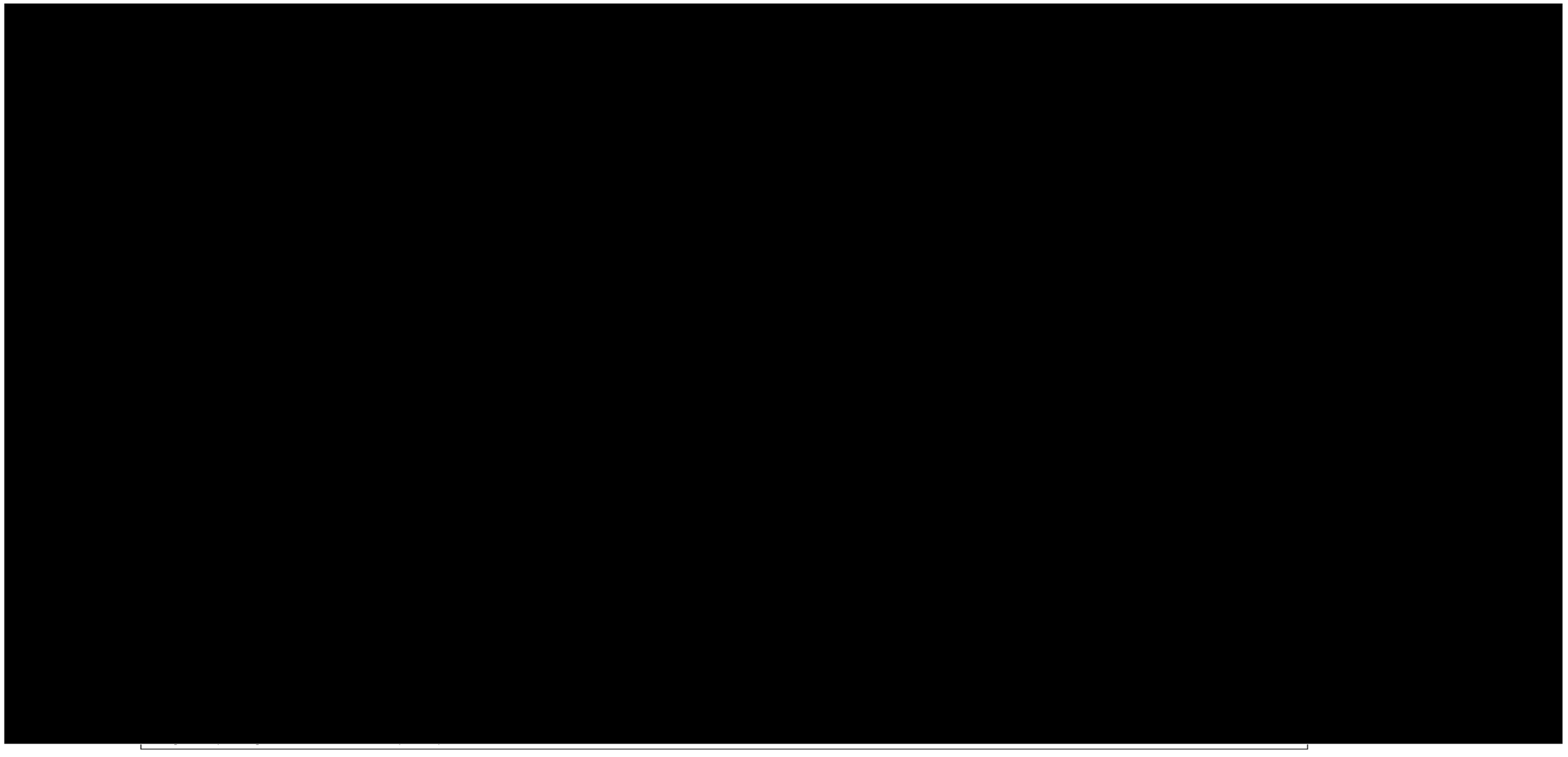

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2.12 INIT's Performance Guaranty

INIT proposes the following solution to performance risk security:

- For the period from Notice to Proceed until Final System Acceptance INIT will provide a Performance Bond equal to 100% of the contract value. This will provide Sound Transit the financial security of a third-party surety supporting the completion of the project. The costs for the performance bond are priced as a separate line item in the pricing sheet.
- Once the system is in Maintenance and Operations phase INIT will provide a bank letter of credit. The amount and terms of the letter of credit will be negotiated as part of the service level agreement discussions. Additional costs for the letter of credit may apply.

INIT is open to discuss any alternatives to this approach.

2.13 INIT's Partnership with ROOT for Effective Operation and Maintenance

2.13.1 Staffing Plan for Responsive Operation and Maintenance

INIT will have a full-time lead engineer available for the duration of operations and maintenance period. They will be responsible for all items which INIT is responsible, including field services support, technical conversations/clarifications, ad-hoc training, support installation and testing required to support software updates, and be the interface for all systems monitoring. They will also attend routine failure review board meetings representing INIT, ensuring proper assignment and tracking of open items.

They will integrate with the larger INIT team which provides worldwide and third tier support, based in Chesapeake, Virginia, and Karlsruhe, Germany. This includes several key groups:

Seattle Resources/Groups	**Chesapeake Resources/Group**	**Karlsruhe Resources/Group**
Lead Engineer	Customer Support	Hotline Emergency Support
Sales Support	Device Repair	Development Support
DBA/IT Support	Logistics	
Project Executive Oversight	IT Support	
Escalation	Monitoring and Reporting	

This allows us to leverage the other support expertise we are delivering to our fare collection systems (as example). INIT is continuing to invest in this model to allow for follow the sun support combined with localized support, increasing both response times and effectiveness of the services needed. If required, INIT will bring resources to the Puget Sound region to help with

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critical conversations or outages if it is determined to be most effective and efficient to support any requested changes or resolve any critical issues.

The systems engineer will work with the Regional ORCA Operations Team to ensure INIT can meet its obligation as a systems integrator throughout the operation and maintenance period and can provide Sound Transit and the agencies with collaborative support in addressing issues and evaluating changes.

We currently plan do as much equipment repair and maintenance in Seattle, Washington, at a location capable of quickly diagnosing and returning to service critical field components. In the event this facility can't support a certain repair, failed components will be sent to our Chesapeake, Virginia, manufacturing, repair and rebuild facility.

Overall, we plan on two dedicated full-time employees for the duration of the operations and maintenance period, as well as INIT program / management oversight. We are certain of that level of effort. The remaining INIT support teams (in Chesapeake and Karlsruhe) and those third-party software vendors (e.g. Salesforce, Bytemark) will be at a level that allows us to meet contract requirements through the same duration of time. Generally, these groups respond quickly when there are issues, and stand down (focused on other tasks) when the system is working nominally.

2.13.2 Services for Successful Operation and Maintenance

2.13.2.1 Operations & Maintenance Model (12 years)

One of INIT's most valued system characteristics is its reliability and ease of maintenance, monitored and managed by a team of experienced professionals in their required field(s). As is the case with the INIT hardware currently supplied to some of the ORCA Agencies, all equipment proposed for ngORCA is designed to be hot swappable. This is true of our field equipment—validators and terminals—and portions of our central IT systems such as hard drives, power supplies and redundant infrastructure items.

The ngORCA System is comprised of system equipment and applications, each to be managed and maintained in accordance with the system design and conformance requirements. The customer interface components associated with the client-side equipment will be managed by the Agencies for first line maintenance while INIT will take over any second line maintenance as well as system component repair or replacement.

In addition to the front-end applications is INIT's centralized system comprised of robust server and network infrastructures collectively referred to as the 'Back Office' (BO). Once these BO

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applications and infrastructure are configured and deployed, they will require ongoing support, monitoring, and periodic updates to ensure efficient system operations for the duration of the Agreement.

As part of the Operation and Maintenance (O&M) obligation INIT, as the System Integrator, will support the Agencies Regional ORCA Operating Team (ROOT) for the full duration of the 12-year O&M Agreement term, starting at conclusion of the one-year Warranty term, in the following areas:

- COTS and custom software maintenance
- SI-provided field equipment (including test and training) – repair refurbishment or replacement
- SI-provided field software (including test and training)
- Regional systems local test facility hosting
- Regional systems local test facility maintenance
- Develop fraud controls
- Disaster Recovery Plan
- Disaster recovery implementation
- Website hosting
- Back office system hosting + HW maintenance
- Maintain compliance with ISMS prescribed controls

All hardware is designed to be securely mounted but with the right keys and tools, they may be replaced in a few moments. Once replaced, they boot immediately, auto configure and are back in operation within minutes of being exchanged.

All servers are monitored by MOBILEguard which monitors each process providing restarts and error notifications even by email as appropriate. Beyond this we have our MOBILEsymon (system monitor) application which supervises all reports from each MOBILEguard instance and each of the devices in the system whether fixed or mobile.

In addition, system reporting tools provide dashboard views of overall system performance and service issues. Finally, for the central system a full disaster recovery site is supplied with instantaneous mirroring to protect both ORCA data and operation

Service and maintainability is more than just hardware and software. It is about people. We feel that our track record of providing personal service-proven support on our other fare collection and CAD/AVL projects has shown our commitment to ensuring that any disruption to service is mitigated and managed as early and efficiently as possible.

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2.13.2.2 Warranty (1 year)

INIT seeks to provide high-quality services to support ORCA in the operation of INIT's Intelligent Transportation System implementations. Following system acceptance, the ngORCA system will undergo a one (1) year Warranty term. During this term INIT warranties the repair and replacement of the affected SI-provided hardware, software, and labor associated.

Note that the warranty and maintenance service requirements of RFP SOW sections such as 8.2, 8.7 and 8.8 will be fulfilled. The following is supplemental information. For the avoidance of doubt, the requirements of the RFP SOW sections supersede.

The consistent maintainability of the INIT system for the Agencies assumes they are able to promptly notify INIT of failures in system components through the use of the INIT support line, Returned Material Authorization (RMA) form or the INIT on-line problem reporting system. As part of notifying INIT of a concern regarding any of the hardware or software, the Agency in-turn providing accurate information and details of system conditions surrounding the failure, as well as details of the failure and any error messages noted will greatly help support our efforts to minimize disruption to patrons and ensure no revenue impact.

Once a problem is properly logged with INIT and determined to be covered under the warranty or maintenance agreement, it is INIT's responsibility to respond to problem reports in a manner determined by the system impact and assigned problem priority.

INIT Onsite support will be provided as requested in the RFP. For issues where INIT onsite is not required ngORCA/ROOT staff will provide 1st line maintenance and INIT will provide 2nd line maintenance for hard and software issues.

INIT's Software Warranty will include the following key activities:

- Error analysis and repair of reproducible problems through a VPN data connection
- Includes version updates of existing system features, error correction, and assistance with temporary corrective actions, for reproducible errors
- INIT Support Line available 24 hours, 7 days per week

INIT's Hardware Warranty will include the following key activities:

- Includes parts repair of defective hardware supplied by INIT as part of this project
- The customer is responsible for all labor to troubleshoot and remove faulty equipment
- Replacement equipment will be obtained from the customer's on-site Spare Parts Inventory

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- Defective equipment will be returned to INIT for repair. INIT will send a repaired or replacement unit to replenish the customer's Spare Parts Inventory. INIT pays for shipping both ways.

INIT seeks to provide high-quality services to support the ORCA agencies in the operations of INIT's Fare Collection System implementation.

A warranty or maintenance information package will be delivered at the start of warranty and maintenance with current support contact information including phone numbers, on-line support system information including user manual and pre-structured problem report forms.

2.13.2.2.1 Problem Reporting

The platform to report problems and Incidents is the Asset Management Application (AIM). All issues are logged and managed in the AIM. The AIM consists of the Jira application, the plugins "RIADA insight asset management" and "Discover". NgORCA/ ROOT will have real time access to the current status of every item logged.

Once a problem is properly logged with INIT, the support staff will respond in a manner determined by system impact and assigned problem priority. Issues can also be reported via the toll-free support line or by email. Following is a screenshot of a dashboard to show just an example of the powerful tools available.

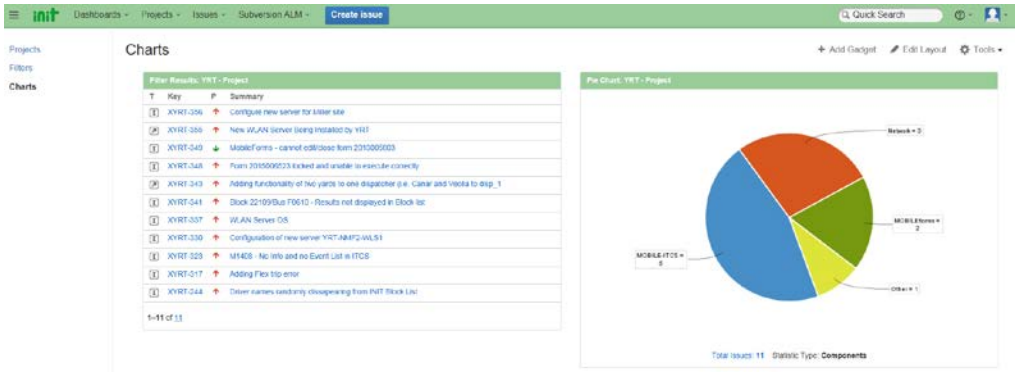


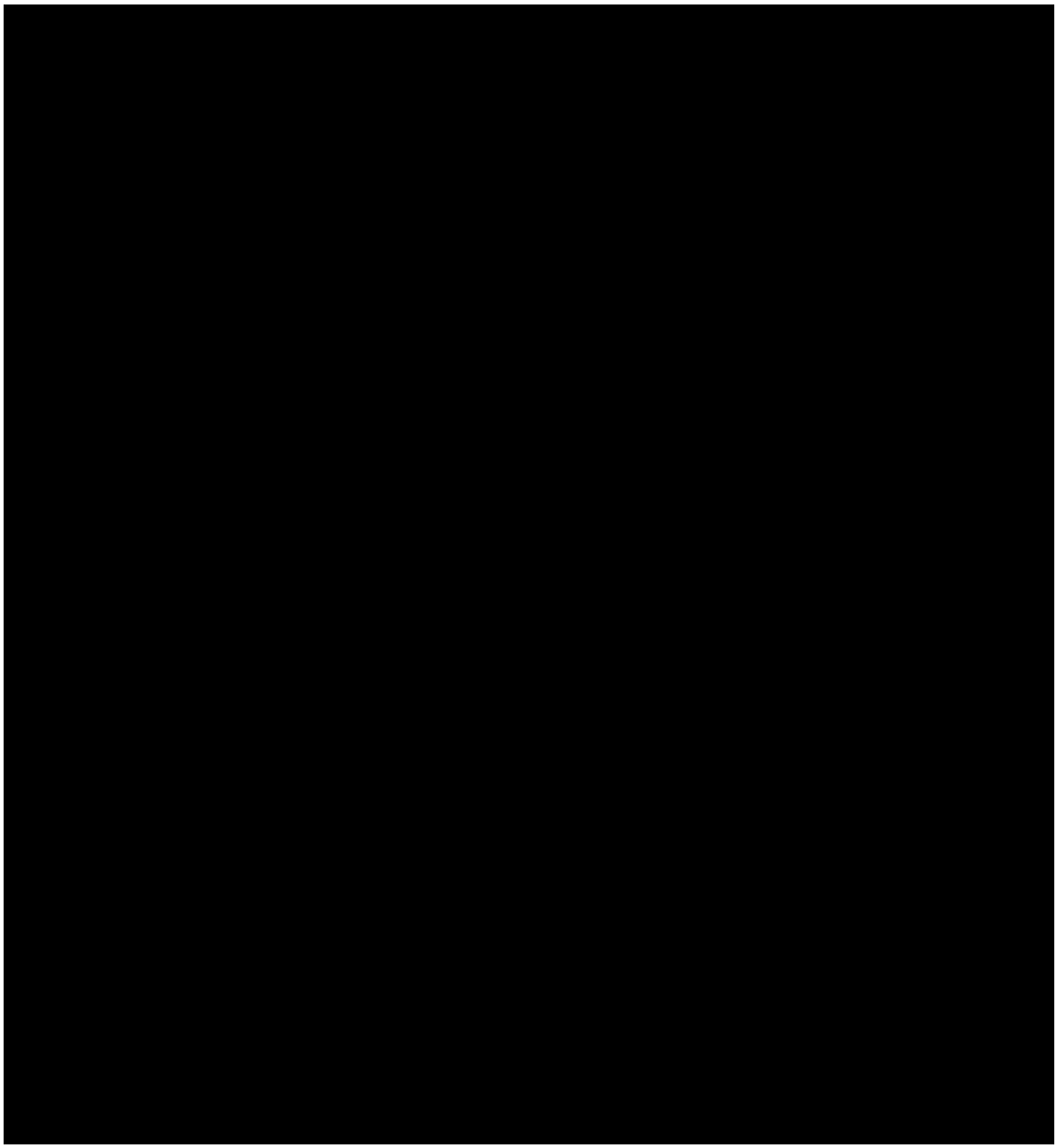
Figure 1-12: Sample Dashboard

2.13.2.2.2 Problem Classifications

Problems and errors are prioritized according to the architecture of the system and based on their system impact. The following classifications and categories are a draft.

As requested in the RFP, INIT will submit a customized software maintenance plan for ngORCA/ROOT to review and approve.

Note that the classifications do not attempt to include all possible examples of problems.



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2.13.2.2.3 Problem Response and Support

INIT Onsite support will be provided as requested in the RFP. For issues where INIT onsite is not required ngORCA/ROOT staff will provide 1st line maintenance and INIT will provide 2nd line maintenance for hard and software issues.

NgORCA/ROOT personnel will receive extensive 1st line maintenance training provided by INIT.

In addition to the support presence provided by the Lead Engineer, the Agencies / ROOT will be provided with technical support to for the general use and operation of the software via telephone throughout the warranty and maintenance terms. Telephone support will be provided by during normal business hours (PST) Monday through Friday, excluding holidays.

For purposes of reporting, INIT will provide the service desk phone number and email address for the Agencies to make INIT aware of any software defects or malfunctions, and system outages, 24 hours a day, seven (7) days a week.

2.13.2.2.3.1 Response Times

INIT will react and respond within the timeframes defined in the RFP. As requested in the RFP, INIT will submit a customized software maintenance plan for ngORCA/ROOT to review and approve. The plan will include response times for various categories (see draft in section 1.13.2.2.2).

The workflow for the assignments of classification and priorities as well as escalation procedures will be agreed upon in the software maintenance plan.

2.13.2.2.3.2 Third Party Hardware & Software

INIT's proposal includes warranty and support services from 3rd party hardware and software manufacturers and vendors such as hosting providers. INIT serves as the primary support holder and thus any maintenance and support issues with the warranty provider are handled by INIT who will engage and include ngORCA/ROOT personnel if necessary or generally wanted by ngORCA.

2.13.2.3 System Hosting: Back Office, Regional Test Facility, and Websites (14 years)

INIT's provision of the ngORCA system back office (including ngORCA websites) requires that hosting of the production and redundant systems as well as the ORCA Regional Test Facility occur as part of the system implementation as well as through the duration of the warranty and System Hosting support phases of the contract. The Warranty term is one (1) year while the System Hosting support term is 14 years.

The back-office hosting infrastructure as defined in Section 6 of the SOW will be managed and maintained through the one (1) year Warranty term and the 14-year System Hosting Support Agreement. As part of that, the System Hosting Support processes will address the back-office operations hosting that deals with disk storage space, access and connectivity, and necessary disaster recovery / redundancy practices.

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The website hosting will include those elements required in Section 5 of the SOW; specifically designed to account for scalable storage space, system access, and the appropriate connectivity for the system website's operation. While not inherently the same, INIT will manage and maintain the Websites as part of its duties related to the back-office requirements.

2.13.2.4 Systems and Operations Maintenance (12 years)

INIT will undertake the duties necessary to perform back office operations and support under the System Operations and Maintenance agreement for the specified term of 12 years. This term will begin upon conclusion of the ngORCA one-year Warranty period.

The ngORCA system is comprised of multiple back office systems and environments as well as third party and external integrations. As such, INIT will deploy its world-class System Operations team to champion the day-to-day management of the information security related functions including analyzing and managing information generated from the centralized logging system, file integrity management system, ensuring backups, handling events generated by various system monitoring applications. The INIT System Operations team will also provide monitoring of the overall ngORCA environmental health daily and taking required actions to ensure integrity of the expected performance metrics are adhered to.

During the terms of the agreement, INIT shall be responsible for the following activities:

- Monitoring system performance and health;
- Ensuring timely and accurate processing of transactions;
- Overseeing operation of all back-office support systems (e.g., CRM, Financial Management, etc.);
- Overseeing website operation;
- Overseeing mobile apps operations;
- Maintaining system configuration (making configuration changes upon approval);
- Testing and deployment of website and configuration changes;
- Supporting report updates and ad-hoc data requests; and
- Providing reports that confirm KPIs have been met.

Systems monitoring, management and reporting are critical to operational efficiency and application service delivery. INIT will as part of the system implementation, design and developed the MOBILEsymon dashboard and MOBILEguard service monitor applications to monitor all ngORCA system devices.

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The resources assigned to carry out the work associated with the back-office operations will have experience and background as an IT professional required to function as a systems engineer overseeing and coordinating all back-office operations. The systems engineer shall oversee all aspects of service delivery and specifically address the following:

- Design and deliver support and service solutions in line with agency requirements and industry best practice;
- Ensure operational procedures and practices are well defined, documented and understood by the agencies and support personnel;
- Ensure support teams are skilled, trained and developed to enable them to deliver high quality service and support;
- Work closely with the Customer Support Services and Technical Support Services Managers to ensure support teams understand the scope of the Honolulu project and support requirements and are able to meet these requirements within the expected performance criteria and KPIs;
- Be responsible for customer escalations and act as a point of escalation both in and out of hours as required;
- Directly manage local third-party IT service providers to ensure timely delivery of quality work;
- Monitor the effectiveness of the team against SLA/KPI‟s, driving through change as needed to deliver continual service improvement;
- Review monthly service performance and KPI reports with agencies to ensure services are delivered within expected levels and discuss opportunities for improvement;
- Participate as a member of the failure review board (FRB) where deficiencies are reviewed; and
- Identify opportunities for efficiency, cost reduction and continuous improvement.

The accuracy of the database is maintained by INIT's MOBILEvario relational database model. This model organizes data into multiple tables where each record is identified by a unique key. Relationships between tables are established by referencing the unique keys of the two tables.

In addition to the above, INIT will carry out the following operational activities, taking corrective action as needed, performed on a regular basis as follows:

Daily Operations

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Weekly Operations

Monthly Operations

Quarterly Operations

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[redacted]

Annual Operations

[redacted]

2.13.2.4.1 Information Security Management System (ISMS) Compliance

The Information Security Management System (ISMS) is to be designed in such a way that the necessary governance for the applications, modules, and information that comprise the fare collection systems (Legacy ORCA and next gen ORCA), including the applicable information security controls will use ISO 27002:2013 as a baseline.

To ensure compliance, the ngORCA System solution that INIT supports (including its design, support, and operation activities) will be validated against the requirements to ensure with the applicable technical and administrative security controls, as determined by the ISMS conformance guidelines are in place.

Due to the duration of the O&M obligation and software maintenance agreement, it is likely that the security standards may be updated. As part of this agreement, INIT will ensure the requisite controls, technical revisions, and processes are updated or revised according to the procedures outlined in the Change Control Plan.

2.13.2.5 Software Maintenance (11 years)

2.13.2.5.1 General Capabilities

As part of INIT's obligations related to the back-office operations, periodic changes to the software may be required to address routine maintenance functions such as security patches and firmware updates or deployment of third-party integration updates (e.g. Sage or Salesforce). Additionally, throughout the duration of the software maintenance agreement it is anticipated that major technology changes will also occur affecting software compatibility or system security and fraud control. To address future needs or broader changes in technology, the Agencies may want to pursue system enhancements or upgrades. Change is an inevitable aspect of the system's operation but all maintenance and change activities must be managed in a clear, transparent, and structured way.

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In order to address the multitude of preventative and standard maintenance needs of the software and the changes that will occur as part of that, INIT will submit a Software Maintenance Plan which will include the processes and procedures for each element. The plan will include those items noted above as well as deployment operations, risk management, production monitoring and roll-back planning. INIT will collaboratively develop the Software Maintenance Plan with ROOT – the figure below provides a sample outline.

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Software Maintenance Plan [Sample Outline]

1 Introduction 5
1.1 Scope 5
1.2 References 5
2 Preventative Maintenance 6
2.1 INIT Software Updates 6
2.2 3rd Party Software Updates 6
2.3 Patches & Security Updates 6
2.4 Configuration Items 6
2.5 Environments Management 6
3 Corrective Maintenance 7
3.1 Problem Reporting & Tracking 7
3.1.1 Problem Reporting 7
3.1.2 JIRA Issues / Ticket Tracking System 7
3.1.3 Response Levels 8
3.1.4 Status Reports 8
4 Software Enhancements 9
4.1 Request for Change Process 9
4.1.1 Submission Requirements 9
4.1.2 Impact Analysis 9
4.1.3 Response Submission 9
5 Software Change Management 10
5.1 Complexity of a Proposed Change 10
5.1.1 Initial Analysis 10
5.1.2 Preliminary Analysis 10
5.1.3 Report of Findings 10
5.1.4 Approve / Reject Decision 10
5.2 Change Management Meetings 10
5.2.1 3-Month Configuration & Change Schedule 10
5.3 Release Management 10
5.3.1 Versioning 10
5.3.2 Testing 10
5.3.3 Software Delivery Form 11
5.3.4 Deployment 11
5.3.5 Change Documentation 11
5.3.6 Change Log 11
5.3.7 Technical Documentation Updates 12

Sample Software Maintenance Plan Outline

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2.13.2.5.2 Communications, Response and Resolution

Software maintenance related communications, response and resolution will be addressed in the Software Maintenance Plan. INIT complies with the Agencies capabilities specified in the Scope of Work – including:

- Telephone technical support
- 24 x 7 hotline to report system failures (with response times of less than 30 minutes)
- Onsite support, if required, within 24 hours
- 4 hours status reporting if a repair takes longer than 4 hours

2.13.2.5.3 Software Change Management

INIT will jointly develop and implement a rigorous software change management plan involving

- Analysis and reporting of the required complexity and risks of the proposed change
- Joint change management meetings
- 3-month changes look-ahead
- Comprehensive release management involving extensive testing (including regression testing) on all environments
- Maintaining effective change documentation (including Software Delivery Notes (SDNs) and a Change Log)

INIT will update any required technical documentation impacted by a change. The following samples show the proposed software change management plan outline, and INIT's Software Delivery Note (SDN), which is provided to the customer for a signed approval prior to any software change.

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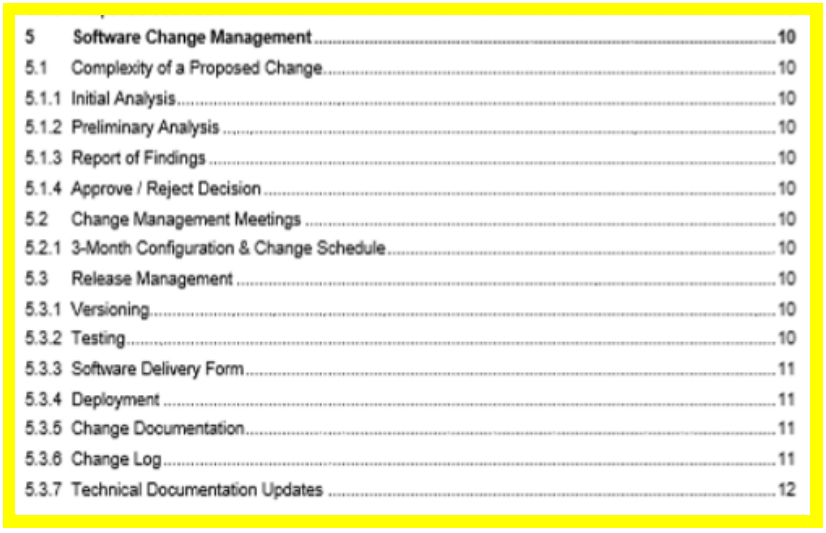

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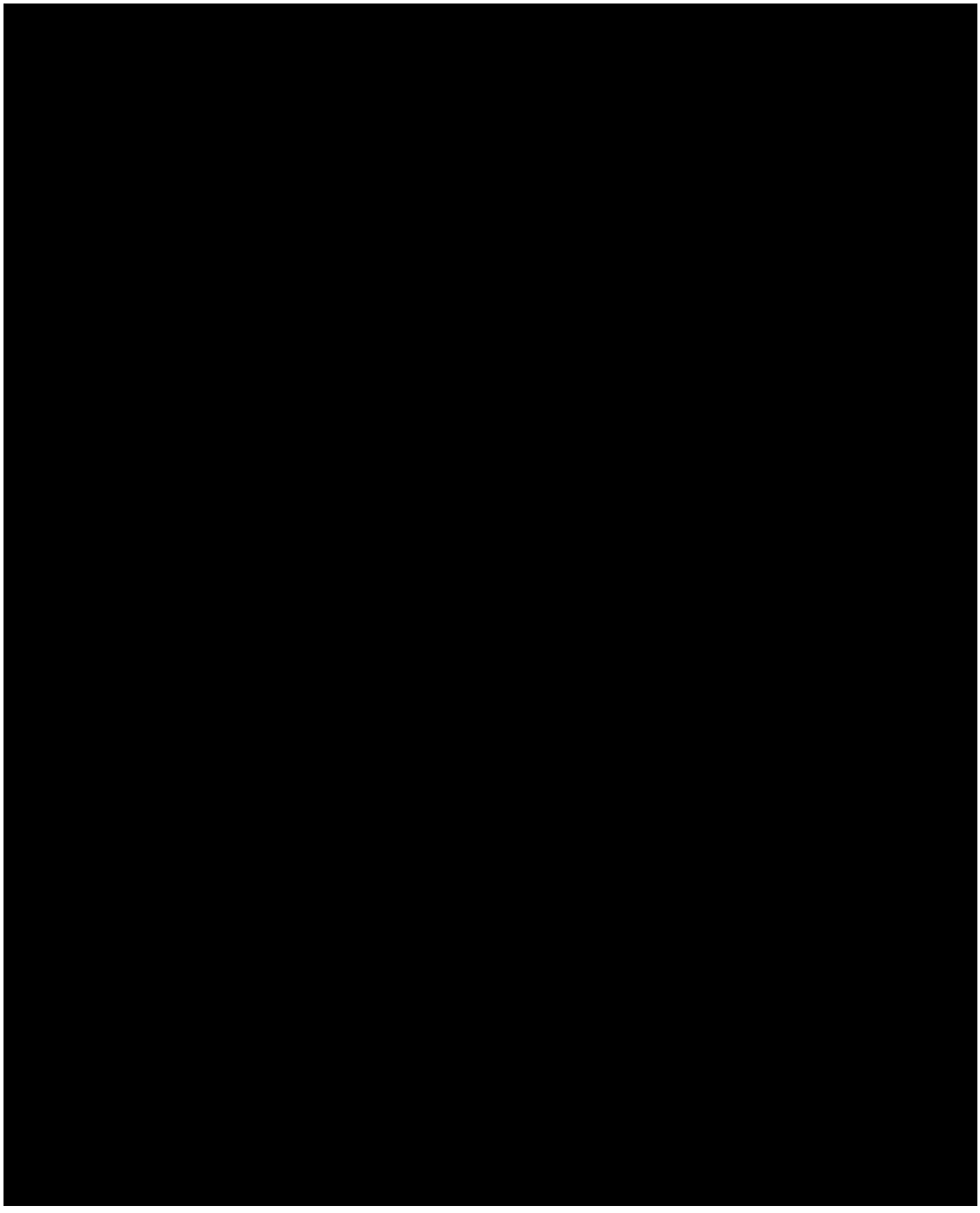
5.1 Complexity of a Proposed Change 10
5.1.1 Initial Analysis 10
5.1.2 Preliminary Analysis 10
5.1.3 Report of Findings 10
5.1.4 Approve / Reject Decision 10
5.2 Change Management Meetings 10
5.2.1 3-Month Configuration & Change Schedule 10
5.3 Release Management 10
5.3.1 Versioning 10
5.3.2 Testing 10
5.3.3 Software Delivery Form 11
5.3.4 Deployment 11
5.3.5 Change Documentation 11
5.3.6 Change Log 11
5.3.7 Technical Documentation Updates 12

Sample software change management plan outline



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2.13.2.5.4 Software Enhancements

INIT will participate in a responsive manner towards software enhancements. This process will involve the submission of the desired functionality or enhancement, a technical and cost impact analysis by INIT, and a response submittal outlining the scope and costs by INIT. If ROOT decides to proceed with the enhancement, then the Software Change Management process would be followed.

2.13.2.5.5 Field Equipment Maintenance

Once the system has been accepted by the Agencies, first line maintenance will be performed by the Agencies whereas second line maintenance repair will be undertaken by either INIT or the relevant OEM. INIT will manage and maintain spares and stock inventory to facilitate the first line maintenance efforts of each Agency.

To facilitate the purchase of new or additional equipment and spares, INIT will provide a spares price and consumables list for Agency reference and ordering as well as comment on any special tools or items needed to facilitate the repair efforts.

As serviceability and maintainability are essential to a successful handover of operational functions, INIT will ensure the Agencies receive the appropriate training and information necessary. Additionally, INIT staff and engineers will be available as needed to support first line maintenance efforts should further issues arise which limit the Agencies ability to perform the required functions or steps.

To clarify the RFP's section 8.12.2.5 titled Incident Response Times, INIT expects that vending machine first level maintenance will be handled by ROOT (specifically Sound Transit) as described in section 8.1. INIT will train Sound Transit and provide spares of internal components which are designed to be field serviceable, including swapping at the installed locations. If any first line maintenance issues arise, INIT will provide remote technical support. Second line maintenance will be provided by INIT

2.13.2.5.6 Agency Test Facility

As part of the obligations associated with test of the ngORCA system during the project delivery, INIT will stand up a regional test environment for access by Agency and INIT staff. The detail of this solution is more fully covered in Section 1.6.2.4.3 above.

INIT will continue to host and maintain this test facility for the duration of the agreed terms and in accordance with the contract's requirements. The purpose of the test facility is an integral part

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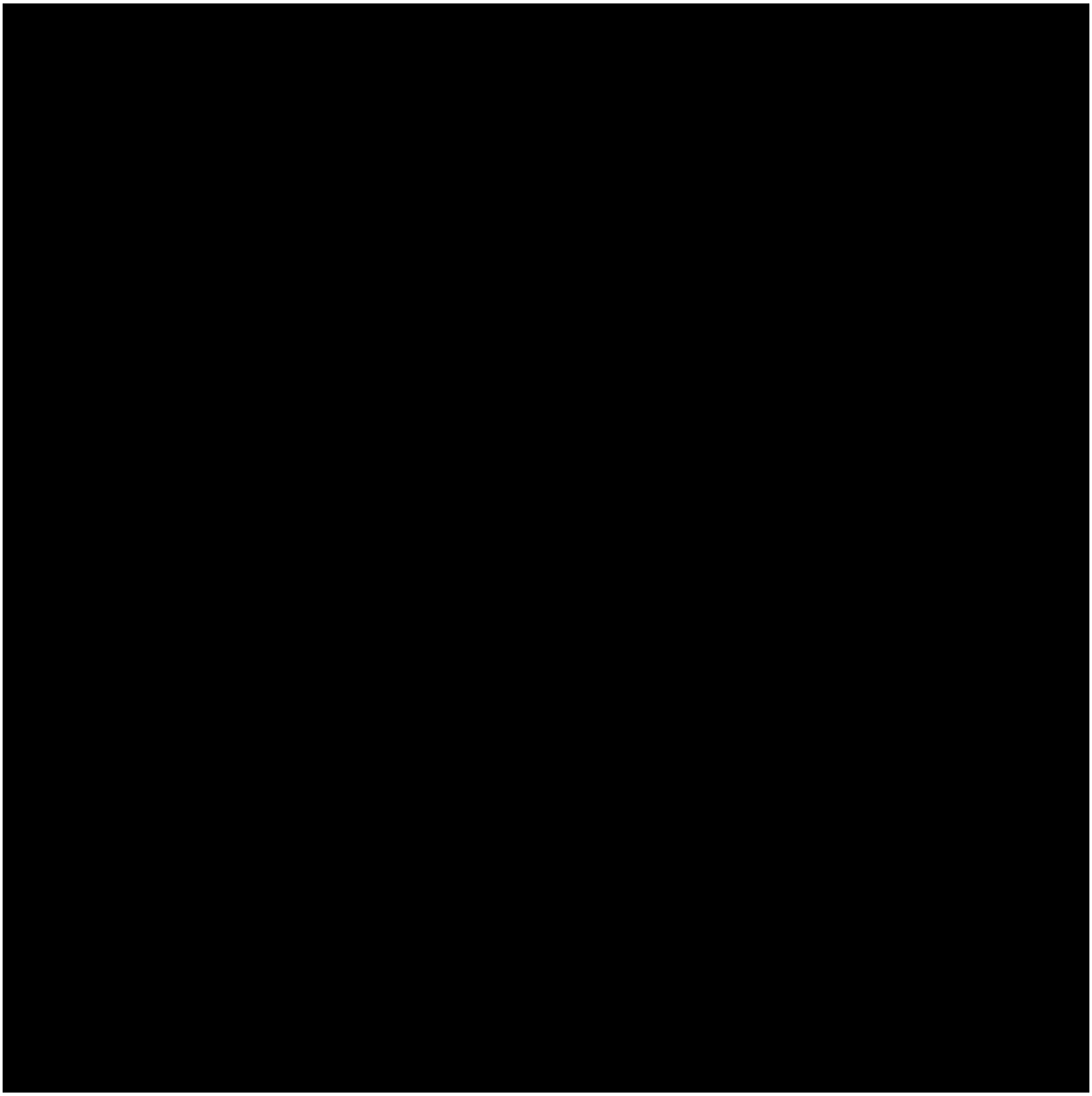
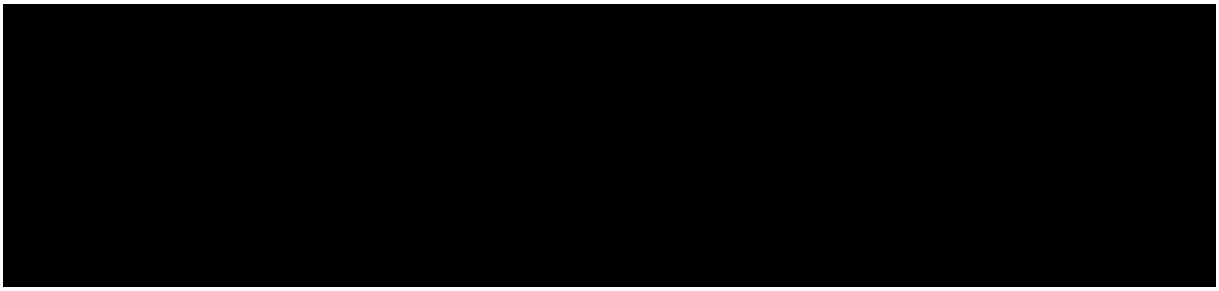
of the overall test and deployment strategy and as such will be managed and maintained in a similar fashion as the production system (e.g. software patches, compatibility, etc.).

2.13.2.5.7 Fraud Controls





2.13.2.5.8 Disaster Recovery

INIT's proposed back office solution for ngORCA addresses both disaster avoidance and disaster recovery; the proposed solution favors disaster avoidance strategies to limit the impact of failure and need for disaster recovery and prepares for disaster recovery.

The primary business continuity objectives of ngORCA are covered by the multi-data center, active/active infrastructure. The active/active datacenter strategy allows for smooth failovers allowing operations to transparently move workloads between geographically separate infrastructures. Further, through the use of load balancing inbound connections, disruptions in a single datacenter have little to no impact to the continued operation of the system.

While disaster avoidance works against disaster recovery in some respects, INIT will deploy a more specific disaster recovery solution which ensures out-of-region data backup in a separate hardware environment. This third, out-of-region site does not support continual or failover operations due to distance and latency, but is intended specifically as a data-backup only solution. Business continuity, disaster avoidance, disaster recovery and backup solutions are documented in the Disaster Recovery Plan. The plan also addresses other ISO guidance regarding business continuity including risk assessments and business impact analysis.

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[1] A 'cold list' is the opposite of a 'hotlist'. Whereas a 'hotlist' identifies transit accounts with a negative balance, a 'cold list' identifies transit accounts with a positive balance – i.e. transit accounts which should be valid.

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2.13.2.5.9 Performance Measurement

2.13.2.5.10 General Capabilities

System performance is measured on multiple levels, from the network level over the different processes and services running in the back office up to the client applications and devices. The data that can be reported on and how it is being collected depends on the system and the way the performance is measured. Based on the captured data, different KPIs are calculated and reported at the end of the month to provide an overview of the systems performance in general and to ensure that the agreed level of operational performance is met.

INIT will provide a Performance Maintenance Plan which will identify the methods and approach to tracking and reporting the KPIs. Where possible the approach taken will seek to be automated whether related to the capture or reporting of the data elements.

2.13.2.5.11 Key Performance Indicators

As part of the Software Maintenance Plan INIT will include the means and measurements required to develop the requisite quantifiable measurements of performance to assess INIT's operation of the system.

The plan will outline the data source, calculations, and output for the following KPIs: Frontend Device Reliability, Frontend Device and Back Office Application Accuracy, Back Office Application Availability, Operating Performance Requirements, and Incident Response Times.

2.13.2.5.12 Failure Review Board

As far as possible, INIT will provide a list of expected exceptions and events for each device or application for classification as Chargeable or Non-Chargeable Failures. The classification will be used to determine during performance reporting if a failure will be chargeable against one or more of the KPIs.

To determine the severity of an exception or event and to classify it as chargeable or non-chargeable failure, a Failure Review Board (FRB) will be established as specified. From INITs side the FRB members will include the System Engineer, the Project Manager (when in the project executing phase), and the Customer Support Service Manager (when in operations and maintenance). In the event an escalation is required, the INIT Project Sponsor will participate

Newly classified chargeable and non-chargeable failures will be added to the list maintained in the back-office system to be used during the next calculation of the KPIs.

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2.13.2.5.13 Performance Reporting

As noted above, INIT will collate and summarize the data applicable to the KPI metrics and perform the measurement calculations on a monthly calendar cycle for the duration of the operation agreements. This will result in a detailed report of overall system performance and result in a "meets or fails" summary of each KPI. Where possible, KPIs will be measured with automated elements of the system.

To prepare for the operational elements of the system and achieve system acceptance, the KPI metrics and reports and will be exercised during the integration and acceptance testing.

Where applicable the monthly reports will provide historical data or trend analysis to provide a broader overview of overall system health at a high level.

2.13.2.5.14 Credit Assessment

As part of the operations agreement INIT will sustain the obligation to meet the requisite KPI metrics. Should there be instances where the KPI has failed then the agreed deduction to the associated payment would be reviewed and where applicable apply to the associated invoice.

2.13.2.5.15 Level of Effort to Optimize Value

We expect our Services Operations manager to be fully dedicated to the support of this system, with the support of our customer support, field tech and IT support teams. Our plan is to operate the system as efficiently and effectively as we can, bringing down the amount of support that is required – especially over time. We plan an initial team that will be available throughout this contract and are capable of providing for all required KPIs and to maintain the overall ORCA customer experience. We have found with our current fare collection systems, both in North America and worldwide, that a well-designed and well-engineered system can operate at a very high level of accuracy with a minimum level of support and maintenance. We plan to leverage and enhance this through this project with ngORCA.

2.14 INIT's Warranty

Please refer to section 1.13.2.2

2.15 INIT's Sample Disaster Recovery Plan

A sample disaster recovery plan is included as an attachment at the back of this tab in the proposal.

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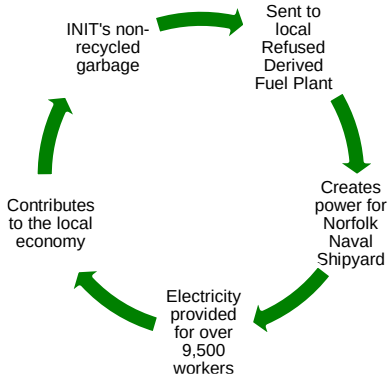
2.16 INIT's Commitment to the Environment

We see transit as intrinsically "green," and have aimed to make direct contributions to our community through an ongoing commitment to sustainability. INIT is a proud signatory of the APTA Sustainability Commitment and has contributed to the creation of measurable guidelines for APTA business members to achieve higher levels of sustainability. Even this proposal is printed on 30% recycled paper.

Our manufacturing facility, Superior Quality Manufacturing (SQM), recycles the lead-free solder used in making their electronic boards. Additionally, INIT's cable manufacturer, Total Quality Manufacturing (TQA), recycles 100% of scrap cables through a partnership with a local cable recycler.

Simple changes in habits, like the removal or paper towels and replacement with hand dryers has made a large impact. By the first year, 593 pounds of paper towel usage was eliminated. The impact on the environment is calculated to be the equivalent of 11 trees with an estimated decrease in the company's carbon footprint of 69%.

2.17 INIT's Progressive Green Approach



INIT is a socially responsible business partner with a unique approach to fostering sustainability in our corporate and manufacturing practices.

As a zero waste to landfill company, we purchase recyclable products, reuse our shipping and manufacturing packaging, partner with an electronics recycler for repurposing manufacturing devices, and contribute all non-recyclable, non-compostable garbage to a Refuse Derived Fuel Plant (RDFP). The RDFP facility treats and burns the garbage creating electricity to power the local Norfolk Naval Shipyard, which is home to over 9,500 workers.

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Extensive Experience and History of Innovation in Transit Technology

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

orca

init

The Future of Mobility

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CONFIDENTIAL SECTIONS:

3.2 Extensive Recent Account-Based Fare Collection Projects

3.3 Customer References

3.5 INIT's Financial Performance

3.5.1 Stellar Financial History

3.5.2 A solid Financial Forecast

3.6 INIT's Recent Fare Collection Wins

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3 INIT's Extensive Experience and History of Innovation in Transit Technology

As the lead procurement agency for the Central Puget Sound Regional Fare Collection Coordination Project (ORCA), Sound Transit, is seeking an innovative Systems Integrator to collaboratively develop, build and test the best solution for the region. It is our strong belief that INIT's Electronic Fare Collection Management (MOBILE-EFM) product suite and our decades of experience as an Innovator and System Integrator in public transit will provide ORCA with the optimal technologies, processes and support services to assure the successful deployment and ongoing operations of a Next Generation Fare System for the Puget Sound region as specified in your RFP.

Having implemented more than 50 Electronic Fare Collection Systems worldwide, our system has advanced and matured based on a strong cooperation with our worldwide community of Transit Agency customers. With INIT being a leading vendor of Electronic Fare Collection and Intelligent Transportation Systems (ITS), we are uniquely qualified to understand your needs across the full bandwidth of your operations. See the figure below for a graphical view of INIT's 25 years of fare collection History.

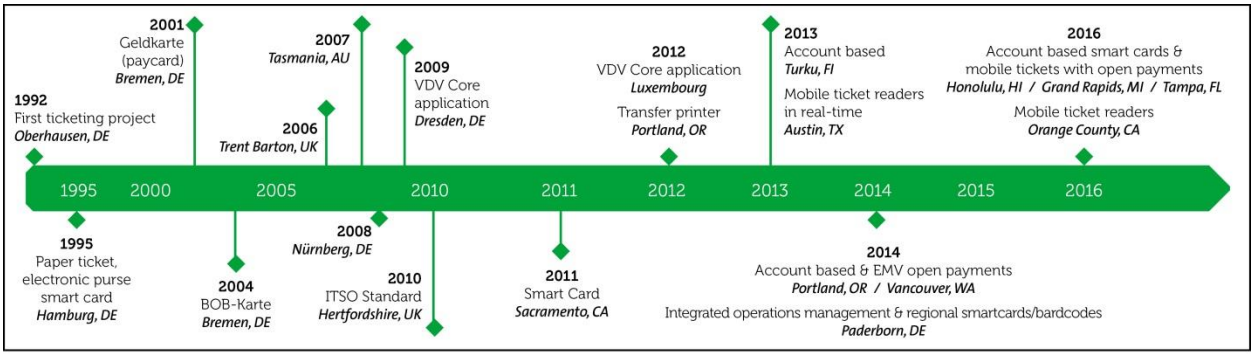

Figure 1: INIT's 25 Years of Fare Collection History

After a very thorough analysis of your RFP, we are pleased to confirm that ORCA's requirements are very similar to INIT's MOBILE-EFM Project recently implemented at TriMet in Portland, OR. Due to the similarity in scope and design of the Portland MOBILE-EFM System which features: a Multi-Agency, Account Based and Open Payments based System, Open APIs, a fully redundant back office, multiple fare product distribution channels etc., INIT can offer Sound Transit and their partner agencies a prompt and reliable implementation of the next generation ORCA (ngORCA) Regional Fare System.

The ability of INIT to deploy and grow a solid and experienced Seattle based team will be vital to the success of your project. INIT will deploy key technical and project management resources for

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the duration of the implementation phase of the contract to enhance the existing team already located at INIT's Seattle office. Additionally INIT is committed to provide the requisite employees and partners to fully maintain and operate the ngORCA Fare System during the operation and maintenance phases of the project.

We are excited about the prospect of working with Sound Transit and your partner agencies to collaboratively develop, build, and test the best solution for the transit agencies and their customers in the Puget Sound region. We are convinced that you will be amazed by the functionality, flexibility and reliability of our company and our best-in-class fare collection solutions and especially the outstanding team of Transit Professionals that we have assembled for this project.

3.1 INIT and Its Project Partners

3.1.1 INIT Innovations in Transportation, Inc. (INIT)

INIT was incorporated in the Commonwealth of Virginia in January of 1999 to serve the North American market, exclusively focusing on Intelligent Transportation Systems (ITS) for public transit. INIT GmbH, our sister company, was founded in 1983. Both companies are wholly owned by our parent company, INIT SE (formerly AG), which is located in Karlsruhe, Germany.

Years in Business

INIT GmbH has been in business for 34 years and INIT has been in business in North America for 18 years. The INIT SE group of companies has not changed ownership during this time, Its founders are still heavily involved in the business of providing services dedicated to public transit, giving INIT unmatched insight into the deployment of all types of ITS projects. Founder & CEO Dr. Gottfried Greschner continues to be involved and working at INIT on a daily basis. An investment in INIT's technology is an investment in our ITS future as well as yours.

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Our North American Office Locations

INIT Innovations in Transportation, Inc.'s brand new consolidated North American headquarters office is in the City of Chesapeake, Virginia. We are at the midpoint of the US Atlantic Coast, 3 ½ hours south of Washington, DC, at the mouth of the Chesapeake Bay and adjoining the cities of Norfolk and Virginia Beach.

INIT operates in a multi-purpose 67,000 square foot facility which includes dedicated areas for Software Development, Customer Support, Engineering and Sales, manufacturing, and a dedicated laboratory for testing and development.

INIT Innovations in Transportation, Inc.
Phone (757) 413-9100
www.sales@initusa.com
www.initusa.com

INIT maintains Regional offices in Seattle, Toronto, New York and Tampa with personnel dedicated to providing and supporting the latest technology and a totally functionally compliant system for our clients.

INIT has formed a joint venture with the manufacturing company, Superior Quality Manufacturing (SQM) . SQM will provide through-hole and wave soldering, circuit board assembly and final assembly of several of our electronic devices including but not limited to: Proximity Readers, MDT's, Ticket Vending Machines (TVMs) and on-board computer backplanes. SQM is co-located within our Chesapeake, VA headquarters.

An additional joint venture with a major cable manufacturer, Total Quality Assembly (TQA) manufacturers the majority of INIT's cables, harnesses and mounting hardware equipment for our vehicle equipment installation needs. TQA is also co-located within our Chesapeake, VA headquarters.

Because both companies are subsidiaries, INIT is able to closely monitor quality and adjust production priorities in order to best meet the needs of our customers. Integrating both SQM and TQA into the INIT environment creates additional benefits for the

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ngORCA project. Additional orders, cable replacements, etc. can be quickly implemented due to the working relationship and proximity of the teams and then delivered to ORCA. Finally, by investing in these companies, INIT continues to show the commitment to supplying American Made products.

Public transportation is an indispensable part of modern society. As one of the world's leading suppliers in the area of fleet management, passenger information and electronic fare collection systems, our primary goal is to help transit authorities make public transit services more attractive, faster and more efficient.

Customers such as TriMet, Grand Rapids, CDTA, RTD- Denver, and dozens more, benefit from the fact that INIT uses innovative mobility concepts, giving these forward-thinking transit authorities a technical advantage. This may be in the form of standard off the shelf or if needed customer specific, tailor-made solutions. As a supplier of turnkey systems, INIT develops, produces, installs and maintains integrated hardware and software solutions for all key tasks required within a transit agency.

Figure 2. INIT has over 30 customers in North America and more than 400 customers worldwide

INIT is a proven, experienced and accomplished systems integrator with over 30 transit agency customers in North America. We feel that INIT is best suited to maximize ORCA's investment with minimum risk as you implement and deploy the ngORCA system.

3.1.2 Bytemark

Founded in 2011, Bytemark is an international provider of fare collection technology employing over 90 talented individuals globally, with offices located in New York, Toronto, the UK,

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Australia, and India. Bytemark's core offering is a comprehensive suite of products that digitize transit passes, tickets and fare media in a variety of innovative ways. Purchase of these fare products by transit riders is simple and instantaneous by means of web-based and smartphone-based purchasing experiences. Agencies are provided with powerful fare validation solutions, and cloud-based access to a full-suite management portal to manage and report on their operation.

Bytemark products have been implemented at over 20 transit agencies in North America including New York Waterway, Toronto Transit Commission, Capital Metro Transit (Austin, TX), and King County Metro (Seattle, WA).

3.1.5 ESP Enterprises

ESP Enterprises is the leading services company providing installation and maintenance to all Fare Collection Equipment Manufacturers and Transit Focused Electronics suppliers in North

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America. ESP was formed in October of 2002. They have ongoing projects with ACS, Accenture, Avail Tech, Bytemark, Clever Devices, Conduent, Cubic Transportation Systems, Genfare, Lecip, Lilee, March Networks, Parkeon, Safety Vision, Scheidt & Bachmann, Trapeze, TSI Solutions, Vix, and Xerox and INIT.

ESP's primary goal is to supply with a labor force that's trained with skills specific to transit industry requirements and equipment. Their experience and knowledge of Mass Transit operational requirements and equipment provide foresight into the logistical and project planning requirements necessary for successful installation activities.

ESP operates under the need for scalable responses to their customers' needs and deadlines. As part of their operating philosophy we provide skilled labor and supplement as needed with local personnel who can be trained and supervised by more experienced staff. If requested by either the customer or transit authority ESP provides experienced oversight staff for a local subcontractor. This methodology allows ESP to rapidly scale their work force to meet the installation requirements of their customers and reduce related travel costs.

3.1.6 Anthro-Tech, Inc.

Anthro-Tech is a woman-owned business founded in 1997 and became a licensed Washington State Corporation in 2002. Anthro-Tech is Washington State DBE Certified. Anthro-Tech is a user-centered design consultancy focused on government agencies, nonprofits and enterprises with a social impact mission. They provide user-centered design strategy, user research, user experience design, usability testing and UX training services to organizations throughout the region and across the nation. Much of their work focuses on web sites, web & mobile applications, software systems and customer experience strategy.

Anthro-Tech proposes to provide user interface and user experience services for this contract to ensure all customer-facing interfaces are intuitive, usable, accessible and consistent across touchpoints.

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[redacted]

3.1.8 Babinec Consulting LLC

Babinec Consulting LLC is a 100% woman-owned business and certified DBE (WA State/Federal Programs) formed in March 2017 by two sisters, Kati Babinec, PMP, and Lisa Babinec, PhD, CMP, both subject matter experts with a combined 40+ years of experience in their complimentary fields. They provide exceptional business management consulting services that enhance and advance our client's business success. They also help our clients realize their full potential and achieve mutually agreed upon desired outcomes. They dedicate ourselves to providing subject matter expertise and timely, superior end products that fulfill the client's stated goals. Babinec Consulting LLC devotes itself to offering innovative thinking, nurturing genuine partnerships, and championing the beliefs that accuracy, reliability, honesty, and trustworthiness will never be obsolete. Finally, their combined areas of expertise include the following:

- Technical Writing & Editing, Medical Writing & Editing, Copywriting, Copyediting, Substantive Editing, Line Editing, Proofreading, Instructional & Online Curriculum Design, Peer Review, Quality Assessment (Curriculum & Publishing), Grant Writing/Editing (CDC, NIH, etc.), and Educational Marketing
- Contract Risk Analysis & Management
- Contract Drafting, Review, & Negotiation
- Training: Risk Management, Trade Compliance, Contract Negotiation, Specialized Curriculum (project management fundamentals, ethics, process development, Train the Trainers, etc.)
- Strategic Planning & Procurement, Cradle-to-Grave RFX, RFX Planning, Scope Development, Implementation, Analysis, & Supplier Selection

3.2 Extensive Recent Account-Based Fare Collection Projects

INIT has a history of deploying very large multi-agency projects such as the entire State of Bavaria in Germany and others in Europe. We have now deployed three multi-agency fare collection systems in the USA HART (Tampa), the Sacramento Region (lead SACOG) (card based) and TriMetPortland OR / Vancouver WA Region (lead TriMet). Consequently we have developed a back office system (MOBILvario) that is very robust and multi-agency capable. While the

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ngORCA Project will certainly present challenges INIT is confident that we are proposing both the technology as well as the engineering and project resources necessary to ensure a successful and on time project delivery.

The Account-Based fare collection projects listed below illustrate our firm's ability to perform the requirements of this contract. Each project includes a section titled "Relevance to ORCA." It should be noted that we have other relevant project experience. For example:

- Cloud Hosting at Orange County Transit Authority and Capital Metro (Austin, TX)
- Ferry Terminal Validation at New York City Ferry
- CAD/AVL integration to many vendors
    - Clever Devices in Pinellas Suncoast Transit Authority (Tampa, FL Region)
    - Conduent in Hillsborough Area Regional Transit Authority (Tampa, FL Region)
    - Avail at The Rapid (Grand Rapids, MI)
    - Trapeze at Metro Transit Authority (Nashville, TN) (contract pending)
- Fleet installations as large as 3,000 vehicles for CAD/AVL customers

3.2.1 INIT Projects

3.2.1.1 Portland and Vancouver HOP Fastpass

Tri-County Metropolitan Transportation District of Oregon, (TriMet)
4012 Southeast 17th Avenue
Portland, Oregon

[redacted]

Project Information

The HOP FastPass system is comprised of a joint-venture among three different transit agencies: TriMet, C-TRAN, and the City of Portland Streetcar. TriMet maintains the prime contract whereby INIT is the system integrator for the Portland, OR and Vancouver, WA metropolitan service area.

TriMet provides approximately 100 million trips per year. TriMet operates in the 24th largest metro area but is 11th in transit ridership. Additionally, nearly 1,200 employers in the area offer transit passes as an employee benefit. TriMet has approximately 700 buses, 97 light rail stations, 5 commuter rail stations, and 253 paratransit buses and 15 paratransit vans. The local public transportation network set up and operated by TriMet is considered one of the most innovative systems in the U.S. Portland is the third largest metropolitan region in the Pacific North West after Seattle, Washington and Vancouver, B.C.

C-TRAN ridership included approximately 5.8 million riders in 2015. C-TRAN offers regular bus service, express bus service, and limited bus service. Additionally, the C-TRAN program provides paratransit services too.

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The City of Portland Streetcar is comprised of seventeen streetcars serving three unique lines in the Portland area. Weekly ridership averages around 15,000 for a total year to date of 1,674,550.

Mode Supported/ Number of Vehicles:

660 Fixed Route Buses

69 Light Rail Vehicles

268 Paratransit Vehicles

INIT's Responsibilities

INIT is the System Integrator for the TriMet HOP Fastpass program. The contract comprises of the design, build, test, and implementation of an Account-Based electronic fare (MOBILE-EFM) payment system for the Portland, OR and Vancouver, WA region serving customers of TriMet, C-TRAN and the City of Portland Streetcar. The Portland system is named "HOP FastPass." The system went into service in July 2017, two and a half years after contract award.

The HOP system supports both closed-loop and open-loop payment methods and mobile ticketing. The MOBILE-EFM system design is comprised of INIT's comprehensive Central Processing module, more than 1,100 on-board and platform contactless payment validators and approximately 100 retail POS units. INIT has also provided an Interactive Voice Response (IVR) system, Customer Relationship Management (CRM) tool, Maintenance and Management Inventory tool, as well as a Customer Web portal and Institutional Web portal for large business or institutional accounts and an initial 1,300,000 contactless smart cards.

Project Services

INIT provides a state-of-the-art electronic fare collection solution for TriMet. The contract includes the provision and the implementation of an account based solution, including:

- MOBILEvario backoffice with account processing, payment gateway, data warehouse, ledger, revenue clearing/settling, reporting, statistics, etc.
- Approximately 1,100 validators, on board buses/light rail and on platforms
- Retail Sales Terminals
- Open Architecture with various APIs to internal/external systems
- Closed Loop Payment, including integration with retail network provider
- Open Payment
- Fare Aggregation, Fare Capping
- IVR system integration from Enghouse
- Integration with Mobile Ticketing
- Web portal design and development (subcontracted to The Brigade)

The e-Fare solution will greatly enhance the already progressive bus, light rail, and commuter rail network in Portland. TriMet's ridership will benefit from more convenience and pricing

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equity and the ability to utilize contactless bank cards and mobile phones.

Total Cost of Contract: $[redacted]

Start Date: December 2014

End Date: Currently in Revenue Service as of July 2017

Project Staff

[redacted]

Account-Based with Open APIs

The MOBILE-EFM system is account-based and will support both closed-loop and open-loop payment methods as the future mobile ticketing. The system includes back-office clearing, revenue processing system and real-time fare processing. The MOBILE-EFM system's design is comprised of INIT's comprehensive Central Processing module, more than 1,100 onboard and platform contactless payment validators combined. INIT will also provide an Interactive Voice Response (IVR) system, Customer Relationship Management (CRM) tool, Maintenance and Management Inventory tool, as well as a Customer Web portal and Institutional Web portal for large business or institutional accounts and an initial 1,300,000 contactless smart cards.

As part of INIT's System Integrator role, the TriMet e-Fare project includes the integration with several third party systems. Following INIT's Open Architecture approach, open Application Programming Interfaces (API) will be available to external partners such as fare payment and inspection, mobile ticketing, device management and CAD/AVL information.

Relevance to ORCA

Riders of HOP will find installed on each bus, along each rail platform and C-TRAN BRT platform, as well as throughout the Portland Streetcars, the INIT validator or PROXmobil3. The PROXmobil3 is capable of accepting multiple forms of fare media included closed loop cards branded for HOP specifically, a personal credit card, mobile tickets, and also mobile payments (such as Samsung pay or Apple Pay).

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First time riders can acquire a new HOP FastPass at the hundreds of ticket vending machines located throughout the city, at the transit ticket offices, and also at hundreds of retailers where they can purchase the hangar card like any other 'gift' cards available for sale. Riders can register their card, adding personalized information but also obtain balance protection so that if the card is ever lost or stolen, they can simply request to block the card and obtain a new one.

While INIT is quite proud of our success with the HOP FastPass project, and see many parallels to the ngORCA project, we certainly recognize the additional requirements of a true multi-agency region, including a much more complicated fare structure across numerous organizations.

3.2.1.2 Turku, Finland Account-Based System

City of Turku

[redacted] 355

Project Information

Turku is a city on the southwest coast of Finland at the mouth of the Aura River, in the region of Finland Proper. The city has a population of more than 180,000 inhibitants and is the 3rd largest urban area in Finland.

The City of Turku Public Transport manages and supervises the bus network which is mainly operated by private companies.

Mode Supported/ Number of Vehicles: 260 fixed-route buses

INIT's Responsibilities

INIT validators called PROXmobil2 are installed to every bus in the Turku region as well as integrated driver device EVENDpc that provides possibilities to sell and validate tickets, top-up accounts, print receipts, provide passenger information and many other functionalities.

Passengers can validate their traditional travel cards or QR codes from their mobile phones with INIT's validators. In the future roadmap there are also possibilities to pay the travel by contactless EMV card and/or NFC capable mobile phone.

The agency also co-operates with many event organizers in the Turku region to provide combo-tickets which include access to the event itself as well as usage of public transportation by using the QR code printed into the ticket.

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For account management and more information about their current balance, passengers can log in to JLT's website. Furthermore, the system allows possibility to large institutions for bulk distribution such as schools, universities, social services programs, or major corporate entities. The Institutional website provided by the 3rd party integrated to our MOBILEvario back-office system allows the administrator to easily upload or download needed information in bulk. The system is prepared to utilize zones, selection of new fares and tariffs if and when ever the customer wants to utilize those.

When the final system acceptance is reached, INIT will begin a comprehensive 7 years warranty and maintenance contract.

Project Services

INIT is providing state-of-the-art integrated fleet management system including an electronic ticketing and fare collection solution for the region. The contract includes the provision and the implementation of: PROXmobil 2 Smart Media Processors and GPS enabled On-Board Computers with Wi-Fi technology on approximately for 260 buses, account-based ticketing which allows all information to be stored and managed in the back office system – in real-time. The ticket medium (e.g. a smart card) itself only contains a unique identification number (ID). This solution allows for a flexible and inexpensive use of various ticket media (2D barcode, proximity card, etc.) and offers more abuse protection in case of card loss. Most critical to the operation is the INIT provided Back-Office System, MOBILEvario, which is used for tariff management, regional revenue reconciliation and clearing functions.

Total Cost of Contract: $[redacted]

Start Date: November 2013

End Date: Operation began in early 2017

Project Staff

[redacted]

Account-Based with Open APIs

Account based ticketing solution. The contract includes approximately 300 on-board computer incl. ticket printer EVENDpc and boarding control system PROXmobil2, open Sales API for 3rd parties to integrate to the system, open real-time passenger information interfaces, ticket inspection application and more. The core of the system is INIT's back-office System

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MOBILEvario that provides a sophisticated yet easy to use solution for ticket processing and clearing revenues. MOBILEvario's powerful online validation server processes account transactions in real time.

The Föli system is an ID-based Ticketing system. It is highly flexible, supports various ticketing methods and sales channels, offers open interfaces (API) for the integration of 3rd party solutions and is client-based.

This and the use of comfortable passenger apps use the options new technologies, communication methods and digitalization offer to the fullest and make Turku a smart city. In addition, fare management can be handled much more efficiently.

It is the first of its kind system that went into operation and is part of the MaaS ecosystem. It set a new bar for ticketing systems in the Nordic Countries, which led to a suggested new Finland-wide approach for integrated mobility services and won the SLUSH award. The system is complemented by an integrated ITCS system that also provides RTPI.

Relevance to ORCA

INIT replaced the legacy ticketing system through a comprehensive transition strategy which allowed the existing card scheme and old fare system to remain in use while the new account-based ticketing system was implemented.

As a part of the migration process, transaction information was stored in both the legacy and INIT's new account based system. Transactions were processed in both systems while the old system was still the system of record. The revenue data calculated in MOBILEvario was reconciled against the data produced by the old system to make sure that the existing business rules were implemented correctly. As soon as a commonly agreed level in the consistency was achieved, the old system was shut down and the new account based system became the operational one.

During the vehicle installation the existing ticketing machine at the driver's place was dismounted and INIT's integrated ticketing and on-board computer device EVENDpc was installed at the drivers' place. Thanks to the migration plan presented above, the INIT system was immediately ready to operate in the vehicles without any need e.g. to change travel cards.

In addition, the INIT validator PROXmobil was installed and ready for the new ticketing system. Also thanks to the migration plan, there was no immediate urge to replace all old equipment in vehicles.

3.2.1.3 Tampa Bay Flamingo Account-Based Multi-Agency System

Tampa Regional Working Group

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Project Information

The Regional Working Group (RWG) in Tampa consists of five county transport companies covering approximately 4100 sq. mile service area for the counties of Hillsborough, Pinellas, Hernando, Pasco, and Sarasota. Additional project partners include the Florida Department of Transportation (FDOT), and the Tampa Bay Area Regional Transportation Authority (TBARTA).

Mode Supported/ Number of Vehicles:

600 Buses

11 Streetcars

INIT's Responsibilities

The contract between INIT and RWG involves the deployment of an integrated fare system using account-based smart cards and mobile ticketing. INIT's passenger terminals, PROXmobil3, were installed on more than 600 buses for the validation of the new fare media.

INIT also supplied the back-end clearing and processing system MOBILEvario to facilitate the management of the RWG's individual customer accounts, setting of fare rules, revenue processing and statistical evaluation reporting MOBILEvario will benefit the RWG by allowing them to provide a seamless fare structure across eight counties while ensuring the secure administration of each agency data.

Also included in the project are interactive Voice Response (IVR) applications and new enhanced web portals to allow customers to check their balances, register their cards and load values, as well as manage mobile payment applications using their smartphones. Riders are able to use the mobile app across the Tampa Bay area by showing their purchased fare via the phone to the driver.

Project Services

The Tampa Regional Working Group (RWG) is comprised of five local transit agencies, with Hillsborough Area Regional Transit (HART) as the lead procuring agency. These agencies have chosen INIT to provide an account-based, regionally inclusive electronic fare payment system, in which customers in all applicable regions can travel within the Tampa area and use the same electronic fare payment strategy.

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INIT is providing more than 600 PROXmobil3 electronic readers for Fixed Route vehicles to the RWG. Additionally, INIT will provide its MOBILEvario back end system to integrate the fare strategies of all 6 agencies. Moreover, INIT will take on the installation, mobile application, web development and IVR with accomplished and qualified subcontractors.

As part of the procurement, INIT is interfacing with several CAD/AVL providers. Each of the regional agencies has their own CAD/AVL solution, to which INIT must interface. This abundantly demonstrates INIT's integration capabilities, for which INIT's open architecture APIs and dedicated engineering teams are responsible.

INIT is also providing the initial supply of agency-issued smart cards, retail sales terminals and various fixed fare processing equipment.

Total Cost of Contract: $[redacted]

Start Date: 2nd Quarter 2016

End Date: Estimated 4th Quarter 2018

Project Staff

[redacted]

Account-Based with Open APIs

Supports contactless EMV fare cards (Open Payments), branded regional fare media (Closed Loop).

- Multi-client, regional EFM system
- Smart card & mobile ticket proximity readers
- Back-Office clearing and revenue processing system
- Open APIs for integration with third parties.

Relevance to ORCA

The Tampa Flamingo fare collection project is an account-based, multi-agency system. INIT is partnering with Bytemark and Marathon for mobile ticketing and the customer website. According to Lucien Campillo, HART's Director of Enterprise Project Management: "Our experience with INIT and their subs has been outstanding. Their design review process and test procedures have far exceeded our expectations. The personnel they assigned to the project have been top-notch. Leadership for the organization monitors the project and the correct amount of

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emphasis is applied if there are any issues. The project management team has been dedicated and is very concerned about the quality of all deliverables. I cannot say enough how much we have enjoyed working with INIT's professional team"

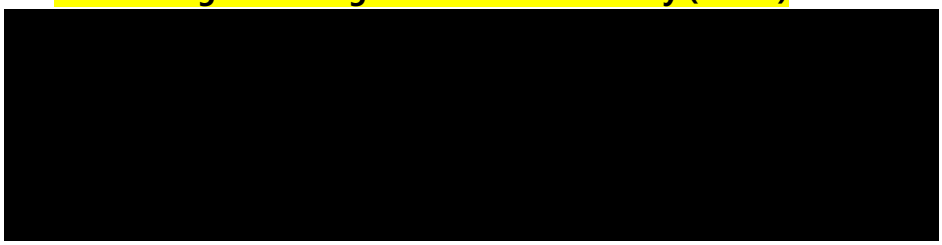
It should be noted that the Tampa project is, in many ways, more of a parallel to ngORCA:

- True multi-agency Region
- BRT and Streetcar Modes
- Complicated fare structure
- Additional CAD/AVL integration points

3.2.2 Bytemark Projects

3.2.2.1 Electronic Ticketing and Fare Management System

Hillsborough Area Regional Transit Authority (HART)



Modes: Streetcar, Bus and Paratransit

This project consisted of the following transit agencies: Hillsborough Area Regional Transit Authority (HART), Pinellas Suncoast Transit Authority (PSTA), Sarasota County Area Transit (SCATA).
HART Ridership: 14,098,000 annual riders
PSTA Ridership: 13,074,000 annual riders
SCATA Ridership: 2,683,000 annual riders

Bytemark's Responsibilities

Bytemark was responsible for the design, development and deployment of mobile ticketing applications. Bytemark project manager Max Letaconnoux, CTO Nicholas Ihm, Platform Architect Abhishek Ravishankara, Mobile Architect Kevin Rejko, and Senior Software Engineer Iain Alexander have worked directly with INIT to manage technical integration of Bytemark's mobile ticketing application and INIT's MOBILEvario back office architecture.

Project Services

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Bytemark partnered with INIT as a sub-contractor for this project with HART. Bytemark is providing a fully integrated mobile ticketing application with the INIT MOBILEvario back office system. The mobile app will be capable of topping-up both digital and physical fare media. Virtual smart card is capable of being validated onboard by barcode. Bytemark created a "fast track" app as part of this project. The fast track app was launched prior to the roll-out of the new fare collection system by Init. This provided a convenient mobile solution that HART riders could utilize while the new system was under development.

Total Cost of Contract: 5 Year $[redacted]

Start Date: Initial product launched in November 2016

End Date: In Service

Project Staff

[redacted]

Account-Based with Open APIs

Supports contactless EMV fare cards (Open Payments), branded regional fare media (Closed Loop).

- Multi-client, regional EFM system
- Smart card & mobile ticket proximity readers
- Back-Office clearing and revenue processing system
- Open APIs for integration with third parties.

Relevance to ORCA

- Integration with INIT's MOBILEvario account-based system
- Issuing virtual fare media
- Topping up physical and virtual fare media via mobile

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3.2.2.2 Mobile Ticketing Application System

Interurban Transit Partnership, Grand Rapids, MI

[redacted]

Modes: Bus, BRT, Vanpool and Paratransit

Ridership: 11,446,000 annual riders

Bytemark's Responsibilities

Bytemark was responsible for the design, development and deployment of mobile ticketing applications. Bytemark project manager Max Letaconnoux, CTO Nicholas Ihm, Platform Architect Abhishek Ravishankara, Mobile Architect Kevin Rejko, and Senior Software Engineer Iain Alexander have worked directly with INIT to manage technical integration of Bytemark's mobile ticketing application and INIT's MOBILEvario back office architecture.

Project Services

Bytemark partnered with INIT as a sub-contractor for this project with The Rapid. Bytemark is providing a fully integrated mobile ticketing application with the INIT MOBILEvario back office system. The mobile app will be capable of topping-up both digital and physical fare media. Virtual smart card is capable of being validated onboard by barcode or NFC.Total Cost of Contract: 5 Year $[redacted] + Transaction Commision %

Start Date: In development

End Date: N/A

Project Staff

[redacted]

Account-Based with Open APIs

1. Supported multiple fare policies and fare products, including fare capping and complex business rules.

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2. Provided agency ownership or perpetual licensing of security keys, data formats, and Application Programming Interfaces to allow integration with outside vendors including Computer Aided Dispatch and Automated Vehicle Location, mobile ticketing, retail network, bike share, parking and other third party partners.
3. Based on an open architecture system with open Application Programming Interfaces that enable integration of third party commercial-off-the-shelf (COTS) hardware/software components.
4. Capable of supporting contactless fare media.
5. Capable of supporting open payments, including contactless bank cards and mobile wallets.

Relevance to ORCA

- Integration with INIT's MOBILEvario account-based system
- Issuing virtual fare media
- Topping up physical and virtual fare media via mobile

3.2.2.3 Mobile Ticketing Application System

Rhode Island Public Transit Authority

[redacted]

Modes: Bus and Paratransit

Ridership: 18,866,000 annual riders

Bytemark's Responsibilities

Bytemark was responsible for the design, development and deployment of mobile ticketing applications. Bytemark project manager Max Letaconnoux, CTO Nicholas Ihm, Platform Architect Abhishek Ravishankara, Mobile Architect Kevin Rejko, and Senior Software Engineer Iain Alexander have worked directly with INIT to manage technical integration of Bytemark's mobile ticketing application and INIT's MOBILEvario back office architecture.

Project Services

Bytemark partnered with INIT as a sub-contractor for this project with RIPTA. Bytemark is providing a fully integrated mobile ticketing application with the INIT MOBILEvario back office

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system. The mobile app will be capable of topping-up both digital and physical fare media. Virtual smart card is capable of being validated onboard by barcode.

Project Staff

[redacted]

Account-Based with Open APIs

The APIs will support a number of interfaces to INIT devices and to 3rd parties, such as the retail network, website and mobile app.

Relevance to ORCA

- Integration with INIT's MOBILEvario account-based system
- Issuing virtual fare media
- Topping up physical and virtual fare media via mobile

3.2.2.4 Transit Go Ticket

King County Metro, Sound Transit, Seattle Streetcar, King County Water Taxi, Seattle Center Monorail

[redacted]

Modes: Bus, BRT, Light Rail, Streetcar, Water Taxi, Vanpool and Paratransit

KCM Ridership: 125,000,000 annual riders

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ST Ridership: 42,732,000 annual riders

KCW Ridership: 601,000 annual riders

Streetcar Ridership: 1,358,000 annual riders

Monorail Ridership: 2,243,000 annual riders

Bytemark's Responsibilities

Bytemark developed and deployed mobile ticketing applications, customer web portal, and back office systems. Bytemark staff managed all product and agency onboarding, payment processing and merchant account applications, and client communication. Bytemark conducted multiple training sessions with different segments of KCM and Sound Transit Staff including: Fare inspection, Customer Service, Finance, Back Office & Product Administration.

Project Services

Transit Go Ticket

Transit Go Ticket is the regional mobile ticketing platform Bytemark launched for the Puget Sound region that is led by Seattle's King County Metro (KCM) and Sound Transit. After a competitive bid process, Bytemark was awarded a contract for mobile ticketing services with KCM in February 2016 and launched the mobile ticketing solution to the public in November 2016. Mobile ticketing services can be used across Bus, Light Rail, Streetcar, and Water Taxi services. The mobile app is available on iOS and Android. In addition to mobile, Bytemark also delivered an online customer portal for account management and customer outreach. Bytemark worked with a local SCS firm for marketing and engagement, which included digital and street team-outreach.

Bytemark also provided a "Lab" component as part of our contract. We supplied the agencies with hand held hardware to test new validation methods. The lab also encompassed demonstrating new features and technologies such as advanced reporting and analytics, Bluetooth validation, and special event ticketing and offers.

Bytemark recently added Seattle Center Monorail to the mobile ticketing platform in January 2018.

Total Cost of Contract: 5 Year $[redacted] + Transaction Commission %

Start Date: Launched in November 2016

End Date: In Service

Project Staff

[redacted]

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[redacted]

Account-Based with Open APIs

Bytemark's back end system is a microservices infrastructure comprised of multiple web services that can be swapped out or re-routed to other services to enable an open architecture with different third-party components and back office systems.

Bytemark web services implement REST-ful APIs that are documented with the OpenAPI specifications to allow for interopability with different systems, vendors, and integrators.

- Microservices facilitated by RESTful and open APIs
  - APIs follow RESTful standards.
  - The APIs use HTTP methods explicitly
  - The API are stateless
  - API responses are JSON formatted
- OAuth 2.0 protocols
- PCI Level 1 Certified Payment Gateway
- AWS Cloud Hosting

The Bytemark platform is a web-based account management system: Accounts reside in a cloud-based back office system. Users can register for an account through a mobile app or web portal. Users can login to their account on multiple devices and websites, and retrieve their account information and fare products from the back office system. The purchased fare products live in the user account in the cloud-based back office, and can be accessed on multiple devices. Tickets can be "locked" to a single device once they are activated to prevent activation on multiple devices. Fare products and payment information reside in the cloud-based back office, not the user mobile device, but may be cached on the device so that tickets may be used offline.

Relevance to ORCA

This project provided us with valuable experience working with key stakeholder agencies from the ORCA group. We have detailed knowledge of relevant fare structures and products. We integrated agency information, customer service links, and KCM's trip planner into our applications. We've trained agency staff and departments on how to manage our technology.

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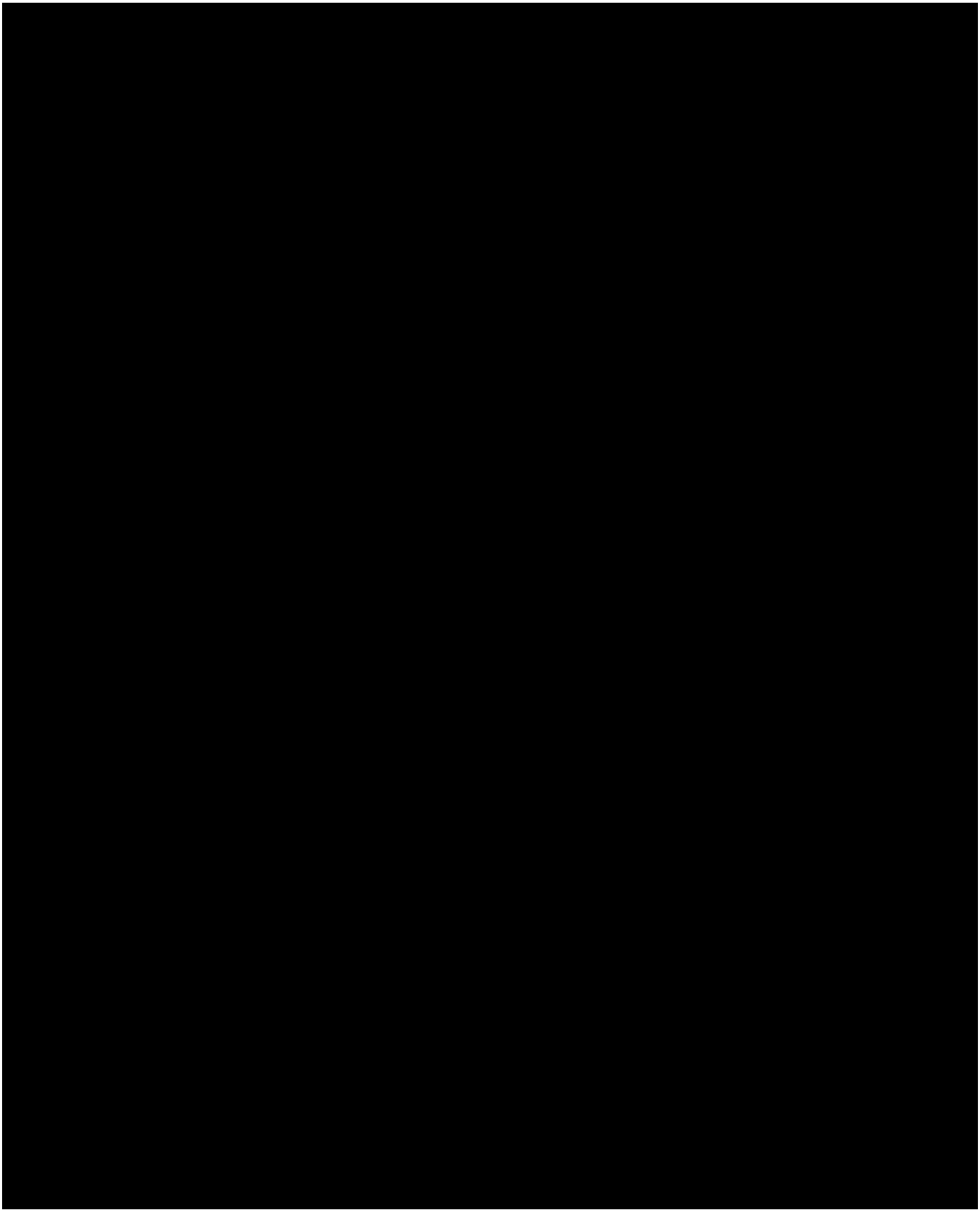

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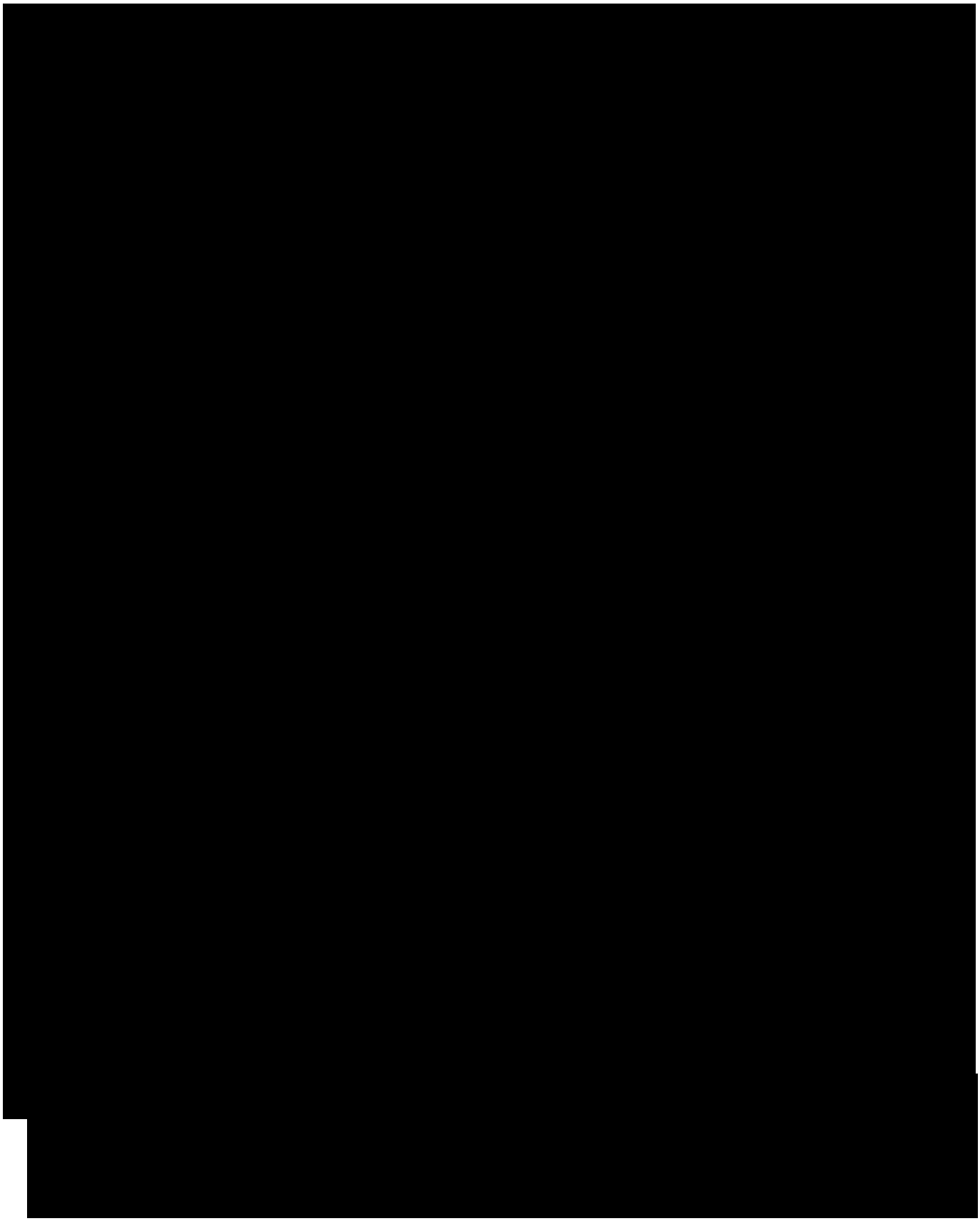

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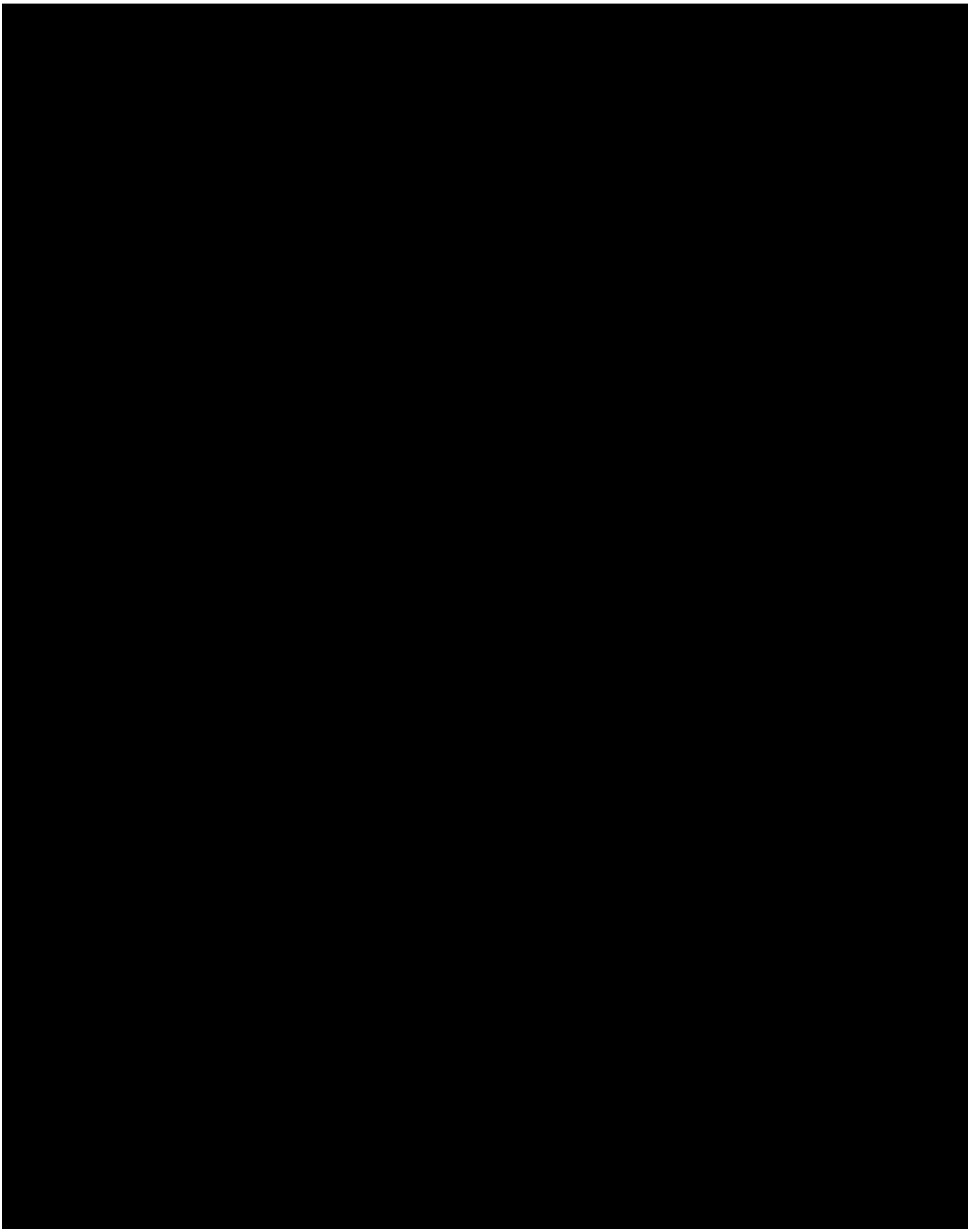

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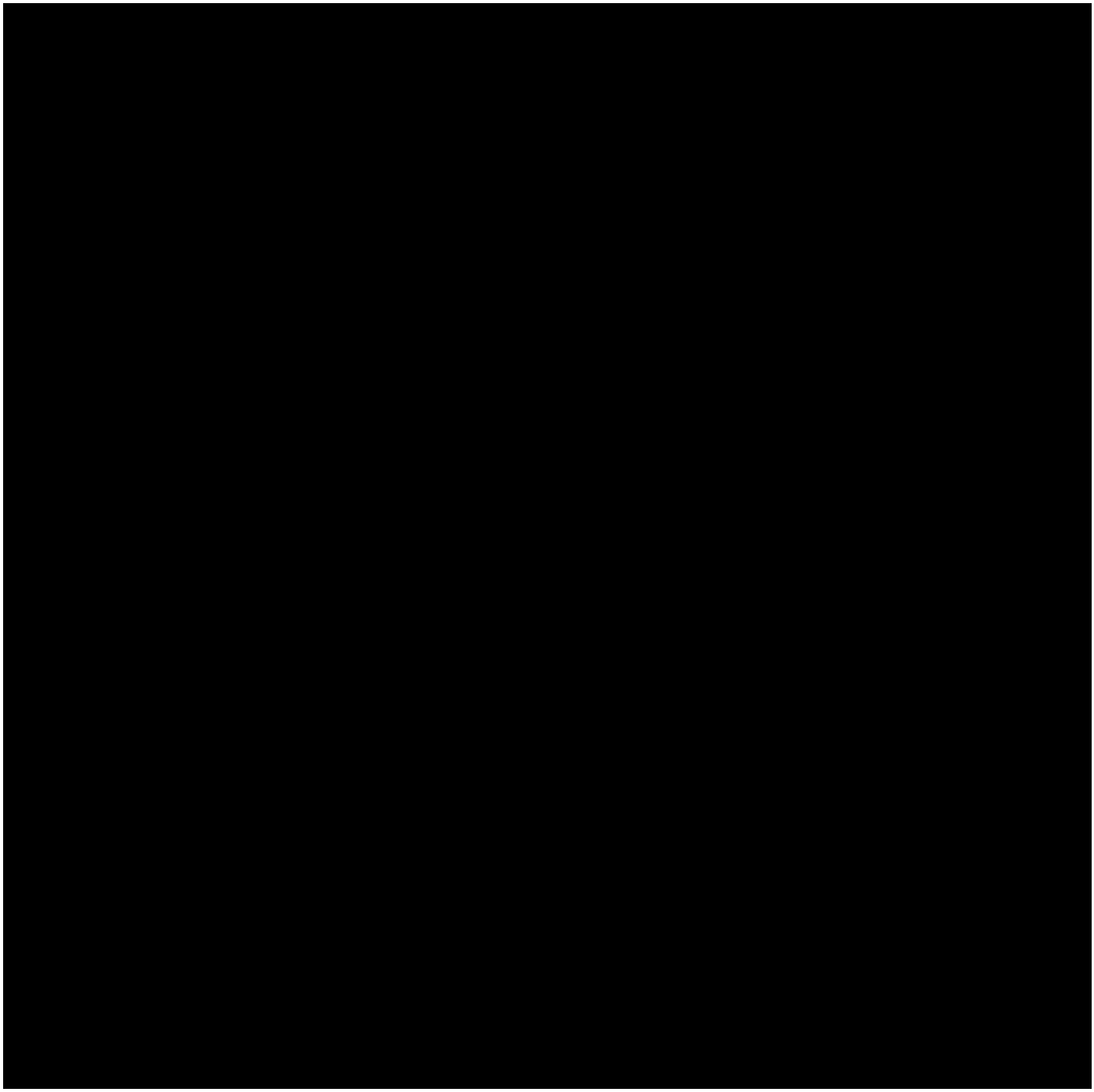

3.2.5 ESP Enterprises Projects

3.2.5.1 Mobile Ticketing Pilot: Transit Go Ticket

Cubic

[redacted]43

[redacted]

Cubic is a leading supplier of intelligent transportation systems for bus, rail, light rail, etc.

Installed all manufacturer equipment per Cubic's specifications.

Duration of project: 9/2012 – 2/2013 & 5/2015 – 7/2015

Project Staff

[redacted]

Relevance to ORCA

Relevant in size and scope with comparable equipment. Working with multiple agencies. Similar equipment.

3.2.5.2 Ticket Vending Machine Installations

Genfare

[redacted]

ESP installed all manufacturer's equipment as per Genfare specifications and also assisted with warranty and maintenance after installation.

Installation of ticket vending machines all associated network cabling.
Duration of project:

Project Staff

[redacted]

Relevance to ORCA

Project included ticket vending machines on the rail station.

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3.2.6 Anthro-Tech, Inc. Projects

3.2.6.1 User-centered Redesign for Website, Mobile Website, Ticket Vending Machine, Regional Trip Planner, and Intranet

Sound Transit

[redacted]

Sound transit plans, builds and operates express bus, light rail and commuter train services serving the urban areas of King, Pierce and Snohomish counties in Washington State.

Anthro-Tech's Responsibilities

Supported the design, customer research and testing of customer focused products including: Sound Transit website, Sound Transit Ticket Vending Machine user interface, Sound Transit Ticket Vending Machine decals, digital signage, station wayfinding, mobile website, trip-planner, projects and plans website, Sound Transit intranet, developer portal, and digital roadmap strategy.

Project Services

- User-centered design strategy for creating rider focused technology solutions, including: the desktop and mobile websites, ticket vending machine user interface and external machine branding and decals, and digital signs displaying real-time arrivals.
- Quantitative and qualitative research including interviews, surveys, baseline and formative usability testing, card sorting, field research.
- Participatory design workshops to capture business requirements and involve stakeholders and use their ideas throughout the user experience design process.
- User experience design and development including wire framing, prototyping and visual design for the desktop and mobile applications, ticket vending machine interface, and digital signage.
- Assistance with developing an initial strategy for creating a more cohesive and consistent customer experience across all tools, along with guidance for employing tools to better deliver news on projects and community and rider impacts.

Total Cost of Contract: $[redacted]

Start Date: February 2010

End Date: March 2016

Project Staff

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[redacted]her

Relevance to ORCA

Designed an easy-to-use, intuitive, accessible and seamlessly integrated user experience across all customer touchpoints, tools and interfaces. Leadership in a data-driven and customer-centric design process and significant collaboration with regional transit agencies and stakeholders.

3.2.6.2 Product Usability Testing and Customer Experience Field Research

Amazon

[redacted]

[redacted]

Start Date: 2011

End Date: N/A Ongoing

Project Staff

[redacted]

Relevance to ORCA

Required significant expertise in user and usability research to drive innovative website and mobile app payment, e-commerce and sales conversion focused user interfaces.

3.2.6.3 User Research, Design, and Prototyping for Orcacard.com and Orcabiz.com

One Regional Card for All – Sound Transit

[redacted]

Sound Transit is a collaborative region-wide fare system consisting of seven transit agencies in the Puget Sound. Encompasses buses, trains, and ferries.

Anthro-Tech's Responsibilities

Detailed user interface specifications and design solutions to improve the usability of orcacard.com and orcabiz.com.
Focus groups and stakeholder buy-in from the partnering agencies for the ORCA2 program.
Market and customer research-driven personas detailing target audience groups, their goals, needs, pain points and opportunities for user experience improvements.

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A user-tested responsive digital prototype of orcacard.com. The ORCA program will start development of the prototype and website changes in January 2017.

Project Services

- Baseline user experience testing to inform design solutions for high-value changes to the user-interface of Orcacard.com and ORCAbiz.com
- User-centered design strategy for the ORCA2 program and orca.com web site.
- Quantitative and qualitative research including market research survey, user interviews with business account holders, focus groups with all agency partners, and usability testing with customers
- User experience design and development including mobile prototyping
- Field usability testing

Total Cost of Contract: [redacted]

Start Date: Project 1: 2010 – 2011
Project 2: October 2015 – March 31, 2016

End Date: March 31, 2016

Project Staff

[redacted]

Relevance to ORCA

Involved highly strategic stakeholder and market research to ensure the Next Generation ORCA strategic direction is based on customer and stakeholder feedback. Led to a set of data-driven personas, which provide a shared understanding of the needs, behaviors and goals of the top customer groups. Leveraged our deep expertise in the iterative and user-focused design process, developing UX/UI for mobile responsive ORCA website.

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3.2.6.4 User-centered Redesign of DOT website, Ferries Reservation System, and the Good to Go Tolling Application

Washington State Department of Transportation
Kris Rietmann, Deputy Communications Director
[redacted]

The Washington State Department of Transportation is the steward of multimodal transportation in WA State. This includes the state ferry system, state tolling, and a data-rich website encompassing all forms of travel in Washington state.

Anthro-Tech's Responsibilities

User-centered design and research for the Department of Transportation Web site, the Ferries Reservation System and the Good to Go Tolling application. The project is still in progress. Accomplishments to date are: baseline usability testing for wsdot.wa.gov, Good to Go Tolling Application and WA State Ferries Reservation system, design solutions for quick win improvements for Reservation System and Good to Go Tolling application, user-centered design strategy and roadmap for redesigning, and stakeholder buy-in for improving the customer experience.

Project Services

User-centered design and research for the Department of Transportation Web site, the Ferries Reservation System and the Good to Go Tolling application.

Work includes:

- Customer strategy and roadmap
- Market and customer research
- Iterative usability testing
- Design solutions
- Mockups and wireframes
- Visual design
- User-interface specifications
- Content strategy and improvement
- ADA compliance

Total Cost of Contract: $[redacted]

Start Date: Project 1: January 2016
Project 2: October 2015

End Date: Project 1: Present

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Project 2: March 31, 2016

Project Staff

Suzanne Boyd – Customer Experience Architect
Lani Hathaway, User Experience Strategist, User Experience Designer
Camy Naasz – Design Researcher, User Experience Designer
Tom Ryle – User Experience Designer
Tori Leonard – Design Researcher
Melanie Penney – Design Researcher

Relevance to ORCA

Work involves strong UX leadership and execution in the data-driven and user-centered design process to improve websites and web applications ensuring a seamless experience across all. Requires intensive collaboration with stakeholders from across the organization. Leverages our deep expertise in information architecture, content strategy, prototyping, user interface design and visual design.

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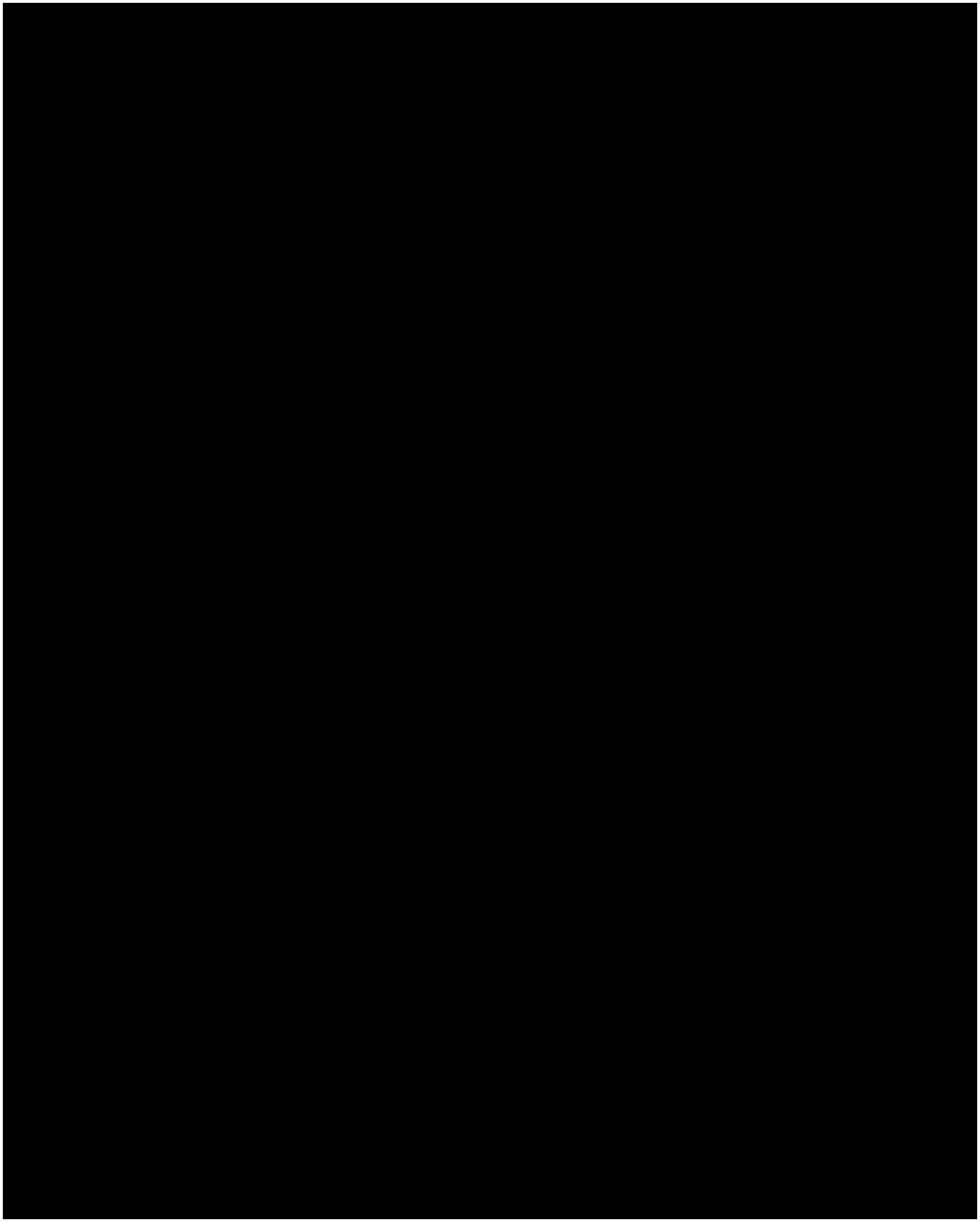

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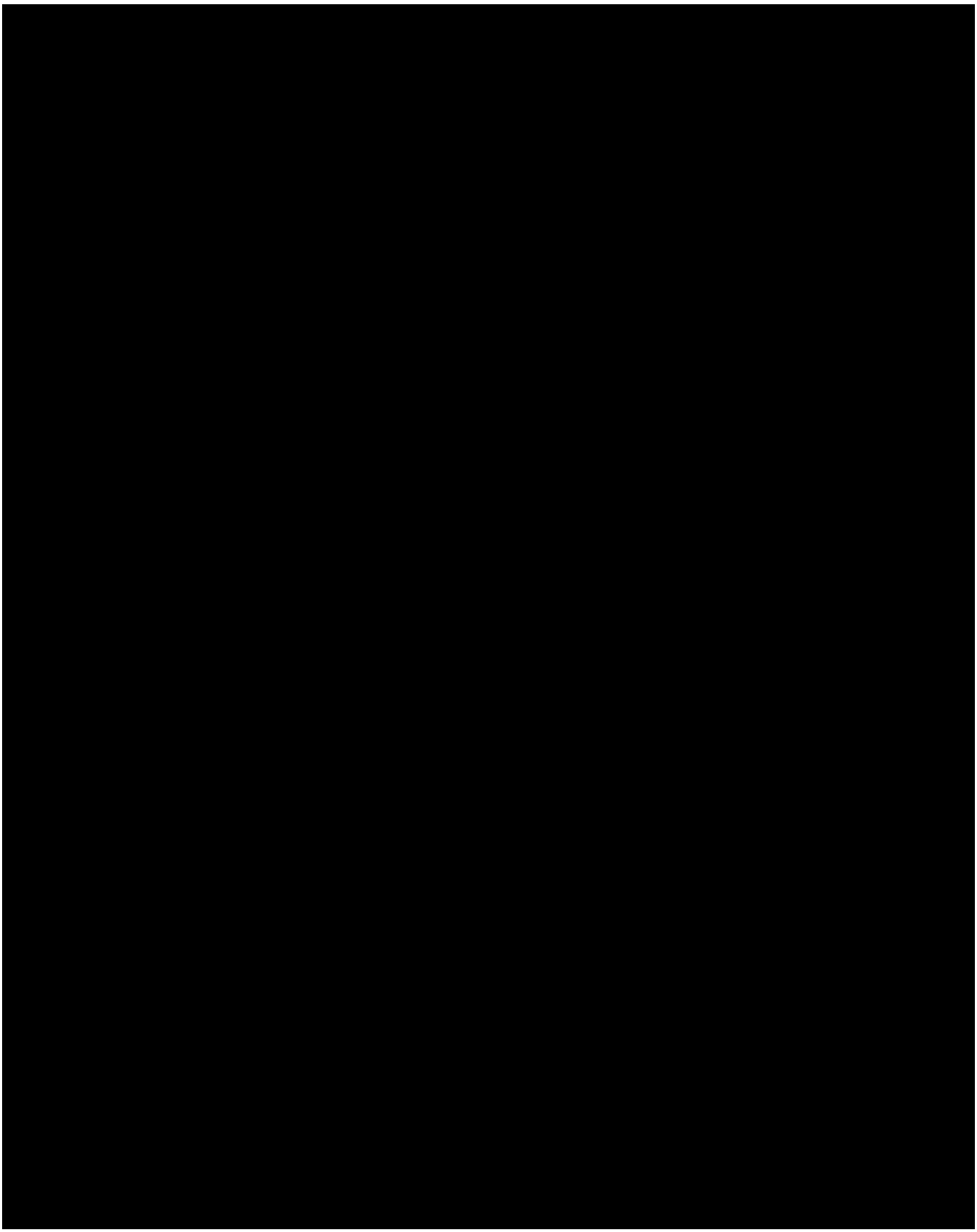

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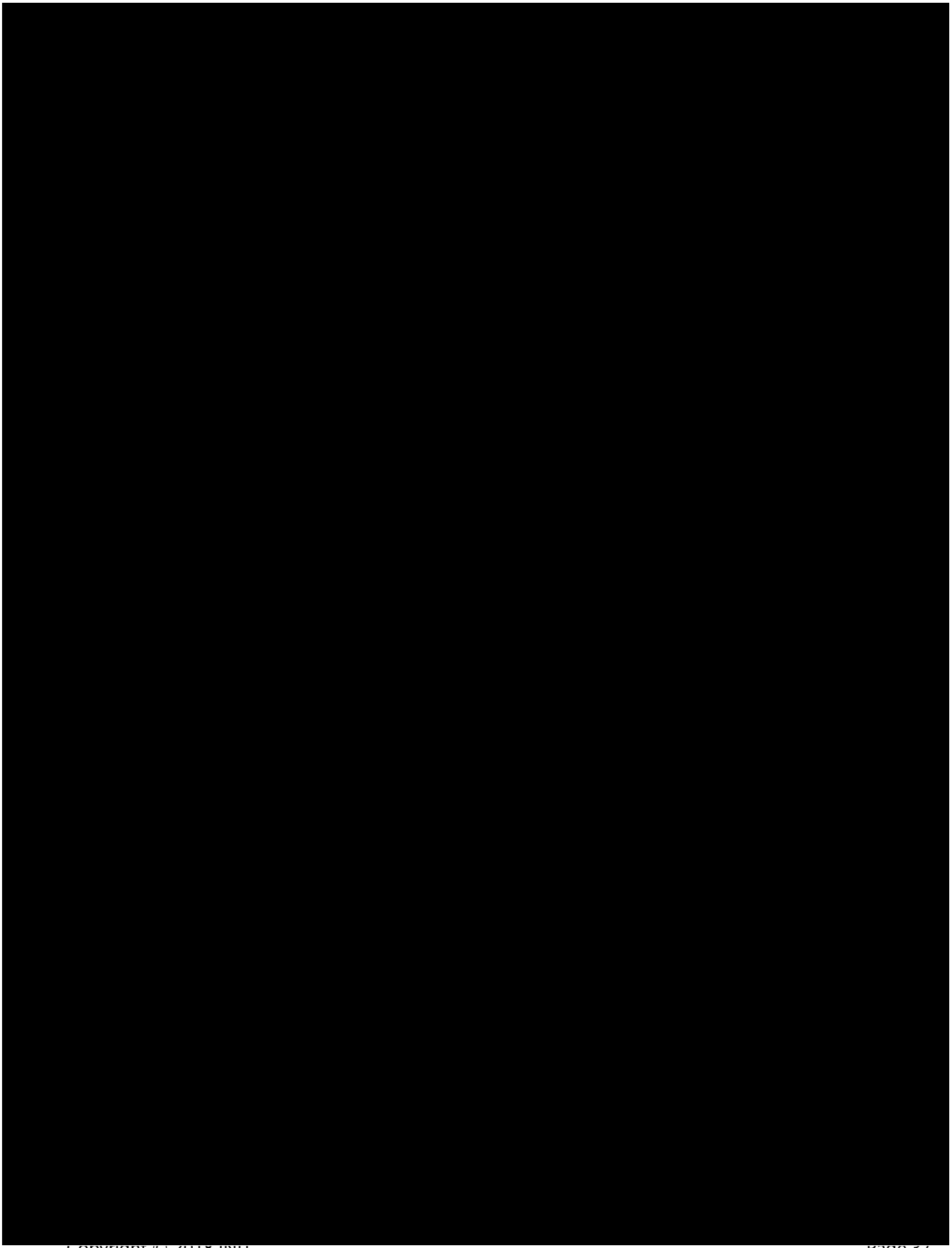

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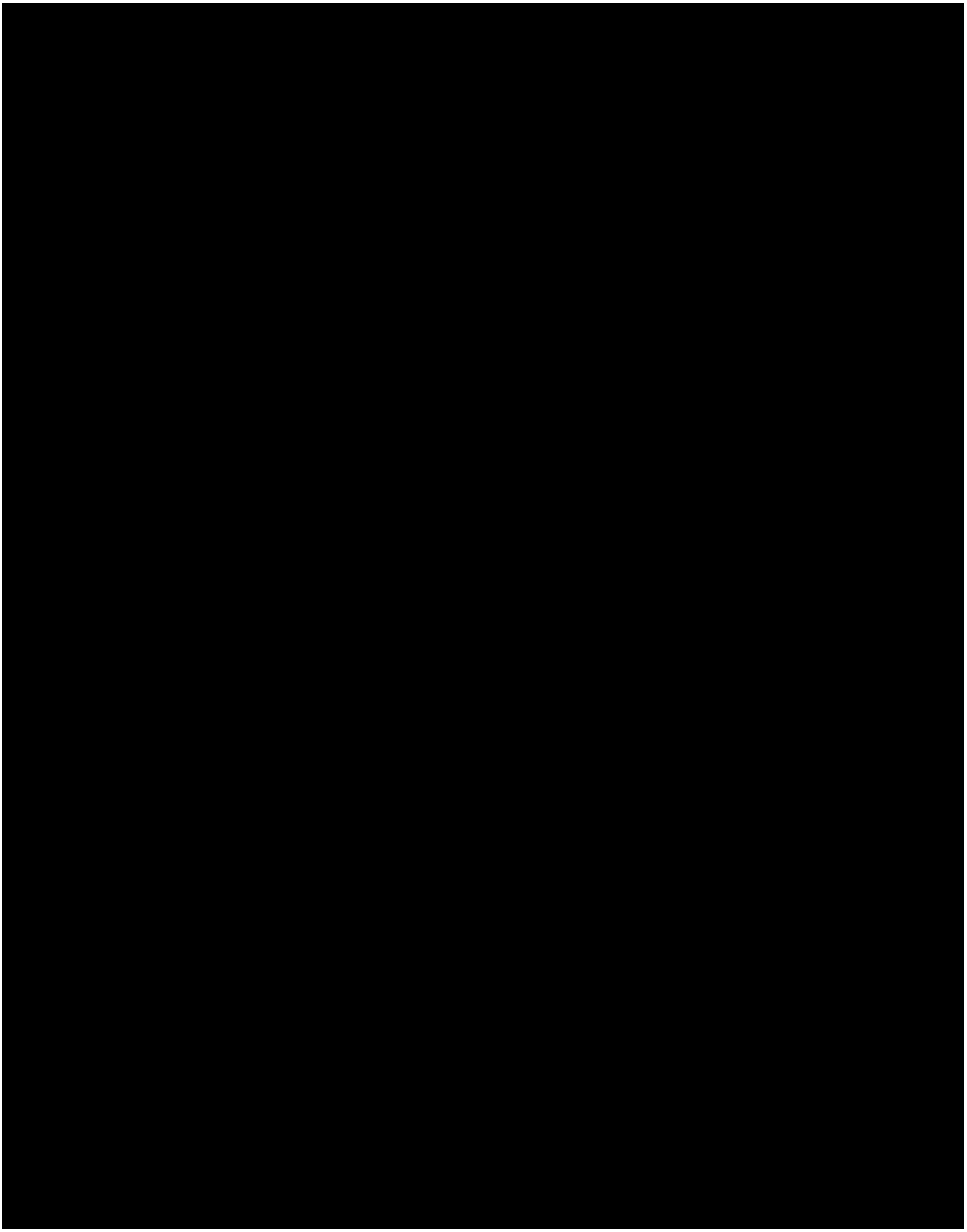

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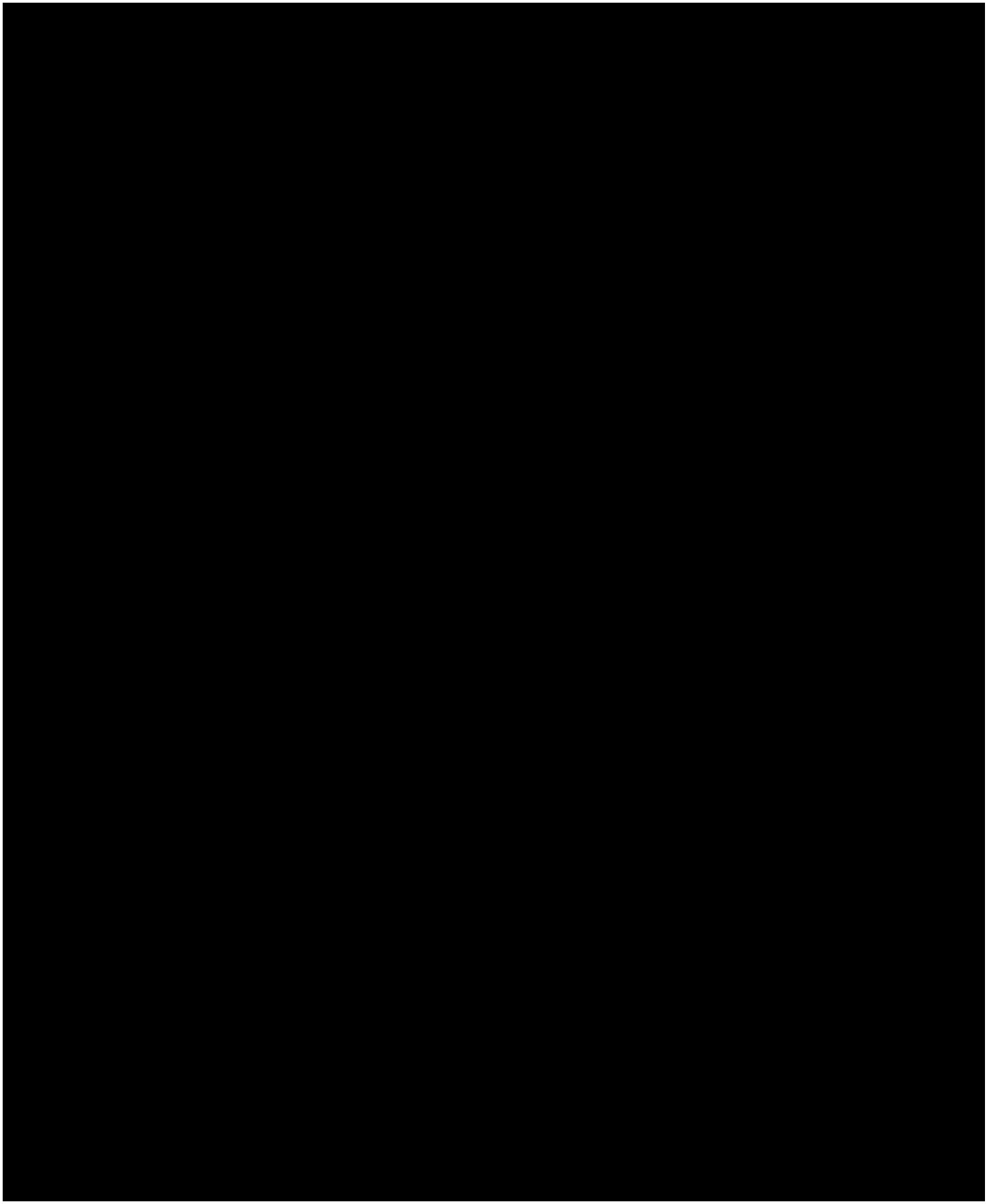

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[redacted]

3.3 Customer References

Customer references for the INIT team can be found below.

3.3.1 INIT Reference Information

Tri-County Metropolitan Transportation District of Oregon, (Tri-Met)

[redacted]

Honolulu Authority for Rapid Transportation (HART), Honolulu, Hawaii

[redacted]

Hillsborough Area Regional Transit Authority (HART), Tampa, Florida

[redacted]

Our experience with INIT and their subs has been outstanding. Their design review process and test procedures have far exceeded our expectations. The personnel they assigned to the project have been top-notch. Leadership for the organization monitors the project and the correct amount of emphasis is applied if there are any issues. The project management team has been dedicated and is very concerned about the quality of all deliverables. Cannot say enough how much we have enjoyed working with this professional team"

3.3.2 Bytemark Reference Information

Hillsborough Area Regional Transit Authority (HART)

[redacted]

Interurban Transit Partnership, Grand Rapids, MI

[redacted]

Rhode Island Public Transit Authority

[redacted]

King County Metro, Sound Transit, Seattle Streetcar, King County Water Taxi, Seattle Center Monorail

[redacted]

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[redacted]

[redacted]

[redacted]

[redacted]gov

[redacted]

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3.3.5 ESP Enterprises Reference Information

Cubic

1308 S Washington St.
Tullahoma, TN 37388
Martin Schmidt, Director/After Sales Support
Phone Number: 931-607-3243
Email address: martin.schmidt@cubic.com

Genfare

800 Arthur Ave.
Elk Grove Village, IL 60007
Dan Gilfand, Director of Programs
Phone Number: 847-222-3637
Email address: dan.gilfand@spx.com

ACS/Genfare/Parkeon

1900 Main St.
Houston, Texas 77002
Pat Dimayuga, Sr Fare Collection Equipment Foreman
Phone Number: 281-900-4327
Email address: Patrick.dimayuga@ridemetro.org

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3.3.6 Anthro-Tech, Inc. Reference Information

Sound Transit

[redacted].org

One Regional Card for All (ORCA)

[redacted]

Washington State Department of Transportation

[redacted]

[redacted]

Aaron Wanek, VP, Global Customer Care

[redacted]

InVentiv

[redacted]

3.3.8 Babinec Consulting LLC

[redacted]

US Army Corps of Engineers

[redacted]

Hydro Inc.

[redacted]

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3.4 INIT and Our High-Performance Partners' Organizational Structure

INIT has included our subcontractors in the organizational chart provided in Section 2 of our proposal where we show the relationship between the team leads and the subcontractors. Subcontractors are clearly marked with green banners.

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3.5 INIT's Financial Performance

3.5.1 Stellar Financial History

The audited financial statements for INIT, Inc. and it's subsidiaries for the last-three (3) years are attached in this section as Appendix A.

You can also view INIT SE's financial statements on our website by clicking on the following link:

https://www.initse.com/ende/investors/financial-reports/financial-reports-archive.html?#c2901

3.5.2 A Solid Financial Forecast

INIT has provided our audited financial statements which demonstrate a solid financial history. Thanks to prudent financial management over the last seventeen years, we have built a strong reserve.

As a member of the publicly traded INIT Group, we continuously prepare internal financial forecasts for our supervisory board. This planning is reviewed and approved on a regular basis. This is, however, internally proprietary information, which we are not able to release.

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3.6 INIT's Recent Fare Collection Wins

INIT's current fare collection project portfolio is included below:

3.6.1 Tri-County Metropolitan Transportation District of Oregon, (Tri-Met), Electronic Fare Collection Implementation Technical Services – HOP FastPass

Project dates: December 2014 – July 2017 (in service)

Revenue over length of time:
Tri-Met: $[redacted]
C-Tran: $[redacted]
Portland Streetcar: $[redacted]

Financial capacity details: This project is 100% financed by INIT internal resources.

Project details:

The HOP FastPass contract comprises the delivery of an Account-Based fare management system which supports both Closed Loop Cards and Open Payments. It includes a comprehensive Central Processing module, more than 1,100 onboard and platform validators combined; 90 mobile inspection devices, and approximately 100 retail POS units. INIT will also provide customer web portals and an initial 1,300,000 contactless smart cards.

Additionally, the project was extended to incorporate transportation services offered by the Clark Country Public Transit Benefit Area Authority (C-Tran), located in the neighboring city of Vancouver, WA and Portland Streetcar.
INIT provides a state-of-the-art electronic fare collection solution for TriMet. The contract includes the provision and the implementation of an account based solution, including:

- MOBILEvario backoffice with account processing, payment gateway, data warehouse, ledger, revenue clearing/settling, reporting, statistics, etc.
- Approximately 1,100 validators, on board buses/light rail and on platforms
- Retail Sales Terminals
- Open Architecture with various APIs to internal/external systems
- Closed Loop Payment, including integration with retail network provider, Ready Credit Corporation
- Open Payment
- Fare Aggregation, Fare Capping
- IVR system integration from Enghouse
- Integration with Mobile Ticketing
- Web portal design and development

The HOP FastPass solution will greatly enhance the already progressive bus, light rail, and commuter rail network in Portland. Tri-Met's ridership will benefit from more convenience and pricing equity and the ability to utilize contactless bank cards and mobile phones.

3.6.2 Honolulu Authority for Rapid Transportation (HART), Honolulu, Hawaii

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Project dates: NTP April 1, 2016 completion estimated 2023

Revenue over length of time: $[redacted]

Financial capacity details: This project is 100% financed by INIT internal resources.

Project details:
550 Fixed Route (includes PROXmobil3, Mobile Display Terminal & Digi WR44R Router)
110 Ticket Vending Machines (TVMs) & 139 Faregates at 21 Rail Stations
10 Year Software Maintenance Contract
Project Phases:

- Phase 1: Implementation on TheBus (Late 2017)
- Phase 2: Interim Rail (Late 2018)
- Phase 3: The Handi-Van (2019)
- Phase 4: Full Revenue Service (2021)

3.6.3 Hillsborough Area Regional Transit (HART), Tampa, Florida

Project dates: 2nd Quarter 2016 – 4th Quarter 2018

Revenue over length of time: $[redacted]

Financial capacity details: This project is 100% financed by INIT internal resources.

Project details:
The Tampa Regional Working Group (RWG) is comprised of 8 local transit agencies, with Hillsborough Area Regional Transit (HART) as the lead procuring agency. These agencies have chosen INIT to provide an account-based, regionally inclusive electronic fare payment system, in which customers in all applicable regions can travel within the Tampa area and use the same electronic fare payment strategy.

INIT is providing more than 600 PROXmobil3 electronic readers for Fixed Route vehicles to the RWG. Additionally, INIT will provide its MOBILEvario back end system to integrate the fare strategies of all 6 agencies. Moreover, INIT will take on the installation, mobile application, web development and IVR with accomplished and qualified subcontractors.

As part of the procurement, INIT is interfacing with several CAD/AVL providers. Each of the regional agencies has their own CAD/AVL solution, to which INIT must interface. This abundantly demonstrates INIT's integration capabilities, for which INIT's open architecture APIs and dedicated engineering teams are responsible.

INIT is also providing the initial supply of agency-issued smart cards, retail sales terminals and various fixed fare processing equipment.

3.6.4 The Rapid, Grand Rapids, MI

Project dates: February 2016 – Completion Date Expected April 2018

Revenue over length of time: $[redacted] / 24 months

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Financial capacity details: This project is 100% financed by INIT internal resources.

Project details:
INIT is providing ITP with an interoperable, account-based, automated fare collection system that will process smart cards and mobile tickets onboard The Rapid's fleet of 150 fixed-route buses. The same system will serve ITP's Silver Line BRT via 34 platform-mounted validators in addition to equipping ITP personnel with a mobile inspection App and validation device.

This account-based system allows for secure storage of ITP customer information in INIT's backend system, MOBILEvario, which riders of The Rapid can access via website, mobile application, or in person at ITP service centers. MOBILEvario is INIT's central revenue management system which will allow ITP to track sales and revenue by media type, manage POS transactions, issue and monitor usage of fare media, and manage the relationship with Vantiv, a 3rd party payment gateway. Additionally, INIT is incorporating two hugely important educational and medical institutions into the system in the form of Grand Valley State University and Spectrum Health, two of the largest employers in Grand Rapids.

INIT is providing EMV compliant PROXmobil3 validators on 150 buses with real-time validation and integration to the existing (Genfare/SPX cash) farebox and (Avail Technologies) CAD/AVL system. Digi WR44 cellular routers are being integrated and installed by INIT as part of the vehicle configuration as well. In addition to the core project scope, INIT has replaced Scheidt & Bachmann as the supplier of BRT platform validators and POS terminals.

3.6.5 Rhode Island Public Transit Authority (RIPTA), Providence, RI

Project dates: Kicked off January 2018 with 18 – 24 month project, depending on options

Revenue over length of time: $[redacted] MM plus $[redacted] TVM Option

Financial capacity details: This project is 100% financed by INIT internal resources.

Project details:

RIPTA is a quasi-public, state-wide independent authority, serving 36 of the 39 communities within Rhode Island. With a central hub in the Rhode Island Capitol city of Providence, RIPTA has a current fleet of over 230 fixed-route buses envisioned to be over 240 based by 2019. This project consists of an INIT Account-Based eFare Collection system with fully integrated Mobile Ticketing by Bytemark, an experienced INIT Partner and sister company.

Thirteen to twenty-six bus and INIT VENDstation BRT Platform Ticket Vending Machines (TVMs) are included as options for an envisioned future phase of this Fare Collection project, as a primary mechanism for the anticipated transition to non-cash payment for >90% of fare transactions. Instead, riders will pay via Mobile, Retail, Web, and RIPTA-internal eFare smartcards, using electronic payment options and an extensive retail network to pay fares.

The INIT system will interface with existing Conduent OrbCAD AVL system (formerly known as Xerox and/or ACS). It will communicate with the back end via an existing on-board 3G/4G/LTE cellular modem, plus the RIPTA WLAN.

The INIT MOBILEvario Central Data System back-end will validate fares via an On-line Validation Server designed for the highly anticipated future acceptance of contactless EMV media, and to support Card Present transactions.

RIPTA will have INIT PROXmobil3 fare validators on board all vehicles, communicating via cellular wireless routers and is also considering platform-mounted Validators.

The project encompasses INIT engaging and supporting RIPTA's government, healthcare, educational, corporate, and other business partners' fare needs for their groups of both in-state and neighboring regional transit systems.

3.7 INIT's Experience in State-of-the-Art Automated Fare Collection Services, Features and Functionality

INIT's account-based MOBILE-EFM system is designed with Open Payments included in the base system. With Open Payments, customer can use their contactless credit cards or mobile wallets like Apple Pay, Android Pay and Samsung Pay to purchase their ticket right at the validator. No need to get a card, download an App or search for change. This lowers the entry barrier to use public transit tremendously and makes it especially easy for non-frequent riders like tourists.

They can simply use a preferred payment medium that they already possess, and they don't have to worry about potentially unused credit balances. The benefit to the ORCA agencies are savings of the administration costs of media inventory and the complex accounting management of remaining credit balances.

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The AFC system proposed for the ngORCA project will include Open Payments functionality and we are proposing Open Payments be implemented in Phase One of the project.

INIT has successfully deployed Open Payment at TriMet in Portland with deployment scheduled for Birmingham, England soon.

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INIT's Knowledgeable and Experienced Team

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

Resubmittal MARCH 23, 2018

The Future of Mobility

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Price

Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

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5 INIT's High-Value, Cost-Effective Solution

5.1 Pricing Summary

Next Generation ORCA System Integrator RFP

Proposal Pricing Form

Item No.	Description	Total Price
1	Implementation Services	[redacted]
2	System Software and Design	
3	Equipment and Spares	
4	Fare Media	
5	Operations and Maintenance Support Services	
6	Software Licenses	
7	Value-added Features and Capabilities	
	GRAND TOTAL	**$ 90,432,649.91**

Signed:

[redacted]

3-23-2018

Date

Roland Staib, President & CEO

Name & Title

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5.2 Pricing Form

Next Generation ORCA System Integrator RFP

Pricing Form

Item No.	SOW Ref.*	Description	Unit	Est. Qty.	Unit Price	Amount
1. IMPLEMENTATION SERVICES						
	Program and Contract Management					
1.01	2	Program & Contract Management (NTP to System Acceptance)	LS	1		
	3	UI/UX Consultant	LS	1		
		Performance Bond	LS	1		
Subtotal - Program and Contract Management						
	Installation and Transition Services					
1.02	2	Transition Strategy and Planning	LS	1		
1.03	2	Back-Office Installation and Configuration, Including Documentation	LS	1		
1.04	2	Field Device Site Surveys and Prototyping	LS	1		
1.05	2	Onboard Equipment (validator and DDU) Installation, Commissioning, and Documentation (Excluding KCM)	EA	650		
1.06	2	Onboard Validator Equipment Installation, Commissioning, and Documentation (KCM Only)	EA	0		
1.07	2	Wayside Validator Installation, Commissioning & Documentation	EA	1095		
1.08	2	VM Installation, Commissioning & Documentation	EA	291		
1.09	2	CST Installation, Commissioning & Documentation	EA	41		
Subtotal - Installation and Transition Services						
	Testing					
1.10	2	Agency Test Facility Implementation, Housing, and Documentation	LS	1		
1.11	2	Factory Testing and Documentation	LS	1		
1.12	2	Integration Testing and Documentation	LS	1		
1.13	2	Pilot Testing and Documentation	LS	1		
1.14	2	System Acceptance Testing and Documentation	LS	1		
Subtotal - Testing						

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	Training			
1.15	2	Training Course Development and Materials	LS	1
1.16	2	Training Course Delivery	EA	1
Subtotal - Training				
	Manuals			
1.17	2	System Manuals	LS	1
Subtotal - Manuals				
TOTAL PRICE - 1. IMPLEMENTATION SERVICES				

[redacted]

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Item No.	SOW Ref.*	Description	Unit	Est. Qty	Unit Price	Amount
2. SYSTEM SOFTWARE DESIGN						
	Back Office Applications					
2.01	6	Account-based Transaction Processor	LS	1		
2.02	6	Customer Relationship Management	LS	1		
2.03	6	Asset Incident Management	LS	1		
2.04	6	System Manager	LS	1		
2.05	6	Fare Media Management	LS	1		
2.06	6	Financial Management	LS	1		
2.07	6	Central Payment	LS	1		
2.08	6	Configuration and Change Management	LS	1		
2.09	6	Tariff Management	LS	1		
2.10	6	API Management	LS	1		
Subtotal - Back Office Applications						
	Externally Sourced Applications					
2.11	5	Customer Mobile App	LS	1		
2.12	5	Agency Mobile Apps (Fare Inspection & Fare Payment)	LS	1		
2.13	5	Customer Website	LS	1		
Subtotal - Externally Sourced Applications						
	Field Device and Equipment Software					
2.14	4	Onboard and Wayside Validator Software	LS	1		
2.15	4	Driver Display Unit Software	LS	1		
2.16	4	Customer Service Terminal Software	LS	1		
2.17	4	Full Feature Vending Machine Software	LS	1		
Subtotal - Field Device and Equipment Software						
	API Development					
2.18	3	Application Programming Interface (API) Development	LS	1		
Subtotal - API Development						
	System Integration Services					
2.19	3	Onboard Integration (PT, CT, KT, ET)	LS	3		
2.20	3	Onboard Integration (KCM)	LS	1		
2.21	3	Washington State Ferries Integration	LS	1		
2.22	3	Data Access and Reporting Platform (DARe) Integration	LS	1		
2.23	3	Retail Network Integration	LS	1		

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2.24	3	Integration with Legacy ORCA Back Office	LS	1	[redacted]
2.25	3	ADA Paratransit Integration	LS	1	
2.26	6	Integration of Agency Provided CRM Application ($0 if SI-provided CRM application is proposed)	LS	1	
2.27	6	Integration of Agency Provided Financial Application ($0 if SI-provided financial application is proposed)	LS	1	
		Vanpool Integration	LS	1	
Subtotal - System Integration Services					
	Transit Payment Application				
2.28	7	Transit Payment Application	LS	1	
Subtotal - Transit Payment Application					
TOTAL PRICE - 2. SYSTEM SOFTWARE DESIGN					

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Item No.	SOW Ref.*	Description	Unit	Est. Qty	Unit Price	Amount
3. EQUIPMENT AND SPARES						
	Production Equipment and Spares					
3.01	4	Back Office Hardware - Four Environments ($0.00 if cloud is proposed)	LS	1		
3.02	4	Onboard Validator (including spares)	EA	2,926		
3.03	4	Onboard Validator Mounting System and Installation Kit (including spares)	EA	2,926		
3.04	4	Driver Display Unit (including spares)	EA	1,086		
3.05	4	Driver Display Unit Mounting System and Installation Kit (including spares)	EA	1,086		
3.06	4	Wayside Validator (including spares)	EA	1,160		
3.07	4	Wayside Validator Mounting System and Installation Kit (including spares)	EA	1,160		
3.08	4	Customer Service Terminal (including spares)	EA	41		
3.09	4	CST Portable Printer	EA	12		
3.10	4	CST Mail Center Printer	EA	14		
3.11	4	Full Feature Vending Machine (including spares)	EA	146		
3.11a	4	Credit for omission of bill and coin acceptance	EA			
3.11b	4	Credit for omission of coin acceptance	EA			
3.11c	4	Credit for omission of change issuance	EA			
3.11d	4	Credit for omission of media issuance	EA			
		Light Vending Machine	EA	146		
Subtotal - Production Equipment and Spares						
	Test Equipment					
3.12	2	Agency Test Facility Hardware - Seven Agencies	LS	1		
Subtotal - Test Equipment						
	Training Equipment					
3.13	2	On-board Training Unit (BIB) - including validator, DDU and other SI equipment)	EA	12		
3.14	2	Wayside Training Unit - including wayside validator	EA	3		
3.15	2	CST Training Unit	EA	7		
Subtotal - Training Equipment						
TOTAL PRICE - 3. EQUIPMENT AND SPARES						

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Item No.	SOW Ref.*	Description	Unit	Est. Qty	Unit Price	Amount
4. FARE MEDIA						
	Fare Media					
4.01	7	Contactless Extended-use Smart Cards (including training and test cards)	EA	1 M		
TOTAL PRICE - 4. FARE MEDIA						

Item No.	SOW Ref.*	Description	Unit	Est. Qty	
5. OPERATIONS AND MAINTENANCE SUPPORT SERVICES					
	Software Maintenance Agreement				
5.01	8	Year 1 – Software Maintenance Agreement	MO	12	
5.02	8	Year 2 – Software Maintenance Agreement	MO	12	
5.03	8	Year 3 – Software Maintenance Agreement	MO	12	
5.04	8	Year 4 – Software Maintenance Agreement	MO	12	
5.05	8	Year 5 – Software Maintenance Agreement	MO	12	
5.06	8	Year 6 – Software Maintenance Agreement	MO	12	
5.07	8	Year 7 – Software Maintenance Agreement	MO	12	
5.08	8	Year 8 – Software Maintenance Agreement	MO	12	
5.09	8	Year 9 – Software Maintenance Agreement	MO	12	
5.10	8	Year 10 – Software Maintenance Agreement	MO	12	
5.11	8	Year 11 – Software Maintenance Agreement	MO	12	
Subtotal - Software Maintenance Agreement					
	System Operations and Maintenance				
5.12	8	Year 1 – System Operations & Maintenance	MO	12	
5.13	8	Year 2 – System Operations & Maintenance	MO	12	
5.14	8	Year 3 – System Operations & Maintenance	MO	12	
5.15	8	Year 4 – System Operations & Maintenance	MO	12	
5.16	8	Year 5 – System Operations & Maintenance	MO	12	
5.17	8	Year 6 – System Operations & Maintenance	MO	12	
5.18	8	Year 7 – System Operations & Maintenance	MO	12	
5.19	8	Year 8 – System Operations & Maintenance	MO	12	
5.20	8	Year 9 – System Operations & Maintenance	MO	12	
5.21	8	Year 10 – System Operations & Maintenance	MO	12	
5.22	8	Year 11 – System Operations & Maintenance	MO	12	

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5.23	8	Year 12 – System Operations & Maintenance	MO	12
Subtotal - System Operations and Maintenance				
	System Hosting			
5.24	3 & 8	Year 1 - Back Office, Test Facility, and Website Hosting	MO	12
5.25	3 & 8	Year 2 - Back Office, Test Facility, and Website Hosting	MO	12
5.26	3 & 8	Year 3 - Back Office, Test Facility, and Website Hosting	MO	12
5.27	3 & 8	Year 4 - Back Office, Test Facility, and Website Hosting	MO	12
5.28	3 & 8	Year 5 - Back Office, Test Facility, and Website Hosting	MO	12
5.29	3 & 8	Year 6 - Back Office, Test Facility, and Website Hosting	MO	12
5.30	3 & 8	Year 7 - Back Office, Test Facility, and Website Hosting	MO	12
5.31	3 & 8	Year 8 - Back Office, Test Facility, and Website Hosting	MO	12
5.32	3 & 8	Year 9 - Back Office, Test Facility, and Website Hosting	MO	12
5.33	3 & 8	Year 10 - Back Office, Test Facility, and Website Hosting	MO	12
5.34	3 & 8	Year 11 - Back Office, Test Facility, and Website Hosting	MO	12
5.35	3 & 8	Year 12 - Back Office, Test Facility, and Website Hosting	MO	12
5.36	3 & 8	Year 13 - Back Office, Test Facility, and Website Hosting	MO	12
5.37	3 & 8	Year 14 - Back Office, Test Facility, and Website Hosting	MO	12
Subtotal - System Hosting				
	Warranty			
5.38	8	System Warranty (from Beneficial Use until 12 months after Final Acceptance)	LS	1
Subtotal - Warranty				
TOTAL PRICE - 5. OPERATIONS AND MAINTENANCE SUPPORT SERVIC				

[redacted]

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Item No.	SOW Ref.*	Description	Unit	Est. Qty	Unit Price	Amount
6. SOFTWARE LICENSES						
6.01	3	Software Licenses - All Environments	LS	1	[redacted]	
TOTAL PRICE - 6. SOFTWARE LICENSES						

Item No.	SOW Ref.*	Description	Unit	Est. Qty	Unit Price	Amount
7. Value-Added Features and Capabilities						
		Open Payments				Included
		Open APIs				Included
		Fare Capping/Loyalty Programs				Included
TOTAL PRICE - 7. VALUE-ADDED FEATURES AND CAPABILITIES						**Included**

***Refers to sections in the RFP SOW where capabilities associated with the pricing item are listed. Capabilities for any given pricing item may also be included in other sections of the SOW not listed on the pricing form.**

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5.3 Pricing Notes

The price changes highlighted above have been incorporated based on the feedback received in the Request for Revised Proposal (2018-02-16). They reflect changes in INIT's proposed technical solution and delivery of the system. While not every line item has been changed, all prices have been reevaluated based on our understanding of the Agencies needs and concerns and with INIT's overall commitment to the Next Generation ORCA project in mind.

INIT has removed the proposed management discount which will give both parties an opportunity to enter the negotiated procurement with the full breadth of costs on the table.

Below are notes that correspond to the numbers in the Pricing Form above.

1.01 Program and Contract Management

INIT has added a line to represent our price for the 3rd Party UI/UX Consultant requested in Section 3.1.6 of the RFP. The detailed description of what this price includes can be found in Section 2.4.1.6 User Interface & User Experience, of our proposal. We have only added 10% to their price for risk, financing and handling.

A line for the Performance Bond required to secure the warranty of our work has been added.

1.07-1.08 Installations

Any civil works necessary to install vending machines such as control cabinets, etc. are not included unless otherwise stated in the proposal.

The price for Wayside Validator installations includes load, unload and commute time between sites.

1.10-1.14 Testing

INIT has reduced each line in this section through scope refinement and further cost analysis. In addition, labor efforts for System Engineering have been redistributed to Sections 2.19-2.27 System Integration Services.

Section 2: System Software Design

This section includes design, development and the one-time licenses for INIT's proprietary software including MOBILEvario (Account-based Transaction Processor) and MOBILEsymon (System Manager).

No discount is offered for agencies who currently use INIT's MOBILEsymon or MOBILEguard.

2.02 Customer Relationship Management

INIT's CRM solution assumes the price for 100 Salesforce licenses per month. This is an ongoing license fee assessed in Section 5: Software Maintenance Agreement.

2.05 Alternative Fare Media Management

The alternative fare media management solution described in Tab 1, Section 1.8.6 of the INIT proposal is priced below.

Item No.	SOW Ref.*	Description	Unit	Est. Qty	Unit Price	Amount

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2.05	6	Alternative Fare Media Management Productive Solutions	LS	1	[redacted]
	System Operations and Maintenance				
5.12	8	Year 1 – System Operations & Maintenance	MO	12	
5.13	8	Year 2 – System Operations & Maintenance	MO	12	
5.14	8	Year 3 – System Operations & Maintenance	MO	12	
5.15	8	Year 4 – System Operations & Maintenance	MO	12	
5.16	8	Year 5 – System Operations & Maintenance	MO	12	
5.17	8	Year 6 – System Operations & Maintenance	MO	12	
5.18	8	Year 7 – System Operations & Maintenance	MO	12	
5.19	8	Year 8 – System Operations & Maintenance	MO	12	
5.2	8	Year 9 – System Operations & Maintenance	MO	12	
5.21	8	Year 10 – System Operations & Maintenance	MO	12	
5.22	8	Year 11 – System Operations & Maintenance	MO	12	
5.23	8	Year 12 – System Operations & Maintenance	MO	12	
		Subtotal - System Operations and Maintenance			
TOTAL PRICE – ALTERNATIVE FARE MEDIA MANAGEMENT WITH PRODUC SOLUTIONS					

2.06 Financial Management

INIT's Financial Management solution assumes 100 licenses for Sage per month. This is an ongoing license fee assessed in Section 5: Software Maintenance Agreement.

2.06 Alternative Financial Management

The alternative financial management solution described in Tab 1 Section 1.8.7 of the INIT proposal is priced below.

Item No.	SOW Ref.*	Description	Unit	Est. Qty	Unit Price	Amount
2.06	6	Alternative Financial Management Mythics - Oracle eBusiness	LS	1	[redacted]	
	Software Maintenance Agreement					
5.01	8	Year 1 – Software Maintenance Agreement	MO	12		
5.02	8	Year 2 – Software Maintenance Agreement	MO	12		
5.03	8	Year 3 – Software Maintenance Agreement	MO	12		
5.04	8	Year 4 – Software Maintenance Agreement	MO	12		
5.05	8	Year 5 – Software Maintenance Agreement	MO	12		
5.06	8	Year 6 – Software Maintenance Agreement	MO	12		

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5.07	8	Year 7 – Software Maintenance Agreement	MO	12	[redacted]
5.08	8	Year 8 – Software Maintenance Agreement	MO	12	
5.09	8	Year 9 – Software Maintenance Agreement	MO	12	
5.10	8	Year 10 – Software Maintenance Agreement	MO	12	
5.11	8	Year 11 – Software Maintenance Agreement	MO	12	
		Subtotal - Software Maintenance Agreement			
TOTAL PRICE – ALTERNATIVE FINANCIAL MANAGEMENT WITH ORACLE EBUSINESS					

2.07 Central Payment

As required in the RFP Section Two Scope of Work section 3.2.4.9, this price includes our Central Payment Processing API and does not include costs for the payment processor or payment gateway.

2.11 Customer Mobile App

The agencies will be billed monthly for Mobile Ticketing transactions fees at a rate of 1.5%. All transaction fees are exclusive of payment processing fees.

The Customer Mobile App includes development for a redesign of the current Sound Transit app based on the UI/UX specifications and specific required integrations to the INIT backend system which don't currently exist. Migration from the existing Bytemark backend system to the INIT backend is included.

2.19-2.27 System Integration Services

The price of each line item in this section has been increased to include the redistribution of System Engineering efforts which were previously concentrated entirely in Sections 1.10-1.14 Testing.

If INIT is not appointed as the main contractor or system supplier, INIT can only accept technical responsibility for the creation and proper functioning of the components supplied by INIT for the interfaces to the third-party systems. Technical responsibility comprises the technical specifications and the test on the interfaces on the basis of the information and facilities made available. It does not include responsibility for third-party systems' interfaces functioning on schedule and perfectly.

Additional Agencies

INIT's robust system is capable of supporting the addition of the required five (5) additional agencies (Req. 3.3.11-4) however the costs for this are not included and could be determined in the future through a project change order.

Onboard Integrations

Onboard Integrations for the Sound Transit, Pierce Transit, Kitsap Transit and Everett Transit are priced in this section. As the CAD/AVL Supplier for Community Transit and King County Metro, our proposal includes the integration of these 2 systems with no additional costs to the ORCA program. The quantity of integrations listed on the price sheet have been modified to reflect this.

Integration with Legacy ORCA Back Office

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This line includes the Vending Machine integration to the Vix legacy backoffice system proposed in Section 2.7.4 Accommodating the Early System Expansions of the proposal.

Vanpool Integration Phase 1

Our proposal includes the price to integrate with the Vanpool system as required in RFP section 3.3.10. The full vanpool integration for Phase 2 is not included.

3.02 - 3.03 Onboard Validator & Mounting System

The onboard validator proposed includes WiFi capability (Requirement 4.2.2.4-3) which accounts for it's $48.00 price difference from the Wayside Validator.

The optional Horizontal Mounting which is described in Section 1.6.1.1.3 Installation & Mounting is offered for an additional $47.00 USD per unit. A minimum quantity of 100 is required for this upgrade.

3.11 Full Feature Vending Machine

The unit price offered assumes a minimum quantity of 100 FFVMs.

3.11a – 3.11d FFVM Credits

The per unit credits offered for the omission of these functionalities apply to the FFVM only.

Light Vending Machine

This proposed small-scale machine does not offer change but will accept coins and bills and will issue one type of fare media. The unit price offered assumes a minimum quantity of 100.

3.13 – 3.15 Training Equipment

The Training Equipment included a significant overestimation of costs and configuration efforts and have been revised accordingly.

Onboard Training Units include Qty 12 PROXmobil3, TOUCHit3, associated cables and housing, and configuration.

Wayside Validator Training Units include Qty 3 PROXmobil3, associated cables and housing, and configuration.

CST Training Units include Qty 7 CST hardware.

Section 5: Operations and Maintenance Support Services

The chart below describes INIT's assumptions for the number of years associated with each project phase.

	2018 Year 0	2019 Year 1	2020 Year 2	2021 Year 3	2022 Year 4	2023 Year 5	2024 Year 6	2025 Year 7	2026 Year 8	2027 Year 9	2028 Year 10	2029 Year 11	2030 Year 12	2031 Year 13	2032 Year 14	2033 Year 15
Project Awarded	x															
Project Design		x														
Implemen-tation			x	x												

System Warranty					x											
Hosting			x	x	x	x	x	x	x	x	x	x	x	x	x	x
Software Maintenance						x	x	x	x	x	x	x	x	x	x	x
System Operations & Maintenance					x	x	x	x	x	x	x	x	x	x	x	x

Software Maintenance Agreement

An error in our calculation for this section had inconsistent and incorrect assumptions for annual escalation. The revised price reflects this correction. Maintenance for INIT software assumes a 2% annual escalation. Software included in this section consists of the Backoffice applications (Pricing Form Sections 2.01-2.10) and the Backoffice Environments (Pricing Form Section 6).

System Operations & Maintenance

The Operations and Maintenance section included an overestimation of scope requirements and efforts which have been revised accordingly. The ongoing costs included in this section are assumed to be:

- Agency Test Facility
- Hardware Maintenance and 24x7 System Support
- External Application Maintenance (Customer and Agency Apps, Websites)
- Support Staff (System Engineer, Network and Database Engineers, Program Management)

System Warranty

The system warranty period will begin upon Final System Acceptance and continue for 12 months.

System Hosting

Hosting Fees include the proposed System Backoffice applications and the mobile apps. The production and test system as well as disaster recovery location are all priced here. The datacenter proposed in Section 1.4.2.6 System Hosting (WOWRACK) will be responsible for the hardware and utilities. They will maintain the hardware and refresh every 3 years.

Section 6: Software Licenses (All Environments)

This section includes all licenses for the Backoffice environments and COTS IT software. This does not include the initial licenses for INIT's proprietary software. (Pricing Form Sections 2.01-2.10)

Section 7: Value Add Features and Capabilities

INIT is including Value-added Features such as Open Payments, Open APIs and Fare Capping in the base price of our proposal. For a detailed description of our potential value-added capabilities, please refer to Tab 6.

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5.4 Rates

System Integrator - As-Needed Services

Item No.	Description	Unit	[redacted]
AS-NEEDED SUPPORT SERVICES			
AS.01	Senior Project Manager	HR	
AS.01	Project Manager	HR	
AS.02	Systems Engineer (Sr)	HR	
AS.03	Systems Engineer (Mid)	HR	
AS.04	Systems Engineer (Jr)	HR	
AS.05	Software Engineer (Sr)	HR	
AS.06	Software Engineer (Mid)	HR	
AS.07	Software Engineer (Jr)	HR	
AS.08	Technician	HR	

* Agreed upon rates (applicable to CY 2017) may be subject to modification on an annual basis only, and may not exceed a percentage equivalent to the change in the BLS Consumer price index (CPI), from end of prior year, to the most recent available 6 month data period. Requests for rate adjustments must be submitted to the Contract Manager 45 days prior to the beginning of a new calendar year.

[redacted]

3-23-2018
Date

Roland Staib, President & CEO
Name & Title

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Value Added Features

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

Resubmittal March 23, 2018

The Future of Mobility

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CONFIDENTIAL SECTIONS:

6.3 Ready for the future – With a fully Open Payments ready system included in the Base System!

6.4 Unique System Features – Only Available with INIT's Automatic Fare Collection System

6.4.a Maintain your own Fare Structure

6.4.b Increase Participation in Institutional Programs and Facilitate New Transit Partnerships

6.4.c Reduce Bus Dwell Time and Operator interaction

6.4.d EMV and Other Standards

6.4.e Seamless Operations through Easy Maintainable Devices

6.5 Real Flexibility in Technology – INIT provides Open API's

6.8 Minimizing Costs, Risks and Delivery Time

6.10 Future Oriented – Constant Refresh of Ideas

6.11 ORCA Next Phase and Potential Future Projects

6.11.1 Expansion to Other Agencies

6.11.2 Full Vanpool Integration

6.11.3 Paratransit Integration with Scheduling Systems

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6.11.6 Acceptance of Third-Party issued cards

6.11.7 Fare capping and other loyalty programs

6.11.8 Integration with Other Transportation Providers

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6 Value Added Features

6.1 Introduction

The next generation ORCA project team is seeking a strong and reliable partner that can deliver, fully integrate and operate a high quality regional fare collection system. INIT's product suite and our experience as a System Integrator is the perfect match providing exceptional Value Add and unique System Features.

This document should outline unique features and explicit strength of INIT's fare collection solution. We think that certain components of our system, e.g. the very strong API platform, are unique to INIT and will provide additional value to the project, even if the feature itself is in the Statement of Work.

Having implemented more than fifty Electronic Fare Collection Systems, our system has advanced and matured based on a strong cooperation with our worldwide community of Transit Agencies. With INIT being a leading vendor in Automated Fare Collection and Intelligent Transportation Systems (ITS), INIT is uniquely qualified to understand your needs.

The following sections of this document highlight unique Added Values and Benefits with INIT:

- Swift and Dependable Implementation – INIT is the Preferred Provider of Account Based AFC Systems
- Unique System Features – With INITs most advanced Fare Collection System
- Ready for the Future – Open Payments developed and included in the Base System
- Real Flexibility in Technology – INIT provides open API's to Simplify Integration
- Environmental Value – Waste Management
- Knowledge Sharing – Engaged INIT Customers
- Minimizing Costs, Risks and Delivery Time – Engineered in Germany, Made in America
- Local to Seattle – INIT knows the Puget Sound region
- Future Oriented – Constant Refresh of Ideas

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6.2 Swift and Dependable Implementation – Unique Knowledge in Account Based Systems

No other AFC vendor is implementing and integrating "state of the art" Account Based Automated Fare Collection Systems at the high level and expertise that INIT is currently providing. After a very thorough analysis of your RFP, we are pleased to state that your requirements are very similar to our on-going implementations of the Automated Fare Collection projects listed below. Due to the similarity in scope and design featuring Account Based Systems, Open APIs and more, INIT will be able to provide a fast and reliable implementation of the next generation ORCA system.

All components offered are based on proven technology. Building on the Portland HOP FastPass implementation, as well as recent fare system projects, INIT can significantly reduce the risk and accelerate the implementation process.

Account Based INIT Fare Collection Systems:

- Portland OR (700 vehicles, 400 platform validators) – In revenue service
- Grand Rapids MI (150 vehicles and 35 platform validators)
- Honolulu HI (550 vehicles, 110 Ticket Vending Machines, 139 Faregates)
- Tampa FL (629 vehicles)
- Turku Finland (260 vehicles) – in revenue service
- Rhode Island Providence Transit Agency (200)

6.3 Ready for the Future – With Full Open Payments Ready System Included in the Base System!

INIT's account-based AFC system is designed with Open Payments included in the base system. With Open Payments, customers can use their contactless credit cards or mobile wallets like Apple Pay, Android Pay and Samsung Pay to purchase their ticket right at the validator. No need to get a card, download an App or search for change. This lowers the entry barrier to use public transit tremendously and makes it especially easy for non-frequent riders like tourists.

They can simply use a preferred payment medium that they already possess, and they don't have to worry about potentially unused credit balances. The benefit to the ORCA agencies are the savings of media inventory administration costs and the complex accounting management of remaining credit balances.

The AFC system proposed for the next generation ORCA project will include Open Payments functionality and could be implemented in Phase One of the project.

See chapter 6.11.4 of this document for further details.

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6.4 Unique System Features – Only Available with INIT's Automatic Fare Collection System

6.4.1 Maintain your own Fare Structure

6.4.2 Increase Participation in Institutional Programs and Facilitate New Transit Partnerships

Institutional programs can be tightly integrated into the new system through the use of dedicated web portals. This empowers institutional partners and reduces administration efforts on the agency side. The account based system is open to new transit partnerships, bike and car sharing being one of the most interesting ones enabling future growth and tighter integration with your local community.

6.4.3 Reduce Bus Dwell Time and Operator interaction

INIT, the world leader in Transit ITS systems, has more than 30 years of experience with on-board vehicle systems. We know that operators value equipment which is reliable and easy to operate, to service and to maintain. INIT's on-board solution is designed for fast and simple interaction with riders and operators which speeds the bus boarding time and reduces dwell time.

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6.4.4 EMV and Other Standards

INITs products adhere to well established international standards such as EMV, PCI and many more. INITs experience with these standards is an added value when it comes to reliability and conformity of the proposed products and systems.

6.4.5 Seamless Operations through Easy Maintainable Devices

[redacted]

Also the health status of the components is monitored centrally and actions can therefore easily be dispatched.

INIT's Proximity Reader PROXmobil3

6.5 Real Flexibility in Technology – INIT provides Open API's

The INIT AFC solution offers a seamless experience for riders and the Transit Agency. We provide an integrated end-to-end system, which is tailored to your individual requirements.

Our Open APIs (Application Programming Interfaces), used by multiple transit agency customers, give the Agency the freedom to easily grow your system and integrate new technologies or third party COTS solutions.

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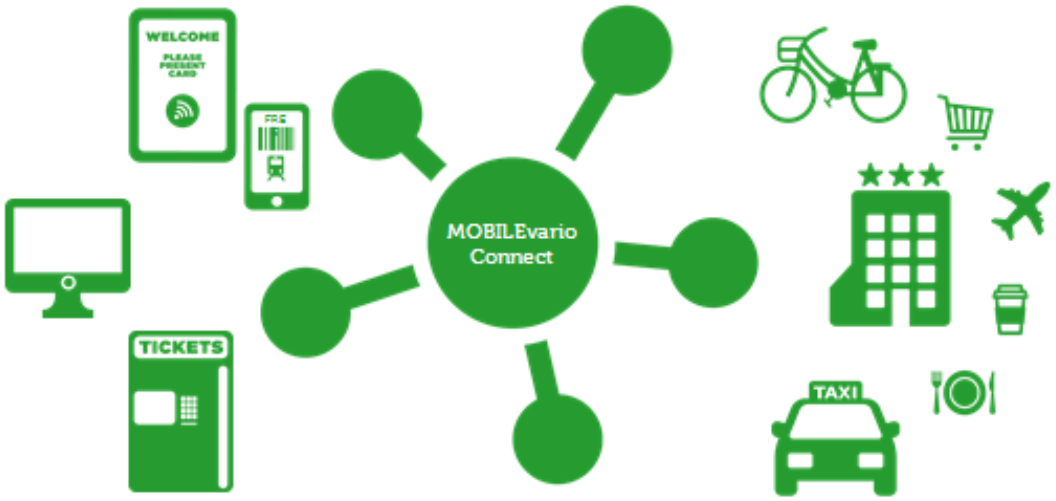

Integrating Multiple Parties through open API's

The open back-office system architecture combined with the flexible tariff solutions and the multi-client capability allows integration of different modes of transport into one system.

All modes of public transport as well as other transport modes such as car-sharing, bike-sharing, taxis, parking as well as road tolling can be integrated into INIT's account-based ticketing solution. This results in more convenience to customers since only one subscription is needed to use all modes of transportation. This enables users of the next generation ORCA system to use e.g. bike sharing options without any additional registration which reduces the entry barriers tremendously. Likewise other transportation services can be integrated into a multi-modal mobility account. All this is done via open Application Programming Interfaces (APIs), which enables the integration of 3rd party service providers and even hardware into the ticketing system and distribution network.

6.6 Environmental Value – Waste Management

INIT is a socially responsible business partner with a unique approach to fostering sustainability as a part of our company's corporate philosophy. We see transit as intrinsically "green," and have consequently aimed to make direct contributions to our community through an ongoing commitment to sustainability.

6.6.1 Zero Waste Initiative

What began as a simple recycling mission at INIT's corporate office located in Chesapeake, VA rapidly grew into a full-blown strategy to become a certified zero-waste-to-landfill company. Zero-waste-to-landfill means everything we use is reduced, reused, recycled or composted.

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6.6.2 Partnership with TFC Recycling

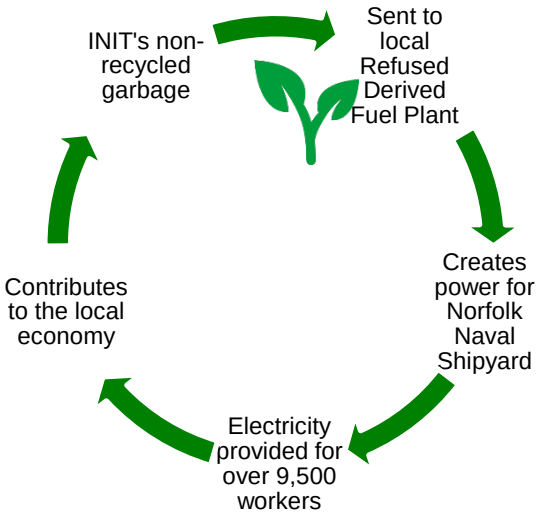
An important step for INIT was to partner with TFC Recycling, a leader in the collection, processing and marketing of recyclable materials and management of solid waste through innovative material recovery. TFC offers a single stream recycling process and provides an economically friendly solution for non-recyclable trash.

Non-recyclable, non-compostable garbage is sent to the Refuse Derived Fuel Plant, a local facility that treats and burns the waste for the creation of energy. This allows us to contribute to the local economy by providing the fuel for electricity to power the Norfolk Naval Shipyard which employs over 9,500 workers.

6.6.3 Community Impact

By the first year, 593 pounds of paper towel usage was eliminated through the use of hand dryers. The impact on the environment is calculated to be the equivalent of 11 trees with an estimated decrease in the company's carbon footprint of 69%.

The zero waste to Landfill Certification also compelled INIT to become a business member signatory on the APTA Sustainability Committee.



6.7 Knowledge Sharing with Engaged Customers

INIT hosts a User Group conference annually as well as Customer Forum and Educational-Instructional webinars and on a monthly basis, these are explained in more detail below.

6.7.1 INIT Working Group

INIT's Working Group meeting have been replace with the Interactive Webinars and Customer Forums described below.

6.7.2 INIT User Group Conference

The INIT User Group Conference is held annually; however, keep in mind that the Conference location alternates between a North American Transit Agency Host location and a European location. The User Group Conference focuses on Managers and Senior Leadership. The topics relate more to strategy and effective application rather than daily usability. If a customer has a maintenance agreement, then up to 4 attendees will have their Conference expenses covered by INIT. After the 4th attendee, all others receive a 10-20% discount on registrations. Any other expenses for additional attendees are carried by the Transit Agency, e.g. hotel, travel and any non-INIT provided meals.

User Group Meeting

6.7.3 Interactive Webinars and Customer Forums

INIT hosts Monthly "20 Minutes with INIT" webinars. This year we are focused on projects. https://www.initse.com/ende/us/news-events/knowledge-database/articles/2017/20-minutes-with-init-webinars.html. The monthly webinars cover hot industry topics followed by a question and answer period where you can discuss any operational issues you may want to discuss with INIT engineers as well as your agency peers. Check out the webinar schedule and register to

automatically receive an invite! In addition to the Webinars we also host an INIT Customer Forum – here we store webinar recordings, presentations and such. This is for customers to talk to each other. https://forum.initusa.com

6.8 Minimizing Costs, Risks and Delivery Time

INIT's equipment is German designed and engineered and manufactured at INIT's state of the art manufacturing facility in Chesapeake VA. The equipment is of the highest quality, which significantly increases its reliability and reduces the cost of ownership. The INIT solution is based on existing and proven technology already deployed at multiple Transit Agencies around the world, which reduces project risk, the cost to design, implement and deploy the solution and ultimately allows INIT to deliver the next generation ORCA project **on time and on budget.**

6.9 Local to Seattle – INIT knows the Puget Sound region

INIT's Western Regional office is located in the heart of Seattle at Pioneer Square. The office was established here more than 10 years ago and serves as the main office for all INIT personnel working on projects at Seattle area Transit Agencies and in the western USA.

6.10 Future Oriented – Constant Refresh of Ideas

INIT works with local Universities and Research facilities to develop and implement the latest leading edge innovations. New technological trends such as "Be-In-Be-Out" technologies are constantly assessed and discussed in multiple working groups and forums. In combination with a constant dialogue with our customers, trade show participations and more the INIT system is in a process of constant improvement.

6.11 ORCA Next Phase and Potential Future Projects

6.11.1 Expansion to Other Agencies

The requirement to expand a fare collection system to other agencies is a very familiar request for INIT. Many of our existing AFC customers, such as the Transit Agencies in Sacramento CA and in Munich Germany have added additional Agencies to their system post installation.

All INIT applications are built to support multi-agency environments without the limitation of a maximum number of agencies. Since the Tariff is highly configurable by the Agency, there is most likely no system change required when adding an additional agency.

The schedule drivers for integrating the agency are:

- Number of vehicles / platforms to be installed

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- Integration effort with existing CAD/AVL system or Fare Box (if applicable)
- Complexity of the transfer rules connected to the agency

6.11.2 Full Vanpool Integration

For the HART AFC project in Honolulu, INIT is installing mobile validators based on cellphone technology the Agency's paratransit vehicles. These low cost validators are portable and could easily be installed within the agencies' vanpool cars. The concept would be that the vanpool user taps his or her card whenever they board and leave the vehicle. The distance travelled could be calculated based on the GPS coordinates and the account could be charged the appropriate fare automatically.

INIT is aware that a Vanpool integration would require a change in major business rules for the Vanpool system. As such, we would need detailed discussions around this topic to further explore if this would be a feasible option. As part of this discussion INIT would gather the technical requirements and discuss with our internal development teams. Using this information, coupled with the current integration of ngORCA, INIT would be able to detail the full costs and associated schedule impact. Unfortunately, without further technical clarification, low level detail is not possible at this time. That said, INIT's understanding of the current Vanpool implementation is that the system is quite extensive and utilizes methods which vary or deviate from the ORCA implementation. In light of that very high-level understanding as well as the known business rules changes required, this would be a complex change.

6.11.3 Paratransit Integration with Scheduling Systems

In Portland, INIT and TriMet integrated TriMet's Paratransit scheduling system from Trapeze Pass into the HOP FastPass system. Paratransit users may register their HOP card with their Paratransit account and choose their HOP card as the standard payment method. As soon as the paratransit ride is successfully performed, the account will automatically be charged with the fare calculated by the background system. The integration was realized with the Open Architecture APIs and therefore would not require any system changes in the INIT background system.

Schedule drivers for the integration of Paratransit are:

- There are only minimal configuration changes needed in the background system (e.g. a new sales channel 'Paratransit' needs to be added). All changes required can be performed in a matter of days
- Main driver: implementation effort on the Paratransit Scheduling software side

6.11.4 Acceptance of Open Payments

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INIT offers to implement Open Payments functionality on the validators in Phase 1 of the next generation ORCA project without any additional costs or impact to the schedule. Open Payments is currently in operation within the INIT Hop Fastpass system in the Portland region.

A requirement to realize the Open Payments without additional costs or schedule impact would be to use [redacted] as a payment gateway in combination with one of the certified [redacted] processors. INIT already has all certifications to achieve this solution.

All transaction costs connected to the Open Payment transactions are not part of this proposal.

6.11.5 Limited Use Fare Media

The HOP FastPass System in Portland uses paper based limited-use fare media cards with NXP Ultralight 'C' chips for their TVMs and sale at all ticket offices. If compatible technology is used (e.g. Ultralight 'C' cards), the INIT validators and the backend system are prepared to accept limited-use fare media without any system changes.

Schedule drivers for the integration:

- No changes needed on the INIT back-office side if a compatible technology with compatible encoding is used
- TVMs would need to be equipped with a limited-use ticket dispenser

6.11.6 Acceptance of Third-Party Issued Cards

There are multiple ways to accept third-party issued cards. Two examples of third-party issued card realization can be found in the HOP FastPass project in the Portland area:

- TriMet Employee passes: Every TriMet employee has a dual-chip card to ride transit and to access TriMet's door system. The TriMet Employee passes are very similar to the KCM access control passes that are mentioned in the SOW requirement 7.2.2-4
- Portland Public School (PPS): PPS issued their own cards with their customized printed logo. The cards are pre-encoded with the HOP FastPass card application before they are delivered to PPS for distribution to students and staff

Both implementations happened without any system changes needed on the INIT backend or validator side and would be available to the next generation ORCA system without any INIT system changes.

Other concepts to accept third-party issued cards:

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- Use UID as account identifier: The easiest way (but the least secure way) to accept third-party cards is using the Unique card ID as an account identifier. Further security discussions would need to happen to further explore this option
- Use existing unique identifier stored on the card: If the card schema can be exchanged, a unique identifier that is already stored on the card (e.g. student ID) could be used as the transit account identifier. In this case a key exchange with the provider of the cards would be needed to be able to authenticate the cards
- Write additional fare application on the third-party card: the closed-loop fare application that is written to the INIT proposed DESfire cards could be written to a third-party issued card as a second application. Writing the application to the card may happen when the card is issued or afterwards (e.g. using a special software / card reader in the ORCA service center). A key exchange with the issuing agency would be needed to write to the card and authenticate the card.

6.11.7 Fare capping and other loyalty programs

Fare capping is a standard feature of the INIT account based background system MOBILEvario and therefore can be included from day one.

6.11.8 Integration with Other Transportation Providers

Using INIT's Open Architecture APIs, integration with other transportation providers like bike share is possible. INIT and TriMet are currently working on the integration of bike lockers and bike share in the Portland region using the HOP card system. Bike locker integration was already successfully realized in INIT's fare collection project in Luxembourg. Since the integration complexity can vary tremendously, it is not possible to estimate any schedule drivers without further discussing the scope.

6.11.8.1 Luxembourg Bike Locker integration

For the Luxembourg project INIT realized an integration with the loal bike locker provider. Every bike locker has a validator installed. Customers that want to use the bike lockers load a special bike locker pass to their card.

Once the card is tapped on the validator and a valid product is available, the validator communicates with the electronic door lock and opens the door.

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Luxembourg Bike Locker integration

6.11.8.2 Portland/Vancouver Bike Share and Bike Locker integration

For the HOP Fastpass project in the Portland area, INIT is working with TriMet and the local bike share provider to provide an integration to their bike share system (Biketown) and to the bike lockers provided by TriMet.

The bike locker integration is very similar to the Luxembourg integration project (see last chapter). The difference is that a newer validator model (PROXmobil3 instead of PROXmobil2) and that an account based instead of a card based approach will be used.

For the bike share integration with Biketown, the HOP card will be used as the identifier to unlock the bikes. Instead of tapping the Biketown card, customers will be able to register their HOP Fastpass to their Biketown account. After the registration process the HOP Fastpass can be used as the account identifier when renting a bike. Payment will still be handled in the Biketown system.

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CONFIDENTIAL SECTIONS:

7.1 Commitment to Diversity

7.2 Diversity Efforts and Commitment

7.2.1 Current Diversity Metrics

7.2.2 Linda Keith – Responsible for overseeing adherence to EEO laws

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7 INIT's Workforce: A Commitment to Inclusion and Diversity

The continued excellence of INIT is largely dependent upon our ability to attract, develop, and retain highly skilled, talented, and motivated employees. An essential element in maintaining this is the recognition of the value of a diverse workforce. Characteristics such as age, culture, ethnicity, gender, race, religious preference, sexual orientation, gender expression, and the expression of unique philosophies and ideas provide the opportunity to better understand each other. This understanding will strengthen the efficiency and productivity of the workforce, whose primary objective is to provide excellent service to the Company.

7.1 Commitment to Diversity

Below please find a table detailing the diversity of our ngORCA and local teams:

INIT's Commitment to Diversity				
	Proposal Team	**Project Team**	**INIT Seattle**	**INIT USA**
Minorities	3	3	21%	27%
Women	6	5	29%	23%
Staff with Disabilities	*	*	*	*

Note: Does not include subcontractors identified in this proposal

Regarding staff with disabilities, we have not maintained comprehensive statistics on individuals with disabilities until recently and may have been undercounting those we accommodate for. As of January 1, 2018 INIT, implemented a procedure in which we will, going forward, obtain information as to prospective employees in the hiring process as well as current employees as to their disability status, minority status and veteran status. Response to such inquiry will be voluntary. However, as a firm, INIT values all individuals and provides them whatever resources and accommodations are required for them to have a productive and enjoyable career with our firm. These can be temporary for a short term requirement or long term if it's a permanent need.

7.2 Diversity Efforts and Commitment

Wherever INIT operates, we create a team that represents the current and future diversity of the area. We are proud to have our second largest North American office located in Seattle, Washington, to take advantage of the rich diversity available across the Puget Sound region. We've hired staff from many varied backgrounds, both professionally and personally to create a team that represents the overall area.

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7.2.1 INIT, an Equal Opportunity Employer

On or about November 1, 2017 INIT implemented an Equal Employment Opportunity/Affirmative Action Plan for Individuals with Disabilities, Protected Veterans, Minorities and Females. These documents are available upon request; however, due to the confidential nature of the plans, we ask that your EEO office reach out to Linda Keith, our Vice President and Chief Financial Officer who is responsible for overseeing Human Resources and INIT's adherence to EEO laws and policies. Ms. Keith can be reached at 757-413-9100 extension 307 or emailed at LKeith@INITusa.com.

These documents will ensure what already is an established policy within INIT, namely equal employment opportunity for all person, in all phases of INIT's operations, without regard to race, religion, color, sex, sexual orientation, gender identity, national origin, age, physical or mental disability, or status as a disabled veteran or other protected veterans.

Effort's INIT makes to ensure that we provide equal employment opportunities are accomplished by endeavoring to meet the following goals:

- Attract and retain qualified individuals from diverse backgrounds who are committed to the continued excellence of INIT
- Encourage an environment that fosters a diverse workforce in terms of age, culture, ethnicity, gender, race, religious preference, sexual orientation, gender expression, and the expression of unique philosophies and ideas
- Provide all employees the opportunity for professional development and personal growth
- Expect that all employees will treat each other with dignity and respect
- Uphold all applicable federal, state, and local laws and regulations

INIT provides "EEO Tag Line" in all solicitations for applicants, in addition an EEO clause is implemented in our documents such as e.g. our purchase orders. With our soon to be implemented online hiring process we will notify State ESDS of hiring opportunities.

Recently, we've started a new college hire program which takes advantage of regional higher education institutions and their ability to meet our growing needs. In 2018 we expect to expand this to an internship program that targets the regions youth who want to combine their skills and their passions into learning more about a career in transit technology. We have, and will continue to apply the same commitment to a diverse workforce and an inclusive culture to these programs.

With this experience and dedication to a team which brings out the best in all of our collective backgrounds, we feel that we can both be respectful of one's background but also leverage it for project successes.

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7.2.2 Current Diversity Metrics

All of our fare collection projects (TriMet, Tampa, Grand Rapids, Honolulu), similar to this scope of work, require a mid to large size team, and in all instances we apply the same approaches.

INIT's Commitment to Diversity		
	INIT Seattle	**INIT USA**
Minorities	21%	27%
Women	29%	23%

7.2.3 Linda Keith – Responsible for overseeing adherence to EEO laws

Linda Keith, Vice President and Chief Financial Officer, is responsible for overseeing Human Resources and INIT's adherence to EEO laws and policies. In carrying out the recently implemented Affirmative Action Plan she will receive the requisite support of senior management necessary to execute the assignment and the staff and time to administer the program. The specific responsibilities include, but is not limited to, the following:

1. Continue developing policy statements and Affirmative Action Plans;
2. Assisting in the identification of problem areas;
3. Assisting management in arriving at effective solutions to problems;
4. Designing and implementing audit systems that will:
    a. measure effectiveness of INIT's programs;
    b. determine the degree to which the company placements goals and objectives have been attained;
    c. determining whether minorities and women have the opportunity to participate in all INIT-sponsored educational, training, recreational, and social activities; and
    d. ensure that INIT is in compliance with Executive Order 11246 and all regulations promulgated thereunder.
5. Serving as a liaison between INIT and enforcement agencies.
6. Serving as a liaison between INIT and minority organizations, women's organizations, and other community actions groups concerned with employment opportunities of minorities, women and other protected groups.
7. Ensuring that required compliance information is properly displayed.
8. Ensuring that all INIT facilities are desegregated.
9. Ensuring that minority, women and other protected groups of employees are afforded full opportunity to, and are encourage to, participate in all INIT-sponsored educational training, recreation, and social activities.

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In addition, we would like to mention that, as an executive of the company for over 15 years, Linda has lead INIT's commitment to diversity and growing our diverse workforce for over 15 years. Linda will ensure that employment actions regarding staffing and managing the work will be carried out in a nondiscriminatory manner. As already mentioned, across our entire management team, each leader is expected to adhere not to the goals of diversity, but the culture of inclusion as well. Being an inclusive workforce makes for a richer organization serving our incredibly diverse clients across North America.

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Outreach Efforts and Commitment to Small Businesses and DBE's

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CONFIDENTIAL SECTIONS:

8.1 Small Businesses and DBE's Contacted

8.1.1 [redacted] President - GO Systems and Solutions LLC, Business Analyst

8.1.2 Anthro-Tech – UI/UX Consultant

8.1.3 ESP Enterprises – Vehicle, Wayside Validators and VM Installation Services

8.1.4 West Sound Workforce – CST Installers and more

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8.3 Approach for Monitoring/Mentoring and Supporting

8.5 DBE/Small Business Participation

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8 INIT's Contribution towards Progressive Business Practices

INIT has a history of working with DBE's to provide goods and services on many of our Automated Fare Collection and Computer Aided Dispatch projects. We typically search for DBE's for roles such as Assistant Project Managers, Electrical Contractors, Vehicle Installation Services and more.

For this ngORCA opportunity, we have reached out to local businesses as described below.

Firstly, we searched the http://www.omwbe.wa.gov/directory-of-certified-firms website looking for firms in the greater Seattle area that we could reach out to become part of the team. We identified three (3) firms representing Electrical Contractors, Fleet Maintenance services, Traffic signal and street lighting contractors. Detailed in Form 4 are the results of our contact with these firms.

Secondly we called contacted the SBA's Seattle District Office at [redacted] for advise on contacting other DBE's in the greater Seattle area. We were lead to the Washington Procurement Technical Assistance Center.

Finally we contacted [redacted] a Government Contracting Specialist with the Washington Procurement Technical Assistance Center. Working with Ms. Hoy, we were able to post the following request to send with their next email newsletter blast.

"INIT Innovations in Transportation is looking for qualified DBE's and SBA's for a project that will commence 4th quarter 2018. This is a large opportunity in the Seattle area requiring many skills and talents. We realize that firms may not have specific experience in the areas listed below but we are willing to train, mentor and supervise firms with applicable experience. Services we have identified that may be useful include:

- Assistant Project Managers
- Server Test facility electrical build out
- Administration overhead such as receptionist and cleaning services
- Technical writers
- Oracle consulting
- Building lessee
- Technical documentation requiring CAD skills
- Software test automation (scripts with release reports)
- Network Architecture design
- Vending Machine Installation and Testing
- Installation of equipment and devices on vehicles
- Voice Talent
- Accounting services with Oracle experience

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Please reply to [redacted] In your reply, please provide contact information, DBE status, website, office location, number of full –time employees, certifications, specific area of expertise from the list above along with specific experience that are applicable. Failure to provide the above information will be considered unresponsive. We look forward to receiving your information no later than October 1st, 2017."

We were contacted by 6 firms as a result of our ad. The results of our subsequent contact with these firms is detailed in Form No. 4.

In addition, we used personal contacts to look for DBE firms that could fill the requirement for a UI/UX consultant, Business Analyst and Installation Services.

A weakness cited was:

- Some of the firms contacted appear to be a stretch for qualifying for Form 4:
- 1 cleaning services (also not DBE)
- 4 CAD services (not needed)
- One "provided company information":
- One just checked website

INIT worked hard to identify potential DBE's and initially identified many efforts as can be seen in the ad we placed shown above. If a company contacted us or we reached out to a company due to our own research, they were included on Form 4. Some companies that contacted us were simply not qualified and we determined that the logistics of outsourcing CAD services was not in the best interest of a successful project.

In addition, in this resubmittal, we went back and identified that we could use the services of a contract manufacturer and a technical writer. You will see Babinec Consulting and Edco Incorporated added below.

It should be noted that Anthro-tech, West Sound Workforce and Babinec Consulting are local to Seattle and Endo Incorporated is in nearby Mount Vernon.

Please see an additional Form 4 completed (5 of 5)

8.1 Small Businesses and DBE's Contracted

8.1.1 [redacted], President - GO Systems and Solutions LLC, Business Analyst

[redacted].

[redacted]
[redacted]
[redacted]
[redacted]
ts.

8.1.2 Anthro-Tech – UI/UX Consultant

Anthro-Tech will support this effort in by ensuring a seamless and consistent experience across all user touchpoints including: websites, mobile app, vending machines and validators. Anthro-Tech will provide a User Experience Strategist to direct and manage the user-centered design activities, integrate the research and design work and manage stakeholder and customer input throughout the design and development process.

Anthro-Tech's Design Researcher will conduct quantitative and qualitative customer research to understand customer needs and evaluate the ease of use of interfaces. They will also design and conducts market and user research surveys, focus groups, stakeholder interviews, web analytics data, usability tests, field research and other activities to develop actionable design concepts and solutions based on customer research findings.

8.1.3 ESP Enterprises – Vehicle, Wayside Validators and VM Installation Services

As the company we have selected to aid in the installation of equipment, ESP Enterprises will be an integral part of the Transition Plan. ESP Enterprises is experienced in the installation and subsequent testing of INIT equipment on-board buses and streetcars as well as wayside installation of Vending Machines, validators, signs and more. Working in several 4 man crews at times when their installation services will minimally impact operations or the riding public, ESP will perform their services during an extended stay in the region. Included in section titled "Knowledge and Recent Experience of Key Individuals" and the Appendix are the resumes on ESP Enterprises key staff members.

8.1.4 West Sound Workforce – CST Installers and more

Although, ESP Enterprises could also perform this service, we wanted to contract with a local firm for installation of the Customer Service Terminals (CST). This will provide the ORCA agencies a resource for setup and teardown of CST's for special events and other occasions. We also envision their services for possible troubleshooting and repair services.

INIT also will be relying on West Sound Workforce for an administrative assistance to assist with the additional workload at our Seattle office during the deployment of the ngORCA system and possibly beyond. We have also discussed utilizing their services for custodial maintenance.

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8.1.5 Babinec Consulting – Technical Writer

For the review and editing of our technical documentation, we have selected Babinec Consulting, a technical writing form. Babinec Consulting LLC is a 100% woman-owned business and certified DBE (WA State/Federal Programs) formed in March 2017 by two sisters, [redacted] We provide exceptional business management consulting services that enhance and advance our client's business success. We also help our clients realize their full potential and achieve mutually agreed upon desired outcomes. We dedicate ourselves to providing subject matter expertise and timely, superior end products that fulfill the client's stated goals. Babinec Consulting LLC devotes itself to offering innovative thinking, nurturing genuine partnerships, and championing the beliefs that accuracy, reliability, honesty, and trustworthiness will never be obsolete. Finally, our combined areas of expertise include the following:

- Technical Writing & Editing, Medical Writing & Editing, Copywriting, Copyediting, Substantive Editing, Line Editing, Proofreading, Instructional & Online Curriculum Design, Peer Review, Quality Assessment (Curriculum & Publishing), Grant Writing/Editing (CDC, NIH, etc.), and Educational Marketing
- Contract Risk Analysis & Management
- Contract Drafting, Review, & Negotiation
- Training: Risk Management, Trade Compliance, Contract Negotiation, Specialized Curriculum (project management fundamentals, ethics, process development, Train the Trainers, etc.)
- Strategic Planning & Procurement, Cradle-to-Grave RFX, RFX Planning, Scope Development, Implementation, Analysis, & Supplier Selection

8.1.6 Edco Incorporated – Machine Shop

For our requirement to provide new mast for the PROXmobile3 validators, we have selected Edco, an experienced machine shop. EDCO, INC. is located in Mount Vernon Washington, and is Certified by American Institute of Steel Construction (AISC) for Steel Building Structures (STD Certification) and Bridge and Highway Components (CPT Certification).

EDCO, INC. has been a contract manufacturer of unique industrial equipment for customers all over the world since 1976. EDCO's work has been a diverse mix of projects for The Boeing Company, the US Navy (both direct and subcontracted), Alcoa, Team, Hexel, construction firms such as CDM Smith and Kiewit, and a wide variety of customers from all across diverse industries. EDCO is a full service contract manufacturer supporting design, engineering, project management, material procurement, welding, machining, assembly, testing, and logistics. Their

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team has earned respect by providing high quality service and quick turnaround. Over 90% of their work is with repeat customers.

Since just 2010, we have completed over:

- 500 projects for The Boeing Company
- 200 projects for Alcoa
- 175 project for Electroimpact
- 115 projects for Harbor Offshore
- 75 projects direct to US Navy/SAIC

8.2 Experience and Approach to managing diverse teams

As leading providers of Intelligent Transit Systems, INIT's Project Managers and [redacted] our Western Regional Director, have extensive experience working with Small Businesses on projects of similar size. As the prime contractor, INIT frequently shares resources with our subcontractors. This includes office space, transportation, test equipment, and specialty tools while always providing the bulk of materials so that we can maintain quality.

8.3 Approach for Monitoring/Mentoring and Supporting

The reviewer is correct that we did not address how we will support each Small Business we selected to participate in this effort.

The verbiage originally submitted is specific to ESP Enterprises for installation service and reflects how we typically work with our Small Business Installer.

As you can see on Form 3B and in the corporate profile of the companies we selected, these are highly qualified companies that will make significant contribution to project success. These companies are selected for the contribution they bring to the effort and require little if any monitoring and mentoring. As such, below please find how we will support these DBE's

Quality from our subcontractors is paramount.

In support of our selected installation company ESP Enterprises, INIT provides extensive training and documentation before the installation begin. During mini-fleet installs, INIT system engineers work alongside the installation crews to make sure their installation instructions are understandable and clear. In addition, we provide all materials and parts provided in a kit with barcodes clearly identifying the vehicle type or wayside installation location to reduce the error of the team installing the wrong equipment on the wrong vehicle or location. . In addition to detailed written work instructions we also provide written test procedures to check and verify the quality of their work.

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[redacted] who will be helping us as a Business Analyst is an example where we have selected a highly capable individual. With Paula's extensive transit experience and the prominent role she is filling, she will supporting us more than we will support her. INIT's project manager will be overseeing her work and will certainly make sure she has the resources required for her to succeed at her efforts.

Project Management will be the most critical method of supporting Anthro-Tech, our Ui/UX consultant. Anthro-Tech was selected because of their expertise so the most important way we can support them is to make sure ByteMark, Marathon, Persistant and INIT developers work closely with Anthro-Tech in a timely manner.

INIT will support West Sound Workforce in much the same way we will support ESP Enterprises. We will provide written installation instructions, test procedures and kits as well as have INIT Systems Engineers work alongside them for as many installations as necessary to assure quality work.

In support of Babinec Consulting, we will provide office space allowing them to work side by side with our Systems Engineers.

In support of Edco Incorporated, INIT's System Engineers will provide complete documentation in support of this contract manufacturing effort.

8.4 Responsibility for overseeing success

[redacted] INIT's Western Regional Director based out of our Seattle office is responsible for engaging and overseeing our small business efforts as they relate to the ngORCA project. [redacted] [redacted] our Implementation Lead will provide direct supervision for [redacted]

8.5 DBE/Small Business Participation

INIT efforts have resulted in a DBE/Small Business Participants Goal of 14.46 % calculated using the base without extended Operations and Maintenance.

Exclusivity: INIT has not established exclusivity with any of the DBE firms proposed.

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PROPOSAL FORM NO. 2 CERTIFICATION REGARDING CONFLICT OF INTEREST

The Proposer is required to certify that performance of the work will not create any conflicts of interest or disclose any actual or potential conflicts of interest by completing and signing one of the following statements:

The Proposer hereby certifies that to the best of its knowledge and belief, performance of the services described in the Scope of Work will not create any conflicts of interest for the Proposer, any affiliates, any proposed subconsultants or key personnel of any of these organizations.

DATE: 10/25/17

AUTHORIZED SIGNATURE: [signature]

TITLE: Vice President + CFO

PROPOSER/COMPANY NAME: INIT Innovations in Transportation, Inc.

OR

The Proposer hereby discloses the following circumstances that could give rise to a conflict of interest for the Proposer, any affiliates, any proposed subconsultants or key personnel of any of these organizations. (Attach additional sheets as needed.)

Name of Individual/Company to which potential conflict of interest might apply:

Nature of potential conflict of interest:

Proposed Remedy:

DATE:

AUTHORIZED SIGNATURE:

TITLE:

PROPOSER/COMPANY NAME:

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PROPOSAL FORM NO. 3A DBE/SMALL BUSINESS COMMITMENT FORM - INSTRUCTIONS

We affirm that we have read and understand the provisions in the Contract Documents setting forth the subcontracting and DBE and Small Business participation requirements established in this RFP and that we have complied with all such DBE/Small Business participation objectives. We certify that all documentation (including outreach information) submitted by us to demonstrate such compliance is true and accurate.

Furthermore, we have listed on the following form all DBE/Small Businesses that we will use if awarded the Agreement under this RFP and whose participation will be counted toward meeting the applicable DBE/Small Business participation requirements.

Definitions for DBE/Small Business Participation Plan

Box	Name	Description
1	Procurement Number	Sound Transit's Procurement Number as listed on the cover of the solicitation document.
2	Procurement Title	Name of procurement as written on the cover of the solicitation document.
3	Company Name	Proposer's company name.
4	Address	Business address of Proposer's office in Sound Transit's locale.
5	City, State, Zip	City, state, zip for Box No. 4 above.
6	Contact Name	Proposer's contact person for this procurement.
7	Contact Phone	Contact's phone number.
8	Contact's Email	Contact's Email address.
9	DBE/Small Business Commitment	Total percentage the Proposer commits to including on the contract of proposed subconsultants who are DBEs or certified or self-declared Small Businesses, including the Proposer's contribution if Proposer is a DBE or certified or self-declared Small Business.
10	DBE/Small Business Goal	Sound Transit's DBE/Small Business Goal as listed in the solicitation.
11	Total Proposal Price	Total Amount of Proposal
12	DBE/Small Business Participants	List all DBE/Small Business participants, including Proposer, if Proposer is a DBE or certified or self-declared Small Business.
13	Small Business Indicator	Indicate the type of certification status or other indicator of each Small Business: Disadvantaged Business Enterprise (DBE), Minority Business Enterprise (MBE), Women Business Enterprise (WBE), Small Business Enterprise (SB), Small Business Administration (SBA), Americans With Disabilities Act Businesses (ADAB), Other (identify).
14	Description of Work	Brief description of the work to be performed by the proposed DBE/Small Business participant.

PROPOSAL FORM NO. 3B DBE/SMALL BUSINESS COMMITMENT FORM

				Diversity Contract Goals		
Procurement No.	1. RTA/RP 0119-17	Company Name	3. INIT, Innovations in Transportation	Small Business Commitment	9.	%
		Address	4. 424 Network Station Road	DBE Commitment		%
Procurement Title	2. Systems Integrator for Next Generation ORCA	City/State/Zip	5. Chesapeake, VA, 23320	**Small Business Goal**	10.	**5%**
		Contact Name	6. Mr. Jim Hicks	**DBE Goal**		**2%**
		Contact Phone	7. 757-413-9100 ext 314			
		Contact Email	8. JHicks@INITusa.com	11. Total Proposal Price	$	48,525,504.67

12. DBE/Small Business Participants (May include Proposer if counted towards Goal)	13. Small Business Indicator (DBE, MBE, WBE, Size, etc.)	14. Description of Work	DBE/Small Business Participants	
			15. Proposed Subcontract Amount	16. Percent of Proposed Contract
ESP Enterprises, Inc.	DBE/MBE	Vending Machine and Validator Installation Services	$ [redacted]	
Anthro-Tech	DBE/WBE	User Experience Design Consulting	$	
West Sound Workforce	DBE/WBE	Customer Service Terminal Installation Services	$	
Go Systems and Solutions	DBE/WBE	Business Analyst Consultant	$	
Babinec Consulting	DBE/WBE	Technical Writing	$	
Edco Incorporated	DBE/WBE	Contract Manufacturing	$	
Subtotal and percent from attached list of DBE/Small Business participants:			1	
(Please attach a separate list of additional planned DBE/Small Business participants, as necessary)		**DBE/Small Business Participants Total:**	**19.** $ 7,051,402.35	20. 14.49 %

PROPOSAL FORM NO. 4 DBE/SMALL BUSINESS OUTREACH DOCUMENTATION FORM

Page 1 of 5

If there is a DBE or Small Business goal in this RFP, or if the Proposer will have subconsultants perform all or part of the Scope of Work, then the Proposer shall submit this form as part of its Proposal as documentation of its efforts to reach out to DBEs and Small Businesses to participate in the Agreement under this RFP. Sound Transit may request the Proposer provide additional information regarding its efforts. Attach additional forms as necessary.

By submitting this Form, the Proposer certifies it contacted the identified DBEs and Small Businesses, in an effort to solicit their participation in performance of the work in the Agreement under this RFP.

Is Subcontracting anticipated for this Contract? Yes **Yes** _____ **No**

1. Firm Name: PH Traffic

Contact Person: [redacted]

Area of Expertise: Civil and traffic engineering, traffic signal design, modifications, & ITS planning

DBE and Small Business Status: DBE

Date Contacted: October 17th

Response: [redacted]

2. Firm Name: Premium Fleet Services

Contact Person: [redacted]

Area of Expertise: Truck/Fleet Maintenance and Service

DBE and Small Business Status: MBE

Date Contacted: October 17th

Response: [redacted]

3. Firm Name: RPL Electric LLC

Contact Person: [redacted]

Area of Expertise: Electrical contracting on residential, commercial and industrial projects

DBE and Small Business Status: WBE

Date Contacted: October 17th

Response: [redacted]

4. Firm Name: Sundance Electric

Contact Person: [redacted]

Area of Expertise: Electrical contracting on commercial, industrial, and mass transit

DBE and Small Business Status: DBE

Date Contacted: October 17

Response: [redacted]

PROPOSAL FORM NO. 4 DBE/SMALL BUSINESS OUTREACH DOCUMENTATION FORM

Page 2 of 5

If there is a DBE or Small Business goal in this RFP, or if the Proposer will have subconsultants perform all or part of the Scope of Work, then the Proposer shall submit this form as part of its Proposal as documentation of its efforts to reach out to DBEs and Small Businesses to participate in the Agreement under this RFP. Sound Transit may request the Proposer provide additional information regarding its efforts. Attach additional forms as necessary.

By submitting this Form, the Proposer certifies it contacted the identified DBEs and Small Businesses, in an effort to solicit their participation in performance of the work in the Agreement under this RFP.

Is Subcontracting anticipated for this Contract? Yes **Yes** _____ **No**

1. Firm Name: ESP Enterprises Inc.
Contact Person: [redacted]
Area of Expertise: Installation and maintenance of electronic fare-box equipment
DBE and Small Business Status: MBE
Date Contacted: September 12, 2017
Response: [redacted]

2. Firm Name: Anthro-Tech
Contact Person: [redacted]
Area of Expertise: User-centered design consultancy focused on government agencies
DBE and Small Business Status: DBE/WBE
Date Contacted: Several Conversations week of October 17 and 23rd
Response: [redacted]

3. Firm Name: Applexus Technologies LLC,
Contact Person: [redacted]
Area of Expertise: Information Technology Services and Consulting
DBE and Small Business Status: MBE
Date Contacted: October 17, 2017
Response: [redacted]

4. Firm Name: XITIJ
Contact Person: [redacted]
Area of Expertise: Microsoft certified independent software vendor
DBE and Small Business Status: MWBE
Date Contacted: October 17, 2017
Response: [redacted]

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PROPOSAL FORM NO. 4 DBE/SMALL BUSINESS OUTREACH DOCUMENTATION FORM

If there is a DBE or Small Business goal in this RFP, or if the Proposer will have subconsultants perform all or part of the Scope of Work, then the Proposer shall submit this form as part of its Proposal as documentation of its efforts to reach out to DBEs and Small Businesses to participate in the Agreement under this RFP. Sound Transit may request the Proposer provide additional information regarding its efforts. Attach additional forms as necessary.

By submitting this Form, the Proposer certifies it contacted the identified DBEs and Small Businesses, in an effort to solicit their participation in performance of the work in the Agreement under this RFP.

Is Subcontracting anticipated for this Contract? YES **Yes** **No**

1. Firm Name: Autoscan, Inc
Contact Person: [redacted]
Area of Expertise: Computer Aided Design Services
DBE and Small Business Status: MBE
Date Contacted: October, 17, 2017
Response: [redacted]

2. Firm Name: Fair Cape Consulting, LLC
Contact Person: [redacted]
Area of Expertise: Computer Aided Design Services
DBE and Small Business Status: DBE/WBE
Date Contacted: October, 12, 2017
Response: [redacted]

3. Firm Name: ITEN Associates
Contact Person: [redacted]
Area of Expertise: Computer Aided Design Services
DBE and Small Business Status: DBE/MBE
Date Contacted: October, 18, 2017
Response: [redacted]

4. Firm Name: Keiser Group
Contact Person: [redacted]
Area of Expertise: Computer Aided Design Services
DBE and Small Business Status: MWBE/DBE
Date Contacted: October, 10, 2017
Response: [redacted]

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PROPOSAL FORM NO. 4 DBE/SMALL BUSINESS OUTREACH DOCUMENTATION FORM

If there is a DBE or Small Business goal in this RFP, or if the Proposer will have subconsultants perform all or part of the Scope of Work, then the Proposer shall submit this form as part of its Proposal as documentation of its efforts to reach out to DBEs and Small Businesses to participate in the Agreement under this RFP. Sound Transit may request the Proposer provide additional information regarding its efforts. Attach additional forms as necessary.

By submitting this Form, the Proposer certifies it contacted the identified DBEs and Small Businesses, in an effort to solicit their participation in performance of the work in the Agreement under this RFP.

Is Subcontracting anticipated for this Contract? YES **Yes** **No**

1. Firm Name: Verity Cleaning Solutions
Contact Person: [redacted]
Area of Expertise: Office Celaning
DBE and Small Business Status: Not listed as DBE or WBE
Date Contacted: October 16, 2017
Response: [redacted]

2. Firm Name: Paracletemc
Contact Person: [redacted]
Area of Expertise: Security and Network Systems
DBE and Small Business Status: DVOB
Date Contacted: October 16, 2017
Response: [redacted]

3. Firm Name: GO Systems and Solutions, LLC
Contact Person: [redacted]
Area of Expertise: Transportation Technology Consulting
DBE and Small Business Status: DBE/WBE
Date Contacted: October 15, 2017
Response: [redacted]

4. Firm Name: [redacted]
Contact Person: [redacted]
Area of Expertise: Temporary Staffing Needs
DBE and Small Business Status: DBE / WBE
Date Contacted: October 10, 2017
Response: [redacted]

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PROPOSAL FORM NO. 4 DBE/SMALL BUSINESS OUTREACH DOCUMENTATION FORM

If there is a DBE or Small Business goal in this RFP, or if the Proposer will have subconsultants perform all or part of the Scope of Work, then the Proposer shall submit this form as part of its Proposal as documentation of its efforts to reach out to DBEs and Small Businesses to participate in the Agreement under this RFP. Sound Transit may request the Proposer provide additional information regarding its efforts. Attach additional forms as necessary.

By submitting this Form, the Proposer certifies it contacted the identified DBEs and Small Businesses, in an effort to solicit their participation in performance of the work in the Agreement under this RFP.

Is Subcontracting anticipated for this Contract? YES **Yes** **No**

1. **Firm Name:** Edco Inc.
   Contact Person: [redacted]
   Area of Expertise: Contract Manufacturing
   DBE and Small Business Status: DBE and WBE
   Date Contacted: March 6, 2018
   Response: [redacted].

2. **Firm Name:** Babinec Consulting
   Contact Person: [redacted]
   Area of Expertise: Technical Writing
   DBE and Small Business Status: DBE and WBE
   Date Contacted: March 8, 2018
   Response: [redacted]fter

3. **Firm Name:** Documents Design
   Contact Person: [redacted]
   Area of Expertise: Technical Writing
   DBE and Small Business Status: DBE/WBE
   Date Contacted: March 8, 2018
   Response: [redacted]

4. **Firm Name:** Mel Dodd Consulting
   Contact Person: [redacted]
   Area of Expertise: Technical Writing
   DBE and Small Business Status: DBE / MBE
   Date Contacted: March 8, 2018
   Response: [redacted]

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

Instructions for Certification:

By signing and submitting this form, the prospective lower tier participant[1] is providing the signed certification set out below.

1. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, Sound Transit may pursue available remedies, including suspension and/or debarment.

2. The prospective lower tier participant shall provide immediate written notice to Sound Transit if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

3. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "bid/proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 29]. You may contact Sound Transit for assistance in obtaining a copy of those regulations.

4. The prospective lower tier participant agrees by submitting this bid or proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by Sound Transit.

5. The prospective lower tier participant further agrees by submitting this bid or proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction", without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

6. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

7. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

8. Except for transactions authorized under Paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, Sound Transit may pursue available remedies including suspension and/or debarment.

[1] "Lower tier participant" includes all contractors, consultants, subcontractors and subconsultants participating on any of Sound Transit's contracts.

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"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

9. The prospective lower tier participant certifies, by submission of this bid or proposal, that neither it nor its "principals" [as defined at 49 C.F.R. § 29.105(p)] is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: INIT Innovations in Transportation Inc.
(Type or Print Company Name)

[redacted]
(Signature) (Title)

Print Name: Linda Keith

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

Instructions for Certification:

By signing and submitting this form, the prospective lower tier participant[1] is providing the signed certification set out below.

1. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, Sound Transit may pursue available remedies, including suspension and/or debarment.

2. The prospective lower tier participant shall provide immediate written notice to Sound Transit if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

3. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "bid/proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 29]. You may contact Sound Transit for assistance in obtaining a copy of those regulations.

4. The prospective lower tier participant agrees by submitting this bid or proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by Sound Transit.

5. The prospective lower tier participant further agrees by submitting this bid or proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction", without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

6. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

7. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

8. Except for transactions authorized under Paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, Sound Transit may pursue available remedies including suspension and/or debarment.

[1] "Lower tier participant" includes all contractors, consultants, subcontractors and subconsultants participating on any of Sound Transit's contracts.

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

9. The prospective lower tier participant certifies, by submission of this bid or proposal, that neither it nor its "principals" [as defined at 49 C.F.R. § 29.105(p)] is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: GO Systems and Solutions LLC
(Type or Print Company Name)

[redacted]
(Signature) (Title)

Print Name: Paula E. Okunieff

Please Print on Recycled Paper

SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

Instructions for Certification:

By signing and submitting this form, the prospective lower tier participant[1] is providing the signed certification set out below.

1. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, Sound Transit may pursue available remedies, including suspension and/or debarment.

2. The prospective lower tier participant shall provide immediate written notice to Sound Transit if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

3. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "bid/proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 29]. You may contact Sound Transit for assistance in obtaining a copy of those regulations.

4. The prospective lower tier participant agrees by submitting this bid or proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by Sound Transit.

5. The prospective lower tier participant further agrees by submitting this bid or proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction", without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

6. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

7. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

8. Except for transactions authorized under Paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, Sound Transit may pursue available remedies including suspension and/or debarment.

[1] "Lower tier participant" includes all contractors, consultants, subcontractors and subconsultants participating on any of Sound Transit's contracts.

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

9. The prospective lower tier participant certifies, by submission of this bid or proposal, that neither it nor its "principals" [as defined at 49 C.F.R. § 29.105(p)] is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: Bytemark, Inc.
(Print Company Name)

By: [redacted] CEO & President
(Signature) (Title)

Print Name: Micah Bergdale

Please Print on Recycled Paper

SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

Instructions for Certification:

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1. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, Sound Transit may pursue available remedies, including suspension and/or debarment.

2. The prospective lower tier participant shall provide immediate written notice to Sound Transit if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

3. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "bid/proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 29]. You may contact Sound Transit for assistance in obtaining a copy of those regulations.

4. The prospective lower tier participant agrees by submitting this bid or proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by Sound Transit.

5. The prospective lower tier participant further agrees by submitting this bid or proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction", without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

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10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: [redacted]

By: [redacted] Vice President (Title)

Print Name: [redacted]

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

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Propos[redacted]

By: [redacted]

Print Na[redacted]

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

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10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: Anthro-Tech, Inc.
(Name)

By: [redacted] Founder & CEO
(Signature) (Title)

Print Name: [redacted]

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

9. The prospective lower tier participant certifies, by submission of this bid or proposal, that neither it nor its "principals" [as defined at 49 C.F.R. § 29.105(p)] is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: [redacted]

By: [redacted] anaging Director
(Title)

Print Name: [redacted] JS

Please Print on Recycled Paper

SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

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10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: West Sound Workforce, Inc.
(Typed or Printed Company Name)

[redacted] President + CEO
(Title)

Print Name: Julie Tappero

Please Print on Recycled Paper

SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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SOUNDTRANSIT

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Proposer: Wow Technologies, Inc. (WOWRACE)

[redacted]ame) vice president.

(Signature) (Title)

Print Name: Edward Osclcar

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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Proposer: Arctic Wolf Networks, Inc.

[redacted]pany Name)

(Signature)

Pres + CEO

(Title)

Print Name: Brian M. NeSmith

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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8. Except for transactions authorized under Paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, Sound Transit may pursue available remedies including suspension and/or debarment.

[1] "Lower tier participant" includes all contractors, consultants, subcontractors and subconsultants participating on any of Sound Transit's contracts.

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

9. The prospective lower tier participant certifies, by submission of this bid or proposal, that neither it nor its "principals" [as defined at 49 C.F.R. § 29.105(p)] is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: EDCO, INC
(Type or Print Company Name)

By: [redacted] President
(Signature) (Title)

Print Name: LESCIE SMITH

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

Instructions for Certification:

By signing and submitting this form, the prospective lower tier participant[1] is providing the signed certification set out below.

1. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, Sound Transit may pursue available remedies, including suspension and/or debarment.

2. The prospective lower tier participant shall provide immediate written notice to Sound Transit if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

3. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "bid/proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 29]. You may contact Sound Transit for assistance in obtaining a copy of those regulations.

4. The prospective lower tier participant agrees by submitting this bid or proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by Sound Transit.

5. The prospective lower tier participant further agrees by submitting this bid or proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction", without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

6. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

7. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

8. Except for transactions authorized under Paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, Sound Transit may pursue available remedies including suspension and/or debarment.

[1] "Lower tier participant" includes all contractors, consultants, subcontractors and subconsultants participating on any of Sound Transit's contracts.

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

9. The prospective lower tier participant certifies, by submission of this bid or proposal, that neither it nor its "principals" [as defined at 49 C.F.R. § 29.105(p)] is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: Babinec Consulting LLC
(Type or Print Company Name)

[redacted]

(Signature)

Owner & CFO
(Title)

Print Name: Lisa S. Babinec

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

Instructions for Certification:

By signing and submitting this form, the prospective lower tier participant[1] is providing the signed certification set out below.

1. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, Sound Transit may pursue available remedies, including suspension and/or debarment.

2. The prospective lower tier participant shall provide immediate written notice to Sound Transit if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

3. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "bid/proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 29]. You may contact Sound Transit for assistance in obtaining a copy of those regulations.

4. The prospective lower tier participant agrees by submitting this bid or proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by Sound Transit.

5. The prospective lower tier participant further agrees by submitting this bid or proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction", without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

6. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

7. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

8. Except for transactions authorized under Paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, Sound Transit may pursue available remedies including suspension and/or debarment.

L.A.
L.A.

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

9. The prospective lower tier participant certifies, by submission of this bid or proposal, that neither it nor its "principals" [as defined at 49 C.F.R. § 29.105(p)] is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: Persistent Systems Inc.
(Type or Print Company Name)

[redacted]
Ranjan Juneja (Mar 23, 2018)
(Signature)

Account Owner
(Title)

Print Name: Ranjan Juneja

Legal Approved (Tejashree S)
Legal Approved (Tejashree S) (Mar 23, 2018)

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SOUNDTRANSIT

PROPOSAL FORM NO. 6 CERTIFICATION REGARDING LOBBYING

The undersigned [Consultant] certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for making lobbying contacts to an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form--LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions [as amended by "Government wide Guidance for New Restrictions on Lobbying," 61 Fed. Reg. 1413 (1/19/96). Note: Language in paragraph (2) herein has been modified in accordance with Section 10 of the Lobbying Disclosure Act of 1995 (P.L. 104-65, to be codified at 2 U.S.C. 1601, et seq.)]

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

[Note: Pursuant to 31 U.S.C. § 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such expenditure or failure.]

The Consultant, IVIT Innovation in Transportation Inc., certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Consultant understands and agrees that the provisions of 31 U.S.C. 3801, et seq., apply to this certification and disclosure, if any.

[redacted]

Signature of Consultant's Authorized Official

10/25/17

Date

Linda Keith, VP & CFO

Name and Title of Consultant's Authorized Official

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SOUNDTRANSIT

PROPOSAL FORM NO. 7 BUY AMERICA

Certification Requirement for Procurement of Steel, Iron, or Manufactured Products.

Certificate of Compliance with Buy America Requirements

The proposer or offeror hereby certifies that it will comply with the requirements of 49 U.S.C. 5323(j)(1) and the applicable regulations in 49 CFR Part 661.

Date 10/26/17

[redacted]

Printed Name Linda Keith

Company INIT Innovations in Transportation Inc.

Title Vice President + CFO

OR

Certificate of Non-Compliance with Buy America Requirements

The proposer or offeror hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j) but it may qualify for an exception to the requirement pursuant to 49 U.S.C. 5323(j)(2), as amended, and the applicable regulations in 49 CFR Part 661.7.

Date _____

Signature _____

Attorney, Corporate Officer, Owner, or Partner

Printed Name _____

Company _____

Title _____

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next generation ORCA

The Capability Conformance Matrix must be signed by an authorized representative of the Proposer with authority to execute binding contracts on its behalf. By signing below, the Proposer hereby agrees that all the information associated with the capabilities are true and agreed upon as part of the Scope of work for the ngORCA RFP No RTA/RP 0119-17. This Capability Conformance Matrix will be binding and part of the agreement between the Proposer and Sound Transit.

[redacted]

Signature

Roland Staib, President & CEO

Name, Title

3/23/2018

Date

Capability Subsection	Capability Type	Capability Number	Capability	Fully Conforming	NonConforming	Comments
Section 2 Implementation Services						
Section 2.1 Project Management						
Project Management Plan	Mandatory	2.1.3-1	The project Management Plan (PMP) will include but is not limited to the following elements: • Organization chart identifying key project personnel and contact information • Master schedule, identifying key project milestones and activities • Schedule for all project design and manufacturing elements that require Agency approval • Project meeting schedule • Methodology to control project schedule, scope, cost, and risk • Risk management plan and risk register, including identified project risks and actions required to mitigate them • Transition and change management processes and procedures • Safety processes and procedures • Quality assurance processes and procedures to confirm that the requirements of the contract are being met • Subcontractor management and communications • Document and Master Issues List (MIL) control processes and procedures, including version and traceability controls • Change management plan and procedures for all deliverables and subsequent revisions • Cost management			
Section 2.4 Testing						
General Rqmts	Mandatory	2.4.1-1	All system components and subsystems will be tested individually and in integrated environments to make sure that they meet all technical and functional capabilities in the specifications.			
		2.4.1-2	All tests and inspections will be documented by the SI, and monitored and signed off by the Agencies or their representatives, as well as by the SI or its representatives.			
Test Documentation	Mandatory	2.4.2.1-1	The inspection and test plan will include a detailed schedule indicating the sequence of each test, where and when each test will take place, and the number of SI-provided staff covering each test.			
		2.4.2.1-2	The inspection and test plan will detail the number and range of tests, as well as the criteria for acceptance of each phase of testing. All performance measurement procedures and acceptance criteria, including the number and type of failures allowed in each phase of testing, will be subject to Agency review and approval. The plan will include all capabilities as well as those identified during design review.			
Agency Test Facility	Mandatory	2.4.3-1	The test facility will be connected to the next generation ORCA back office test environment, including the account-based transaction processor and all specified support systems, which fully replicates the production environment. The test environment hardware will be identical to the production system hardware, but will not require system redundancy.			
		2.4.3-2	With the exception of factory testing, all specified formal testing will be conducted onsite, and all laboratory-based testing will be conducted in the test facility. The SI shall provide all labor and materials required for system testing, including but not limited to closed-loop fare media and bank cards.			
Factory Testing	Mandatory	2.4.4.1-1	First Article Configuration Inspection (FACI) will take place at the point of assembly, after manufacture or procurement of the first production units for each of the System components: onboard validators and mounting hardware, wayside validators and mounting hardware, driver display units and mounting hardware, vending machines, customer service terminals, and the back office, including all subsystems.			
		2.4.4.2-1	Factory Acceptance Test (FAT) will be conducted by the SI at the SI's facility or at a subcontractor's facility designated by the SI. The SI shall provide all necessary supplies for FAT.			
		2.4.4.2-2	If at any time after any phase's test results have been approved, a design change is made, the performance of the modified system components will need to be demonstrated as conforming to this specification and the test results will be resubmitted for Agency approval.			
Integration Testing	Mandatory	2.4.5.2-1	The SI shall conduct all System Integration Test (SIT) testing at the Agency test facility.			
		2.4.5.2-2	If the SI hosts the System, the automated failover process will be exercised in multiple failover scenarios during systems integration testing to demonstrate no data loss or significant degradation in system performance. The Disaster Recovery Plan will include regular failover testing after implementation.			
		2.4.5.3-1	The SI will conduct all Field Integration Test (FIT) testing in the production environment.			
System Acceptance Testing	Mandatory	2.4.6.1-1	SAT will be performed in the production environment with all components, subsystems, and networks completely operational, online, and in service.			
		2.4.6.2-1	The SI shall submit a request for Final System Acceptance upon successful completion of SAT and determination that all work has been completed in accordance with this Scope of Work and final design.			

Capability Subsection	Capability Type	Capability Number	Capability	Fully Conforming	NonConforming	Comments
Section 8 Operation & Maintenance Services						
Section 8.2 Operations & Maintenance Model						
Operations & Maintenance Model	Mandatory	8.2-1	The SI shall warrant that all of the equipment, computer systems, and software provided for the System, including those components warranted by third-party suppliers, will be free from defects in operation, material, and workmanship under normal operating use. Remedial work to correct deficiencies will include the repair or replacement of equipment, components, devices and/or materials.			
		8.2-2	The SI shall provide a one (1) year warranty that begins upon Final System Acceptance.			
		8.2-3	The SI shall follow proper Agency security procedures for gaining access to field equipment and facilities, and shall not engage in such procedures without having received Agency-provided training.			
		8.2-4	Prior to the start of the SMA, all software maintenance activities will be covered under warranty.			
	Desired	8.2-5	All software maintenance performed under the warranty will comply with the documented software maintenance capabilities			
		8.2-6	The warranty will include but is not necessarily limited to the following SI provided equipment and software, and back office systems and software: • Onboard validators and associated hardware • Wayside validators and associated hardware • DDUs and associated hardware • CSTs • VMs • Test facility • Production and test back office systems			
		8.2-7	The warranty will cover the following: • Repair or replacement of all equipment or systems required as a result of an identified hardware defect • Software updates or re-writes required to repair all identified software defects or bugs, and apply all necessary patches or security updates released by the SI or third-party software providers throughout the term of the warranty • All labor associated with hardware and software testing and deployment, both in the lab and field environments, needed to support warranty activities			
		8.2-8	If during the warranty term, the required replacement of any component or device exceeds 10% of the mean quantity installed, a "fleet defect" will be declared, and the entire quantity of such components or devices will be considered defective.			
		8.2-9	If a fleet defect is declared, the Program needs the SI to undertake and complete a corrective work program to replace all components of that type with new components. The repair schedule and procedures will be subject to Agency review and approval. All items replaced under these terms will be warranted for at least one (1) year after replacement.			
		8.2-10	A fleet defect will be considered resolved when the installed components are determined to meet or exceed all of the KPI capabilities, and upon Agency approval.			
		8.2-11	The Program needs the SI to be responsible for all personnel, labor, tools, materials, shipping charges, and other costs associated with the repair or replacement of components and/or subsystems throughout the warranty term.			
		8.2-12	Following completion of the warranty term, should there be warranty work to complete, the warranty will be extended to provide equal coverage for each piece of equipment.			
		8.2-13	The warranty will not apply to any equipment that has been damaged by any person other than the SI or SI's assignee. Environmental conditions described in these technical specifications will be considered normal operating conditions for this System and will not qualify for exclusion.			

Capability Subsection	Capability Type	Capability Number	Capability	Fully Conforming	NonConforming	Comments
		8.2-14	The Agencies will operate and maintain the equipment and software in accordance with the SI's specific instructions in order to maintain this warranty. The Agencies will be held blameless if the SI has provided inadequate or inaccurate training, and/or incomplete operating manuals, maintenance manuals, electrical and electronic schematics, mechanical diagrams, or software documentation.			
		8.2-15	In the event the SI fails to comply promptly with warranty requirements, the Agencies will, upon written notice to the SI, have the right to deduct the cost of the Agencies' prevailing labor and material costs for repairing a defect from any compensation due, or coming due, to the SI. In the event the SI has been paid in full, the Program needs the SI to agree to compensate the Agencies for the costs incurred.			
		8.2-16	Spare modules used by the SI during the warranty term will be replaced by the SI at no cost to the Agencies. The Program needs the SI to maintain sufficient spare sub-assemblies, modules, and components to meet the System availability capabilities through the conclusion of the warranty.			
		8.2-17	During the entire warranty term, any and all repairs, adjustments, or replacements of equipment by the Program needs the SI to be documented by the SI within the AIM at the completion of every day.			
		8.2-18	The Program needs the SI to develop a warranty plan outlining processes and procedures to be implemented to meet all specified warranty requirements. A draft of the warranty plan will be submitted at FDR and a final version will be provided a minimum of 90 calendar days prior to the start of any warranty term.			
		8.2-19	The Program needs the SI to provide a new component or subsystem if a particular component or subsystem was repaired or replaced three (3) times for the same failure, as determined by the FRB, within the warranty period.			
Section 8.3 Website Hosting						
	Mandatory	8.3-1	The SI shall provide the hosting services necessary to support website operations, and interfaces to internal and external systems needed to perform the required functions for the duration of the contract.			
Section 8.4 Back Office Hosting						
	Mandatory	8.4-1	If the SI hosts the System, they shall provide the hosting services necessary to support system operations and interfaces to internal and external systems needed to perform the required functions for the duration of the contract.			
Section 8.5 Back Office Operations						
Back Office Operations	Mandatory	8.5-1	The SI shall be responsible for all back office operations and maintenance under the back office operations agreement.			
		8.5-2	Throughout the term of the back office operations agreement, the SI will meet the associated system performance capabilities (e.g., back office accuracy, availability, and server authorization rate).			
		8.5-3	The SI shall develop a back office operations plan outlining the processes and procedures to be implemented in order to meet all specified back office operations capabilities. A draft of the back office operations plan will be submitted at FDR and a final version will be provided a minimum of 90 days prior to the start of the back office operations agreement term.			
	Desired	8.5-4	The SI's Lead Engineer will continue in a full-time onsite operations and maintenance services role throughout the term of the back office operations agreement. The SI may propose an alternate to fill the primary onsite operations management role, subject to Agency approval, and may elect to have additional onsite staff as needed to meet the capabilities of the back office operations agreement.			
		8.5-5	The Program needs the SI to allow Agency staff to shadow all back office operations and support activities throughout the back office operations agreement.			
		8.5-6	Under the back office operations agreement, the Program needs the SI to be responsible for the following activities: • Monitoring system performance and health • Providing timely and accurate processing of transactions • Overseeing operation of all back office support systems (e.g., CRM application and financial management systems) • Overseeing website operation • Overseeing operation and updates of mobile apps • Maintaining system configuration, and making configuration changes upon request from the Agencies • Testing and deployment of website and configuration changes • Supporting report updates and ad-hoc data requests			
		8.5-7	Failure to meet the specified performance capabilities will result in deductions from the monthly back office operations payments made to the SI. Deductions will be based on the level of performance, and impacts of persistent failures.			

Capability Subsection	Capability Type	Capability Number	Capability	Fully Conforming	NonConforming	Comments
		8.5-8	The Program needs the SI to be responsible for updates to the SI-provided reports no less than quarterly.			
		8.5-9	The SI will provide a monthly invoice (at end of month) for back office, online services and other components in an itemized fashion with any credits related to KPIs also listed.			
Section 8.6 ISMS Compliance						
ISMS Compliance	Mandatory	8.6-1	The SI shall be responsible for maintaining the System's compliance with all required security controls, and for facilitating the operation of the regional ISMS by providing all necessary evidence of proper control implementation and operation for the System for the duration of the contract.			
	Desired	8.6-2	The region's ISMS will continuously assess the risk profile of the System. If needed, the Program needs the SI to implement additional controls to address newly identified risks to the System, based on changing technological, business, or compliance needs.			
Section 8.7 Software Maintenance						
General Capabilities	Mandatory	8.7.1-1	The SI shall provide preventative and corrective software maintenance to support system operations while meeting the performance standards set forth in this SOW.			
		8.7.1-2	The SI shall submit a Software Maintenance Plan for review and approval identifying the approach to meeting the capabilities of the SMA.			
		8.7.1-3	Throughout the term of the SMA, the SI will meet the associated system performance capabilities (e.g., device reliability and accuracy).			
	Desired	8.7.1-4	The Software Maintenance Plan will cover the following: • Software updates or re-writes required to fix all identified software defects or bugs throughout the term of the SMA • Application of all necessary patches or security updates released by the SI or third-party software providers • All software testing and deployment, both in the lab and field environments, needed to support these activities			
		8.7.1-5	Performance of software maintenance activities will be completed in a manner that does not disrupt or degrade system operations, to the fullest extent possible.			
		8.7.1-6	The Program needs the SI to make corrections and modifications to the System software in coordination with the Agency staff. Serious issues (i.e., any error which causes system reliability or availability to fall below stated capabilities) will be corrected immediately.			
		8.7.1-7	If the condition requiring correction affects the operation of other system components, then the Program needs the SI to provide repair or replacement of the System components that fail, regardless of whether the warranty term has expired for those components.			
		8.7.1-8	The Program needs the SI to make every attempt to fix software problems impacting revenue collection within two (2) hours of being reported.			
		8.7.1-9	The SI and the Agencies shall agree on an appropriate course of action if a third-party software provider goes out of business, or if maintenance updates for third-party software degrades performance of the SI's system.			
		8.7.1-10	Software to be maintained under the SMA will include all required updates to the APIs and associated specifications provided by the SI.			
		8.7.1-11	All third-party software will be maintained at the most current or previous version at no additional charge throughout the term of the SMA, so long as it does not involve a major rewrite of the SI's software.			
onse & Resolution	Mandatory	8.7.2-1	The SI shall provide technical support to the Agencies for the general use and operation of the software via telephone throughout the warranty and SMA terms. Telephone support will be provided by the SI during normal business hours (PST) Monday through Friday, excluding holidays.			
		8.7.2-2	The SI shall provide phone number and email address for the reporting of software defects or malfunctions, and system outages, 24 hours a day, seven (7) days a week.			
		8.7.2-3	During the warranty and SMA terms, the Program needs the SI to respond to reports of system outages within 30 minutes of notification, 24 hours a day, seven (7) days a week. A fully-qualified service representative will be onsite as soon as possible, and no more than 24 hours after being contacted by Agency staff, if it is determined that a physical presence is needed to resolve the identified issue.			
		8.7.2-4	During the warranty and SMA terms, the Program needs the SI to respond to a report of any software defect or malfunction within one hour of notification during Agency business hours. A fully-qualified service representative will be onsite as soon as possible, and no more than 24 hours after being contacted by Agency staff, if it is determined that a physical presence is needed to resolve the identified issue.			

Capability Subsection	Capability Type	Capability Number	Capability	Fully Conforming	NonConforming	Comments
Communications, Respo	Desired	8.7.2-5	Program needs the SI to maintain a change log of all changes that are performed, and provide this change log to the Agencies on a mutually agreed upon schedule. The change log must be sufficiently detailed to allow the Agencies to determine when any feature was added or modified, and the scope of the change. The change log will conform to the change management policies defined in the change management plan.			
		8.7.2-6	Advance notification will be provided, as defined by the change management policies outlined in the change management plan, for all software maintenance activities.			
		8.7.2-7	The Program needs the SI to submit to the Agencies no less than every two weeks a bulletin setting forth planned modifications and updates to the software, upgrade schedules, and a calendar of key dates for system changes for the coming three months and beyond. The bulletin will conform to the change management policies defined in the change management plan.			
		8.7.2-8	Throughout the SMA term, the Program needs the SI to document all equipment repairs, adjustments, or replacements within a maintenance management system, by the end of each day.			
		8.7.2-9	If a software problem impacts revenue collection, but repair will take longer than three (3) hours, the Program needs the SI to report the cause of the problem as soon as it becomes evident, and provide status reports at least every four (4) hours thereafter, until the problem is corrected or a workaround is established.			
Software Change Management	Mandatory	8.7.3-1	Without releasing the SI from its obligations under the warranty and SMA, the Agencies have the right to refuse to install any updates, at their sole discretion.			
		8.7.3-2	During the term where the SMA is in effect, the SI shall update training course materials and manuals as needed to reflect software changes performed under the agreement.			
		8.7.3-3	All changes to any delivered and installed part of the System must comply with the mutually agreed upon change request and software deployment procedures defined in the SI's Project Management Plan.			
	Desired	8.7.3-4	The Program needs the SI to track and maintain a list of software maintenance issues and open items. The Program needs the SI to distribute the list to the Agencies in advance of each monthly meeting.			
		8.7.3-5	Software and firmware updates will be clearly documented and submitted in advance of deployment for Agency review and approval.			
		8.7.3-6	During the warranty and SMA terms the Program needs the SI to provide updated course instruction and materials resulting from any significant system hardware or software changes.			
		8.7.3-7	The Program needs the SI to support software change management meetings no less than monthly throughout warranty and SMA terms, either in person or via phone.			
		8.7.3-8	The Program needs the SI to keep all software environments (training, test, development, staging, and production) at the same configuration and patch level as appropriate.			
		8.7.3-9	The Program needs the SI to notify the Agencies whenever corrections, modifications or revisions of system software are available.			
		8.7.3-10	As standard practice when repairing deficiencies and releasing device or back office system fixes or upgrades, the Program needs the SI to prepare and run regression testing scripts to test that each build delivered to the test environment does not result in any issues with the devices and systems currently in operation, including those that are not being updated. Any regression issues will be documented as deficiencies and resolved accordingly.			
Software Enhancements	Mandatory	8.7.4-1	The SI shall provide to the Agencies all support required to develop and deploy such enhancements at the SI's labor rates specified in the price schedule.			
	Desired	8.7.4-2	The Program needs the SI to provide timely response to requests for software enhancements (customizations) by the Agencies that are not covered by the warranty or SMA. Enhancements include modifications to the software that add capabilities and improve or change software functions that are not modifiable using the System configuration parameters defined in this SOW.			
Section 8.8 Field Equipment Maintenance						
	Mandatory	8.8-1	A detailed service operations document including service procedures and VM screen flows will be provided during design review for Agency review and approval.			
		8.8-2	Spare devices and modules used for all maintenance activities performed prior to Final System Acceptance will be replaced with functional equipment a maximum of 14 calendar days after use.			

Capability Subsection	Capability Type	Capability Number	Capability	Fully Conforming	NonConforming	Comments
Field Equipment Maintenance	Desired	8.8-3	The SI will provide instructions and pricing for the purchase of replacement devices and modules for all SI-supplied equipment, including but not limited to: * Onboard validators * Wayside validators * Driver display units * CST (and all peripherals) The purchase of replacement equipment may be through the SI or OEM, and pricing may be provided for repaired or refurbished equipment, in addition to new equipment.			
		8.8-4	The Program needs the SI to provide a recommended list of spare modules and parts to support the installed fleet at completion of SAT. Recommended quantities will be provided based on expected usage.			
		8.8-5	The Program needs the SI to provide a recommended list of consumables at completion of SAT to support system operations for one year. Consumables are items that have a limited life cycle due to constant use and are expected to be replaced on a frequent basis, such as bulbs, fuses, and receipt paper. Recommended quantities will be provided based on expected usage.			
		8.8-6	The Program needs the SI to provide a list of special tools needed to maintain the System at completion of SAT. Special tools are defined as special diagnostic tools and equipment that is not readily available from commercial sources. The Program needs the SI to provide sufficient documentation to allow the Agencies to manufacture these tools.			
		8.8-7	The Program needs the SI to not modify or repair any equipment in revenue service without the approval of the ROOT or an Agency-authorized representative.			
		8.8-8	During the warranty, the Program needs the SI to ship replacement modules within one business day of receipt of any field equipment returned for repair/replacement.			
Section 8.9 Agency Test Facility						
	Desired	8.9-1	The Program needs the SI to update the Agency test facility for the duration of the contract.			
Section 8.10 Fraud Controls						
	Mandatory	8.10-1	The SI shall be responsible for maintaining the System's fraud control capabilities for the duration of the contract.			
Section 8.11 Disaster Recovery						
Disaster Recovery	Mandatory	8.11-1	The SI shall maintain the Disaster Recovery Plan for the duration of the contract. The plan will conform to the required service level agreement and be consistent with the Business Continuity Plan and recovery time capabilities.			
		8.11-2	For SI-hosted solutions, the SI must have a current Disaster Recovery Plan in place for both IT and non-IT related disasters for the duration of the contract.			
Section 8.12 Performance Measurement						
General Capabilities	Mandatory	8.12.1-1	The SI shall submit a Performance Maintenance Plan for review and Agency approval during design review identifying the approach to measuring and reporting on performance against KPIs.			
		8.12.1-2	The SI shall be responsible for measuring performance against all KPIs.			
		8.12.1-3	The SI shall automate the capture of all necessary data and KPI calculation wherever possible. For validation purposes, the Agencies will have full access to the source data and code used to perform the calculations.			
	Desired	8.12.1-4	System performance will be measured using the data generated and stored by the System. Data generated manually will be used when it is the only option for tracking an activity associated with a particular KPI (e.g., response time).			
		8.12.1-5	The Program needs the SI to commence performance measurement during the SAT and continue to perform this activity throughout the operations agreements.			
	Mandatory	8.12.3-1	The FRB will be established prior to the start of acceptance testing to evaluate equipment and back office failures, as well as other system issues, throughout acceptance testing.			
		8.12.3-2	The acceptance test plan submitted by the SI will include a proposed FRB structure and system performance review process.			
		8.12.3-3	The Agencies' project manager will make the final and binding decision on any disputes that remain unsettled by the FRB after a period of 10 business days.			
		8.12.3-4	The members of the FRB will attempt to settle any disputes based on the requirements in this SOW, and will use best judgment in any scenarios where the requirements are silent or unclear.			
		8.12.3-5	At a minimum, the Failure Review Board (FRB) will be comprised of the Agencies' project manager, or a designated representative, and the SI's lead engineer.			

Capability Subsection	Capability Type	Capability Number	Capability	Fully Conforming	NonConforming	Comments
Failure Review Board	Desired	8.12.3-6	The FRB will be responsible for the review and approval of the acceptance test plan, and shall agree to the criteria for the execution and approval of the acceptance test phases.			[redacted]
		8.12.3-7	During acceptance testing, the FRB shall meet no less than weekly. The FRB will review all failures and other system issues that arise during acceptance testing to assess their severity and impact on completion of this test phase.			
		8.12.3-8	Following the prescribed SAT period, the FRB will make a recommendation on whether to approve or extend the test phase. Final discretion for the approval of acceptance testing and the granting of Final System Acceptance will reside with the Agencies.			
		8.12.3-9	Following Final System Acceptance, the FRB will continue to meet monthly for the remainder of the operations agreements. During this time, the FRB will be responsible for reviewing system performance and settling any disputes around measurement of the KPIs.			
	Desired	8.12.3.1-1	Non-chargeable failures include, but are not limited to, the following: • Mishandling of equipment or back office system components • Any failures caused by externally applied stress conditions outside of normal operating conditions and in excess of the requirements in this SOW • Failures caused by incorrectly exercised operating, maintenance or repair procedures performed by the Agencies where correct procedures have been delivered by the SI (failures resulting from any maintenance or repair performed by the SI will be chargeable) • Failure caused by vandalism • Communications failures beyond the control of the SI • Downtime due to scheduled maintenance • Heater or battery adjustments • Dependent failures as a result of a non-chargeable failure			
		8.12.3.1-2	All other failures will be considered relevant and chargeable unless determined to be non-chargeable by the FRB.			
		8.12.3.1-3	Non-chargeable failures will not affect the reliability, accuracy, and availability KPI calculations.			
		8.12.3.1-4	Chargeable failures include, but are not limited to, the following: • A malfunction which prevents the System component from performing its designated function, or meeting the performance criteria, when used and operated under the environmental and operational conditions stated in this SOW • A malfunction that might cause a threat to customers, employees, or others • An occurrence that does not cause the System component to become entirely inoperable, but requires some form of maintenance attention to restore normal function • Any occurrence where data is not successfully transmitted between elements of the System • Planned software updates or fixes that adversely affect the operation or performance of the System • Scheduled maintenance or repair activities that adversely affect the operation or performance of the System			
		8.12.3.1-5	The following specific conditions, at minimum, will be considered chargeable failures in any components or Systems delivered: • Software anomalies and bugs (every incident of a software anomaly or bug causing a malfunction will be considered a failure) • Hardware failures that are not clearly a result of conditions outside the requirements of this specification • Failures of mounting hardware • Data storage failures, including those due to the disk space provided • Partial or complete failure of a passenger display • Failure to accurately read and/or process a card • Failure to properly register and report any transactions • Data download/upload failure • Event or alarm transmission failure • Unexpected shutdown of equipment or the System • All maintenance requiring module replacements			
		8.12.3.1-6	Under mutual agreement, the FRB will classify additional failures as chargeable or non-chargeable as required.			
		8.12.3.1-7	Chargeable failures will affect the reliability, accuracy, and availability KPI calculations.			

Capability Subsection	Capability Type	Capability Number	Capability	Fully Conforming	NonConforming	Comments
Performance Reporting	Mandatory	8.12.4-1	The SI shall be responsible for reporting on performance against all KPIs on a monthly basis.			
		8.12.4-2	The SI shall commence performance reporting during SAT and continue to perform this activity throughout the operations agreements.			
	Desired	8.12.4-3	The Program needs the SI to provide up to 100 hours of design for Agency-specific modification of provided canned reports.			
		8.12.4-4	At a minimum, the following reports will be provided: • Device reliability • Device accuracy • Device availability • Back office accuracy • Back office availability • Server authorization rate • Maintenance response time			
		8.12.4-5	The reports will be generated without manual data entry by the SI wherever possible.			
		8.12.4-6	The reports will include tables and graphical charts showing the current and historical performance of each device of system under measurement.			
		8.12.4-7	The reports will include a calculation of any credits to be assessed in the current month based on current and prior performance.			
		8.12.4-8	The Program needs the SI to create canned reports that can be run, viewed, and downloaded by the Agencies using the reporting system. These reports will not count toward the custom reports to be defined by the Agencies.			
Credit Assessment	Desired	8.12.5-1	Credits will be granted for a failure to meet any KPIs identified as having an associated credit.			
		8.12.5-2	Credits will be determined as a percentage of the operations payments made to the SI. The credit percentage and operations payment associated with each KPI will be determined during negotiations.			
		8.12.5-3	The SI will have three opportunities to meet the KPI as measured. By the third assessment period (the third consecutive month) if the measurement is not meet, it will be deemed a failure and a credit granted.			
		8.12.5-4	The credit multiplier will increase by a factor of one for each month that a KPI is not met, up to the full value of the associated operations payment (e.g., if a KPI is not met two months in a row, the credit will be doubled in the second month; if a KPI is not met three (3) months in a row, the credit will be tripled in the third month)			
		8.12.5-5	Successfully meeting a KPI will end a persistent failure and reset the credit multiplier.			
		8.12.5-6	The total credit applied to an operations payment will not exceed the full amount of the operations payment in that month. Credits will not be carried over from month to month.			
		8.12.5-7	The Program needs the SI to be responsible for reporting on credits in the System performance reports and will deduct credits directly from any invoices submitted to the Agencies.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
	Section 3 System Design & Architecture			
	Section 3.1 Common Design Capabilities			
3.1.1-1	Software and hardware provided under this contract will be designed to provide a minimum useful life of 12 years from commissioning date.			
3.1.1-2	To establish a design as service-proven, the SI shall submit specific details of the design's application history, certified by current users of the equipment.			
3.1.1-3	The SI may offer, for approval, a design which is largely unchanged from a service-proven design, but which varies slightly in design or manufacture to meet the capabilities of this SOW, including newer generations of service-proven equipment. The Program needs the SI to show, in detail, what has been changed and why such changes will not adversely affect operation or maintenance in the planned environment.			
3.1.1-4	The System design will be service-proven. As service-proven, or derived from a service-proven design, the System design will meet all of the following criteria: • Has been deployed and met system acceptance requirements at a minimum of one (1) transit agency with bus and rail operations • Has been deployed and successfully integrated frontend equipment with a back office system at a minimum of one (1) transit agency • Has been deployed and achieved a level of reliability, accuracy, and availability consistent with the performance requirements in this SOW at a minimum of one (1) transit agency			
3.1.1-5	Proposed vending machines will be nearly identical in design and construction to a model deployed and in revenue service (i.e., in use and passed system acceptance) at a minimum of one (1) transit agency.			
3.1.1-6	Proposed wayside and onboard validators and associated onboard equipment will be nearly identical in design and construction to a model deployed and in revenue service (i.e., in use and passed system acceptance) at a minimum of one (1) transit agency.			
3.1.2-1	At the time of delivery, equipment, and all associated components and software will contain no prototype, obsolete, or discontinued products. Any hardware or software components that have an end-of-life prior to expiration of warranty must include replacement plans to be executed at the SI's cost.			
3.1.2-2	The System will be designed using open standards for software design, communications protocols, fare media, and other relevant design components.			
3.1.2-3	Software applications and devices will be built using Commercial off the Shelf Software (COTS) components where possible, and custom software and hardware modules only if necessary and approved by the Agencies.			
3.1.2-4	Fare media will be available for competitive purchase from multiple U.S. sources. The Program needs the SI to provide the specifications and associated documentation necessary to support the future procurement of fare media from third parties.			
3.1.2-5	The System will have a modular design for all relevant components. These modules will support field replacement to return a device to service in minimal time, as determined and approved during system design and testing, in the event of a failure. The System will also permit upgrades and configuration changes without requiring component replacement or redesign.			
3.1.2-6	In order to reduce the cost and complexity of device maintenance, all devices, components, parts, modules, assemblies, and subassemblies provided will be fully interchangeable among those of the same type without the need to make adjustment for proper compatibility.			
3.1.2-7	The System will be designed so that technology upgrades may be done with no or minimal redesign of components, modules, and software, or other work.			
3.1.3-1	The Program needs the SI to furnish equipment and materials from the manufacturers identified in the SI's deliverables, unless otherwise approved.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.1.3-2	The Program needs the SI to select and supply devices, components, parts, modules, assemblies, and subassemblies, as well as software and other essential elements of the System, based on projected availability and long-term original equipment manufacturer (OEM) support commensurate with the required useful life of the System.			[redacted]
3.1.3-3	If any vital device, component, part, module, assembly, or subassembly, or support for OEM software, is being discontinued or obsoleted by the SI or OEM, the Program needs the SI to notify the Agencies a minimum of six (6) months prior to last available date of purchase or support.			
3.1.3-4	The Program needs the SI to work with the Agencies to find or develop a suitable replacement for any device, component, part, module, assembly, subassembly, or software that is obsoleted by the SI or OEM. If the SI chooses to obsolete any SI-provided equipment or software within 12 years from Final System Acceptance, all hardware and software development costs necessary to support a replacement will be borne by the SI.			
3.1.4-1	All components of the System will be constructed of the highest quality materials suitable for production-level use in the intended environment over the required useful life of the System. The SI shall use only new components conforming to the capabilities of this SOW and approved by the Agencies. This does not preclude use of recycled materials in the manufacture of new components.			
3.1.4-2	The SI shall be responsible for all materials and workmanship. It is the Systems Integrator's responsibility to design, select, and apply all materials necessary to meet the capabilities of this SOW. If alternate materials are offered following selection, it is the responsibility of the SI to demonstrate that the alternate materials are equivalent to the proposed materials, and to obtain Agency approval for the substitution prior to any implementation.			
3.1.4-3	All SI provided equipment will be free from safety hazards and will be designed to comply with relevant Underwriter's Laboratory (UL) Standards. All interior and exterior surfaces will be free from sharp edges, protrusions, exposed wires, or other hazards.			
3.1.4-4	If it is found that approved sources do not furnish a uniform product, or if the product from such source proves			
3.1.5-1	The SI shall supply all necessary software applications and shall design and configure all device and back office software			
3.1.5-2	System software will incorporate the following design elements at a minimum:			
3.1.5-3	System software will incorporate the following controls at a minimum:			
3.1.5-4	System software will incorporate the following diagnostic capabilities at a minimum:			
3.1.5-5	Software upgrades will be centrally managed and fully tested prior to installation. The System shall be able to roll-back to			
3.1.5-6	All third-party software will be at the latest commercial release at the time of FDR. If a release candidate is pending, the			
3.1.6-1	The System interfaces will be user-friendly and provide easily-configurable dashboards and graphics as determined during design review.			
3.1.6-2	The SI will work closely with the Agencies' IT and web services teams to develop an approved user interface design. The Agencies will play a critical role in the website design and testing throughout the implementation.			
3.1.6-3	System equipment will provide customers and Agency users with displays, graphics and signage, controls and mechanisms that are simple to use, easy to understand, and conveniently located as determined during system design and testing. By following instructions given on and by the equipment, an inexperienced user will be able to understand all transaction processes and results. All such user interfaces will be user-friendly; that is, safe, predictable, simple to use, accessible for persons with disabilities, and in accordance with other applicable human engineering principles.			
3.1.7-1	The System equipment will provide reliable operation over its useful life, and will be designed to require minimal scheduled and unscheduled maintenance.			

Capability Number	Capability	ully Conforming	onConforming	
3.1.7-2	Automatic diagnostic test routines (and equipment if necessary) will be included to aid in troubleshooting malfunctions. These test routines will provide the capability to isolate defects down to the Lowest Level Replaceable Unit (LLRU).			
3.1.7-3	The SI shall provide documentation and a Maintenance Plan during PDR that defines at a minimum: • Preventative Maintenance frequency for all system devices based upon time and transactions • A list of all Preventative Maintenance tasks to be performed, including a brief description of the work, and any parts, materials, or other components required • Time required to complete each defined Preventative Maintenance task • Which Preventative Maintenance tasks require tools to complete, and which can be performed as "fingertip maintenance"			
3.1.7-4	The interior of the System equipment will be designed to allow easy and safe access. Adequate space will be available to insert keys; grasp, lift, and turn internal components; and remove and replace components, connections, and consumables. As appropriate, guides, rails, tracks, handles, and captive fasteners will be provided to facilitate module installation and removal.			
3.1.7-5	Any component or module that must be lifted (except for cash containers when full) will not weigh more than 20 pounds. Any exceptions to this weight limitation will be subject to Agency approval.			
3.1.7-6	For ease of service and replacement, all electrical connections between components and subassemblies will be established by means of connectors that allow rapid removal of a component or subassembly. Plug-in connectors will be equipped with strain relief to prevent damage to cables and connectors.			
3.1.7-7	Components requiring frequent adjustment or maintenance will be conveniently located as determined during design and testing, and designed to facilitate access and adjustment utilizing tool-free techniques wherever possible.			
3.1.7-8	All devices will have clear labels and symbols that at a minimum indicate safety warnings, servicing steps, and wiring connections.			
3.1.7-9	No more than one person will be required to perform corrective maintenance, with the exception of vandalism, on an individual piece of equipment.			
3.1.7-10	The System will have a modular design for all relevant components. These modules will support field replacement to return a device to service in minimal time in the event of a failure. The System will also permit upgrades and configuration changes without requiring component replacement or redesign.			
3.1.7-11	The replacement of field devices or components will be quick and secure as determined during design review.			
3.1.8-1	The System will be sized such that the total number of possible transactions, and total concurrent use of transit accounts, will at a minimum support 200% of the projected regional ridership totals and peak usages supplied by the region.			
3.1.8-2	Scaling the System will in no way impact the overall performance of the System, the KPIs to which the System must meet, and any of the requirements contained in the SOW.			
3.1.9.1-1	All system components and mounts will be sufficiently constructed to comply with local codes regarding stability of structures and contents in earthquakes, high velocity wind (up to 60 miles per hour), and other natural phenomena.			
3.1.9.1-2	All system components will be designed to withstand structure-borne stresses and vibrations caused by the motion of transit vehicles, daily customer use, passing of trains or other vehicles, and emergency braking of fully-loaded trains.			
3.1.9.1-3	All system components, including all interior-mounted components and assemblies, will resist horizontal shocks of up to 6 g (where "g" is the acceleration of gravity at sea level, or 9.81 meters per second squared) and up to 1.2 g in the vertical axis for a duration of up to 12 milliseconds (ms) without permanent deformation or failure.			

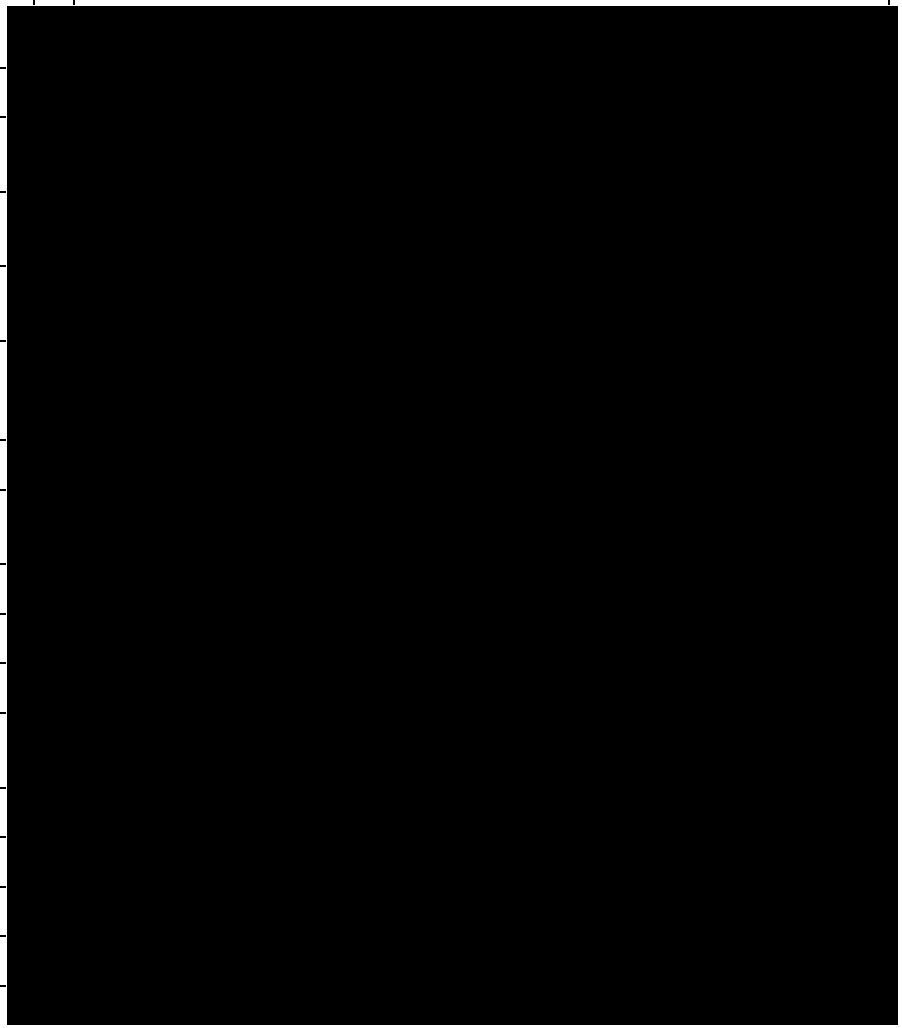
Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.1.9.1-4	There will be no failure of mounts or decrease in operational performance of any system components under conditions simulated by a sinusoidal sweep vibration test at a sweep rate of one-half octave per minute, from 5 Hz to 200 Hz to 5 Hz, at a peak vibratory acceleration of 0.25 g for a minimum of 50 cycles when applied to each of the three axes and repeated continuously for five (5) complete cycles. If any assembly or component is a source of vibration, measures will be taken to dampen the vibration. Resonant frequencies that may exist in the mounted structures will be critically dampened. All corrective measures must be approved by the Agencies.			
3.1.9.1-5	Onboard equipment, including onboard validators and driver display units, will pass the following shock and vibration tests: • IEC 60068-2-27 • IEC 60068-2-64			
3.1.9.1-6	Rail equipment, including vending machines and wayside validators, will pass the shock and vibration tests specified in the ERTMS/ETCS Environmental Requirements (e.g., EEIG 97s0655).			
3.1.9.2-1	Onboard equipment, including onboard validators and driver display units will be protected to prevent degradation in performance from exposure to moisture or dust raised by inclement weather or interior cleaning. Operation of the fare collection equipment in this environment will not in any way impair equipment performance throughout the required useful life of the System.			
3.1.9.2-2	Onboard equipment, including onboard validators and driver display units, will be designed, built, and installed for the harsh, high shock and vibration operating environment in which the System components will be installed. Operation of the fare collection equipment in this environment will not in any way impair equipment performance throughout the required useful life of the System.			
3.1.9.2-3	The onboard equipment provided by the SI will be able to operate and not suffer any degradation in performance under the following environmental conditions: • Storage temperature: -22° to +150°F • Operating temperature: -15°F to 140°F ambient • Thermal shock: Up to 50 degrees F in 1 hour, non-condensing • Relative humidity: 5-100%, non-condensing • Airborne dust: up to 180 micrograms per cubic meter, with iron and salt particles • Sunlight: direct sunlight, radiation loading of up to 789J/sec/m2 • Inclination: 0° to 20° off vertical • Rainfall: 10 inches over 12 hours • Water/solvents: IEC529 to level IP54 or equivalent • Pollution: Vog (e.g. sulfur dioxide-laden air) and other forms of native air pollution • Other operational conditions: water spray, industrial cleaning solvents, and mud on system components from cleaning vehicle floors and walls			
3.1.9.2-4	The onboard equipment will be either immune to or protected from the damaging effects of visible spectrum and ultraviolet radiation.			
3.1.9.2-5	The onboard equipment will be designed to be resistant to liquid ingress caused by driving rain, or by splashed water or cleaning chemicals, such as would occur during routine equipment and vehicle cleaning.			
3.1.9.2-6	Means will be provided to detect failure of any cooling device and provide for a controlled shutdown of the System components and generation of a maintenance event.			
3.1.9.2-7	The onboard equipment will be tested and certified to operate under the environmental conditions specified in Society of Automotive Engineers (SAE) J1455 and all standards contained therein.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.1.9.3-1	The wayside equipment provided by the SI will tolerate the environment in which it is installed and stored. The equipment will be able to operate and not suffer any degradation in performance under the following environmental conditions: • Storage temperature: 0° to +140°F • Operating temperature: -15°F to 140°F ambient • Thermal shock: Up to 30°F in 1 hour, non-condensing • Relative humidity: 5-100%, non-condensing • Airborne dust: up to 180 micrograms per cubic meter, with iron and salt particles • Sunlight: direct sunlight, radiation loading of up to 3MJ/hr/m2 • Platform Inclination: 0° to 10° off vertical • Rainfall: 10 inches over 12 hours • Water/solvents: IEC529 to level IP65 or equivalent • Pollution: VOG and other forms of native air pollution • Other operational conditions: water spray, industrial cleaning solvents, and mud on system components from cleaning station floors and walls			[redacted]
3.1.9.3-2	VMs will be subject to incidental moisture from customers and cleaning through coin, bill, and ticket slots, and other openings and enclosure joints, and will be designed for proper operation under such conditions. All exposed surfaces, including push buttons, the display screen, and coin and bill components will be unaffected by detergents and cleaning solvents. Means will be provided to expel moisture from the VMs to support continued, reliable operation.			
3.1.9.3-3	Means will be provided to detect failure of any cooling device and provide for a controlled shutdown of the System components and generation of a maintenance event.			
3.1.9.3-4	The wayside equipment will be either immune to or protected from the damaging effects of visible spectrum and ultraviolet radiation. Internal components that may be either damaged or affected operationally when exposed to direct sunlight will be protected from exposure during maintenance activities without requiring specific action by maintenance personnel.			
3.1.9.3-5	The wayside equipment will be designed to be resistant to liquid ingress caused by rain, or by splashed water or cleaning chemicals, such as would occur during routine equipment and platform cleaning.			
3.1.9.3-6	Wayside equipment, including wayside validators and VMs will be protected to prevent degradation in performance from exposure to moisture or dust raised by inclement weather or cleaning. Operation of the fare collection equipment in this environment will not in any way impair equipment performance throughout the required useful life of the System.			
3.1.9.4-1	CSTs will be designed and configurable to be installed in Agency facilities. Operation of the equipment in this environment will not in any way impair equipment performance throughout the required useful life of the System.			
3.1.9.4-2	Means will be provided to detect failure of any cooling device and provide for a controlled shutdown of the System components and generation of a maintenance event.			
3.1.10.1-1	The SI shall design, supply, install, test, and commission all internal system components necessary to provide the required electrical power to the SI-supplied equipment.			
3.1.10.1-2	Electrical power will be obtained from existing power sources and will be filtered, transformed, converted, battery-stored, and distributed by the SI as required, including all necessary connections and terminations.			
3.1.10.1-3	Onboard equipment, including onboard validators and driver display units, will be designed to operate reliably from a vehicle's direct current power source, which will be either 12 volts or 24 volts of direct current (VDC).			

Capability Number	Capability	ully Conforming	onConforming	
3.1.10.1-4	Primary power will be provided by the Agencies at equipment installation locations, and may not be clean or isolated at the voltage levels required by the SI-supplied equipment. Any necessary conditioning of the primary power, or addition of line interface filters or power supplies, will be the responsibility of the SI, and to the greatest extent possible, will be performed within the equipment enclosures.			
3.1.10.1-5	All system components operating off of line voltage will be designed to operate with a plus or minus 10% fluctuation in voltage without any damage or interruption.			
3.1.10.1-6	In the event of a loss of electrical power, field equipment will complete any transaction in process, retain all data, and shutdown in an orderly manner. The equipment will return to full operational status after a power failure without manual intervention or adversely affecting the integrity of stored data.			
3.1.10.1-7	All equipment will be protected against damage or data loss under the following conditions: • Voltage fluctuations • Reverse polarity of the input voltage • Temporary voltage variations (0 to 50 V) • Over-current draw • Stray currents			
3.1.10.1-8	The onboard equipment power supply will include adequate filters and components to regulate the bus-supplied voltag and render it devoid of power spikes and noise. Provisions will include elimination of power fluctuations caused by fluorescent lights, coach alternators, coach startup (cranking), air conditioning units, radio communication units, and other systems characteristic of a bus environment.			
3.1.10.1-9	Adequate protection against onboard transient power surges, as determined during system design and testing, will be incorporated to the extent necessary to prevent damage to the electronic components of the onboard equipment.			
3.1.10.1-10	Power sensing will be incorporated into onboard equipment power supplies to cause the devices to switch off automatically if the supply voltage increases or decreases to levels beyond the voltage tolerance.			
3.1.10.1-11	All system components will retain any information stored in non-volatile memory under any conditions of the supplied power.			
3.1.10.2-1	The SI shall certify the electromagnetic compatibility of system components to be furnished. The SI shall provide the results of interaction analysis and testing of each system component with regard to frequency distribution, amplitude, and harmonic content for review and approval during design review.			
3.1.10.2-2	The Program needs the SI to confirm system equipment will operate without being adversely affected by or causing electromagnetic interference (EMI).			
3.1.10.2-3	All system components will include protection against external EMI and radio frequency interference (RFI) emissions, as well as internal conductive or inductive emissions.			
3.1.10.2-4	All system components will conform to the following capabilities: • FCC Part 15, Subpart B Class A (Conducted emissions), pertaining to conducted susceptibility • FCC Part 15, Subpart B Class A (Radiated emissions), pertaining to radiated susceptibility			
3.1.10.2-5	Equipment will not emit measureable EMI or RFI that produces harmful interference with any other onboard or station devices or systems, including Global Positioning System (GPS) and magnetic compass readings, and will comply with the following standards: • IEC 1000-4-6 (EN61000-4-6) pertaining to conducted susceptibility • IEC 6100-4-3 (EN61000-4-3) pertaining to radiated susceptibility • IEC 6100-4-2 (EN 6100-4-2) pertaining to electrostatic discharge			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.1.10.2-6	Operation of the equipment will not be affected by the electromagnetic fields generated by traction power (overhead catenary or third rail) or by local high voltage power distribution lines.			
3.1.10.2-7	Operation of the wayside equipment, including VMs and wayside validators, will not be adversely affected by the operation of other station equipment, such as lighting and communications equipment, within close proximity.			
3.1.10.2-8	Onboard equipment, including onboard validators, and driver display units will be unaffected by interference from fluorescent lights, coach alternators, air conditioning units, radio communication units, and other systems characteristic of a bus environment.			
3.1.10.2-9	Equipment communications will not interfere or be impacted by the use of established frequencies, including but not limited to: • Audio frequencies for overlay track circuits, highway crossing approach and island circuits, and electrical lock circuits • Audio frequency code overlay for Automatic Train Control (ATC) systems • Signal power • Cab signals			
3.1.10.3-1	All equipment enclosures, chassis, assemblies, panels, switch boxes, and terminal boxes will be grounded. Protective grounding will be provided to make sure that exposed metal on all system components is connected to a common ground point.			
3.1.10.3-2	The Program needs the SI to meet safety capabilities for the grounding that conforms to the National Electric Code (NEC and UL, SAE and local codes where applicable.			
3.1.10.3-3	The Program needs the SI to provide certification that all system components furnished have been tested to meet applicable UL criteria. Documentation citing UL certification or acceptable test results will be provided for review and approval during design review.			
3.1.10.3-4	System equipment will be equipped with Ground Fault Circuit Interrupter (GFCI) circuit breakers, which include a “push to test” button, visible indication of a tripped condition, and ability to detect an earth leakage current of approximately 5 milliamperes in accordance with UL 1053 and California Energy Commission (CEC) standards.			
3.1.11-1	The Agencies will own all data generated by the equipment, systems, and software delivered under this Contract. The Agencies will be able to freely access and distribute all data free of charge. The Agencies will retain ownership of all data in perpetuity with no restrictions or additional cost.			
3.1.11-2	All documentation described in this SOW will become the property of the Agencies, or provided under a perpetual license to enable internal use, editing, and distribution to third-parties at no additional cost.			
3.1.11-3	Any reports generated by the System are the sole property of the Agencies and will not be shared or distributed without Agency express written permission.			
3.1.11-4	The Program needs the SI to develop a Software Licensing and Documentation Plan for Agency approval. The Plan will identify all system software and interfaces and any applicable terms that apply to the use and distribution of the covered components.			
3.1.11-5	All system and software interfaces will be defined and documented, and will be provided to the Agencies under a perpetual license to enable internal use and distribution to third-parties at no additional cost.			
3.1.11-6	All open architecture API, libraries, and Intellectual Property (IP), including data exchange formats and algorithms, will b provided to the Agencies under a perpetual license to enable internal use and distribution to third-parties at no additional cost.			
3.1.12-1	All equipment, software, employee and customer interfaces will meet or exceed ADA standards to maximize ease of use The System equipment will comply with the most recent version of the ADA Accessibility Guidelines (ADAAG) at the time of Final System Acceptance.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.1.12-2	All devices and systems will meet or exceed ADA and accessibility standards, which will include compliance with all current industry and government standards governing accessibility. The SI shall be fully responsible for tracking all required certifications, for the interfaces to the payment devices and the System as a whole, including any required certifications.			
3.1.12-3	Accessibility guidelines and regulations will be incorporated in the design of the entire system from the onset. Usability will be tested in the design process and implementation.			
3.1.12-4	All system and user interfaces will comply with section 508 of the Rehabilitation Act of 1973, which includes the Web Content Accessibility Guidelines (WCAG) 2.0, meet or exceed the WA State Accessibility Policy – Standard 188.1 (https://ocio.wa.gov/policy/accessibility) and meet or exceed all ADA requirements.			
3.1.12-5	The customer website and mobile app will be designed to be user friendly and accessible to current and potential riders and Agency employees. The System will comply with the most recent version of the ADAAG at the time of Final System Acceptance and will meet or exceed the WA State Accessibility Policy – Standard 188.1.			
3.1.12-6	The SI will provide an Accessibility Compliance Plan during design review that articulates how the required ADA and accessibility standards will be met for the entire system during each phase of the project. This plan will be subject to approval by the Agencies.			
3.1.12-7	The SI will provide an Accessibility Compliance Plan that articulates how the required ADA and accessibility standards will be maintained following implementation. This plan will include ongoing operations, change management, and a plan for updates when regulations change. This plan will be subject to approval by the Agencies.			
3.1.12-8	The SI shall create an ADA compliance framework as part of the Accessibility Compliance Plan that will track compliance with all appropriate local, state and federal accessibility standards.			
3.1.12-9	All equipment provided or purchased by the SI that will provide fare media or fare validation will be certified by the Original Equipment Manufacturer (OEM) or SI, as compliant with all applicable accessibility standards at the time of Final System Acceptance.			
3.1.12-10	VM instruction text will include raised lettering and braille instructions that will meet or exceed all applicable accessibility and ADA requirements.			
3.1.12-11	The VM display screen will display characters and symbols compliant with all accessibility and ADA requirements.			
3.1.12-12	The onboard and wayside validator design and mounting will be in compliance with or exceed all applicable ADA requirements and will be approved by Agencies.			
3.1.12-13	The onboard and wayside validator will have ADA-compliant visual and audible indicators that provide distinctive messages for approval or denial of all fare media validations and validator status. All validator visual and audio output will be fully configurable and subject to Agency review and approval during design review.			
3.1.12-14	All customer-facing payment processing hardware and software will meet or exceed all applicable accessibility and ADA requirements. The design will be reviewed and approved during design review.			
3.1.12-15	The SI shall be responsible for conducting all testing required to meet or exceed the current Accessibility and ADA regulations prior to Final System Acceptance.			
3.1.12-16	All mobile app screens will use colors to enhance legibility and be in compliance with or exceed all applicable ADA requirements.			
3.1.12-17	All mobile apps will utilize and be fully compatible with the native accessibility features of the mobile operating system.			



Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.1.13-1	All equipment that reads fare media for the purpose of fare distribution or validation will include a contactless validator that supports all common ISO-14443 (Type A and B), ISO-18092 (NFC), and closed-loop (e.g., the entire MIFARE product line) media formats, in addition to all open payment contactless standards, including but not limited to: • Apple Pay • Android Pay • Samsung Pay • VISA payWave® • MasterCard PayPass® • American Express ExpressPay® • Discover Zip® • Contactless EMV			[redacted]
3.1.14.1-1	The System will be designed to include the appropriate elements and processes to manage, monitor, and quickly address security issues, consistent with the expectations outlined in above, to support the operation of the region's Information Security Management System (ISMS).			
3.1.14.1-2	All devices and elements accepting bank cards for payment will be designed to facilitate compliance with (and potentially certification) all applicable industry and government standards and best practices governing payment processing systems. This will include, but not be limited to PCI-DSS and EMV. The SI shall be fully responsible for acquiring all required certifications, including PCI and EMV certifications, for the interfaces to the payment processor and the System as a whole. The region's ISMS requires that all standards of mandatory compliance are observed and all respective controls implemented to minimize the System's risk profile, and the potential impact to the Agencies.			
3.1.14.1-3	The connection between the frontend devices and back office will be over a routable IP network. Where required, the connections will be secured using Transport Layer Security (TLS) and strong encryption, such as TDEA or AES. All data sent via the internet will be TLS-encrypted using the HTTPS protocol. Any IP communications must not preclude components of the System utilizing IPv6.			
3.1.14.1-4	Security-sensitive information will be submitted separately, outside of the normal document deliverables process, and in accordance with procedures to be jointly developed between the SI and the Agencies. Security-sensitive information will include: • Information that would allow an individual to create, duplicate, skim or counterfeit fare media • Information that would allow an individual to overcome security features or interlocks intended to prevent access to sensitive information • Information that would allow an individual to divert revenue, whether electronic or cash, from the System			
3.1.14.1-5	System security features will be maintained and security issues will be addressed as they arise throughout the terms of the warranty and SMA. Operating system updates, software patches, bug fixes, and system enhancements to address identified security issues will be provided.			
3.1.14.1-6	All fare payment data will be secured and private from the point when it is captured to when it is received by the processor. When communications are over public networks, approved secure methods will be used.			
3.1.14.1-7	A regional ISMS will be deployed to manage security and monitor the status and version of all security standards applicable to the next gen ORCA System. The Program needs the SI to ensure that the necessary information to establish compliance with the controls identified by the ISMS is provided to facilitate its operation. The Program needs the SI to also ensure that all applicable standards, regulations, and best practices identified by it are accounted for in the region's ISMS.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.1.14.1-8	The Program needs the SI to provide cryptographic key management services and tools. Key management in this context includes but is not limited to: • Key generation: Derived key generation for each manufactured fare media, including card manager key sets, as well as multiple application-related key sets (may include both encryption and authentication keys) • Key storage: Secure storage and retention of card and application key sets • Key updates: Capability to update, or roll, all cryptographic keys used within system • Key sharing: Secure sharing of application key sets with third-parties for use in multi-application environments			[redacted]
3.1.14.2-1	System must provide for configurable, role-based user access, so that users will only be able to access data and functionality pertaining to their respective job functions.			
3.1.14.2-2	There will be a single common login across all SI built components of the System (users will not need a separate login to perform administrative functions).			
3.1.14.2-3	The System will have the capability to establish an unlimited number of security roles.			
3.1.14.2-4	The System administrator will have the ability to see all activity by user including at least last log in, reports opened, and other non-data submission activities.			
3.1.14.2-5	The System will have the ability to set up access types (e.g., edit & read only) on an individual, role or group basis.			
3.1.14.2-6	Some access types will have access to maintain and update customer accounts.			
3.1.14.2-7	The Agencies will have read-only access to transactional databases with no data usage or ownership restrictions.			
3.1.14.2-8	Access to the back office applications will be controlled through the individual applications where Commercial off the Shelf (COTS) applications are concerned. For custom built application access will be controlled through the System using passwords and strict access privileges.			
3.1.14.2-9	The System will manage and monitor all user accounts and access privileges. The System will have records of access rights to COTS software applications but not control. The System will control access to all custom applications.			
3.1.14.2-10	Logical access to all supplied systems will require multi-factor authentication and be centrally managed using an Agency-provided, managed user authentication and access control platform based on an approved vendor-neutral, industry standard protocol, such as Lightweight Directory Access Protocol (LDAP) or equivalent.			
3.1.14.2-11	Physical and logical access to components that contain Personally Identifiable Information (PII) and/or financial data will be restricted. Physical and logical security will be sufficient for compliance with the PCI standards in effect at the time of Final System Acceptance.			
3.1.14.2-12	The System will allow new security roles to be immediately reassigned upon role change of employees.			
3.1.14.3-1	The SI shall use approved security in generating, storing, deploying, and transmitting cryptographic keys. The SI shall submit a cryptographic key management plan for agency review and approval during design review.			
3.1.14.3-2	Solution must provide adequate controls for user access and encryption for sensitive information stored in and exported to and from the System.			
3.1.14.3-3	The fare media format will support strong cryptography standards, such as Transparent Data Encryption (TDEA), Advanced Encryption Standard (AES) and RSA encryption to protect access to and modification of all data encoded to the media.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.1.14.3-4	All data in the CRM will be encrypted using strong cryptography. Ciphers in use must meet or exceed the set defined for use in the United States National Institute of Standards and Technology (NIST) publication FIPS 140 2, or any superseding documents according to the date of implementation. The use of the AES is strongly recommended for symmetric encryption. Algorithms in use must meet the standards defined for use in NIST publication FIPS 140-2 or any superseding document, according to date of implementation. The use of the RSA and Elliptic Curve Cryptography (ECC) algorithms is strongly recommended for asymmetric encryption. Encryption ciphers and algorithms to be used will be approved by the ORCA Chief Information Security Officer. Additionally, all payment data must be stored in a tokenized form, whenever storage is required to support the functionality of the System.			[redacted]
3.1.14.3-5	If the System design requires the card manufacturer to encode the cryptographic keys to the fare media, the cryptographic key management plan will identify trusted card manufacturers with appropriate security mechanisms in place to certify that the cryptographic keys remain safe and secure.			
3.1.14.3-6	The Program needs the SI to provide detailed specifications for the generation and management of all cryptographic keys used within the System. The key generation algorithms will be fully owned by or licensed to the Agencies, including the right to distribute specifications to third-parties for media production and to support multi-application smart card implementations without further approval, license, or payment.			
3.1.14.4-1	The System and its applications must be in compliance with all applicable regulatory standards such as PCI-DSS, and recognized best industry practices for the protection of PII at the time of deployment.			
3.1.14.4-2	All equipment provided or purchased by the SI that will capture, store, transmit, or process bank card data will be certified, by the OEM or SI, as compliant with all applicable provisions of the PCI DSS standard at the start of revenue service.			
3.1.14.4-3	The Program needs the SI to be responsible for providing a PCI compliance plan during design review, and for obtaining certification for the entire system. The Program needs the SI to employ a certified Qualified Security Assessor (QSA), and be responsible for conducting all testing required to achieve certification prior to Final System Acceptance.			
3.1.14.4-4	The approach to system security will include avoiding the storage of bank card data and PII on field devices whenever possible, and only storing and transmitting such data in a tokenized or encrypted form.			
3.1.14.4-5	The Program needs the SI to be responsible for providing that the System as delivered is compliant with all applicable PCI standards at the time of Final System Acceptance, and with all Agency, state, and local policies for the handling of PII.			
3.1.15-1	The System will support fraud prevention policies, including the ability to automatically identify suspect usage patterns based on sales and ridership data, and block the use of fare media, transit accounts, and fare products based on configurable fraud rules.			
3.1.15-2	The System will support Agency-configurable velocity checks, and other fraud prevention measures, that identify excessive or potentially fraudulent use of stolen or compromised fare media.			
3.1.15-3	The System will support the setting of a configurable upper limit of rides for unlimited ride products (e.g., 50 rides for a one-day pass) that will generate an automated alert within the System, and optionally block the fare media or product, when the limit is reached.			
3.1.15-4	The System will detect, and generate an automated alert for potential fraudulent duplication of fare media, if the same fare media or transit account is used for payment in two geographically separated locations within a configurable period of time.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.1.15-5	For transit accounts with stored value, the System will support the configuration of a "floor limit," or value below which the balance is not allowed to fall (so long as the device generating a fare payment is online). The floor limit may be configured to be a zero or negative balance. Transit accounts with balances at or below the floor limit will be able to be automatically blocked by the System.			
3.1.15-6	The System will support configurable rules to prevent the sharing of fare media and accidental payments through "passback protection," or a configurable time period in which fare media will not be accepted for payment at a device after an initial tap. Passback protection will be configurable by fare media type, fare product, Agency, mode, and passenger type, and will be enforceable at the bus, rail station, and individual device level.			
3.1.15-7	The System will support the placing of credentials and transit accounts into "observation mode", which will generate an automated alert when the credential or transit account is used. This may be used by fare enforcement staff to monitor known stolen or compromised credentials or transit accounts.			
3.1.15-8	The blocking of credentials, transit accounts, and individual fare products will be able to be performed automatically and manually, and on an individual and bulk basis (i.e., if a known batch of cards was lost, the entire batch may be blocked).			
3.1.15-9	Additional fraud prevention policies may be defined during design review.			
	Section 3.2 System Architecture			
3.2.1-1	The SI shall design, develop, and implement an account-based electronic fare collection system. The account-based back office will be the system of record for fare calculations and enforcement and take priority over any media that may hold account information.			
3.2.1-2	An account-based back office supporting the System will manage transit accounts that store fare value loaded by customers, and enable use of that value for the payment of transit fares and transit-related services.			
3.2.1-3	The account-based back office will process all transactions generated by the System devices, including loading transit accounts upon request from fare distribution devices, and performing fare calculation and balance updates at the time of fare payment based on established business rules. All fare processing and updating of transit accounts will be performed in real-time.			
3.2.1-4	The fare media including but not limited to smart cards and NFC enabled smartphones will serve as a credential for accessing transit accounts, and data will only be written to the media when loading or using fare value to support risk mitigation techniques.			
3.2.1-5	The Account-based Transaction Processor (ATP) will have a module to configure and maintain apportionment rules based on fare products purchased and used, number and value of trips taken, and Agency associations.			
3.2.1-6	The ATP apportionment module will have a user friendly interface to allow the rules to be securely maintained and updated, including the ability to change current rules and add new rules based upon new fare products, trip types, or Agencies being added to the next gen ORCA program.			
3.2.2-1	Each fare validation and distribution device will be equipped to support real-time communications with the back office.			
3.2.2-2	The communication interfaces will support real-time loading of fare value through all distribution channels.			
3.2.2-3	All network connections will be supported by a high speed communication network provided by the Agencies. The Program needs the SI to provide a system that will function within each Agency provided network.			
3.2.2-4	The communication interfaces will support real-time processing of closed-loop fare payments onboard vehicles.			
3.2.2-5	The communication interfaces will support processing of closed-loop fare payments at ferry terminals.			
3.2.2-6	The System will support the offline operation of field devices according to defined business rules and transmit stored transaction information as soon as communications are reestablished.			
3.2.2-7	The communication interfaces will support real-time processing of closed-loop fare payments at rail stations.			
3.2.2-8	The Program needs the SI to accommodate potential improvements provided by the Agencies over time.			

Capability Number	Capability	ully Conforming	onConforming	[redacted]
3.2.3-1	The System will support the limited writing of data to closed-loop fare media for the purposes of fraud mitigation, displaying accurate and timely account information, and risk management. The information written to the fare media may include: • Recent transaction information (e.g., transaction timestamps) • Transit account balance information (e.g., low balance/load indicators) • Transit account status information (e.g., passenger type, organizational program, or blocking indicators) Data to be written to the media will be determined during design review and subject to Agency approval.			
3.2.3-2	When network communications are reestablished, the communications interface will support the capability for each field device to transmit stored transaction information and receive messages from the back office based on configurable prioritization business rules.			
3.2.3-3	The SI shall provide a non-proprietary method to recover the data on each validator in the event of a device failure. The method will not require a network wired or wireless connection, i.e., a separate port or other mechanism for data transfer.			
3.2.3-4	Data will be able to be written to the closed-loop fare media at time of manufacture, loading, and use. All data will be secured for both reading and writing using approved cryptography.			
3.2.3-5	The System will support the distribution of lists to be maintained locally at the field devices and used for fare validation and inspection. The lists will be managed within the back office and distributed to the devices via the System Management API.			
3.2.3-6	Any data written to the closed-loop fare media will be used to supplement back office account data, and will be limited in nature. The data will be able to be interpreted by the devices with minimal or no business rules logic (i.e., no knowledge of fare policies and products will be required).			
3.2.3-7	List updates will be distributed to field devices at a frequency of no less than every five (5) minutes and include version control to confirm timely and accurate synchronization.			
3.2.4.1-1	The SI shall implement strong security controls to prevent fraudulent use of the APIs and authenticate all users, meeting the baseline outlined by the frameworks described in section 3.1.14.			
3.2.4.1-2	The System will be designed using open standards for software design, communications protocols, fare media, and other relevant design components.			
3.2.4.1-3	The full range of APIs provided by the SI will support all interfaces within the fare collection system, and is not limited to the specific APIs described in this section. Any additional APIs that are required will be identified during design review. The Program needs the SI to provide Interface Control Documentation (ICD) for each system interface that describes the interface and APIs used to support it.			
3.2.4.1-4	Each API will be developed using modern architecture and formats (e.g., REST/JSON). The specific architecture and format to be used will be identified and agreed upon during design review.			
3.2.4.1-5	The Program needs the SI to develop Hypertext Transfer Protocol Secure (HTTPS), or Agency approved modern alternative, based functional (e.g., not device- or system-specific) API that support core system functions and enable access to those functions for any device or system that requires use of them. Devices and systems may make use of more than one API to support required functionality.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.2.4.1-6	The Program needs the SI to publish full API specifications that document all API calls and the process for making those calls, may include: • Detailed call descriptions • Use cases • Call structure • Data elements and format • Error handling • Timing capabilities • Use of required security protocols • Sample code			
3.2.4.1-7	The Program needs the SI to demonstrate use of the API as part of system implementation and testing. The Program needs the SI to perform API-specific testing, which will be witnessed and validated by Agency representatives prior to Final System Acceptance. Any changes to the APIs as a result of testing will result in the API specifications being updated by the SI.			
3.2.4.1-8	The Program needs the SI to be responsible for providing the following APIs at a minimum: • Fare Distribution API • Fare Payment API • Fare Inspection API • Transit Account Management API • Customer Account Management API • System Management API • Onboard Integration API • Central Payment Processing API Alternative categorization of APIs may be permitted, as long as the functional capabilities are met and demonstrated.			
3.2.4.1-9	The API and Interface Control Documentations (ICD) will be fully owned by or licensed to the Agencies with the right to use and distribute the specifications without further approval, license, or payment.			
3.2.4.1-10	The Program needs the SI to update the API and Interface Control Documentation (ICD) specifications as necessary throughout the warranty and Software Maintenance Agreement terms.			
3.2.4.1-11	The SI will provide and publish for Agency use the detailed specifications for all fare media and transaction formats used within the System.			
3.2.4.1-12	The System will support the distribution of multiple lists to be maintained locally at the devices and used for fare validation and inspection. The lists will be managed within the back office and distributed to the devices via the System Management API.			
3.2.4.1-13	The open architecture will encompass all media and devices deployed within the System, and include all fare media formats, security protocols, authentication requirements, and communications necessary to support critical system functions.			
3.2.4.1-14	Media list updates will be generated at a configurable interval and include version control. At a minimum the list will be updated every 5 minutes.			
3.2.4.1-15	The program needs all APIs that facilitate communication with field devices to be able to accept transactions in an offline mode, and accommodate scenarios where a full communication cannot be received within the configured timeframe. In these scenarios, risk mitigation strategies will be employed to limit exposure for declined payments and an asynchronous response needs to be gracefully handled.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.2.4.2-1	The Customer Account Management API will support the querying and management of data maintained within the CRM, and will be utilized by all devices and systems that require access to those functions, including but not limited to: • Customer service terminals • CRM • Customer website • Customer mobile app Not all devices/systems will require or be granted access to all Customer Account Management API functions.			[redacted]
3.2.4.2-2	The Customer Account Management API will support the following functionality at a minimum: • Create new customer account • Query customer account status and data • Modify customer account data • Register (e.g., associate) a transit account to a customer account • Unregister (e.g., disassociate) a transit account from a customer account • Add, update, or remove a funding source associated with a customer account • Close a customer account			
3.2.4.2-3	The Customer Account Management API will include API calls for the passing of data between the devices/systems and the back office to perform all functions.			
3.2.4.2-4	The Customer Account Management API will allow devices/systems to create customer accounts within the CRM, and associate or disassociate existing transit accounts with those customer accounts.			
3.2.4.2-5	The Customer Account Management API will allow devices/systems to query and modify all customer account data, including but not limited to name, address, date of birth, phone number, email address, organization and administrator contact information, username, password, security questions/answers, funding sources, and program registration details (such as RRFP, ADA Paratransit and low income fare programs).			
3.2.4.2-6	The Customer Account Management API will allow authorized personnel to close customer accounts. Closing of a customer account will not affect the associated transit accounts. Other business rules such as impact on registered media, re-opening conditions, and data retention will be finalized during design review.			
3.2.4.2-7	The Customer Account Management API will capture all required information to generate a detailed transaction within the back office for all functions performed, including at a minimum: • Date/time • Agency • Sales/customer service channel ID • Device/system ID • Device/system location • Operator/administrator ID • Fare Media identifier (if associated with a customer account) • Transit account number (if associated with a customer account) • Customer account number • Customer account data • Details of action performed			
3.2.4.2-8	The Customer Account Management API will return a confirmation of the actions taken by the back office. If any action was unsuccessful, a denial and associated reason code will be provided. All response types and error handling will be described in detail in the Customer Account Management API specification.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.2.4.2-9	The Customer Account Management API will support the querying and management of customer account data maintained within the CRM.			
3.2.4.3-1	The Transit Account Management API will support the querying and management of data maintained within back office transit accounts, and will be utilized by all devices and systems that require access to those functions, including but not limited to: • VMs • Customer service terminals • CRM • Customer website • Customer mobile app (as appropriate for customer account type) • Agency mobile apps Not all devices/systems will require or be granted access to all transit account management API functions.			
3.2.4.3-2	The Transit Account Management API will support the following functionality at a minimum: • Query transit account status (e.g., associated passenger type, active/inactive, blocked/unblocked) • Query fare payment transaction history • Query sales transaction history • Query adjustment transaction history • Enable fare product for autoload (requires funding source in customer account) • Generation of fare payment reversal (e.g., cancellation) • Generation of sales reversal (e.g., refund) • Generation of an account adjustment (i.e., add or remove E-purse value or product) • Transfer of balance between two transit accounts • Block/unblock fare media, account, or individual fare product • Lost, stolen, or damaged fare media replacement (i.e., associate new card with existing transit account) • Generation of an opt-out refund (i.e., close account and issue refund)			
3.2.4.3-3	The Transit Account Management API will include API calls for the passing of data between the devices/systems and the back office to perform all functions.			
3.2.4.3-4	The Transit Account Management API will allow devices/systems to query a transit account status and return the sales, fare payment, and adjustment transactions that were conducted over a specified timeframe, or a specified number of past transactions.			
3.2.4.3-5	The Transit Account Management API will allow devices/systems to setup autoload for an existing fare product. Enabling autoload will require a valid funding source to be stored in an associated customer account, and may be performed using the Customer Account Management API instead.			
3.2.4.3-6	The Transit Account Management API will allow authorized personnel to perform adjustment, reversal, transfer, and refund transactions to modify transit account balances.			
3.2.4.3-7	The Transit Account Management API will allow authorized personnel to generate blocking (and unblocking) and replacement transactions to close or prevent use of transit accounts, fare media, and fare products.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.2.4.3-8	The Transit Account Management API will capture all required information to generate a detailed transaction within the back office for all functions performed, including at a minimum: • Date/time • Agency • Sales/customer service channel ID • Device/system ID • Device/system location • Operator/administrator ID • Fare media identifier • Transit account number • Details of action performed			[redacted]
3.2.4.3-9	The Transit Account Management API will return a confirmation of the actions taken by the back office. If any action was unsuccessful, a denial and associated reason code will be provided. All response types and error handling will be described in detail in the transit account management API specification.			
3.2.4.3-10	Using the Transit Account Management API an external system will be able to charge a stored value E-purse for purchase of a product.			
3.2.4.3-11	Using the Transit Account Management API an external system will be able to determine the balance of stored value in a transit account.			
3.2.4.3-12	Using the Transit Account Management API an external system will be able to query purchase of a product including the location where the product was purchased.			
3.2.4.4-1	The Fare Distribution API will support the sale of all available fare media and fare products, and will be utilized by all fare distribution devices and systems, including but not limited to: • VMs • Customer service terminals • CRM • Customer website • Customer mobile app (as appropriate for customer account type)			
3.2.4.4-2	The Fare Distribution API will support the following functionality at a minimum: • Retrieval of available fare media and associated pricing and expiration dates • Retrieval of available fare products, and associated pricing • Sale of all fare media types, and creation or activation of an associated transit account • Sale of all available fare products (e.g., stored value, passes and multi-ride products), and update of an associated transit account			
3.2.4.4-3	The fare media and products available for sale, and the associated pricing, will be configured and maintained in the back office. The Fare Distribution API will return this information upon request from a fare distribution device/system. The results provided will be configurable to be specific to the sales channel, device/system location, or individual device/system making the API call.			
3.2.4.4-4	Fare distribution devices such as VMs and CSTs will be able to communicate with the back office using the Fare Distribution API to enable the creation, activation, and updating of a transit account.			
3.2.4.4-5	Unique fare media and/or transit account identifiers will be used securely by the distribution devices/systems and passed to the back office to create or activate a new transit account (e.g., in support of new media issuance), or initiate the loading of value to an existing transit account. All fare media and product sales will be processed by the back office in real-time to enable immediate use by the customer.			

Capability Number	Capability	ully Conforming	onConforming	
3.2.4.4-6	The Fare Distribution API will support the generation of sale and payment transactions within the back office by capturing all information required to appropriately record the sale, including at a minimum: • Date/time • Agency • Sales channel ID • Device/system ID • Device/system location • Fare media identifier • Transit account number • Product(s) sold • Payment amount(s) • Payment type(s) The Fare Payment API will support the sale of multiple products (e.g., fare media and value) in a single transaction with a single payment, and the use of multiple payments (e.g., split payments) in a single sales transaction.	[redacted]		
3.2.4.4-7	The Fare Distribution API will return a confirmation of the actions taken by the back office to complete a sale. If the sale was unsuccessful, a denial and associated reason code will be provided. All response types and error handling will be described in detail in the fare distribution API specification.			
3.2.4.5-1	The Fare Payment API will support the processing of closed-loop fare payments across all Agencies and modes using all supported fare media and fare products, and will be utilized by all fare payment devices, including but not limited to: • Onboard validators • Wayside validators • Customer mobile app – payment presentation • Agency mobile app – fare validation			
3.2.4.5-2	The Fare Payment API will include API calls for the passing of data between the fare payment devices and back office to initiate a fare payment transaction, which will result in a fare calculation being performed and processing of a payment against a transit account.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.2.4.5-3	The Fare Payment API will support the generation of fare payment transactions within the back office by capturing all information required to calculate and appropriately record the payment, including at a minimum: • Date/time • Agency • Vehicle/station ID • Operator ID (bus and mobile only) • Device ID • Stop ID • Geolocation information (bus and mobile only) • Pattern (bus and mobile only) • Block (bus and mobile only) • Route (bus and mobile only) • Run (bus and mobile only) • Direction/platform • Fare media identifier • Transit account number • Other data encoded to the media (e.g., passenger type) • Authorization mode (e.g., online or offline)			[redacted]
3.2.4.5-4	The Fare Payment API will return a confirmation of the actions taken by the back office to complete a payment and account status information, including at a minimum: • Payment status (e.g., success or failure) • Transit account passenger type • Fare product used • Fare charged • Remaining balance • Transfer time remaining If the payment was unsuccessful, an associated reason code will be provided. All response types and error handling will be described in detail in the fare payment API specification.			
3.2.4.5-5	The Fare Payment API will support the passing of a pre-calculated fare to support programs such as Washington State Ferries, where third-party devices or systems may calculate the amount due. The back office will process pre-calculated fare transactions based on the fare structure configured for the associated mode or customer. The request passed will include location.			
3.2.4.5-6	Using the Fare Payment API an external system will be able to query the use of a product (such as a transportation connection) including location.			
3.2.4.6-1	The Fare Inspection API will query closed-loop transit accounts to support the inspection of fares paid across all Agencies and modes using all supported fare media and fare products, and will be utilized by the mobile fare inspection devices.			
3.2.4.6-2	The Fare Inspection API will include API calls for passing data between the Mobile Fare Inspection application and back office to initiate a fare inspection transaction, which will result in confirmation or denial of payment made using a closed-loop transit account and open payments using all supported payment network branded cards and NFC-enabled devices.			
3.2.4.6-3	Unique fare media and/or transit account credential identifiers will be securely captured by the mobile fare inspection devices and passed to the back office to perform a fare inspection. The back office will query transit account ride history and use Agency-defined business rules to determine fare payment status in real-time.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.2.4.6-4	All fare inspections will result in a recorded transaction. The Fare Inspection API will support the generation of transactions by capturing all information required to determine the status of a fare payment and appropriately record the inspection, including at a minimum: • Date/time • Agency • Vehicle/station ID • Device ID • Stop ID • Geolocation information • Pattern (bus inspection only) • Block (bus inspection only) • Route (bus inspection only) • Run (bus inspection only) • Direction/platform • Fare media Identifier • Transit account number Other data encoded to the media (e.g., passenger type)	X		
3.2.4.6-5	The Fare Inspection API will return fare payment status information, including at a minimum: • Payment status (e.g., valid or invalid) • Account passenger type • Fare product used (if valid tap is found) • Fare charged (if valid tap is found) • Transfer time remaining (if valid tap is found) • Account balance • Fare payment transaction history If the payment is determined to be invalid, an associated reason code will be provided (e.g., no tap, blocked card). All response types and error handling will be described in detail in the Fare Inspection API specification.	X		
3.2.4.7-1	The System Management API will be utilized by all devices deployed within the System, including but not limited to: • Onboard validators • Wayside validators • Driver display units • Vending machines • Customer service terminals • Mobile fare inspection devices • Mobile fare validation devices	X		
3.2.4.7-2	The System Management API will support the passing of data between the devices, the Asset Incident Management application (AIM), and the System Manager to enable the monitoring of system performance during operations. The device events and alarms reported via the System Management API will provide enough detail to support proactive device maintenance at the module-level, and support accurate reporting on all system performance capabilities. The System Management API will not preclude being interfaced with a decision support system in the future.	X		

Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.2.4.7-3	The System Management API will support the passing of data between the System Manager and devices to enable remote control and issuance all commands supported for each device type. All commands will be able to be issued and executed in real-time.			
3.2.4.7-4	The System Management API will support the real-time distribution of device software and configuration parameter updates. Device configuration will include real-time updates to any positive and negative lists maintained locally at the devices. Updates will be distributed on an increment-basis so that only updates since that last time stamp/version received by an individual device are transmitted.			
3.2.4.7-5	A universal System Management API will be created and used wherever possible; however, the SI may create device-specific System Management APIs or calls as necessary.			
3.2.4.7-6	All configuration parameters distributed to the devices, including positive and negative list updates, will be distributed using the SI-provided System Management API.			
3.2.4.8-1	The Onboard Integration API will be utilized by the onboard validators to exchange information with the CAD/AVL system to support single sign-on.			
3.2.4.8-2	The Onboard Integration API will support the capture of operator login and route data from CAD/AVL system, including but not limited to: • Operator ID • Pattern • Block • Route • Run • Direction The onboard validator will append this information to all fare payment transactions generated by the device.			
3.2.4.8-3	The Onboard Integration API will support the capture of geolocation data from CAD/AVL system geolocation data, including but not limited to: • GPS coordinates • Stop ID The onboard validator will append this information to all fare payment transactions generated by the device.			
3.2.4.8-4	The Onboard Integration API will be designed such that it is vendor agnostic; however, the SI will partner with each Agency's existing CAD/AVL supplier and meet all system-specific capabilities.			
3.2.4.9-1	The program needs provide a Central Payment Processing API, including all required security protocols, to connect the back office to the payment processor so that gateway and processor can be switched without reprogramming.			
3.2.4.9-2	The SI supplied and maintained interface to the payment processor will be designed to support the addition of open payments in the future. In particular, the architecture will support a real time connection from field validators to the processor through the Fare Payment API.			
3.2.4.10-1	The program needs to publish specifications for all transactions generated and used within the System but not already covered by the required API.			
3.2.4.10-2	Transaction specifications will include detailed descriptions of the transaction structure, data elements, and data formats, and identify all devices and system that generate and consume the described transactions.			
3.2.4.10-3	Transaction formats will be based on published standards wherever possible, including those used to interface with commercial software packages, such as the SI-provided CRM, financial management, and reporting systems.			
3.2.4.10-4	The transaction formats will be fully owned by or licensed to the Agencies, including the right to distribute the specifications to third-parties without further approval, license, or payment.			
3.2.5.2-1	The onboard validator and DDU will connect to the mobile access router via Ethernet.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.2.5.2-2	Onboard validators will connect with onboard mobile network to access the back office system.			
3.2.6-1	If cloud based, or hosted, transferring data between systems will be by a secure protocol.			
3.2.6-2	If the back office is to be hosted through a cloud-based hosting service (AWS, Rackspace, etc.) it will be subject to approval by the Agency. All hosted data will be owned and accessible by the Agencies.			
3.2.6-3	If the SI hosts the System, the Program needs the SI to provide two (2) separate, identical, and fully functional production back office installations, each able to handle 200% of the anticipated peak processing load, and scalable to support up to 400% of the anticipated peak processing load.			
3.2.6-4	If the SI hosts the System, the two sites will process transactions in parallel in an active-active, load balanced configuration in order to optimize performance and safeguard that if one (1) system fails, or goes into a degraded mode, the second system will automatically take over all processing with no downtime. The System will be designed such that a failure at one (1) site will not result in a significant degradation of system performance. This architecture will also support the execution of rolling upgrades across the two (2) sites with no downtime.			
3.2.6-5	If a hosted model is chosen the Program needs the SI to install, configure, and test the two fully redundant back office systems in the production environment. These systems will be installed at two designated, geographically separated locations identified and hosted by SI.			
3.2.6-6	For hosted or cloud-based solutions (i.e., software components reside and execute on SI's infrastructure), mechanisms must be in place to keep ORCA data segregated from other non-ORCA data.			
3.2.6-7	If the SI hosts the System, the mirrored installations will include all customer-facing and operation-critical systems, including but not limited to: • ATP • CRM • System Manager • FMM • Financial Management • Central Payment • Configuration and Change Management • Asset Incident Management • Tariff Management • Web Servers (e.g., supporting customer website) Each installation will include all application servers and databases necessary to independently support each back office system.			
3.2.6-8	All transaction data will be protected against loss whether hosted or cloud based. If the SI hosts the System, each identical and independent installation will be equipped with the appropriate hardware, software, and procedures to mirror data between the two sites in real-time (e.g., simultaneous writes).			
3.2.6-9	If the SI hosts the System, load balancing, automated failover, and data mirroring between the two sites will be provided using COTS hardware and software solutions.			
3.2.7-1	The SI shall provide a system that offers sufficient availability to protect against data loss and system failure.			
3.2.7-2	The SI shall develop and submit for approval a disaster recovery plan that will take effect in the event of a catastrophic event or system failure that impacts one or both hosting sites. The Disaster Recovery (DR) plan will conform to the required service level agreement and be consistent with the Business Continuity Plan and recovery time capabilities that will be provided by the Agencies.			
3.2.7-3	In the DR Plan, the SI shall fully document all procedures to restore system operations.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.2.7-4	The Program needs the SI to propose a physical and logical architecture (e.g., virtualized servers, spare load balancers, etc.) that meets all redundancy capabilities for Agency review and approval at design review.			[redacted]
3.2.7-5	The disaster recovery plan will contain detailed procedures to be followed to restore the System to full operation following a disaster or failover event, including the complete resynchronization of data between the two sites. Agency KPIs including recovery time objectives and recovery point objectives will be part of the disaster recovery plan.			
3.2.7-6	Means will be provided in the System design to support complete recovery from the loss of any system components at any point during operation.			
3.2.7-7	Program needs the SI to identify the resources (e.g., people, systems, communications, etc.) that must be committed to implement the disaster recovery plan.			
3.2.7-8	The Disaster Recovery Plan will provide recovery procedures from disasters that have varying levels of impact to system operations and detail the steps to be taken to recover from such disasters.			
	Section 3.3 System Integration Services			
3.3.1-1	The integration of Transportation Connections (additional modes) through API will allow for discounted or free transfers between additional modes reported by external systems and primary modes such as fixed route services.			
3.3.1-2	The Program needs the SI to take the lead role in working collaboratively with third-parties to integrate legacy systems as necessary to support the capabilities in this SOW and ultimately be responsible for system performance.			
3.3.2-1	The SI will provide an API Management Plan for approval during design review.			
3.3.2-2	The API Management Plan will be compliant with the control baseline required by the ISMS.			
3.3.2-3	The API Management Plan will include a process for onboarding before connecting an external device or system to the next gen ORCA back office and methods for approving all new versions of devices, firmware, or software prior to their connection to the System.			
3.3.2-4	The API Management application will include consumer certification and key management.			
3.3.2-5	The API Management application will include a service registry with details of the API consumers and contact information for the developers of the consumers.			
3.3.3-1	The SI shall be responsible for integration of the validator with each Agency's existing CAD/AVL or similar onboard system to support transfer of work status information (route/run/trip) and geolocation data.			
3.3.3-2	The onboard modules will be able to communicate over Ethernet and TCP/IP, at a minimum. The communication interface to be used will be determined during design review and must provide adequate support for all system capabilities and integrations. Additional communication standards may be used such as SAE Vehicle communications standards (such as J1708/1939), Bluetooth, USB, etc.			
3.3.3-3	The SI shall be responsible, in collaboration with INIT, the KCM CAD/AVL vendor, for all development, testing, and deployment of the module for exchange of data with the KCM CAD/AVL system.			
3.3.3-4	A detailed Interface Control Document (ICD) detailing message formats and contents, procedures, interfaces, and transport protocols will be provided for the onboard systems integration.			
3.3.3-5	The onboard validator will capture location data generated by the CAD/AVL system, including: • Raw Global Positioning System (GPS) coordinates • Stop ID The geolocation data will be included in every fare transaction generated by the validator.			
3.3.3-6	The design for the exchange system for data with the KCM CAD/AVL system will be a subject of the design review process.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.3.6-1	All functional and long term data will be duplicated in an external system, the Data Access and Reporting platform (DARe) which will be initially deployed prior to the main system by a separate vendor. The design and deployment of the DARe is not a part of this contract.	X		
3.3.6-2	The SI shall be responsible for building and testing a module to transmit data to the DARe, in collaboration with the DAR vendor and the Agencies.			
3.3.6-3	The Program needs the SI to work with the DARe vendor to design a transmission module which is secure and reliable. The transmission system will be subject to the System reliability and recovery metrics for the SI.			
3.3.6-4	The Program needs the SI to work with the DARe vendor to design, build and test the link from the next gen ORCA back office to the DARe.			
3.3.6-5	Customer and transit account identifiers will be protected with an accepted approach, determined during design, for transmission to the DARe.			
3.3.6-6	The data transmitted to the DARe will be a subset of all the data, focused on the data required for long term reporting. The data to be transmitted will be selected as part of the design review process.			
3.3.6-7	The data transmitted to the DARe will not include any data that would put the DARe in PCI scope. The DARe will be compliant with the control baseline required by the ISMS.			
3.3.6-8	The data transmission to the DARe will occur at least once a day.			
3.3.6-9	The Program needs the SI to be responsible, in collaboration with the DARe vendor, for all development, testing, and deployment of the module for transmission of data to the DARe.			
3.3.6-10	The design for the transmission module for data to the DARe will be a subject of the design review process.			
3.3.7-1	Using the Fare Distribution API an external retail system will be able to create a transit account and add value to the E-purse in a transit account.			
3.3.7-2	The SI shall work collaboratively with the retail contractor to provide the necessary equipment, documentation, and services to support the successful completion of System Integration Testing.			
3.3.7-3	The sale of a next gen ORCA card by a retail merchant will initiate the automatic creation of a transit account within the next gen ORCA back office.			
3.3.7-4	The transaction data will be fully compliant with the control baseline required by the ISMS for the handling of customer PII.			
3.3.7-5	Transaction data elements will be defined by the SI during design review. Transaction data elements will include at a minimum: • Card type • Unique card identifier • Transit account number • Date and time of transaction • Transaction type • Transaction value • Beginning transit account balance • Ending transit account balance • Merchant ID • Merchant name • Merchant location			
3.3.7-6	Retail network provisioning and testing will be completed in coordination with the SI to support operation of a fully functional retail network no later than the commencement of next gen ORCA revenue service.			
3.3.7-7	Program needs the SI to work collaboratively with the retail contractor to develop test scripts that together accurately and completely confirm all features and functionality of contractor's retail network system.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.3.7-8	Program needs the SI to work with retail contractor to incorporate retail network functionality into the Agency test facility.			
3.3.7-9	The retail network will allow a merchant to reverse a transaction prior to authorization of the transaction with the next gen ORCA System. Authorization and provision of next gen ORCA refunds will be the responsibility of the Agencies and the next gen ORCA System. Retail network transaction reversals will result in no charge to the customer or the Agencies.			
3.3.7-10	Agency test facility will be connected directly to a contractor-specified payment processor to fully test the processing of next gen ORCA purchases using credit/debit as a form of payment.			
3.3.7-11	Program needs the SI to work closely with the retail contractor throughout the Field Integration Test to help resolve issues and implement fixes on the retail network identified during testing.			
3.3.8-1	The SI shall be responsible for all development, testing, and deployment of the module for exchange of data between the back offices			
3.3.8-2	The Program needs the SI to design, build, and test the link from the next gen ORCA back office to the Legacy ORCA back office			
3.3.8-3	The design for the exchange of data with the Legacy ORCA System will be a subject of the design review process.			
3.3.9-1	The System will include a King County Metro Access pass for ADA Paratransit which can only be purchased by customers marked in the System as eligible.			
3.3.9-2	The list of Access eligible customers will be imported into the System on a regular basis from a .csv file.			
3.3.9-3	The System will provide pass sales information for paratransit customers that can be uploaded to Agency paratransit databases.			
3.3.9-4	The System will include the ability to create an Agency-specific pass product that can only be purchased by customers marked in the System as eligible.			
3.3.10-1	When next gen ORCA customers pay vanpool fares via the customer website and/or mobile app, the CRM application will capture relevant transaction information for tracking and reporting. This will include such elements as: payment date, operating Agency, customer account name, customer name, transit account number, vanpool or group ID number, fare amount paid, fare period, and receipt number. This information can be reported on through the back office.			
3.3.10-2	The System will allow next gen ORCA account holders to pay vanpool fares via the customer website, CRM, or mobile app. The amount of the fare is entered by the customer and will vary by customer. There will be configurable minimum and maximum amounts.			
3.3.10-3	When a next gen ORCA account holder pays their vanpool fares via the customer website and/or mobile app and CRM a receipt will be generated and optionally emailed or texted to the customer.			
3.3.10-4	Revenue from the vanpool fare payment and purchase of the joint transit and vanpool pass will be segregated and reported separately by Agency.			
3.3.10-5	The System will allow the creation of Agency-specific and regional joint Transit and Vanpool Pass Products available for addition to any transit account.			
3.3.10-6	The available periods for payment of vanpool fares will be configurable.			
3.3.11-1	The System will support the addition of new agencies, including fare rules that are part of the existing design.			
3.3.11-2	The Agencies will be able to add new transportation connections, modes and products (e.g., parking) with unique fare pricing and all the configurability of existing modes and products without additional development.			
3.3.11-3	Transportation Connections (additional modes) will be supported in the System through APIs that allow third party developers of external applications to communicate with the System in order to manage fare products, transit accounts, and report transactions.			
3.3.11-4	The System will support the addition of a minimum of five (5) additional agencies.			
3.3.11-5	The System will provide scalable framework to support the growth in users and data inherent in adding agencies.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
3.3.11-6	The System will be capable of integrating with Kitsap Fast Ferries reservation system in Phase II.			
3.3.11-7	All agencies added after the initial implementation will use the System's user interfaces, process flows, and business rules as designed during the initial implementation.			
3.3.11-8	Additional agencies will be able to have revenue sharing and apportionment turned on or off according to the existing apportionment rules.			
	Section 4 Field Devices & Equipment			
	Section 4.1 Common Capabilities			
4.1.1-1	All equipment design, including dimensions, mounting options, and installation placement will be subject to review and approval by the Agencies.			
4.1.1-2	All customer-facing equipment and applications including website will provide a coherent customer experience, with similar look and feel across all modes' validators and VMs. Agency and designated representatives will participate in a design review with the SI to define the customer experience for both hardware and software.			
4.1.1-3	All customer-facing equipment will be designed to adhere to the aesthetic standards of the Agencies, with consistent cross-platform branding. The Program needs the SI to submit designs for review and approval during design review. Fina equipment design, including interface display, lettering, lights, colors, tactile feedback, brightness, graphics, animation, screen savers, surface texture, component size and height, and hardware will be subject to Agency approval.			
4.1.1-4	System equipment displays (including the entire surface of the display for the VM), graphics, signage, and all other instructions, labels, and information contained on the equipment will be visually readable within all common positions from a customer point of view.			
4.1.1-5	The Program needs the SI to deliver the latest generation device manufactured by the OEM. If a newer generation devic is released following design review, but prior to device procurement, the Agencies shall have the option to upgrade to the newer device.			
4.1.2-1	All equipment will meet the applicable hardware security capabilities.			
4.1.2-2	The SI shall provide PCI compliant hardware and software for payment processing. The PCI architecture will be designed to limit increases in PCI scope, and will be reviewed and approved during design review.			
4.1.2-3	All fare equipment will satisfy all applicable common hardware design capabilities including: • Service-proven design • Nonproprietary technology • Supply and availability • Materials and workmanship • Maintainability and serviceability • Operating environment • Meet or exceed ADA compliance capabilities Code and regulation compliance			
4.1.2-4	Equipment components will be designed, built, and installed to withstand the harsh operating environment.			
4.1.3-1	All equipment will meet the applicable software security capabilities described in this SOW.			

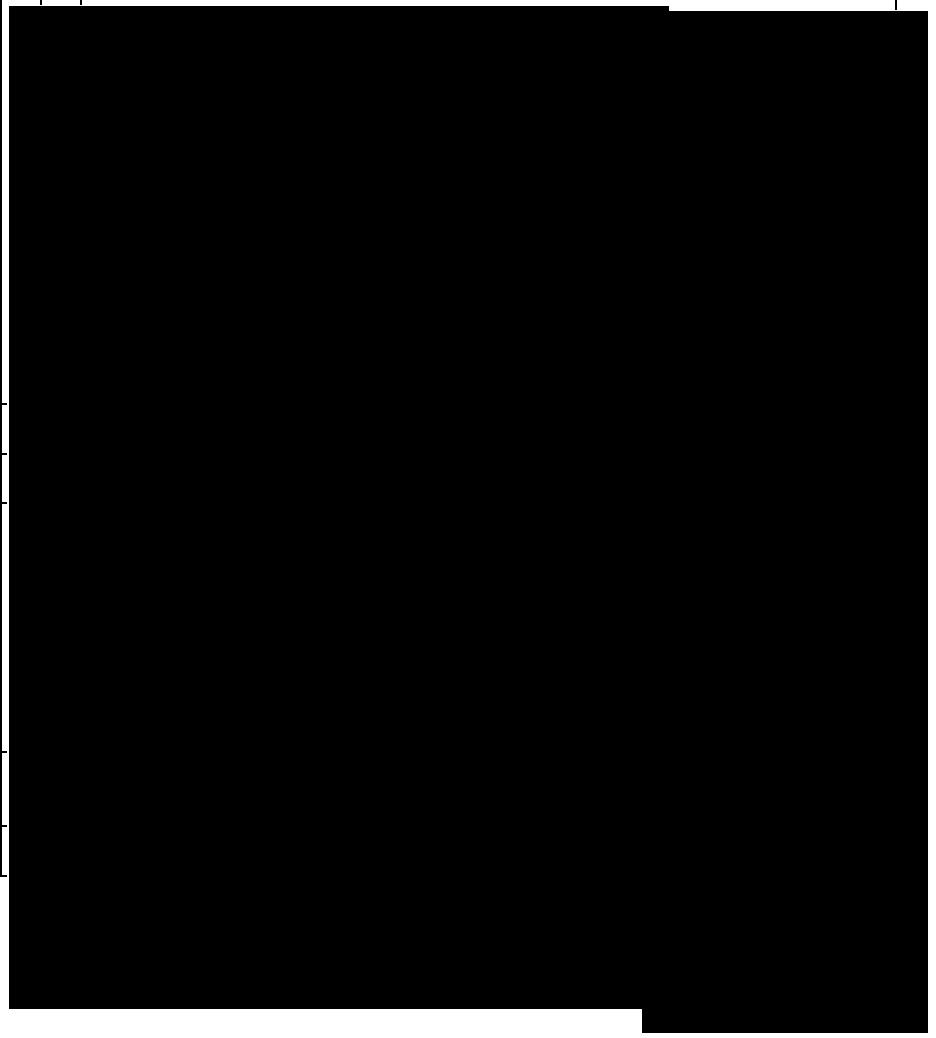
Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.1.3-2	Equipment software and firmware will satisfy the common design capabilities in Section 3.1 including: • Service-proven design • Nonproprietary technology • Software design principles • Licensing and ownership • Accessibility and ADA compliance • Code and regulation compliance • Information security Fraud prevention			[redacted]
4.1.3-3	All equipment will employ the most current version of a COTS operating system at the time of production. The operating system will be capable of performing all tasks necessary to support the equipment and its applications, including the capability to multitask, manage memory, maintain performance without degradation, and communicate with the back office in real-time.			
4.1.3-4	All equipment will maintain local transaction and data records in non-volatile memory in the event that communications to the back office is unavailable. Local records will not be deleted until they have been confirmed as received and recorded by the back office.			
4.1.3-5	The design of the System will provide a mechanism to recover transactions or other data stored on faulty equipment that has not been transmitted to the back office.			
4.1.3-6	All customer-facing system equipment will incorporate a test mode. In this mode, the equipment will have full functionality and process only test media. Test transactions will be segregated in reporting from revenue transactions.			
4.1.4-1	The System Manager will publish fare media positive and negative lists generated and used by the account-based transaction processor, and distribute to devices to support fraud avoidance and risk mitigation. Positive and negative list updates will be published no less than every five (5) minutes and include version control to confirm timely and accurate synchronization. The frequency will be configurable.			
4.1.4-2	All equipment will receive date/time, configuration, and list updates (as applicable) from the back office automatically at startup and as necessary.			
4.1.4-3	Equipment software and configuration updates, including all valid and invalid card lists, will be managed through the Configuration & Change Management application.			
4.1.4-4	The equipment software and applications will accommodate next gen ORCA's existing fare structure and potential fare policies described in the Fare Policy section (6.2.5) and Appendix 3 of this SOW.			
4.1.4-5	Equipment will receive configuration and software updates when available from the back office. The equipment will not commence updating software until it has received and verified the complete update. If any updates require a reboot, they will occur during non-operating hours, unless specifically approved by authorized service staff.			
4.1.4-6	Each software update will have a unique version number and include an activation date and time if applicable. Updates will be able to be downloaded and applied at that activation time, or activated immediately after download and verification is confirmed.			
4.1.4-7	The software update download process will not interrupt normal equipment operations, or cause data or file corruption if communication is lost. The process will recover from such loss and complete the download without issue.			
	Section 4.2 Onboard & Wayside Validators			
4.2.1-1	The validators will support validation of ISO 14443 compliant contactless smart cards.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.2.1-2	Validators will accept all fare media included in the System design, including the following fare media at a minimum: • Agency-issued Extended Use (EU) fare media including Legacy ORCA fare media • Credentials presented by the customer mobile app using NFC technology			[redacted]
4.2.1-3	Validators will be PCI- and EMV-certified for the acceptance of bank-issued contactless credit and debit cards using all common formats based on the latest version of the standard at the time of Final System Acceptance. Validator will be capable of re-certification with newer versions of the PCI and EMV standards via software upgrades as necessary.			
4.2.1-4	If the onboard or wayside validator is purchased from a third-party, the Program needs the SI to deliver the latest generation device manufactured by the OEM. If a newer generation device is released following design review, but prior to device procurement, the Agencies shall have the option to upgrade to the newer device.			
4.2.1-5	An alternate means of downloading data from the validator will be provided for instances where there is a failure of the wired or wireless communication.			
4.2.1-6	Validators will support a minimum of two (2) Secure Access Modules (SAMs) to facilitate acceptance of multiple fare media formats and the replacement of security keys, should compromise occur.			
4.2.1-7	Validators will have at least three (3) spare universal serial bus (USB), or Agency approved equivalent, ports to support removable memory, SAMs, or future connection of ancillary devices, such as a barcode validator.			
4.2.1-8	Validators will include sufficient embedded storage to hold at least 30 days of fare payment transactions, and all risk mitigation lists as determined necessary during design review.			
4.2.1-9	Validators will support expandable storage in a common, commercially available format (e.g., USB drive, compact flash, secure digital, etc.) that can be quickly and easily swapped or expanded without modification to the rest of the device components.			
4.2.1-10	Onboard and wayside validator equipment will comply with all applicable hardware and software security requirements contained in this scope of work.			
4.2.1-11	All onboard and wayside validator equipment will comply with the applicable accessibility and ADA requirements contained in this SOW.			
4.2.1-12	The validator will be compliant with and support all open payment contactless standards, including but not limited to: • Apple Pay • Android Pay • Samsung Pay • VISA payWave® • MasterCard PayPass® • American Express ExpressPay® • Discover Zip® • Contactless EMV			
4.2.1-13	Validator software design will allow for accepted media formats, including Agency defined formats, to be enabled and disabled via configurable parameters.			
4.2.2.1-1	The validator will be simple and compact, as determined during system design and testing, while providing the functionality in this section.			
4.2.2.1-2	Validators will be rugged and function under extended severe environmental conditions including: direct sunlight, moisture, dust/grit/sand, humidity, electrical storms, exposure to urban environment, and the range of elevations and altitudes in the operating region.			

Capability Number	Capability	ully Conforming	onConforming	
4.2.2.1-3	The validator housing will be resistant to corrosion, abrasion, scratching, impacts, and vandalism, and withstand standard bus cleaning materials. Validator housing color and finish will be such that it minimizes reflection and is highly resistant to fading, cracking, and peeling.			[redacted]
4.2.2.1-4	All validator corners will be rounded, and there will be no exposed bolt heads, nuts, sharp edges, or cracks on outside surfaces. The validator display will be flush-mounted in the housing.			
4.2.2.1-5	Covers on the validator housing for accessing modules and subassemblies will be secured with mechanical locks and keys that are not readily duplicated nor readily available to the public, and uniquely serialized.			
4.2.2.2-1	The Program needs the SI to work with Agency staff to install all mounting brackets, special hardware, electrical and communication wiring and service loops, and terminations/connections required for the installation of SI-provided onboard equipment. To the extent possible existing wiring and hardware will be reused as approved by the Agencies.			
4.2.2.2-2	The Program needs the SI to work with Agency staff to install and perform commissioning testing on all SI-provided onboard equipment on Agency vehicles.			
4.2.2.2-3	Onboard validators will be installed on each bus such that the validator will be in proximity to the vehicle door(s) and will be positioned so that a customer may easily present fare media for payment upon boarding the bus.			
4.2.2.2-4	When installed, the onboard validator will not obstruct the operator's view out the vehicle windows, and will not cause glare on the windshield during bright sun conditions or at night with the vehicle interior lights off.			
4.2.2.2-5	The onboard and wayside validator and components will be securely mounted using stainless steel hardware in a location and manner that is safe for customers and operators.			
4.2.2.2-6	Onboard validator mounting will not interfere with maintenance of other onboard bus systems and components.			
4.2.2.2-7	All required mounting hardware and brackets for each bus type and wayside installation will be provided by the SI.			
4.2.2.2-8	All validator components, cabling, installation methods, and mounting will be prototyped on each bus/fleet type and subject to written approval by the Agencies before installation.			
4.2.2.2-9	The mounting design will enable the quick and simple removal of the validator by authorized maintenance personnel as determined during system design and testing.			
4.2.2.2-10	The Program needs the SI to work with Agency staff to install and perform commission testing on all wayside validators and mounting systems at Agency transit locations. The Program needs the SI to work with Agency staff to provide and install all cabling (from stub up), connectors, and hardware necessary to properly install and secure the equipment in its planned location.			
4.2.2.2-11	The Program needs the SI to provide all wayside validator support structures, such as pedestals, mounting poles, and mounting brackets, as needed. Use of existing mounting pedestals or stanchions to support wayside validators will be subject to Agency review and approval.			
4.2.2.3-1	The onboard validators will receive 12 or 24 VDC power through a circuit breaker assigned specifically to the onboard validator. External converters or power conditioners may be used with Agency approval.			
4.2.2.3-2	The onboard and wayside validators will be designed to operate using Power over Ethernet (PoE). PoE usage will be confirmed during design review.			
4.2.2.3-3	When bus power is turned off, the onboard validator will remain powered for a configurable time to allow completion of transmission of any and all data files.			
4.2.2.4-1	Onboard validators will contain an Ethernet port that enables connection to existing cellular/Wi-Fi-enabled mobile access routers installed on buses. The mobile access routers will serve as primary means of real-time off-board communication with the back office.			
4.2.2.4-2	Wayside validators will be designed with an Ethernet port that enables real-time connection to the back office.			
4.2.2.4-3	Onboard validators will include Wi-Fi (802.11a/b/g/n/ac/i/r) communications to enable integration with other systems, exchange of non-critical data at designated locations, and sharing of data connections onboard.			

Capability Number	Capability	ully Conforming	NonConforming	Comments
4.2.2.4-4	If additional communications components are required, all such components will be mounted in a secure and sturdy enclosure, with the location and function approved by the Agencies.			
4.2.2.5-1	A customer-facing contactless smart card validator will be installed in the onboard and wayside validators to read, write to, and validate contactless media presented by customers. The validator will have write capabilities as per risk mitigation strategies defined in Section 3.2.3.			
4.2.2.5-2	Validators will include full color displays that support adjustable brightness, contrast, and refresh rate that can be easily read, as determined during system design and testing, under any combination of ambient lighting, including direct sunlight and night-time operation.			
4.2.2.5-3	Validator color displays may be adjacent to or directly in front of the contactless validator. In either case, the tap area will be easily identified and reachable by customers.			
4.2.2.5-4	The validator display will be clearly visible, as determined during system design and testing, in all forms of ambient light on the bus and viewable at a minimum angle of 45 degrees from the display.			
4.2.2.5-5	The validator display will be capable of partial or full video or animation. The animations may be used to indicate fare feedback, relevant customer action, or other general information. Video or animation files will be able to be updated remotely, or installed via removable memory by maintenance staff.			
4.2.2.5-6	Validators will include an audio interface and speakers for customizable audio feedback, including varying tones and full speech. Audio feedback types will be able to be configured and updated remotely. It will be in compliance with or exceed all applicable accessibility and ADA requirements.			
4.2.2.5-7	The decibel levels of the tones on the validators will be programmable locally and remotely, and the emitted tones will be capable of being distinguished up to eight (8) feet away in its operating environment.			
4.2.2.5-8	Onboard and wayside validators will include at least three (3) colors (green, yellow, red) of visual annunciation that can be configured to provide feedback, especially for reduced fare payments, on payment and device status.			
4.2.3.1-1	Onboard and wayside validators will generate, store, and transmit a discrete data record for each transaction and/or validation performed.			
4.2.3.1-2	Each onboard validator transaction record will be unique and will include the following information, at a minimum: • Date and time • Device ID • Vehicle ID • Operator ID • Bus Stop ID • Geolocation information (GPS data) • Route number • Run number • Block number • Media type • Card number • Transit account number • Passenger type (e.g., adult full fare, youth, senior, disabled) • Action performed • Fare instrument or product used (where applicable) • Transaction value (where applicable) • Transaction result (e.g., success, failure) • Transaction ID Transaction records details will be finalized during design review.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.2.3.1-3	Each wayside validator transaction record will be unique and will include the following information, at a minimum: • Date and time • Device ID • Location ID • Route number (where applicable) • Media type • Fare media number • Transit account • Passenger type (e.g., adult full fare, youth, senior, disabled) • Action performed • Fare instrument or product used (where applicable) • Transaction value (where applicable) • Transaction result (e.g., success, failure) • Transaction ID Transaction records details will be finalized during design review.			
4.2.3.1-4	Any offline payment validation will be recorded as such in the transaction data, so that offline transactions can be easily identified and tracked.			
4.2.3.2-1	All validators will provide audit register counts for purposes of data tracking and analysis. The audit registers will store counts of specific events in non-volatile memory and will not be able to be modified or erased.			
4.2.3.2-2	The audit registers will maintain counts of the following events as applicable: • Total validation counts • Passenger type counts • Count of approved transactions • Count of denied transactions • Count of read failures • Fare products validated (where applicable) • Fare value deducted (where applicable) Final audit register events will be determined during design reviews.			
4.2.3.3-1	Onboard and wayside validators will provide real-time status of device events and alerts reported though the System Manager. The onboard and wayside validators will also maintain local event and alert logs in the event that communications to the back office are unavailable.			
4.2.3.3-2	In addition to transmitting real-time events and alerts, the validator will transmit periodic “heartbeat” messages that confirm communication with the back office and basic status. The “heartbeat” frequency will be adjustable.			



Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.2.3.3-3	At a minimum, onboard and wayside validators will generate, store, and forward to the back office an event record for each of the following events with their corresponding date/time: • Power on • Power off • Operator login and logout • Route changed • Back office communications failed/restored • Maintenance parameter changed • New software received/activated • New configuration data received/activated • New list received/activated • Anti-virus definitions and security updates downloaded • Internal clock reset • Validator clock error • Data memory near full/full • Validator "heartbeat" check Final event records will be determined during design review.			[redacted]
4.2.3.3-4	The onboard and wayside validator will have capacity to store a minimum of three (3) months of local event and alert data.			
4.2.4-1	Onboard and wayside validators will be able to accept fare payments in an offline mode, and accommodate scenarios where a full authorization cannot be received within the required configured timeframe. In these scenarios, risk mitigation strategies will be employed to limit exposure for declined payments.			
4.2.4-2	Upon power up, the onboard validator will be operational and ready for revenue service within three (3) minutes. It will remain operational until a configurable time after power off, subject to normal operating conditions.			
4.2.4-3	The onboard validator will require a valid logon to function. The bus operator will be able to present an employee ID car to the validator to initiate a default login.			
4.2.4-4	The bus operator will be able to present a properly configured employee ID card to the validator to initiate a login.			
4.2.4-5	The onboard validator will interface with the MAR to perform real-time communication with the ATP for the processing of fare payments using the SI-provided Fare Payment API.			
4.2.4-6	After successful logon, the onboard validator will automatically and continuously poll for all supported media formats.			
4.2.4-7	The onboard and wayside validator will support an anti-collision algorithm to support that payment is only accepted from a single piece of media when multiple valid pieces of media are presented.			
4.2.4-8	Prior to transmitting a fare payment transaction to the ATP, the onboard and wayside validator will perform local fare media validity checks, including checks against any locally maintained positive/negative lists, as deemed necessary for security and the efficient processing of transactions.			
4.2.4-9	The wayside validator will be equipped with a real-time communications interface to the ATP for the processing of fare payments using the SI-provided Fare Payment API.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.2.4-10	The transaction response from the ATP will include: • Validation result • Fare product used • Fare amount charged • Balance remaining • Fare product expiration date • Fare product remaining rides or days • Passenger type • Transfer time remaining • Low balance warning (threshold to be configurable) • Time-based pass expiration warning (threshold to be configurable) The final list of data elements to be included in the ATP response will be established during system design. Results to be displayed on the validator full color display will be determined during design review. Results will be configurable, set by downloadable configuration parameters from the back office.			[redacted]
4.2.4-11	Fare validation results will be displayed to the operator through the integrated driver display unit. The driver may be shown additional fare payment details that are not shown to the customer as determined and approved during system design.			
4.2.4-12	Onboard and wayside validators will provide a payment result, including writing required data to the fare media, within 500 milliseconds of valid fare media being presented for all fare payment types.			
4.2.4-13	Onboard and wayside validators will not explicitly indicate to the customer when they are operating in offline mode.			
4.2.4-14	All transactions generated in an offline mode will be sent to the ATP immediately upon restoration of communications.			
4.2.4-15	Onboard and wayside validators will display maintenance screens for troubleshooting and configuration purposes by authorized staff. The method and interface used to perform maintenance functions will be determined during design review.			
4.2.4-16	If a failure is detected that causes the validator to cease functioning or cause transactions to fail, the validator will go out of service and provide visual indication of the device status. The detected failure will be recorded as an event record.			
4.2.4-17	Prior to powering down, the validator will transmit all recorded event records and perform all necessary steps to retain integrity of all stored data.			
4.2.4-18	Replaced validator devices will automatically be programmed with their new location (e.g. vehicle ID or station location) upon installation and their assigned location information updated in the next gen ORCA System Manager.			
	Section 4.3 Driver Display Unit			
4.3.1-1	A Driver Display Unit (DDU) will be provided which will interface with the onboard validators and display fare validation results to the bus operator. The DDU will be connected to the onboard validators, but will not be required for the validator to function.			
4.3.1-2	The DDU will be as simple and compact as possible, as determined during system design and testing, while providing the functionality in this section.			
4.3.1-3	Communications utilized in the exchange of data between the DDU, the onboard validator, and other onboard systems will be fully documented and the property of the Agencies.			
4.3.1-4	The DDU electrical capabilities will conform to the common design requirements presented in Section 3.1.			
4.3.1-5	Final DDU specifications and performance capabilities will presented for Agency review and approval during design reviews.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.3.1-6	The Program needs the SI to work with Agency staff to install all mounting brackets, special hardware, electrical and communication wiring and service loops, and terminations/connections required for the installation of the DDU equipment.			
4.3.2-1	The DDU enclosure and components will be made of material suitable to the service under the full range of the specified bus environmental and operating conditions.			
4.3.2-2	DDU housing will be resistant to corrosion, abrasion, scratching, impacts, and vandalism, and withstand standard bus cleaning materials. DDU housing color and finish will be such that it minimizes reflection and is highly resistant to fading, cracking, and peeling. The device will follow all common design capabilities.			
4.3.2-3	The DDU will include a physical or virtual keypad that supports driver login using a numeric ID and password as well as work assignment. The bus operator will be able to present an employee ID card to the onboard validator to initiate a login.			
4.3.2-4	The DDU will include at least four physical buttons or virtual keypad selections to perform future functions, if needed and as determined during system design.			
4.3.2-5	There will be a "failure" operator key on the DDU to tally events when the onboard validator does not function.			
4.3.2-6	All required DDU mounting hardware and brackets for each bus type will be provided by the SI.			
4.3.2-7	The DDU will be installed in a position to allow bus operators to observe fare transactions without interfering with other bus controls or indicators. The DDU will in no way obstruct the bus operator's view.			
4.3.2-8	The DDU will be designed and mounted so that it can be quickly adjusted by the bus operator for optimal viewing angle. After adjusting, the mounting hardware will not allow the DDU to shake or become loose as a result of shock and vibration encountered during normal bus operation.			
4.3.3-1	The DDU will receive 12 or 24 VDC power through a circuit breaker assigned specifically to the DDU. External converters or power conditioners may be used with Agency approval.			
4.3.3-2	The DDU will not be adversely affected by other onboard systems being turned on and turned off, including the starting of the transit vehicles engine.			
4.3.3-3	When bus power is turned off, the DDU will remain powered for a configurable time to allow completion of transmission of any and all data files.			
4.3.4-1	The DDU will be the primary visual interface for the driver and will display information such as route and direction and fare payment results transmitted from the onboard validator(s), including but not limited to: • Validation results • Fare amount charged • Fare balance remaining • Fare product used • Passenger type • Transfer time remaining • Low balance warning (threshold to be Agency configurable) • Time-based pass expiration warning (threshold to be configurable) • Card/account status (e.g., blocked and reason) The operator may be shown additional fare payment details that are not shown to the customer.			
4.3.4-2	The DDU will serve as an input device for the bus operator to perform system login and set parameters such as route number and direction, if that data is not automatically received from other onboard systems.			
4.3.4-3	The DDU will allow the driver to tally operational data such as customers with bicycles or wheelchairs, and when a cash fare or fare upgrade is paid.			
4.3.4-4	The DDU will control the onboard validators including volume control, display brightness, and placing units out-of-service, using the SI-provided System Management API.			

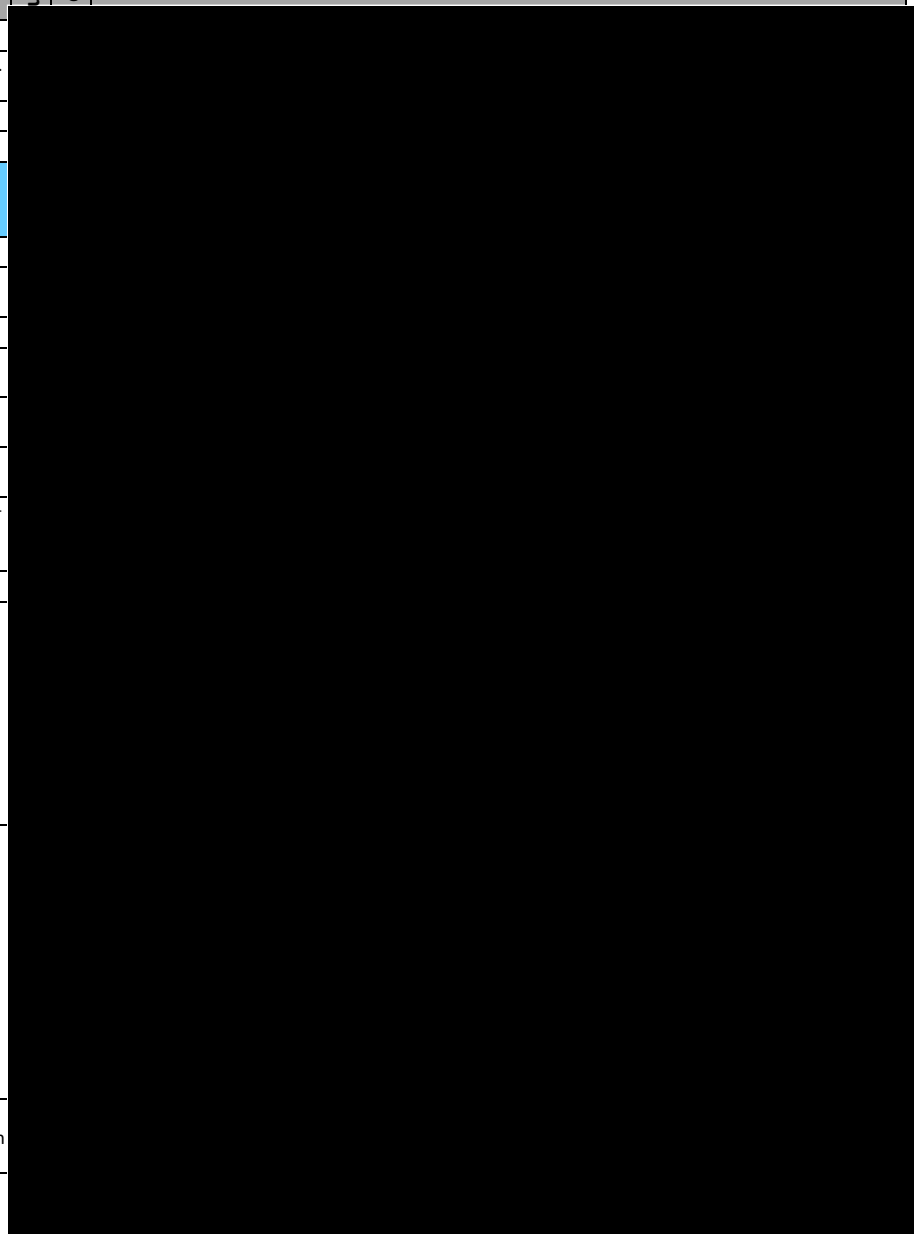
Capability Number	Capability	lly Conforming	onConforming	
4.3.4-5	The information displayed on the DDU will be Agency-configurable and may be different from the information displayed on the onboard validator.			
4.3.4-6	When the DDU is replaced the newly installed DDU will automatically be programmed with its new location and have their assigned location automatically updated in the next gen ORCA System Manager.			
	Section 4.4 Customer Service Terminals			
4.4.1-1	The CST will be modular devices, and will support multiple configurations, depending on Agency use and purpose. The hardware will be optimized for its intended use and configuration.			
4.4.1-2	All CST configurations and peripheral modules will be subject to Agency review and approval.			
4.4.1-3	To accommodate the required variety of installation locations, the CST will be compact and easily positioned for user comfort as demonstrated during system design and testing.			
4.4.1-4	CST will be designed to permit rapid exchange of the device and peripheral modules to restore service in minimal time as demonstrated during system design and testing. Repairs will be performed in the field and no special tools or instruments will be required for exchange of modules.			
4.4.1-5	CST peripherals will communicate over a wireless interface wherever possible.			
4.4.1-6	For any of the SI supplied CST configuration(s) the same SI-supplied application and OEM software will be utilized.			
4.4.1-7	The CSTs installed in Customer Service Offices (CSOs) will provide all functions available. Device modules and key functions may include: • Computer • Keyboard and pointing device • Closed-loop media processing • Secure cash storage • Bank card processing • Customer display • Receipt printing • Image capture • Document scanning • EU fare media printing/encoding • Uninterruptible power supply • Communications interfaces as necessary			

[redacted]

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.4.1-8	The CST used for customer outreach and special events will support remote sales and card personalization programs at senior centers, social service organizations, special events and other locations where remote fare media issuance and customer account support services are needed. Device modules and key functions may include: • Computer • Closed-loop media processing • Bank card processing • Receipt printing • Image capture • Document capture • EU fare media printer/encoder (does not need to support bulk printing) • Uninterruptible power supply • Communications interfaces as necessary The CST will rely on local power and will connect to the next gen ORCA back office via Agency-supplied network connection.			[redacted]

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.4.1-9	The CST will conduct a variety of functions. At a minimum, these functions include: • Sell all supported fare media, including Legacy ORCA media (and create new transit accounts) • Sell all supported fare products (e.g., stored value and passes) and load fare products to transit accounts • Sell products such as belt buckles and other non-next gen ORCA fare media and properly record these sales as non-n gen ORCA • Sell serialized taxi scrip to qualified customers • Sell serialized Human Services fare products to authorized Human Services representatives • Sell serialized paper tickets individually or in bulk • Query transit account status (e.g., passenger type, active/inactive, blocked/unblocked) • Query fare payment transaction history • Query sales transaction history • Query adjustment transaction history • Enable fare product for autoload (requires funding source in customer account) • Generation of fare payment reversal (e.g., cancellation) • Generation of sales reversal (e.g., refund) • Generation of an transit account adjustment (e.g., credit or debit) • Transfer of balance between two transit accounts • Block/unblock card, transit account, or individual fare product • Lost, stolen, or damaged card replacement (e.g., associate new card with existing transit account) • Make comments on customer accounts and transit accounts • Generation of an opt-out refund (e.g., close transit account and issue refund) • Create new customer account • Query customer account status/data • Modify customer account data • Register (e.g., associate) a transit account to a customer account • Unregister (e.g., disassociate) a transit account from a customer account • Add, update or remove a funding source to/from a customer account • Close or suspend a customer account • Encoding, printing, and issuance of personalized EU fare media (when configured to do so), including the addition of photo			[redacted]
4.4.1-10	The CST will support manual entry and validation of ADA paratransit customer data using a simple graphical user interface.			
4.4.1-11	The CST will enable the CSR to print packing slips and mailing labels.			
4.4.1-12	The CST will allow for every non-next gen ORCA item to be configured with applicable sales taxes. The tax rates will be Agency configurable and be established by sales location.			
4.4.1-13	The CST will support blind reconciliation whereby the user enters at the end-of-shift enters the amount in sales by payment method into the CST. The CST will indicate if the totals entered reconcile with the System information and all the user to correct the amount up to an Agency configurable amount of times. Supervisory role logon will allow for override of the blind reconciliation feature.			
4.4.1-14	All CST equipment will comply with the applicable hardware and software capabilities contained in this scope of work.			
4.4.1-15	The CST will be able to read and endorse checks. The check read/endorse feature may be accomplished through the printer or other Agency approved solution.			
4.4.1-16	All CST equipment will comply with the applicable accessibility and ADA requirements contained in this scope of work.			

Capability Number	Capability	ully Conforming	onConforming	
4.4.2.1-1	The CST will include an integrated flat panel touchscreen display with no less than 1080p resolution.			
4.4.2.1-2	The touchscreen will provide suitable touch sensitivity and resolution to satisfy operator selection and input capabilities.			
4.4.2.1-3	The CST will support the use of an external display.			
4.4.2.1-4	The CST will include integrated Ethernet and Wi-Fi (802.11a/b/g/n) to satisfy the capabilities of the configuration.			
4.4.2.1-5	The CST will access the CRM application through open APIs over the internet.			
4.4.2.1-6	Any required peripheral modules will be able to be attached to any CST.			
4.4.2.2-1	The CST will allow for a separate, Agency supplied, full-sized keyboard and a mouse with scrolling wheel to be used if deemed necessary by the Agencies.			
4.4.2.2-2	The CST will include an integrated keyboard and pointing device.			
4.4.2.3-1	The closed-loop media processing module will be a separate module cabled to the CST. In addition to the separate module there may also me an integrated module.			
4.4.2.3-2	The CST will support the capability to interface with two (2) separate closed-loop media processing modules, one (1) each for the customer and the clerk.			
4.4.2.4-1	The cash storage facility will open only under command of the CST, which will monitor the status of the drawer at all times. Cash storage facility installations will be subject to each Agency's approval.			
4.4.2.5-1	The CST will be PCI- and EMV-certified and compliant with other required banking standards for the acceptance of bank-issued credit and debit cards using all common formats based on the latest version of the standard at the time of Final System Acceptance.			
4.4.2.5-2	The bank card processing module will be an integrated or mobile friendly module.			
4.4.2.5-3	The merchant acquirer approved bank card processing module will include: • Magnetic stripe reading • Contactless bank card reading • Contact (or chip) bank card reading • Personal Identification Number (PIN) pad. The Personal Identification Number (PIN) pad must meet or exceed all applicable accessibility and ADA requirements, as well as meet applicable PCI DSS (version 3.2 or current at the time of deployment) and any other relevant security controls included in the ISMS control baseline referenced in Section 3.1.14.			
4.4.2.5-4	The contactless bank card validator will read and support all open payment contactless standards, including but not limited to: • Apple Pay • Android Pay • Samsung Pay • VISA payWave® • MasterCard PayPass® • American Express ExpressPay® • Discover Zip® • Contactless EMV			
4.4.2.5-5	The bank card processing module will employ merchant acquirer approved software and PIN encryption as required in accordance with banking capabilities. The Program needs the SI to supply bank card processing modules with production encryption keys injected in a secure, PCI-compliant manner.			



Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.4.2.6-1	The CST will be able to print on a single roll of continuous thermal paper or Agency approved alternative.			
4.4.2.6-2	The receipt printer will provide for easy loading of a new receipt stock as demonstrated during system design and testing.			
4.4.2.6-3	The receipt printer will have a cutting edge to enable the operator to manually separate the receipt from the receipt stock.			
4.4.2.7-1	The CST will have the capability to convey information to customers such as transaction price, status, PII, and other pertinent information. What and how the information gets displayed to the customer will be finalized during design review.			
4.4.2.8-1	When configured to issue personalized fare media, the CST will support the capturing of customer photos.			
4.4.2.8-2	The image capture device will include both a separate camera and an integrated camera.			
4.4.2.8-3	The image capture device will include a built-in flash and an image sensor of no less than 10 megapixels. The image capture device will produce images of suitable resolution, clarity, and contrast to satisfy the capabilities of photo ID cards.			
4.4.2.8-4	If a separate image capture module is required the SI will provide a means for securing the module for optimized image capture.			
4.4.2.9-1	When configured to issue personalized fare media, the CST will include a means for digitizing customer eligibility documents.			
4.4.2.9-2	Digitizing will support the capture of black & white and color images at a resolution of at least 1200 x 1200 dpi.			
4.4.2.9-3	Digitizing will support the auto-feeding of documents and support double-side digitizing at no less than 10 pages per minute.			
4.4.2.10-1	The Extended Use (EU) fare media printer/encoder module for use in the CSO and mail center will utilize re-transfer, or modern equivalent, printing technology, and will encode EU fare media with requisite data in coordination with the printing process.			
4.4.2.10-2	The EU fare media printer/encoder module for use in the CSO and mail center will print edge-to-edge (e.g., “full bleed”) in at least four (4) colors (YMCK), and will apply the printed images to a laminate film and then apply the laminate to both sides of the card.			
4.4.2.10-3	The EU fare media printer/encoder module for use in the CSO and mail center will employ easily replaceable consumables for printing and lamination films as demonstrated during system design and testing.			
4.4.2.10-4	The EU fare media printer/encoder module will provide print resolution no less than 300 dots per inch.			
4.4.2.10-5	The EU fare media printer/encoder module will produce at least 75 cards per hour as approved in design.			
4.4.2.10-6	The EU fare media printer/encoder module for use in the CSO and mail center will include input and output card hopper with a capacity of no less than 250 cards each, which will be lockable for security.			
4.4.2.10-7	Upon successful printing and encoding, the EU fare media printer/encoder module will inform the CST of the successful issuance of each card, and the identification number of each issued card.			
4.4.2.11-1	The CST will communicate with the next gen ORCA back office via secure, Agency-provided, network connection to send and receive transaction information, event and status information, clock synchronization information, positive/negative lists, and configuration parameters.			
4.4.2.11-2	The CST will be connected to the secure network via an Ethernet port or wireless (Wi-Fi) connection.			
4.4.2.11-3	For all transactions requiring back office access to a transit account, or establishing a new transit account, the CST will communicate with the back office in real-time using the SI-provided API.			
4.4.2.11-4	If the CST has missed scheduled communications with the back office, upon restoration of communications, the CST will automatically initiate communications without interrupting operations.			
4.4.2.12-1	Each CST will receive power from a dedicated Uninterruptible Power Supply (UPS) with sufficient battery capacity to operate the CST and all peripherals for a minimum of 10 minutes.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.4.2.12-2	The UPS will allow the CST to perform a controlled shut down without any loss of data whenever the UPS determines that there has been a loss of primary power.			[redacted]
4.4.2.12-3	The UPS will provide no less than 500 joules of overvoltage (surge) protection for all connected devices.			
4.4.3.1-1	Once installed, the CST will not enter service until it has communicated with the back office to receive application software, administrative and maintenance logins, risk mitigation lists, and other configuration data.			
4.4.3.1-2	Authorized users will be able to remotely monitor and manage the CST using the System Manager. Remote management functions will include: • Changing configuration parameters • Enabling and disabling payment methods • Synchronizing date and time			
4.4.3.1-3	On each CST the Program needs the SI to supply, install, and configure client versions of anti-virus and anti-malware software.			
4.4.3.1-4	The Program needs the SI to submit descriptions of the CST software design for Agency review and approval. CST software design deliverables will include: • Data registers • Transaction, event, login, etc. records • Operator interface • Configuration parameters and their value range • Risk mitigation list storage, update, and processing (if applicable) • Transaction limitation procedures • Setup and administration procedures • Login types and permitted functions • Anti-virus and anti-malware software and procedures			
4.4.3.2-1	The CST will generate transactions and events, including operator login and logout and diagnostics. Each data record will incorporate a unique identification number for that CST and day, and will be date/time stamped.			
4.4.3.2-2	Each CST customer transaction record will consist of the following, at minimum: • Date and time • Device ID • Location ID • Operator (e.g., clerk) ID • Card number • Transit account • Transaction type (e.g., card sale, value load, account inquiry, refunds) • Cards sold (where applicable) • Stored value or fare products loaded (where applicable) • Passenger type (e.g., adult full fare, youth, senior, disabled) • Transaction value (where applicable) • Payment type and amount • Transaction result (e.g., success, failure) • Transaction ID Transaction records details will be finalized during design review.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.4.3.2-3	When a user signs on to the CST, the following data will be stored in a data record: • Date and time • Device ID • Location ID • Operator ID • Login attempts When the user logs off the CST, the device will store a similar record.			
4.4.3.2-4	The CST will be capable of detecting basic internal malfunctions and will display failures directly on the operator display and alert the System Manager. The malfunction detection will cover at least failure of power or control circuitry, and any failure of the closed-loop media processing module that could result in a false, incomplete, or corrupted encoding of a smart card.			
4.4.3.2-5	The CST will be capable of recording data locally representing no less than 1,000 events, including changes in status, communication problems, and problems detected during the automatic diagnostic testing. At a minimum, each event record will include: • Date and time • Device ID • Event code • Any associated event data • Identifier of the failed test • Iteration number of test • Reason for test failure (unique code) • Additional information to define the nature of the failure			
4.4.3.2-6	Each CST will contain audit registers that track the following information at a minimum: • The total count and value of all transactions completed by the CST since data was last uploaded to the back office. • The date and time of the last successful data upload to the back office. These registers will be modified only by the CST itself and will not be manually alterable.			
4.4.3.2-7	CST audit register records will be transmitted to the back office at the end of service day for reconciliation, or upon a configurable time period.			
4.4.3.3-1	When required, modification of the CST application software and any OEM application or operating system software will be performed by downloading new software from the back office. The back office database will record and track the version number of all such software in each CST, and the date that the software versions were downloaded and installed.			
4.4.3.3-2	Each time the CST communicates with the back office, the back office will transmit any updates to the CST application software. The CST will not commence updating its software until it has received and verified the complete software delivery.			
4.4.3.3-3	Upon receipt and verification of the software update, the CST will apply the update (rebooting if necessary) at a time configurable by the Agencies for each CST.			
4.4.3.4-1	Operating parameters will be downloadable to the CST from the back office via the wide area network provided by Agency, as appropriate for each installation or CST configuration.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.4.3.4-2	The CST design will support Agency configurability through numerous adjustable parameters. The CST application software will at minimum support Agency configuration for: • Value of deposit to be collected for new or replaced fare media • Fare products and non-next gen ORCA products available for sale and upgrade • Payment method selection • Receipt content • All text and touchscreen labels • Authorized users and passwords (if stored locally at the CST)			[redacted]
4.4.3.5-1	Upon issuance and/or initialization of a smart card, the CST will record in the back office an issue record, including the date, time, fare category, card identification number, and other pertinent information of the smart card and any associated transit account.			
4.4.3.5-2	The Fare Media Management application (FMM) will track the smart cards distributed to each Agency sales location. Using the list of fare media issued to each sales location and the issuance and/or initialization records previously transmitted to the back office, it will be possible for authorized users to query the FMM for the identification numbers and total quantity of smart media that remain in each sales location's inventory.			
4.4.4.1-1	The CST will remain inactive and unable to perform any functions unless a proper login has been completed.			
4.4.4.1-2	When configured with a cash storage facility the CST will require the operator to identify the cash balance at the start of each shift. The starting balance will be Agency configurable.			
4.4.4.1-3	The CST will support relief shifts, with the replacement of the cash storage facility. The CST will also maintain statistics for the relief shift separately and will not affect the main shift information.			
4.4.4.1-4	If the CST has not been used in a number of minutes configurable by Agency, the user will be automatically logged out.			
4.4.4.1-5	Upon end-of-shift condition, the CST will produce an end of shift report and receipt depicting at a minimum the ending balance of the cash storage facility, summary of transactions, payment methods used, quantity of products sold, reversals, refunds. The report will be approved during design.			
4.4.4.1-6	The CST will store a data record for each successful login, each unsuccessful login, and each logout.			
4.4.4.1-7	The CST will be configurable to use a multi-factor login authentication mechanism that observes the guidelines provided in NIST 800-63, and approved by the ORCA CISO. The CST will support more than one method for additional factors of the authentication process and those methods will be approved during design, always observing applicable industry best practices (such NIST 800-63).			
4.4.4.1-8	The CST will allow the CSR to login using a properly configured smart card. Smart card login will be one factor of multi-factor login authentication.			
4.4.4.2-1	The CST will function as an intelligent cash register, allowing customers and CSRs to interact in a manner as similar as possible to normal retail sales transactions. Sales transactions will include, but are not limited to: • Purchase of new fare media • Adding of value and products to existing transit accounts • Purchase of non-next gen ORCA products			
4.4.4.2-2	When issuing a new EU fare media, the CST will permit the clerk to override the default, Agency-configurable card fee.			
4.4.4.2-3	The purchase of multiple cards and multiple products, including products that are other than next gen ORCA fare products, will be able to be performed in a single transaction, with payment collected once.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.4.4.2-4	When configured to conduct sales, the CST will support a variety of funding methods, including: • Cash • Checks • Agency and third-party issued vouchers • Bank cards (credit and debit) • Mobile wallets • Any combination of the above The CST will also support the payment, or partial payment, for the purchase of a pass or multi-ride product using stored value in same transit account where the pass or multi-ride product is being loaded.			[redacted]
4.4.4.2-5	The CST will support split payments where up to three (3) funding methods can be used, including multiple bank cards, to complete payment for a single sale.			
4.4.4.2-6	For each sales transaction, the CST will enable the clerk to select the payment method. If the clerk selects more than one (1) payment method, the CST will prompt the clerk to enter the amount to be paid using each payment method.			
4.4.4.2-7	Cash transactions will provide the total amount due, allow the clerk to enter amount tendered, and display the change due.			
4.4.4.2-8	The CST will control and monitor the cash storage facility, and open the cash storage facility upon calculation and display of the amount of change due.			
4.4.4.2-9	The CST will provide an option to either print, text, or email a customer receipt for every completed sales transaction. Receipts will include the resulting status and value of the customer's transit account, where applicable.			
4.4.4.2-10	For each completed transaction, a sales transaction will be stored and transmitted to the System back office using SI-provided Fare Distribution API.			
4.4.4.2-11	The CST will enable a clerk to display and print totals of all completed transactions by that clerk for the current day.			
4.4.4.2-12	The CST will enable an administrative user to display and print totals of all conducted transactions for the current and each of the prior seven (7) days. These totals will indicate daily totals by clerk and payment type.			
4.4.4.3-1	When configured to do so, the CST will include the necessary software and peripherals to enable Agencies to issue personalized fare media.			
4.4.4.3-2	Personalized fare media may include the customer's name and photograph printed on one side of the card, accompanied by other Agency-defined graphics and information.			
4.4.4.3-3	Using the appropriate customized printing template, the CST will print and issue personalized fare media.			
4.4.4.3-4	The SI shall supply printing templates (also known as "masks") using Agency-supplied graphic designs for all personalized fare media. The CST will support no fewer than 25 pre-loaded templates from which the user will select. Where possible, template selection will be automatic based on fare media.			
4.4.4.3-5	The CST will support the ability for a participating customer account to add a company logo to the card template(s).			
4.4.4.3-6	When printing a personalized fare media, the CST will scale and crop the photo image to fit within the area defined by the printing template without distorting the image or changing its native aspect ratio.			
4.4.4.3-7	The CST will support issuance of personalized fare media in individual and bulk production modes.			
4.4.4.3-8	For fare media personalization, a digital camera controlled by the CST will capture the customer images as necessary.			
4.4.4.3-9	All CSTs will support production runs (using data imported from the CRM or an external source) for bulk fare media personalization in quantities of one (1) to at least 250 cards per batch			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.4.4.3-10	For bulk fare media personalization production runs, the CST will use data files imported in a SI-specified format. The data files will include the customer name, digital photograph, and other information as required.			
4.4.4.3-11	The CST will support the capture of all data needed to validate, register, and issue personalized fare media for reduced fare and paratransit customers.			
4.4.4.3-12	The CST will support manual entry of reduced fare transit account registration data using a simple graphical user interface.			
4.4.4.3-13	The CST will capture reduced fare applications and supporting documentation using the SI-provided document scanner.			
4.4.4.3-14	The CST will capture reduced fare customer photographs using the SI-provided camera.			
4.4.4.3-15	All customer data captured and used by the CST will be securely stored within the CRM using the SI-provided API and will not be permanently stored locally on the CST.			
4.4.4.3-16	The CST will allow the CSR to override the card printing process. Card printing override functionality will be further defined during design review.			
4.4.4.4-1	Whenever fare media is presented to the CST closed-loop media processing module, the CST will read the fare media and query the back office using the Systems Integrator-provided Transit Account Management API to display the current status and value of the associated transit account on the operator display and customer display if one exists in current CST configuration.			
4.4.4.4-2	If the customer's smart card is not functioning, the CST will permit the clerk to manually enter the card identification number.			
4.4.4.4-3	Upon request, the CST will query the back office for details of the most recent transactions posted to the transit account. Upon receipt of the transaction history, the CST will display the results on the operator display.			
4.4.4.4-4	The number of prior transactions to display when viewing a transit account in the CRM application will be Agency-configurable.			
4.4.4.4-5	For each prior transaction displayed by the CRM, history details will include, at minimum: • Date and time of transaction • Generating device/system (e.g., VM, retail location, autoload) • Transaction type (e.g., sales transaction, stored value usage, pass usage, adjustment) • Transaction value • Payment method • Transaction location (e.g., station name, bus route)			
4.4.4.4-6	Upon request, the CST will print a receipt of the current status, transit account value, transaction history, and current and past transaction receipts.			
4.4.4.5-1	The CST will enable operators to setup and modify customer accounts using the Systems Integrator-provided Customer Account Management API.			
4.4.4.5-2	The CST will enable the operator to, at a minimum: • Create a new customer account • Register an anonymous transit account • Associate a transit account with multiple customer accounts • Disassociate a transit account from a customer account • Query and edit program registration details			
4.4.4.5-3	The CST will enable the operator to modify any fields in the existing customer accounts that are deemed user-alterable.			
4.4.4.5-4	The CST will enable operators to establish, modify, and cancel customer subscriptions for autoload, including the addition and modification of funding sources.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.4.4.5-5	Some reduced fare privileges are subject to expiration. The CST will include a function to re-authorize reduced fare privileges and update the customer's transit account information with a new reduced fare privilege expiration date.			
4.4.4.6-1	The CST will support replacing registered EU fare media by disassociating/ deactivating the lost or stolen fare media from the transit account and associating/activating new fare media in its place. Disassociating the lost or stolen fare media will not prohibit the customer or designated Agency personnel from accessing transaction history associated with that card.			
4.4.4.6-2	Prior to replacing registered EU fare media, customer identity will be verified using information accessible via the CST and in accordance with the applicable security controls established in the ISMS control baseline.			
4.4.4.6-3	If the replacement fare media requires no personalization, the CST will prompt the operator to present the new fare media to the closed-loop media processing module.			
4.4.4.6-4	When replacing a previously issued personalized fare media, the CST will support use of the digital photograph, printing template, and other data from the original issue record to facilitate replacement without requiring the customer's presence, or the use of the digital camera to create and store a new digital image.			
4.4.4.6-5	Upon reading or issuing the replacement fare media, the CST will transmit to the back office an issue record containing the card's identification number, and a corresponding record to block use of the lost card.			
4.4.4.6-6	Replacing a malfunctioning smart card will be possible. Procedures to replace a defective smart card will be similar to those used to replace lost registered fare media, but replacement of a defective card will not require the fare media to be registered. The replacement process will support manual entry of the defective smart card's identification number as the means to initiate replacement.			
4.4.4.7-1	CST operators with appropriate access rights will be able to initiate transit account adjustments by reversing prior sales or fare payment transactions, or directly adding or removing stored value or products.			
4.4.4.7-2	CST operators with appropriate access rights will be able to initiate an opt-out refund that results in the closing of a transit account associated with a customer account and issuance of a cash or check refund to the customer. The System will support the charging of a refund fee that is Agency configurable.			
4.4.4.7-3	CST operators with appropriate access rights will be able to add fare products to a transit account on a goodwill basis resulting in no cost to the customer.			
4.4.4.7-4	The CST will fully record and immediately transmit to the back office all adjustment and reversal transactions.			
	Section 4.5 Vending Machines			
4.5.1-1	The vending machine (VM) will be designed as a simple, low-maintenance, and low-complexity machine in a cost-saving design that provides the functionality specified herein and the common design capabilities.			
4.5.1-2	The VM will be designed to accommodate first-time or occasional users, as well as regular customers who need to reload their transit accounts. At a minimum, these functions will be supported: • Purchase one or more new smart cards (associated with a new transit account) with and without value • Load stored value or fare product(s) to an existing transit account • Review transit account balance and history • Accept U.S. coins and bills (Agency configurable should some Agencies choose to not accept cash) • Accept authorized magnetic strip, contact, and contactless bank cards • Inserted cash will be held in escrow and returned to the customer should the transaction not be completed for any reason • Display instructions and notices • Provide audio output of messages and instructions • Contain required security and alarm system • Communicate over a network to send and receive transaction data in real-time • A full list of transactions and detailed process flows will be determined during design reviews.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.5.1-3	The VM will be modular and have the capability to replace, activate, or deactivate the hardware components individually. The modules and components will be easily serviced.			
4.5.1-4	If a component or function is enabled/disabled, the VM will automatically adjust its display, operation, and maintenance status according to the active components.			
4.5.1-5	The VM will be able to accept credit and debit cards and cash/coin for payment.			
4.5.1-6	The VM will detect when the bill vault is near-full (%) and full (%), and record and transmit an event record. The determination of a nearly full condition will be adjustable by the Agencies for each VM.			
4.5.1-7	The VM will detect when the coin vault is near-full (%) and full (%), and record and transmit an event record. The determination of a nearly full condition will be adjustable by the Agencies for each VM.			
4.5.1-8	The Light Feature Vending Machine (LFVM) will be a simple, low-cost, low-complexity machine that allows first-time and regular customers to purchase and reload EU fare media. The LFVM is expected to reduce the capital costs, maintenance activities, and customer complexity associated with traditional full feature transit VMs. To this end, the LFVM will not issue change. The device will provide Agencies with the flexibility to enable and disable features or components of the LFVM.			
4.5.1-9	The LFVM will not issue change. Any change due to a customer for fare product loads to Extended Use (EU) fare media at an LFVM will be returned (e.g., loaded) as stored value to the same transit account within the same transaction.			
4.5.1-10	All VM equipment will comply the applicable hardware and software security capabilities contained in this scope of work.			
4.5.1-11	All VM equipment will comply with the applicable accessibility and ADA requirements contained in this scope of work.			
4.5.1-12	All VM equipment will comply applicable PCI/PII requirements contained in this scope of work.			
4.5.2.1-1	The VM enclosures will be rugged and function under harsh environmental conditions including: direct sunlight, moisture, dust/grit/sand, humidity, electrical storms, exposure to urban and marine environment, and the range of elevations and altitudes in the operating region.			
4.5.2.1-2	The design of the VM mounting system will be vandal-resistant and will include robust anchoring that prevents the VM from being dislodged.			
4.5.2.1-3	The VM cabinets will be constructed from stainless steel without any visible fasteners. The enclosure finish and corners will be rounded to avoid sharp edges, corners, or protrusions that may cause injury to customers.			
4.5.2.1-4	The VM enclosures will be resistant to corrosion, abrasion, scratching, impacts, and vandalism, and withstand standard cleaning materials. Color and finish will be such that it minimizes reflection and is highly resistant to fading, cracking, and peeling.			
4.5.2.1-5	The design of the VM enclosure will permit installation as stand-alone units, side-by-side units, back-to-back units, and in recessed areas.			
4.5.2.1-6	The VM cabinets will be constructed to provide the highest protection against vandalism and burglary. Reinforcement will be provided at the locations (screen, doors, access ports, etc.) where there is a higher possibility of vandalism. All doors and other access points will be designed to inhibit the use of prying tools to gain access to the interior of the machine.			
4.5.2.1-7	The VM mounting pedestal and any external features (such as button panels, rain shields, and light fixtures) will be weatherized, robust, and vandal-resistant.			
4.5.2.1-8	While all outer doors are secured, the VM will remain operational and undamaged after experiencing any impact resulting in a concentrated load of 400 pounds per one (1) square inch on any part of the enclosure.			
4.5.2.1-9	The VM cabinet and mounting hardware will accommodate variations in station and sidewalk construction. Mounting pedestals will be sized according to need, and specifics will be provided by the Agencies during design review.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.5.2.1-10	The VM cabinet will provide controlled levels of access to the interior of the equipment for maintenance personnel, revenue servicing personnel, and cash processing personnel, as defined by the Agencies. Locks must be secured locks, programmable to more than one key.			
4.5.2.1-11	As necessary, blanking plates will be provided for installation over any outer door openings of the VMs resulting from the removal of an external component or module. All such blanking plates will be easily secured, and will provide security against intrusion and vandalism.			
4.5.2.1-12	The VM enclosure and pedestal design will be submitted to the Agencies for review and approval.			
4.5.2.1-13	The LFVM will have a footprint that is approximately half the size of a full-feature VM.			
4.5.2.1-14	The VM cabinets or pedestal will be capable of housing a network switch to enable all devices in one area to be connected through a single connection to the station communications room, and limit the number of Ethernet runs required to each installation location.			
4.5.2.2-1	The VM display screen will consist of a color, transflective backlit flat panel capacitive touchscreen display that is clearly viewable in daytime and night-time conditions.			
4.5.2.2-2	The VM customer display screen will measure at least 10 inches diagonally.			
4.5.2.2-3	The display screen will provide resolution of no less than 1024 by 768 pixels, and at least 65,000 colors (RGB 16 bit) per pixel.			
4.5.2.2-4	The VM display will produce a minimum of 1,000 nits brightness with at least a 750:1 contrast ratio, and provide a level of visibility sufficient to allow all displayed instructions to be read easily by the customer under all ambient light conditions and without the need for any additional peripheral light source or shading device.			
4.5.2.2-5	The visibility and usability of the VM display will be unaffected by precipitation, temperature, sunlight, and other environmental conditions typical of the operating region.			
4.5.2.2-6	The VM display will be protected to be resistant to scratches and other normal wear. Coatings or other materials applied to the outer surface of the display's protective shield will withstand normal customer use, industry standard station cleaning materials, and be easily replaced if necessary.			
4.5.2.2-7	The display screen will be easily replaceable from within the VM interior, and require minimal maintenance effort.			
4.5.2.2-8	All portions of the display screen will be visible and not obstructed by any portion of the VM door, mounting bezels, or other external elements.			
4.5.2.2-9	The display screen will be installed close enough to the VM surface to avoid any parallax effect, or the apparent shift of screen objects relative to customer touches or button placement.			
4.5.2.2-10	The visibility and usability of the VM display will be unaffected by precipitation, temperature, sunlight, and other environmental conditions typical of Puget Sound operating region.			
4.5.2.3-1	The VM Bill Handling Unit (BHU) will accept paper currency, and include a bill validator, escrow module, and bill vault.			
4.5.2.3-2	The bill validator will be capable of accepting all U.S. Treasury variations of $1, $2, $5, $10, $20, $50, and $100 bills in circulation at the time of Final System Acceptance.			
4.5.2.3-3	As the U.S. Treasury releases new designs of bills, the bill validator will be capable of being programmed to accept the new designs while continuing to accept the current designs.			
4.5.2.3-4	The bill validator will be equipped with a protective shutter to guard against foreign matter so that it does not enter the BHU while the machine is not accepting bills.			
4.5.2.3-5	The bill validator will remain closed until a transaction is selected for which cash payments are available. The shutter will automatically open once the payment due has been displayed.			
4.5.2.3-6	The bill validator will be able to accept bills inserted in any of the four possible length-wise orientations.			
4.5.2.3-7	The bill validator will accept one bill at a time and will determine the denomination and validity of the currency.			
4.5.2.3-8	The bill validator will determine the denomination and validity of both sides of a document by dimension checks and pattern and color recognition.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.5.2.3-9	The bill validator will meet the following acceptance rates: • At least 98% of valid bills are accepted upon initial insertion. • At least 99% of valid bills are accepted in no more than two insertion attempts.			[redacted]
4.5.2.3-10	The bill validator will identify valid acceptable bills with at least 99.999% accuracy.			
4.5.2.3-11	The bill acceptor may reject bills with excessive physical defects.			
4.5.2.3-12	The bill validator will be able to detect counterfeit bills, including copies made in either single or double-sided printing on an electronic copier and those made with color printers.			
4.5.2.3-13	If the bill validator deems the inserted document to be invalid, the document will be returned and gripped so that the VM retains a hold on the item.			
4.5.2.3-14	The bill validator will be designed to reject or expel pieces of paper or other foreign material that can be introduced into the bill insertion slot.			
4.5.2.3-15	The bill validator will be secured via a high-security lock and will be separately removable for servicing.			
4.5.2.3-16	Upon acceptance of each inserted bill, the bill validator will forward the bill to an escrow to be stored temporarily until completion or cancellation of the transaction.			
4.5.2.3-17	The bill escrow module will have the capacity to store a minimum of 10 bills.			
4.5.2.3-18	When the bill escrow is full, or a configurable limit of inserted bills per transaction is reached, the bill validator will cease accepting bills.			
4.5.2.3-19	If the customer cancels the transaction or the VM aborts the transaction, the BHU will return from escrow the bills inserted for the transaction.			
4.5.2.3-20	When a transaction is completed, all bills in the bill escrow module will be transported to the bill vault for retention. Using sensors or other means, the machine will confirm the passage of all bills to the bill vault; failure to detect a bill being deposited into the bill vault will be considered a jam and the machine will cease accepting bills and display an appropriate message to customers.			
4.5.2.3-21	The BHU will be equipped with a removable bill vault. The bill vault will have a capacity of no less than 500 stacked bills in street condition and weigh no more than 50 pounds when full.			
4.5.2.3-22	The bill vault will be constructed of sturdy and tamper-proof material, and will withstand normal handling and regular removal and replacement without deformation that would in any way interfere with the insertion and removal process.			
4.5.2.3-23	It will not be possible to open the bill vault while installed in the BHU, nor will it be possible to install an open or unlocked bill vault into the BHU. When properly installed in the BHU, it will not be possible to access bills in the bill vault without damaging the vault in an obvious manner.			
4.5.2.3-24	The bill vault will remain secure when removed from the VM. Access to the bill vault will be granted only with keys available to revenue staff.			
4.5.2.3-25	The bill vault will have handles placed to avoid injury and provide adequate hand clearance for easy insertion, removal, and carrying.			
4.5.2.3-26	Each bill vault will include a printed and electronically encoded serial number. The serial number will be read by the VM for reporting upon bill vault insertion and removal.			
4.5.2.4-1	VMs will be equipped with a Coin Handling Unit (CHU) including, but not limited to, a coin acceptor/verifier, a coin escrow module or coin recyclers, and a coin vault.			
4.5.2.4-2	The coin acceptor/verifier will accept all variations of U.S. 5-, 10-, and 25-cent and dollar coins in circulation at the time of Final System Acceptance.			
4.5.2.4-3	As the U.S. Treasury releases new designs of coins, the coin acceptor/verifier will be capable of being programmed to accept the new designs while continuing to accept the current designs.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.5.2.4-4	The coin acceptor will contain a coin insertion slot that will be sized to limit the dimensions of inserted material to the largest coin accepted. To minimize jams, the coin slot will also be sized to prevent the simultaneous insertion of two coins.			[redacted]
4.5.2.4-5	The coin insertion slot will be equipped with a protective shutter to guard against foreign matter so that it does not enter the CHU while the machine is not accepting coins.			
4.5.2.4-6	The coin insertion slot will remain closed until a transaction is selected for which cash payments are available. The shutter will automatically open once the payment due has been displayed.			
4.5.2.4-7	The geometry of the coin path and other provisions of the coin acceptor will prevent the retrieval of coins by fishing such as with wire or attached thread.			
4.5.2.4-8	The coin acceptor/verifier will determine the denomination and validity of coin types, and identify invalid or counterfeit objects (“slugs”).			
4.5.2.4-9	The coin acceptor/verifier will meet the following acceptance rates: • At least 98% of valid coins are accepted upon initial insertion. • At least 99% of valid coins are accepted in no more than two insertion attempts. All known counterfeit coins, common slugs, foreign coins, and coins of denominations not accepted by the machine are rejected upon every insertion.			
4.5.2.4-10	The coin acceptor/verifier will identify valid acceptable coins with at least 99.99% accuracy.			
4.5.2.4-11	The coin acceptor/verifier will reject and return to a coin return bin unverified, counterfeit, excessively bent, and foreign coins, as well as slugs and other foreign objects.			
4.5.2.4-12	The coin acceptor/verifier will be key-locked into the machine and will be removable for service and replacement.			
4.5.2.4-13	Upon acceptance of each inserted coin, the CHU will forward the coin to an escrow to be stored temporarily until completion or cancellation of the transaction.			
4.5.2.4-14	The coin escrow module will have the capacity to store a minimum of 35 coins.			
4.5.2.4-15	When the coin escrow is full, or a configurable limit of inserted coins per transaction is reached, the CHU will cease accepting coins.			
4.5.2.4-16	If the customer cancels the transaction or the VM aborts the transaction, and the CHU will return from escrow coins inserted for the transaction.			
4.5.2.4-17	When a transaction is completed, all coins in the coin escrow module will be transported to the coin vault or coin recirculation module, if present. Using sensors or other means, the machine will confirm the passage of all coins to the coin vault; failure to detect a coin being deposited into the coin vault will be considered a jam and the machine will cease accepting coins and display an appropriate message to customers.			
4.5.2.4-18	Each VM will be equipped with a removable coin vault that has a capacity of at least 300 cubic inches and weighs no more than 50 pounds when full.			
4.5.2.4-19	The coin vault will withstand regular removal, replacement and normal handling without deformation or in any way interfering with the insertion and removal process.			
4.5.2.4-20	It will not be possible to open the coin vault while installed in the machine, nor will it be possible to install an open or unlocked coin vault into the machine. When properly installed in the machine, it will not be possible to access coins in the coin vault without damaging the vault in an obvious manner.			
4.5.2.4-21	The coin vault will be self-locking and self-closing, so that when removed from the machine, it cannot be opened other than through an authorized process. Any coin vault will remain secure when removed from the VM. Access to the coin vault will be granted only by keys available to revenue staff.			
4.5.2.4-22	The coin vault will have a handle or handles placed to avoid injury, which provides adequate hand clearance for easy insertion, removal, and carrying.			
4.5.2.4-23	Each coin vault will include a printed and electronically encoded serial number. The serial number will be read by the VM for reporting upon coin vault insertion and removal.			

Capability Number	Capability	lly Conforming	onConforming	
4.5.2.4-24	The FFVM will be equipped with a coin issuance system to accommodate cash transactions where over payment occurs The coin issuance system will be designed to minimize the need to perform revenue servicing of the machines.			
4.5.2.4-25	The FFVM coin issuance system will issue U.S. 5-, 10-, and 25-cent and dollar coins.			
4.5.2.4-26	The maximum amount of change available from the FFVM per transaction will be Agency configurable.			
4.5.2.5-1	The VM will include a Bank Card Processing Unit (BCPU) to process bank cards (credit and debit) for the funding of fare products and media.			
4.5.2.5-2	The VM will be PCI- and EMV-certified for the acceptance of bank-issued credit and debit cards using all common formats based on the latest version of the standard at the time of Final System Acceptance. VMs will be capable of re-certification with newer versions of the PCI and EMV standards via software upgrades as necessary.			
4.5.2.5-3	The magnetic stripe and contact bank card reader will be combined to accept and process standard size cards with ISO/IEC 7811 magnetic data stripes and all EMV-compliant contact (chip and PIN) cards.			
4.5.2.5-4	The magnetic stripe/contact bank card reader will consist of a push/pull (insert/remove) card reader such that the bank card is not captured completely by the reader. Sensors will detect the insertion and removal of cards from the reader unit.			
4.5.2.5-5	The contactless bank card reader will read and support all open payment contactless standards, including but not limite to: • Apple Pay • Android Pay • Samsung Pay • VISA payWave® • MasterCard PayPass® • American Express ExpressPay® • Discover Zip® • Contactless EMV			
4.5.2.5-6	The BCPU will include a secure bank card PIN keypad. The PIN pad will be vandal resistant, weather resistant and not b removable from outside and be easily replaceable. It will have a life expectancy of 5 million cycles.			
4.5.2.5-7	The contactless bank card reader will be separate and apart from the customer facing smart card validator used to process load transactions. Both will be clearly identified to avoid confusion.			
4.5.2.5-8	The PIN keypad will employ encryption as required in accordance with banking capabilities. The Program needs the SI t supply all PIN keypads with production encryption keys injected in a secure, PCI-compliant manner.			
4.5.2.5-9	The PIN keypad will be capable of operating in both an encrypting and non-encrypting or “clear” mode so that it can be used for data entry and customer selection by the visually impaired.			
4.5.2.5-10	The magnetic stripe/contact bank card reader card slot will be sealed so that no liquids introduced into the slot enter th interior of the machine.			der
4.5.2.6-1	The VM will incorporate an internal ISO/IEC 14443 contactless smart card validator/encoder that will be used to encod and issue contactless media stored in the VM. This is in addition to the external contactless smart card validator/encod used by customers to process load transactions.			
4.5.2.6-2	The EU fare media validator/encoder will be integrated with a media dispensing unit that will issue the EU fare media and together comprise a smart card Encoder/Dispenser (SED).			
4.5.2.6-3	The SED will utilize removable cassettes to store the contactless media stock. The cassettes will securely hold cards and enable service staff to replenish or exchanging cassettes quickly and securely.			

Capability Number	Capability	ly Conforming	nConforming	[redacted]
4.5.2.6-4	In total the installed cassettes will have a capacity of no less than 500 cards.			
4.5.2.6-5	The SED will dispense cards into a media dispense tray or slot no more than three (3) seconds after commencing the encode/dispense process.			
4.5.2.6-6	Prior to dispensing a new card, the SED will confirm that the card is functioning properly. If the SED cannot read the Unique Identification Number (UID) or verify the data is encoded correctly, the module will capture the card in a card reject bin and attempt to encode/dispense another card.			
4.5.2.6-7	The VM card reject bin will have a capacity of no less than 10 cards.			
4.5.2.6-8	If the SED fails to issue the media after a configurable number of attempts (initially set to three [3]), the machine will disable the SED module and send a maintenance alert.			
4.5.2.7-1	The VM will be equipped to print and issue receipts for fare transactions and audit tickets for maintenance activities. Receipts will be printed on separate receipt stock using a thermal receipt printer or Agency approved alternative.			
4.5.2.7-2	The receipt printer will issue receipts and audit tickets from paper-based roll stock that is commercially available in the U.S. Receipt stock will follow applicable standards for service and replacement.			
4.5.2.7-3	The receipt printer will be able to print all alphanumeric characters in both upper and lower case and all ASCII characters. Printed characters will be produced with a minimum height of 0.12 inches and a maximum height up to 1 inch.			
4.5.2.7-4	The receipt printer will utilize a thermal print head that provide no less than 100 dots per inch of resolution.			
4.5.2.7-5	Thermal print heads will produce no fewer than 250,000 receipts without misprinted pixels due to wear or electronic failure.			
4.5.2.7-6	The receipt printer will be equipped with a cutting mechanism to cut individual receipts from the roll supply. Each cutter will perform at least 1 million cuts without requiring replacement or sharpening. The cutter will be designed such that no adjustment of the cutting edges will be required.			
4.5.2.8-1	In addition to the display and other modules described in this section, several elements on the front of the VM will comprise the customer interface including, but not limited to: • Contactless smart card validator • Physical push buttons • Audio interface • Headphone jack • Media dispense tray/slot • Instructional graphics and text • Information sign Final VM configurations will be determined during design review.			
4.5.2.8-2	A customer-facing contactless smart card validator compliant with both Type A and B variants of the ISO/IEC 14443 standard will be installed in the VM to perform the following functions at minimum: • Read contactless media to bring VM out of idle state • Load fare products or value • Check account balance and history The validator will also have write capabilities as per risk mitigation strategies.			
4.5.2.8-3	The validator will be in “read mode” while the VM is in the idle state (to allow initiation of the interface via a contactless read), and during portions of transactions where reading a contactless fare media is necessary.			
4.5.2.8-4	The contactless validator will be separate and apart from the contactless bank card reader that is part of the BCPU. Both will be clearly identified to avoid confusion.			

Capability Number	Capability	lly Conforming	nConforming	
4.5.2.8-5	Any push buttons that are provided for customer selection functionality will conform to the following characteristics: • Made of stainless steel, hardened aluminum, or other Agency-approved hardened and weather-resistant material • Have tactile movement when pressed • Be accompanied by an audible tone when pressed • Provide appropriate (ADA compliant) resistance when pressed • Be protected against vandalism, including impact from customers • Be liquid-proof and sealed from outside moisture • Not be removable from the outside • Meet or exceed all applicable ADA guidelines			[redacted]
4.5.2.8-6	VM instructional graphics and text will be modular and able to be changed to match different VM configurations, if applicable.			
4.5.2.8-7	The design of instructions and graphics will minimize glare and other effects of sunlight and ambient lighting.			
4.5.2.8-8	The VM front panel will include an optional convex “fish eye” mirror, which will enable a customer using the VM to see behind them.			
4.5.2.8-9	Instructional graphics will include diagrams that clearly depict proper insertion orientation of bills and bank cards into their respective slots.			
4.5.2.8-10	Conceptual designs of VM instructions and related graphics will be submitted during design review for Agency review and approval.			
4.5.2.8-11	The VM will incorporate a removable information signage holder in a prominent position to display printed informatio such as: • Fare pricing and information • Agency contact information • Service announcements			
4.5.2.8-12	The VM will include an audio interface and internally mounted vandal-resistant speaker to provide configurable audio tones and voice annunciation.			
4.5.2.8-13	VM audio volume will be able to be adjusted remotely and by the customer for each machine, and will be audible in all station environments.			
4.5.2.8-14	The VM will include a media dispense tray or bin that will safely hold dispensed media and receipts.			
4.5.2.8-15	The media dispense tray will be recessed and may be covered with a clear polycarbonate spring-loaded or weighted door. The dispense tray and its door will be robust, scratch-resistant, visually prominent, and resistant to intrusion fro the outside.			
4.5.2.8-16	The media dispense tray will be designed to drain any liquids that enter.			
4.5.2.8-17	The layout of the keys on the VM PIN keypad will be in compliance with or exceed all applicable accessibility and ADA requirements.			
4.5.2.8-18	The information signage holder will be suitable for use in an outdoor environment, securely mounted, and may supplement information on the customer display.			
4.5.2.9-1	The VM outer door lock will utilize an electronic high-security lock such as Cyber Lock® or Agency-approved equivalent			
4.5.2.9-2	The keyways for all high security keys will be registered to the Agencies, and replacements will be available only to authorized personnel, or their authorized representative.			
4.5.2.9-3	Sensors will detect the status of the outer door lock. The VM door will be considered open and unsecure if the outer door lock is not in the fully locked position.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.5.2.9-4	All security locks will be designed in such a way that the door cannot remain in a closed and unlocked position.			
4.5.2.10-1	Each VM will be equipped with an alarm unit that will have the ability to monitor machine security conditions and provide alerts to the back office in real-time. If the VM does not have power or is disabled for any reason, the alarm unit will continue to operate independently and monitor the machine for security breaches and impacts.			
4.5.2.10-2	The alarm unit will be disarmed through an authorized entry, and will be triggered by an unauthorized entry. Each time an alarm event is detected, the event record with date and time will be stored and transmitted to the back office.			
4.5.2.10-3	Adjustable sensors will detect direct physical impacts to the VM enclosure, breakage of the customer display, and attempts at unauthorized or forced entry. The alarm unit will activate a local siren as soon as the impact sensor is triggered. The siren will shut off and re-arm after a configurable time period unless continued impacts or attempts at intrusion are detected.			
4.5.2.10-4	Access to the interior of the VM for maintenance and servicing using an authorized key will disable the alarm while service is being performed. If authorized VM access is not followed, the intrusion alarm will be activated and the VM will record and transmit a security event.			
4.5.2.10-5	A security and alarm process for VM access will be submitted for review and approval by the Agencies.			
4.5.2.11-1	The VM will communicate with the back office through a secure communications interface to send and receive and data including but not limited to: • Transaction information • Event (alarm and maintenance) status alerts • Time synchronization information • Positive/negative lists • Configuration parameters • Remote commands or status inquiries The list of communications information will be finalized during design reviews.			
4.5.2.11-2	All communications between the VM and the next gen ORCA and VM back offices will be via the Ethernet interface.			
4.5.2.11-3	If required for PCI certification, a second Ethernet port will be provided to transmit payment data separate from other transaction data.			
4.5.2.12-1	The VM will be equipped with a modular, filtered power supply which will be connected to the incoming grounded electrical service. The power supply will be connected to the incoming electrical service (120 V) and deliver all of the necessary operating voltages for the machine. Voltages internal to the VM will not exceed 125 V.			
4.5.2.12-2	A power switch will turn the power supply on or off, and will be separate from the main circuit breaker that removes all power to the VM. There will be no safety risks to maintenance personnel with the machine power turned off.			
4.5.2.12-3	A GFCI duplex convenience outlet will be installed within the interior of each cabinet. This outlet will be protected by a separate circuit breaker internal to the machine enclosure and will be grounded. Current rating of GFCI will be defined at design review.			
4.5.2.12-4	Appropriate warning labels will be provided on or near any components or cables that may have hazardous voltages present.			
4.5.2.12-5	If the VM shuts down due to loss of power, upon restoration of power the machine will automatically resume operations.			
4.5.2.12-6	The VM will be equipped with a supplemental battery power supply. This battery power supply will be used to allow a controlled shut down, including a transaction in process to be completed, in the event the incoming voltage falls below the reliable machine operating voltage or in the event of loss of alternating current (AC) power to the machine. Once primary power is restored, the backup battery will be recharged.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.5.2.12-7	The supplemental battery will be rated at four (4) years or 500 discharge and charge cycles.			
4.5.3.1-1	VMs will generate, store, and transmit a discrete data record for each transaction performed.			
4.5.3.1-2	Each sales transaction record will be unique and will include the following information, at a minimum: • Date and time • Device ID • Station/Location ID • Card/account number • Transaction type (e.g., card sale, value load, account inquiry) • Cards sold (where applicable) • Stored value or fare products loaded (where applicable) • Passenger type (e.g., adult full fare, youth, senior, disabled) • Transaction value (where applicable) • Payment type and amount • Transaction result (e.g., success, failure) • Transaction ID Transaction records details will be finalized during design review.			
4.5.3.1-3	VMs will maintain local data records in non-volatile memory in the event that communications to the back office system is unavailable. The local records will only be removed when verification of database storage of each record is received from the back office.			
4.5.3.1-4	Each VM transaction record will be unique and will include the following information, at a minimum: • Date and time • Device ID • Station/location ID • Fare media number • Transit account • Transaction type (e.g., card sale, value load, account inquiry) • Cards sold (where applicable) • Stored value or fare products loaded (where applicable) • Passenger type (e.g., adult full fare, youth, senior, disabled) • Transaction value (where applicable) • Payment type and amount • Transaction result (e.g., success, failure) • Transaction ID Transaction records details will be finalized during design review.			
4.5.3.2-1	The VMs will provide audit register counts for purposes of data tracking and analysis. The audit registers will store count of specific events in non-volatile memory and will not be able to be modified or erased.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.5.3.2-2	The audit registers will maintain counts and value of the following events as applicable: • New fare media issued • Fare product sold • Stored value loaded • Transit account inquiries • Cash transaction, by amount and denomination • Credit card transactions, by amount • Debit card transactions, by amount • Count of approved and denied transactions • Count of read failures Final audit register events will be determined during design reviews.			[redacted]
4.5.3.2-3	Audit register records will be transmitted to the back office at the end of service day for reconciliation, or based on a configurable time period.			
4.5.3.2-4	VM audit register records will be transmitted to the back office at the end of service day for reconciliation, or based on a configurable time period.			
4.5.3.3-1	The VMs will provide real-time status of device and module level events and alarms through the System Manager. The VM will also maintain local event and alarm logs in the event that communications to the back office is unavailable.			
4.5.3.3-2	In addition to transmitting real-time events and alarms, the VM will transmit periodic “heartbeat” messages that confirm communication with back office and basic status. The “heartbeat” frequency will be adjustable by VM.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.5.3.3-3	The VM will generate, store, and transmit alert information for relevant events, including but not limited to: • Power on • Power off • Reboot • Back office communications failed/restored • Maintenance parameter changed • New fare table received/activated • New software received/activated • New configuration data received/activated • New list received/activated • Anti-virus definitions and security updates downloaded • Internal clock reset • VM clock error • Data memory near full/full • Low battery • Failed bank card authorization request • Defective media captured in reject bin • Maintenance technician login and logout • Maintenance parameter changed • Revenue service technician login and logout • Bill vault removed/installed • Coin vault removed/installed • VM "heartbeat" check • Software update from removable media initiated • Software update failure • Machine hardware configuration change • Module faults (coin/bill/card jams, low stock and change) • Security events • Vibration alert Final events and alerts will be determined during design reviews.			
4.5.3.3-4	The VM will monitor the contents of the media stock and transmit an event to the back office when the inventory is below a configurable threshold, and when the inventory is empty.			
4.5.3.3-5	The BHU will cease to accept bills and indicate a "no bills accepted" message on the display when the bill vault becomes full.			
4.5.3.3-6	The BHU will automatically reset all appropriate counters when the bill vault is removed and/or replaced.			
4.5.3.3-7	The coin acceptor will not accept coins once the vault has reached 90% capacity, or configurable amount.			
4.5.3.3-8	The smart card encoder/dispenser/SED will monitor the contents of the card stock and transmit an event to the back office when the inventory is below a configurable threshold, and when the inventory is empty.			
4.5.3.3-9	Whenever the local alarm siren is active, the VM will go out of service. When the alarm condition ends, the VM will perform self-diagnostics, and resume normal operations. Events that are linked to the local siren and other alarms that result in the VM going out of service will be defined during design review.			
4.5.3.3-10	The VM will have capacity to locally store a minimum of one (1) year of event and alarm data.			
4.5.4.1-1	Each voice annunciation message will occur as close as possible to the event or change in transaction status as possible, and be as brief as possible to convey the necessary information.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.5.4.1-2	The voice annunciation will support multiple languages including at least Simplified Chinese, Spanish, and English. Required languages will be finalized by the Agencies during design review.			
4.5.4.1-3	When the headphone jack is used, a voice annunciation system with adjustable volume will provide context-sensitive voice messages, in audio form, conveying information shown on the device display to meet or exceed all applicable accessibility and ADA requirements.			
4.5.4.2-1	The SI shall hire a third-party to provide audio and text translations. The audio/text translations will be submitted for Agency review and approval.			
4.5.4.2-2	English will be the default language while the VM is in idle mode and the VM will return to English after a transaction is completed or cancelled.			
4.5.4.2-3	Supported languages will be provided by the Agencies during design review.			
4.5.4.2-4	The VM will include a selection button to change the display and the voice annunciation language between English and up to six (6) other available languages.			
4.5.4.2-5	The alternate language button will be active at all times and available on all screens while the VM is in service. Pressing an alternate language button at any time will cause the display and audio messages to the selected language.			
4.5.4.3-1	For all transactions, the VM will display a progression of screens to the customer that will be easy to understand and intuitive.			
4.5.4.3-2	All information presented by the VM will be capable of being modified by authorized Agency staff. Modifications will be able to be made remotely or by removable storage media.			
4.5.4.3-3	The VM will provide the following core functions to support customer operations: • Sell one or more new fare media in a single transaction where the associated transit accounts are initialized only (no value) or are loaded with value • Load stored value and all available fare products to previously issued fare media (e.g., transit accounts) • Query the back office to retrieve the balance and transaction history for existing transit accounts			
4.5.4.3-4	The operating status and configuration for each VM will determine the available options. Only options that are enabled will be shown to the customer.			
4.5.4.3-5	A detailed customer operations document, including screen flows depicting “snapshots” of each screen layout arranged as a logical flow chart will be provided during FDR for Agency review and approval.			
4.5.4.3-6	Each VM will be ready to respond to a customer input when in the idle condition. Input may be a physical button push, touch screen input, or touching fare media to the contactless validator.			
4.5.4.3-7	The VM “home” or starting screen, will include the following options at a minimum: • Purchase a new fare product • Reload an existing account • Check account/product balance • Language preference • Help button • “Express” purchase of a card/ticket with one (1) ride (configurable)			
4.5.4.3-8	The VMs will have clear instructions to indicate the steps a customer must follow to perform any transaction. The sequence of steps will be clearly indicated by the use of graphics and text. Wherever possible, universal graphics and symbols will be used that can be understood without having to read the displayed text.			
4.5.4.3-9	The VMs will have Agency-configurable distinctive audio tones to provide feedback each time a button is pressed.			
4.5.4.3-10	English-speaking customers will be able to purchase new fare media (with stored value or a pass) or load value to an existing card in a maximum of three (3) screens.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.5.4.3-11	For new fare media purchase transactions, the VMs will read and/or encode media as necessary to capture account numbers and initialize the media. The VMs will send the media data to the back office, along with all relevant fare purchase and payment information, to create and load the associated transit accounts, and generate sales transactions.			[redacted]
4.5.4.3-12	For fare media reload transactions, the external contactless validator will read (and, if necessary for risk mitigation, encode data to) the customer's card. The VMs will send the fare media data to the back office, along with all relevant fare purchase and payment information, to load the associated transit account, and generate a sales transaction.			
4.5.4.3-13	For balance check transactions, the external contactless validator will read the customer's fare media. The VMs will send the fare media/ticket data to the back office to retrieve the associated balance and transaction history information.			
4.5.4.3-14	All transactions will be individually recorded, stored, and transmitted to the back office by the VMs using the SI-provided API.			
4.5.4.3-15	All transactions will initiate communication with the account-based transaction processor (ATP) to query or modify transit accounts associated with the fare media in real-time.			
4.5.4.3-16	In offline mode, the VMs will be able take cash payments to sell single rides or other limited fare products, in order to provide a means for customers to access transit services. The details of which products will be sold in offline mode, and the risk mitigations strategies to be employed (such as writing to the media), will be determined during design review.			
4.5.4.3-17	When payment is required, the VM will automatically detect what form of funds the customer has inserted. Customers will not have to choose whether the transaction will be by cash or bank card.			
4.5.4.3-18	If the VM loses communications with the back office, upon restoration, the VM will automatically initiate communications and send any data generated in offline mode.			
4.5.4.3-19	When paying by cash, the VM will permit the customer to deposit coins and bills in any sequence.			
4.5.4.3-20	Prior to authorizing a bank card transaction, the VM will prompt the customer to choose whether the purchase is a credit or debit transaction. For debit transactions, the VM will prompt for PIN entry.			
4.5.4.3-21	The VM will support Address Verification System (AVS) for bank cards in a configurable manner that allows the AVS feature to be turned on or off by the Agencies and accommodates acceptance of both U.S. and non-U.S. issued cards. When a U.S. bank card is used for payment, the VM will prompt the customer to enter the billing address ZIP code.			
4.5.4.3-22	All bank card transactions will be authorized prior to dispensing media or loading fare products. If a bank card is declined for any reason the VM will display related information to the customer and cancel the current transaction.			
4.5.4.3-23	If bank communications are unavailable, bank card transactions will be disabled, and the VM will enter "cash only" mode.			
4.5.4.3-24	The customer will have the capability to cancel a transaction at any point before full payment has been inserted in cash or a bank card authorization has been received.			
4.5.4.3-25	If any failure occurs during a transaction, the VM will automatically cancel the current transaction and indicate the cancellation on the screen.			
4.5.4.3-26	If a transaction is canceled automatically or by the customer, all inserted cash will be returned and credit/debit card transactions will be reversed as necessary.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.5.4.3-27	The VM will be configurable to provide receipts: • Upon customer request • Automatically for transactions above a configurable dollar value, or optionally for transactions below the configurable value • For every transaction • Never (when receipt stock is empty)			[redacted]
4.5.4.3-28	All receipts will have a printed indication that the receipt is not a valid ticket, and will contain at least the following information: • Machine number – up to eight (8) alphanumeric characters • Date – month, day, and the last two (2) digits of the year, totaling nine (9) characters • Time – four (4) digits separated by a colon and followed by two (2) letters "AM" or "PM," using a 12-hour clock • Station name or location where purchased – up to 16 characters • Card/account number • Last four (4) digits of credit/debit card number (PAN), if used as the form of payment • Value purchased and remaining balance (if applicable) • Transaction amount • Machine-unique transaction sequence number Final receipt information will be determined during design review.			
4.5.4.3-29	Receipts for bank card transactions will also include information as identified in Federal Regulations E and Z, and other information necessary to comply with banking and Federal regulations.			
4.5.4.3-30	The VM will employ an adjustable time-out period to return the VM to the idle state if no input is received between transaction steps. The time-out period will be adjustable by authorized staff.			
4.5.4.3-31	A screen saver may be activated after a programmable idle period has passed, and will support the following at minimum: • Static image in any common graphics format, e.g., JPG, TIFF, BMP, GIF • A repeating "slide show" of static images • Text messages and imported text-based files • Webpages and other dynamic markup language files • Pre-recorded video in any common format, including MPEG, WMV, MOV, AVI, H.264 • Any combination of the above			
4.5.4.3-32	The screen saver will automatically terminate and the VM will display the home screen as soon as any button is pressed or a credential is presented to the contactless validator.			
4.5.4.3-33	For all new ORCA card purchase transactions, the time from acceptance of the cash payment or credit/debit card approval to media issuance will not exceed three (3) seconds.			
4.5.4.3-34	Where transactions produce multiple media, the time between successive media being deposited in the return tray will not exceed two (2) seconds each.			
4.5.4.3-35	When applicable, the receipt printer will deposit receipts in the return tray within three (3) seconds of the completion of a transaction.			
4.5.4.3-36	For completed or canceled transactions, VM readiness to begin another transaction will not exceed three (3) seconds.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
4.5.4.3-37	The FFVM will inform cash paying customers when an insufficient amount of change is available and provide the options of either canceling the transaction resulting in a return of the customer's cash from escrow or allow any overpayments associated with the EU fare media to be added as stored value to the associated transit account's E-purse.			[redacted]
4.5.4.3-38	The VM will include a customer display screen bearing simple and easy to read instructions which sequentially instruct the customer how to perform available functions.			
4.5.4.4-1	Each VM will automatically perform self-diagnostic tests upon startup, and at adjustable regular intervals (once per day by default). Self-diagnostic tests will at minimum: • Confirm communications with back office • Check status of all major electronic modules • Exercise all electro-mechanical devices • Confirm all software and configuration files are up to date Any failures or exceptions identified during self-diagnostics will be recorded in the VM's internal audit registers and transmitted to the back office.			
4.5.4.4-2	Each VM will be capable of performing diagnostic tests that are manually initiated by service staff while the VM is out of service and the front door is open.			
4.5.4.4-3	Inside the VM will be a keypad and optional display for use by maintenance and revenue service personnel while the outer door is open. The customer display may be used for maintenance purposes if viewable while using the service keypad.			
4.5.4.4-4	The service keypad will be used to enter access (login) codes and maintenance and diagnostic commands. All routine service interaction with the VM will be via this keypad.			
4.5.4.4-5	A failure to login using the keypad after opening the VM door will generate an intrusion alarm.			
4.5.4.4-6	The service display will be used to indicate VM error codes, and will have the capability of displaying multiple error codes, such that one error code will not need to be cleared to display other error codes.			
4.5.4.4-7	The VM will not commence in-service operation until the outer door is closed and the outer door lock is returned to its fully secured position.			
4.5.4.4-8	All access will be traceable through the System Manager and all access transactions will be individually recorded and transmitted to the System Manager at time of occurrence.			
4.5.4.4-9	To support revenue servicing and maintenance authorized technicians, the VM will produce audit tickets, including but not limited to: • Coin vault removal/insertion • Bill vault removal/insertion • Software versions and VM configuration • VM revenue status • VM maintenance alert status Final audit ticket information will be determined during design review.			
4.5.4.4-10	Each audit ticket will indicate at minimum: date, time, VM number, technician name or number, and activity information.			
4.5.4.4-11	Automatic diagnostic test routines (and equipment if necessary) will be included to aid in troubleshooting malfunctions. These test routines will provide the ability to isolate defects down to the LLRU.			
	Section 5 Externally Sourced Applications			
	Section 5.1 General Capabilities			
5.1-1	The customer website and mobile app will be compliant with all Title VI provisions.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
5.1-2	The System will allow registered and unregistered customers to load stored value and products via the customer website and mobile app using at a minimum credit card, debit card, or bank account (ACH) transfer. The customer website and mobile app will support the entry of transit account information and the selection of fare products and pre-defined or custom stored value amounts, subject to configurable minimum and maximum limits.			[redacted]
5.1-3	During autoload setup, the customer will be able to select a primary and backup funding source. If payment authorization of the primary funding source fails, authorization against the backup funding source will be attempted. If payment authorization is not received, the autoload will be automatically disabled.			
5.1-4	Registered customers shall be able to enable, disable, and modify the autoload of stored value and products. As part of the autoload setup process, the customer will select the stored value amount or product to be loaded and the type of autoload (e.g., threshold or periodic). Autoload setup will require a funding source to be added or selected and validated.			
5.1-5	The SI shall provide a modern COTS content management system (CMS) for Agencies so that the Agencies can maintain and update the website.			
5.1-6	The website will be built using modern web design and e-commerce best practices.			
5.1-7	The customer website and customer mobile app will integrate with the ATP using the SI-provided Transit Account Management API.			
5.1-8	Customer account creation and transit account registration will be able to be performed using the customer website and mobile app.			
5.1-9	Users will access the customer website and mobile app using the same user login.			
5.1-10	The SI will deliver a customer website and mobile app and provide all back office third-party hosting access and software necessary to support website and mobile app operations, and integrations to internal and external applications needed to perform the required functions.			
5.1-11	Registered customers will have the capability to view and modify customer account data.			
5.1-12	The customer website and mobile app will support the association of multiple transit accounts to a single customer account.			
5.1-13	The customer website and mobile app will be easy to use with simple processes for all transactions as demonstrated in user testing.			
5.1-14	The website and mobile app will have functionality for self-service password resets.			
5.1-15	The website and mobile app vendor will supply metrics that will allow the Agencies to evaluate success of web and mobile app customer interactions.			

Capability Number	Capability	ully Conforming	onConforming	[redacted]
5.1-16	The customer website and mobile app will allow customers to perform the following functions, at a minimum: • Purchase new fare media • Create a new customer account • View and manage account settings and customer profile • Register EU fare media (e.g., transit account) • Purchase fare products (e.g., stored value and passes) • Add, modify, or delete a funding source • Set up, modify, and cancel autoload of stored value and products • Transfer transit account balances consistent with adopted business rules • View transit account balance and status information • View and download sales, usage, and adjustment transaction history • Initiate a customer service request (e.g., refund request) • Report fare media lost or stolen • Request an opt-out refund (e.g., close transit account) Final customer mobile app and customer website functions will be determined during design review.			
5.1-17	Registered and unregistered customers will be able to use the customer website and mobile app to view transit account balance (e.g., stored value and pass) and status (e.g., passenger type, active or blocked) information by entering a fare media identifier.			
5.1-18	The customer website and mobile app will be provided in multiple languages, including English and up to six (6) other languages to be identified by the Agencies during design review.			
5.1-19	Registered customers will be able to add new credentials for the transit accounts when logged into the customer website or mobile app.			
5.1-20	Password will be masked when presented on the website and mobile apps.			
5.1-21	The website and mobile app password will have configurable security capabilities, including but not limited to minimum password length, required use of letters/numbers/symbols, and forced password reset after a configurable time period or on demand.			
5.1-22	The customer website will be designed and tested for cross platform compatibility, including popular platforms and browsers. Supported browser versions will include at minimum the most current and 2 previous major versions. Final version support will be determined during design review.			
5.1-23	The website and mobile app will prompt users when a payment is declined and allow entry of an alternate funding source. Failed payments will be recorded in a separate payment exception file (with denial code).			
5.1-24	During creation of a new customer account, the customer website and mobile app will provide the ability to link transit accounts associated with previously issued EU fare media. Fare media (e.g., transit account) linking will not be required to create a customer account.			
5.1-25	Customers will be able to assign each credential a nickname, which will be stored in the transit account and used to differentiate credentials registered to the same customer account.			
5.1-26	The customer website and mobile app will support the payment, or partial payment, for the purchase of a pass or multi-ride product using stored value in same transit account where the product is being loaded.			
5.1-27	The customer website and mobile app will allow registered customers to close a transit account and request a refund or transfer the E-purse balance to another transit account. This action will immediately result in the associated fare media being blocked from further use. The operational policies governing the issuance of a refund or transfer of products will be defined during design review.			
5.1-28	The customer website and mobile app will allow ordering of Agency-issued EU fare media to be delivered by mail. The customer website and mobile app will support the ordering of registered and unregistered fare media.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
5.1-29	The customer website and mobile app will include general information on use of the System, including an FAQ section, information on where to purchase fare media and value, customer agreements, and general program information and updates.			
5.1-30	The customer website and mobile app will allow a customer to move a transit account from one customer account to another. The process will be defined during design review.			
5.1-31	Registered customers will have an Agency configurable option of initiating a customer service request via the customer website and mobile app. This action will automatically generate a request within the CRM application and assign the request to the appropriate customer service staff.			
5.1-32	The customer website and mobile app will include links to the Agencies' websites with schedules, fares, and other general transit information.			
5.1-33	The System will display a notification for account activity, such as successfully completed sales, fulfillment of autoload or low balance alerts. Users will have the option of additionally receiving the notification via push, email, or text.			
	Section 5.2 Customer Mobile App			
5.2-1	The SI will retain a qualified mobile app developer to develop and maintain the customer mobile app for Android and iOS.			
5.2-2	The look and feel of the mobile app will be streamlined, modern, and have a clean, simple design.			
5.2-3	The customer mobile app will follow the current design and accessibility guidelines for each operating system.			
5.2-4	The customer mobile app will be tested and support the two most recent major versions of operating systems on the Android and iOS platforms on the day that the OS is released to the general public.			
5.2-5	The display, instructions, and selection keys of the customer mobile app will be easy to read, understand, and use as demonstrated through user testing.			
5.2-6	The customer mobile app will be available in the app stores, offered and maintained by the SI.			
5.2-7	The customer mobile app will process payments through the System's Central Payment application.			
5.2-8	The customer mobile app will support the sale of all retail ORCA fare products in a similar manner to the customer website.			
5.2-9	The customer mobile app will make it easy for customers to purchase fare products as demonstrated through user testing.			
5.2-10	The customer mobile app will accept payment via mobile wallet.			
5.2-11	The customer mobile app will allow for multiple types of fare products from multiple Agencies to be purchased in one transaction.			
5.2-12	The customer mobile app will support the display of transaction history and other transit and customer account attributes in a similar manner to the customer website.			
5.2-13	The customer mobile app will have the ability to act as a fare payment credential at onboard, wayside, or mobile validators. This will be done using a next gen ORCA closed-loop credential stored on an NFC-enabled device.			
5.2-14	The customer mobile app will allow a customer to procure a mobile closed-loop credential through in-app provisioning without the need for a physical card. The customer mobile app will also enable conversion of a physical credential to a mobile credential if a card has already been procured by the customer.			
5.2-15	The customer mobile app will communicate with the validators via ISO/IEC 14443 and the back-end system to recognize, log, and report on the usage.			
5.2-16	System must be able to validate fare products presented via the customer mobile app with no interaction from operators. It must not require that Agency personnel touch customer devices.			
5.2-17	Fare presentation and validation must be able to occur when the customer mobile device is not internet-connected.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
5.2-18	The customer mobile app will generate and transmit additional data that enables and supports comprehensive reporting and analytics including mobile platform information and geocoding.			[redacted]
5.2-19	The System will be able to report on anonymized usage patterns of the customer mobile app by authorized users.			
5.2-20	The customer mobile app will enable the addition of marketing and advertising on mobile platform for increased revenue opportunities for the Agencies.			
5.2-21	The customer mobile app will include functionality to offer promotions to customers from local retail partners.			
5.2-22	The customer mobile app will include functionality to manage promotions based on geofences.			
5.2-23	The customer mobile app will include surveys that will facilitate the gathering of customer service metrics and ease of use.			
5.2-24	The customer mobile app will include functionality to send Agency messaging outside of the alert functions on mobile phones, e.g. via email or SMS.			
5.2-25	The customer mobile app will include links to trip planning applications (e.g., Google Maps, Apple Maps, Transit App, and Puget Sound Trip Planner). The links will be configurable centrally and by the customer on their device.			
5.2-26	The customer mobile app will include links to transportation network company applications (e.g., Lyft and Uber). The links will be configurable centrally and by the customer on their device.			
5.2-27	The customer mobile app will enable integration with social media functions, including marketing, promotions, discounts, route information, etc.			
	Section 5.3 Agency Mobile Apps			
5.3-1	The SI will retain a qualified mobile app developer to develop and maintain the Agency mobile app(s) to be used by Agency personnel to perform next gen ORCA activities.			
5.3-2	The Fare Validation mobile app will be able to collect closed-loop fares using a NFC-equipped handset.			
5.3-3	The Fare Inspection mobile app will enable the inspection of closed-loop electronic fare media.			
5.3-4	Download and use of the Agency mobile apps will be controlled so access is limited to authorized Agency personnel/devices.			
5.3-5	The Program needs the SI to provide a means of updating the Agency mobile apps that is fully consistent with the next gen ORCA change management process. The updates will be delivered electronically over network connections and will not require user intervention unless called for in the change management process.			
5.3-6	The Fare Inspection and Fare Validation mobile apps can be combined. If they are combined user access will allow for users with full access (both applications) and users with access to only inspection or validation.			
5.3-7	The Fare Inspection mobile app and the Fare Validation mobile app will be in native Android version only.			
5.3-8	The Agency mobile apps will be designed to be used on any device meeting the to-be specified capabilities, and will work on a variety of devices (both phones and more traditional fare inspection devices) of the Agency's choosing.			
5.3-9	The Agency mobile apps running on Agency-provided devices will require remote management. The Agencies will approve the specific method during design. Management could be through the System Manager, an SI-provided Mobile Device Management (MDM) solution or an MDM already in place at the Agencies.			
5.3-10	The Program needs the SI to provide a System Manager and/or MDM solution which will include remote management and Over The Air (OTA) capability to lock or disable the Fare Validation and Fare Inspection mobile apps. Agencies will maintain MDMs to locate, lock, disable, or erase mobile devices.			
5.3-11	The Fare Inspection and Validation mobile apps will support user login and identify service type and location.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
5.3-12	The Fare Validation mobile app will operate in a similar fashion to the onboard and wayside validators. All interactions with fare media will be identical to interactions driven by onboard and wayside validators. All data returned to the back office will use the same APIs and be as similar as possible to that returned by wayside and onboard validators.			
5.3-13	Fare validation and inspection mobile apps must be capable of operating when the mobile device is not internet connected.			
5.3-14	The Fare Validation mobile app will utilize the mobile device's GPS source.			
5.3-15	The Fare Inspection mobile app will use a real-time connection via the SI provided Fare Inspection API to process fare inspections.			
5.3-16	The Fare Validation mobile app will use a real-time connection to the ATP through the SI provided Fare Payment API for processing payments.			
5.3-17	The Fare Validation and Inspection mobile apps will provide a visual and audio indication for validation results as approved during system design and demonstrated during user testing.			
5.3-18	The Fare Validation mobile app will keep a transaction history for offline recording of fare payments.			
5.3-19	Enforcement rules for fare inspection will be received from the ATP through the System Management API. The rules will be clearly presented on the inspection device.			
5.3-20	All mobile inspections will generate transactions for reporting, analysis, and traceability.			
	Section 5.4 Customer Website			
5.4-1	The SI will contract with a web design firm or developer with extensive experience developing e-commerce, retail, and social media websites to develop the customer website.			
5.4-2	The System will provide, at a minimum, the capability for customer account management business rules to be different for different types of customer accounts for the purposes of: • Payment for services as defined by mode, including precedence of fund usage (for example, you cannot use pre-tax funds to pay for an auto on ferries). • Refunds and fund transfers to customers. • Employer and employee contributions of both tax-free/pre-tax funds and non-tax benefit funds. Any pre-tax funds will be added to the account by the employer.			
5.4-3	The functionality will comply with the Commuter Tax Benefits legislation requirements as defined in Section 132(f) of th Internal Revenue Code for pre-tax funds.			
5.4-4	The look and feel of the customer website will be streamlined, modern and have a clean, simple design.			
5.4-5	Access to customer website functions, features, and data by customers will be controlled by user roles. The roles will vary from administrative roles to roles with very limited rights.			
5.4-6	Registered customers will be able to view no less than 18 months of prior transaction history, showing all sales, usage, and adjustment transactions. The transaction history will be viewable and sortable on the customer website, and able to be downloaded in PDF and Excel formats.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
5.4-7	Customer accounts will be created using the customer website. Customers wanting to purchase products that require documents or forms will go through an approval process prior to products being added to the transit accounts.			[redacted]
5.4-8	The customer account sign-up process will capture all necessary customer account data (e.g., username, password, contract, address, payment methods) as required for the customer account type.			
5.4-9	The customer website will support the administration of transit benefit programs by customer administrators and third-party administrators.			
5.4-10	The customer website will allow employers, schools, social service agencies, and other organizations to order fare media and load transit accounts.			
5.4-11	The customer website will have the ability to support pre-tax transit programs.			
5.4-12	The customer website will provide the following functions at a minimum. Availability of some of these functions will be configured by customer account type and user role. Design activities will determine the functions that will be configurable: • Register a new account (e.g., create a new individual or business customer) • Associate transit accounts with a customer account • Disassociate transit accounts from a customer account • Load value (e.g., stored value E-purse and products) to transit accounts • Block transit accounts (e.g., fare media) and/or use of loaded value • Bulk order EU fare media • Make a payment • View order history, invoices, and payment status			
5.4-13	The System will provide a process for ordering and tracking bulk media purchases. Customer account administrators will be able to manage bulk sales through the website (if bulk sales have been configured for the customer account type).			
5.4-14	The customer website will allow customer account administrators to manage the association and disassociation of transit accounts individually or in bulk.			
5.4-15	The System will assign a unique account ID to each customer account.			
5.4-16	The customer website will have the ability to manage organization- provided parking benefits.			
5.4-17	If configured for their customer account type, the customer website will enable customers to add value to transit accounts and subsidize part or all of a stored value E-purse, multi-ride product, or pass purchase made by their employees or members through any customer interface within the next gen ORCA system.			
5.4-18	The customer website will provide customer account administrators the ability to place orders for any approved next gen ORCA fare product, and manage the transit accounts associated with their customer account.			
5.4-19	The System will support employer programs directly administered by customers as well as those administered by third parties contracted to customers to provide commuter tax benefits.			
5.4-20	The System will have the ability to add new products through a configurable interface.			
5.4-21	The customer website will allow a customer account administrator to add additional users or third-party administrators to manage the customer account, transit accounts and programs.			
5.4-22	The effective date of Passport Products will be updated when the end date of the customer's contract changes.			
5.4-23	The customer website will allow customer account administrators to manage product validity duration and the expiration of Business Passport fare products.			
5.4-24	The customer website will integrate with the CRM application using the SI provided APIs.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
5.4-25	The customer website will use the following APIs for integration: • Transit Account Management API to integrate with the ATP • Customer Account Management API to integrate with CRM application and Accounts Receivable (AR) and Billing			
5.4-26	The System will allow rules related to dollar limits and qualified services to be configurable by the Agencies for both Business Choice and Business Passport programs.			
5.4-27	The customer website will provide administrators the capability to view summary level reports on their organization's activities including usage. However, customer account administrators will not be able to see individuals' transactions.			
5.4-28	The System will have the ability to provide reports on customer account product usage.			
5.4-29	The customer website will have the ability to track the status of orders.			
5.4-30	The customer website will support the import of data, such as employee lists, for customers applying for a reduced fare classification. Imports include basic data, scans of applications and supporting documentation, eligibility parameters, an fare media personalization information, such as a customer photograph. Access to this ability will be controlled by customer account configuration.			
5.4-31	Customer account administrators will be able to view current payment status (e.g., balance due, accrued interest, and due date) and at least 25 months of invoices, and order and payment history, via the customer website. The invoices, orders, and payment history will be viewable and sortable on the website, and able to be downloaded in PDF and Excel formats.			
5.4-32	The System will provide the capability for the creation of a hierarchy of customer accounts with parent child relationships.			
Section 6 Back Office Applications				
Section 6.1 General Capabilities				
6.1-1	The SI shall develop and submit for Agency approval during design review a back office hardware design specification that provides a detailed description of all hardware components that will comprise the back office, and the purpose, functions, interdependencies, configuration, and communication capabilities of each component.			
6.1-2	Back office applications and data structures will all be able to expand to support additional agencies without reprogramming.			
6.1-3	The back office system will provide access to no less than seven (7) years of historical data. Deletion and archiving of data will be supported as agreed by the Agencies.			
6.1-4	The back office will retain detailed active transactions for at least 25 months.			
Section 6.2 Account-based Transaction Processor				

Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.2.1-1	The ATP will enable core system functions, including but not limited to: • Fare media sales and issuance, and the creation of new transit accounts • Fare product sales and the loading of fare products (e.g., stored value, multi-rides, and passes) to transit accounts • Maintenance of transit account status, balance, and transaction history • Real-time fare calculation and payment processing (e.g., validation) for closed-loop fare payments • Real-time fare payment inspection for closed-loop fare payments • Automatic reloading of value to transit accounts (e.g., autoload) • Modification of transit account balances based on adjustments, refunds, reversals, and balance transfers • Blocking/unblocking and closing of transit accounts • Setting of all specified transit account management configuration parameters (e.g., fraud detection parameters, negative balance limits, etc.)			[redacted]
6.2.1-2	The fare distribution, payment, and inspection devices, and supporting back office applications, will access the ATP functions using the SI-provided API and a direct, real-time connection to the ATP.			
6.2.1-3	The ATP will maintain transit accounts that store all stored value, multi-rides, and passes loaded by customers, and deduct value in real-time as accounts are used for payment.			
6.2.1-4	The ATP will support all customer service functions impacting transit account status and balance that are available through all customer service channels using SI-provided devices and systems, including the CST, CRM application, customer website, and customer mobile app.			
6.2.1-5	Transit account balance information will include the current stored value balance and the state (e.g., active/inactive) and remaining validity (e.g., expiration date or rides remaining) of all products.			
6.2.1-6	Minimal transit account personalization information (e.g., customer/card name, passenger type, and DOB) may also be stored securely in the transit account to support fare processing and allow for the individual tracking of fare media associated to the same customer.			
6.2.1-7	The sale of specific types of fare products and the issuance of transit accounts by passenger type may be optionally restricted to transit accounts that are associated with customer accounts only. Restrictions will also be configurable according to customer account type.			
6.2.1-8	All equipment will be able to receive multiple lists from the back office including, but not limited to, positive and negative lists. These lists will help improve passenger dwell time and mitigate risks from offline operation. All local lists will be updated based on changes since the last update at a configurable interval of no less than every five (5) minutes.			
6.2.2-1	All payment will be accepted or authorized prior to the loading of any fare value or products. Following payment confirmation, the ATP will update the transit account balance in real-time to allow for immediate use by the customer.			
6.2.2-2	The ATP will support the real-time loading of fare products through all fare distribution channels. No loading of fare value to a transit account will be permitted without an active connection to the ATP.			
6.2.2-3	The ATP will manage the automatic reloading of value or fare products that are configured for autoload. Autoload will be based on configuration parameters, and will require the transit account to be registered with a valid funding source, such as a credit or debit card or bank account (ACH) stored in the associated customer account			
6.2.2-4	The account-based nature of the System will allow for autoload payment authorization to occur prior to the loading of any value, and immediate use of the value by the customer once the load occurs. If payment authorization fails, appropriate action will be taken as approved during design review.			
6.2.2-5	A customer account will be able to have two (2) funding sources associated with a transit account autoload, a primary funding source and a secondary funding source. The customer may split payment between them or use the secondary funding source as a backup in the event that the primary fails.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.2.2-6	The autoload feature will support both threshold-based triggers (i.e., reloading when the stored value balance, remaining trip balance, or remaining validity period falls below a configurable threshold), and calendar-based triggers (i.e., reloading on a configurable date every month).			[redacted]
6.2.2-7	The System will have the ability to segregate any value loaded using pre-tax dollars, including the segregation of value purchased using pre-tax transit funds and pre-tax parking funds.			
6.2.2-8	The System will have the ability to restrict the use of pre-tax and tax-free funds to qualified services (for example, transit/vanpool and commuter parking).			
6.2.2-9	The System will allow after-tax E-purse to be used on all services, including transportation connections that have payment integration.			
6.2.3-1	The real-time fare calculation performed by the ATP will be based on the fare tables. The calculation will incorporate all attributes of the ride being taken, such as transit account passenger type, transit account balance, available fare products and order of precedence rules, transfer status, and all other factors that influence the fare to be charged. The fare payment calculation algorithm will be presented for Agency review and approval at design review.			
6.2.3-2	The Program needs the SI to design, develop, and implement the ATP to include a fare calculation engine, and the configurable fare sets, business rules, and transaction processing necessary to support the current fare structure and all of the fare structure configuration capabilities.			
6.2.3-3	The System will support refunds of unused or partially used products. An Agency may at their discretion close a transit account and block the stored value E-purse or product in the transit account and refund the money to the customer.			
6.2.3-4	When processing a fare payment, the ATP will provide an online server authorization in less than 500 milliseconds, and will query the transit account, perform fare calculation, and update the account balance, prior to providing an approval or denial response to the fare payment device.			
6.2.3-5	The online-mode fare payment response generated by the ATP will include at minimum: • Payment status (e.g., success or failure) • Transit account passenger type • Fare product used • Fare charged • Remaining balance • Transfer time remaining • Product expiration date Other relevant transaction data may be included and identified during design review.			
6.2.3-6	When real-time communications are not available, device-level fare payment authorization may occur using the risk mitigation techniques. Transaction data will be sent to the ATP, and processed to update the transit account status and balance, as soon as communications are reestablished. Any device-authorized transactions will be recorded as such, so that offline transactions can be easily identified and tracked. The offline fare payment authorization algorithm will be presented for Agency review and approval at design review.			
6.2.3-7	The fare calculation process will check the transit account's passenger type. If passenger type is not applicable to an Agency or is expired, the System will apply the configurable default passenger type to the fare calculation.			
6.2.3-8	The ATP will accommodate late arriving transactions through the recalculation of individual fare payments, or the total fare due for a prior accounting period. Transactions occurring within an accounting period may remain in a pending state until that account period (e.g., service day) is closed. Transit account transaction history and balance information will be updated in real-time as transactions are received, and reflect any recalculation performed as a result of late arriving transactions.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.2.3-9	The ATP will support the tracking of negative stored value balances that occur as a result of offline fare payment acceptance or Agency configured fare policies.			
6.2.3-10	Pass products will be able to be configured to grant a full, partial credit or no credit towards a fare for a premium service. In this scenario the remainder of the fare, or "upgrade fare," will be deducted from stored value. If the customer does not have enough stored value E-purse in their transit account to cover the upgrade fare, the upgrade fare may be paid with cash or transaction could be declined, depending on configurable business rules.			
6.2.3-11	The System will calculate whether an upgrade for a pass product is required (i.e., if the fare is higher than the face value of the pass) and deduct it automatically from stored value E-purse. If there is insufficient stored value, then pass holders will also have the option to pay upgrades using cash.			
6.2.3-12	For trips paid with stored value E-purse, the System will support the granting of transfer fare credits for all boardings that occur within a specified time of the initial tap at a validator for fare payment. The transfer period (i.e., time during which a boarding is eligible for a transfer) and Agency participation will be configurable.			
6.2.3-13	The System will support inter-agency transfers for free or with an upgrade. For Agencies participating in regional transfers, inter-agency transfers will be free for customers transferring to routes or services with the same or lower fares. For customers transferring to routes or services with higher fares, an upgrade fare will be charged equal to the difference between the applicable fares. Upgrade fares may be paid from stored value or with cash. If cash not paid or accepted for upgrade, transaction would be declined.			
6.2.3-14	The System will limit inter-agency transfer credits to the Agencies participating in regional transfers. Agency participation in regional transfers will be configurable. Transfer rules regarding allowable connecting trips will be configurable by the region.			
6.2.3-15	The System will restart the transfer window time anytime that stored value E-purse is used (i.e., when a customer pays an upcharge when transferring to a more expensive service, the transfer window is reset).			
6.2.3-16	The System will support intra-agency transfers for free or with an upgrade. For Agencies with intra-agency transfers, the intra-agency transfers will be free for customers transferring to routes or services with the same or lower fares. For customers transferring to routes or services with higher fares, an upgrade fare will be charged equal to the difference between the applicable fares. Upgrade fares may be paid from stored value or with cash. If cash is not paid or accepted for an upgrade, the transaction would be declined. For Agencies not participating in regional transfers, intra-agency transfer policies will be configurable by Agency.			
6.2.3-17	The System will support intermodal transfers between transit services and transportation connection services. Transfers will be configurable to grant full or partial credit towards a fare. Transfer policies will be configurable for each transportation connection service and by Agency.			
6.2.3-18	For fare payment, the System will have defined business rules related to conditions under which each product can be used. Agency products will be configurable by each Agency.			
6.2.3-19	Transfer credits will be applied to transit accounts.			
6.2.3-20	Order of precedence rules will be configurable to identify the order in which valid fare products will be used (i.e., first check for business pass, then for local Agency pass, then for regional pass before using stored value E-purse). The order of precedence rules, to be defined during design review, will determine which fare products are used first and under which scenarios.			
6.2.4-1	Real-time fare inspection determination by the ATP will be based on the fare structure configuration. The determination will incorporate fare payment transactions (e.g., approved and denied) recorded by the ATP, transit account passenger type, available fare products, transfer status, and all other factors that influence possible payment by the customer. The online fare inspection algorithm will be presented for Agency review and approval at design review.			
6.2.4-2	When processing a fare inspection, the ATP will provide an online server response in less than 500 milliseconds and will query the transit account to determine the inspection result prior to providing a confirmation of fare payment. Server authorization rate capabilities are specified in the Performance Measurement section.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.2.4-3	The online fare inspection response generated by the ATP will include at minimum: • Payment status (e.g., valid or invalid) • Transit account passenger type • Fare product used (if valid tap is found) • Fare charged (if valid tap is found) • Transfer time remaining (if valid tap is found) • Transit account balance • Fare payment transaction history If the payment is determined to be invalid, an associated reason code will be provided (e.g., no tap, blocked card). Other relevant transaction data may be included and identified during design review.			[redacted]
6.2.4-4	When real-time communications are not available, device-level fare inspection may occur using the risk mitigation techniques. Local positive and negative fare media lists will be refreshed frequently from the ATP. Transaction data will be sent to the ATP as soon as communications are reestablished.			
6.2.5.1-1	The Regional Reduced Fare Permit is an identification card issued on an ORCA card for use as proof of eligibility to pay a reduced fare. An RRFP card is required for senior or disabled passengers paying a reduced fare. Medicare customers are also eligible for the permit. The permit holder must pay the amount of the reduced fare on each Agency used, and use of the permit is subject to any time restrictions in effect for each system. The System will support the use of the RRFP by individuals who are age 65 or older or meet the disability eligibility criteria.			
6.2.5.1-2	The System will support stored value, which will serve as an electronic cash-equivalent, and will be accepted for paymen across all modes and services. When stored value is used for payment, the System will deduct the correct fare at each boarding or entry in real-time from the transit account, based on the fare pricing configuration.			
6.2.5.1-3	A transit account may only have one passenger type associated with it.			
6.2.5.1-4	The System will support rolling products that are valid for unlimited rides on services costing at or below the face value of the product for a pre-defined period starting at product activation, which may occur upon sale or first use. Rolling products will be configurable to be valid for a continuous duration from 30 minutes to two (2) years (e.g., valid for 24 hours from first use), or bounded by a service period (e.g., valid from first use through the end of the service day).			
6.2.5.1-5	A passenger type must be defined for each transit account. The default passenger type that will be associated with a transit account will be the Adult full fare passenger type. Passenger types include but are not limited to: • Adult full fare • Senior • Disabled • Youth • Low-Income Additional passenger types will be able to be defined.			
6.2.5.1-6	Adult full fare customers will have the option of associating a transit account with a customer account or remaining anonymous.			
6.2.5.1-7	Passenger types will be able to be modified and configured manually, or automatically based on customer date of birth or the granting of a temporary classification with a configurable end date.			
6.2.5.1-8	Not all Agencies offer a separate fare for all passenger types. The System will determine the applicable fare associated with each passenger type for each transit Agency.			
6.2.5.1-9	Each transit account will be designated by passenger type (e.g., adult full fare, youth, senior, disabled, low income) and the transit account will be charged when fare is paid.			
6.2.5.1-10	For age-based passenger types, the date of birth will be stored in the transit account only.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.2.5.1-11	For passenger types that are issued on a temporary basis (e.g., temporary disabilities, low income, youth), the System will generate automatic notification (via email and/or text) to the account holder that the fare discount will be expiring and renewal is required. Content of the notification will be configurable. Notification will be reviewed and approved during system design.			
6.2.5.1-12	When a youth turns 19, the System will convert the passenger type from youth to adult full fare automatically.			
6.2.5.1-13	All customers will each be required to have and present their own fare medium.			
6.2.5.1-14	The System will be able to support a variety of fare structure configurations at system launch and in the future. Fare structure includes the supported fare policies, fare media, fare products, and distribution channels through which customers purchase fare media and products. The fare structure will be configurable by the Agencies, and designed to create a simple, unified system that enables interoperability across current and future transit modes without additional development. The fare policies will be supported, along with the detailed fare structure configuration capabilities.			
6.2.5.1-15	The System will support single-tap or "flat" fare pricing that is fully configurable based on the following parameters at a minimum: • Agency • Passenger type • Mode • Service type • Route • Trip • Location • Day and time • Discounts These fare pricing parameters will also govern the acceptance or denial of fare products being used for payment and the granting of transfers.			
6.2.5.1-16	The System will support zone-based fares.			
6.2.5.1-17	The System will support route-based and service-based fares for premium pricing for certain types of service (e.g., express service). Fare pricing will be able to be configured for a single route or groups of routes.			
6.2.5.1-18	The System will support location-based fares, or the capability to price fares based on the location of payment (e.g., boarding at specific stop locations). Location-based fare pricing will be able to be configured based on the stop location associated with wayside validators.			
6.2.5.1-19	The System will support fare pricing based on the time of day and day of week (e.g., peak and off-peak fares). Peak/off-peak fare pricing will be able to be configured for specific fare products, passenger types, modes, and service types, and put into effect at all times or on a scheduled basis (e.g., every weekday). In addition to time of day, the System will support peak/off-peak pricing for specific trips.			
6.2.5.1-20	For distance-based fares, the maximum fare from boarding location will be deducted from stored value E-purse at tap on. Upon tap off, final fare would be calculated and customer will receive credit back to their stored value E-purse, if applicable.			
6.2.5.1-21	The System will support station-to-station fares and the ability to price fares based on the location of boarding and alighting. This distance-based fare pricing will be able to be configured based on the station location associated with wayside validators.			
6.2.5.1-22	Each Agency will be able to configure fare structure and pricing for each mode and service type.			
6.2.5.1-23	The service day will be configurable by each Agency.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.2.5.1-24	The System will have the flexibility to support Agency fare changes without software modifications. All fare changes will be through fare table and other configuration changes.			
6.2.5.1-25	The bus operator will be able to override the default fare via the DDU in order to support zone-based fares.			
6.2.5.1-26	The System will support both Agency-specific and regional fare policies and products, including stored value E-purse, transfers, reduced fares for eligible customers, regional daily and monthly pass products, multi-ride products, programs that require riders to pre-qualify (e.g., RRFP, youth fares, low-income program), regional programs by customer account type, and Agency-specific programs.			
6.2.5.1-27	The capability to load a particular fare product to a transit account will be configurable based on the fare product type and passenger type associated with the account.			
6.2.5.1-28	The System will support regional products such as the following for all participating Agencies: • Regional Monthly Pass: regional ORCA calendar monthly passes available in face values that correspond to transit Agencies' fares, accepted by participating Agencies for payment of trip fares up to the face value of the pass. • Regional Day Pass: regional ORCA rolling day passes accepted by participating Agencies for fares up to specified face values. Additional fares are required for one-way fares higher than the specified face values.			
6.2.5.1-29	The System will support date-based and promotional pricing that offers discounted fares on a temporary and permanent basis, up to and including the offering of free fares. Discounted fare pricing will be able to be configured for specific fare media types, passenger types, modes, service types, and routes, and put into effect indefinitely or for a defined period.			
6.2.5.1-30	The System will provide the ability to manage value for multiple transit accounts in a single customer account. The customer account will permit the payment of multiple fares by associating transit accounts to the customer account.			
6.2.5.1-31	The System will enable customers to use stored value E-purse to purchase fare products.			
6.2.5.1-32	Customers will be able to define threshold and calendar-based autoloads for transit accounts based on parameters set by Agency staff.			
6.2.5.1-33	The System will enable a customer to set up autoload to reload stored value E-purse and/or fare products.			
6.2.5.1-34	The loading of stored value will be restricted based on configurable parameters, including the minimum and maximum amount that can be loaded in a single transaction.			
6.2.5.1-35	Customers will be able to load value to their stored value E-purse (including via autoload) as long as the E-purse value does not exceed the regional maximum allowable value.			
6.2.5.1-36	Customers will be able to load value to their stored value E-purse via autoload as long as a regionally-determined configurable minimum number of days have elapsed since the last autoload of the E-purse.			
6.2.5.1-37	Customers will be able to load value to their stored value E-purse via autoload as long as the number of E-purse autoloads does not exceed the regional configurable maximum allowable number of autoloads for the month.			
6.2.5.1-38	All parameters governing threshold and calendar-based autoloads will be fully configurable by Agency staff, including the enabling or disabling of an autoload, threshold value (e.g., trigger), funding source, and fare product and/or amount to be loaded. Final configuration parameters will be defined during design review.			
6.2.5.1-39	The System will support calendar products that are valid for unlimited rides during a pre-defined calendar period for rides on services costing at or below the face value of the pass. Calendar products will be configurable to be valid for any calendar period from one (1) day to two (2) years, including periods that are bounded by specific dates (e.g., valid from Aug. 16 through May 14).			
6.2.5.1-40	Monthly passes and fixed period products expire at the end of the validity period.			

Capability Number	Capability	ully Conforming	onConforming	Comments
6.2.5.1-41	The System will enable the configuration of vending windows for monthly passes and fixed period products (e.g., summer youth pass). Vending windows may vary for Agency-specific and regional fare products. No discounts on prices for partial months will be offered.			[redacted]
6.2.5.1-42	Monthly products will be configurable to extend the validity to the end of the last service day. This validity period will be configurable by Agency.			
6.2.5.1-43	Certain reduced fare passenger types will require association to a customer account.			
6.2.5.1-44	Unused rolling period pass products (e.g. short-term Passport products, day passes) can expire. Expiration will be configurable. Validated rolling period pass products expire at the end of the validity period.			
6.2.5.1-45	Day products will be able to be configured to extend the validity to the end of the service day. This validity period will be configurable.			
6.2.5.1-46	Day passes and short-term Passport products (e.g., convention passes) will activate upon first tap and the validity period will be configurable to accommodate specified transit days.			
6.2.5.1-47	The System will support trip-based multi-ride products that are valid for a pre-defined number of trips. Multi-ride products will be configurable to be valid for anywhere from one (1) to 100 trips, and to include transfer privileges or not.			
6.2.5.1-48	Unused multi-ride products will expire a number of days from date of purchase, configurable by product.			
6.2.5.1-49	The System will allow special products for a group of customers (e.g., school field trips) represented on a single closed-loop EU card.			
6.2.5.1-50	The System will support the sale of fare products sold in bulk at both face value and at special discounted prices to approved users, configurable by fare product.			
6.2.5.1-51	Transit accounts will be able to contain multiple fare products simultaneously (e.g., stored value and a pass product).			
6.2.5.1-52	A transit account may contain multiple rolling period pass products (e.g., day passes). However, only one product of the same type will be able to be active at a time.			
6.2.5.1-53	A transit account may not contain two fixed period pass products of the same type that are valid for the same or overlapping periods (e.g., fare media may contain May and June PugetPasses, but not $2.75 and $3.50 PugetPasses for May).			
6.2.5.1-54	Stored value E-purse and fare products will be subject to a passback delay period at the point of fare payment, configurable by Agency, device type, and mode.			
6.2.5.1-55	The System will accept Agency-issued next gen contactless ISO-14443 compliant smart cards, as well as existing smart cards, that are associated to next gen transit accounts and may be used to pay fares using stored value or fare products.			
6.2.5.1-56	The System will support replacement card fees, which will be able to be configured based on passenger type and replacement thresholds (e.g., the first replacement is free and each successive replacement associated with the same transit account is $5).			
6.2.5.1-57	Business Passport is a program that will provide transit passes for all transit services under a Business Passport agreement, with the ability to configure products to be valid only on specified transit Agencies and for a specific period of time.			
6.2.5.1-58	When adding value to transit accounts associated with customer accounts, customer account administrators will be able to select from the available fare products configured for their customer account, and choose whether to initiate a one-time or recurring load (e.g., autoload), on an individual or group basis. The period for recurring loads will be defined in the customer account configuration.			
6.2.5.1-59	Lead Agency representatives and customer account administrators will be able to initiate the loading of value (e.g., stored value and products) to customers' transit accounts individually or by group, and through a bulk process using an imported file in a common Agency-defined format.			
6.2.5.1-60	The System will enable configuration of duration of short-term Passport products.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.2.5.1-61	The Business Passport program will accommodate subsidies provided by employers for vanpools. These subsidies will be included in the billing and apportionment of Business Passport agreements.			
6.2.5.1-62	One transit account will be able to support at least 15 distinct fare products of the same type. Distinct fare products or product categories will be determined by Agencies.			
6.2.5.1-63	The configurable service day may be longer than 24 hours and service day hours may overlap.			
6.2.5.1-64	In the Business Choice program, organization customers may provide members with stored value E-purse and/or fare products.			
6.2.5.2-1	The System will handle revenue apportionment according to the apportionment rules.			
6.2.5.2-2	The System will allocate actual revenue received from a customer using stored value E-purse among Agencies providing service to that customer on a per-trip basis and in proportion the value of the services provided. The value of services provided is calculated as the fare the customer would have paid in the absence of an intra-agency and/or inter-agency transfer agreement.			
6.2.5.2-3	The System will allocate actual revenue received from a regional monthly or day pass among Agencies providing service to that customer, for the duration of the pass product, in proportion to the value of services provided, which include the calculation of transfers. Revenue-sharing provisions will be configurable by the region.			
6.2.5.2-4	Calendar monthly pass products will be valid for the designated month purchased. The revenue will be available for distribution whether or not the product is used.			
	Section 6.3 Customer Relationship Management Application			
6.3.1-1	The SI shall deploy a CRM application that provides central management for all customer data, customer service operations, and fare media and product ordering and fulfillment, as well as cradle-to-grave tracking of all customer service contacts and requests. The CRM application will be a COTS solution, and there is a preference for a web-based CRM solution.			
6.3.1-2	The core function of the CRM application will be to support call center operations with a tool that provides a 360-degree view of the customer, and enables creation, viewing, and modification of customer service records related to contacts and requests, and the actions taken to resolve those requests.			
6.3.1-3	The CRM will have functionality that allows for the creation of incidents related to assets in the AIM.			
6.3.1-4	The CRM will support the issuance of refunds for fare media and product sales as needed and create the appropriate transactions in the Financial Management application (accounts payable) using the Customer Account Management API.			
6.3.1-5	The CRM will allow customer account creation and transit account registration.			
6.3.1-6	The Program needs the SI to deploy a CRM application that provides access to all transit and customer account information, and the ability to track all customer service contacts and requests, including escalation from initiation through resolution.			
6.3.1-7	The CRM application will provide central order management and fulfillment functionality for the distribution of fare media and products sold through all fare distribution channels, including but not limited to orders placed through the customer website and mobile app. The CRM application will interface with the FMM to maintain proper fare media inventory controls.			
6.3.1-8	Access to the CRM application will require multi-factor authentication or other Agency-approved authentication technology that meets the criteria outlined in NIST 800-63, and allowed functions will be restricted based on centrally defined user-access privileges.			
6.3.1-9	The CRM application will be able to track and flag risky forms of payment including credit/debit cards that are on a system hot list, previously denied personal and corporate checks, and purchase orders linked to customer accounts with a poor payment history.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.3.1-10	The CRM application will connect to the ATP using the SI-provided API, and provide a fully integrated interface for customer service staff to view and modify customer and transit account data.			
6.3.1-11	The CRM application will accept credit cards, debit cards, and bank account (ACH) transfers for funding during fare media and product sales online and the setup of autoload.			
6.3.1-12	The CRM application will support split payments where up to three (3) funding methods, including multiple bank cards, can be used to complete payment for a single sale.			
6.3.1-13	The SI shall deploy a CRM application that provides the ability to email/text message customer accounts. Communications can be distributed based upon business rules using information in the application, for example autoload customers, customer account type, and product type.			
6.3.2-1	The CRM will maintain customer accounts that store all customer data, including all personal, contacts, members and payment information associated with customer accounts.			
6.3.2-2	The CRM application will have the ability to define and categorize customer accounts by type (e.g. individual, family, university, non-profit, business, corporation, elementary school).			
6.3.2-3	The CRM will be able to serve as the repository for all information on customers applying for a reduced fare classification, including applications and supporting documentation, eligibility parameters, and fare media personalization information, such as customer photographs.			
6.3.2-4	The CRM application will be supported by a customer information repository that is fully compliant with all applicable PCI standards and the region's ISMS control baseline at the time of Final System Acceptance, and with all agency, state, and local policies and regulations for the handling of PII.			
6.3.2-5	Each transit account will only be associated to one (1) active piece of fare media at a time. The System will support fare media replacement in the event that a media is lost, stolen, or damaged, which will associate a new piece of fare media to an existing transit account and block use of the old fare media.			
6.3.2-6	The CRM will serve as the repository for all information on employees, contractors, and other organization members who are issued fare media by a customer account, including fare media personalization information, such as customer photographs. Actual repository content/structure may vary according to customer account type.			
6.3.2-7	The System will allow multiple transit accounts to be associated with the same customer account for consolidated transit account management through all customer service channels.			
6.3.2-8	The System will allow a customer account to be created without associating a transit account.			
6.3.2-9	Customer data maintained in a customer account will include identity and contract information at a minimum. Actual content will be defined during design, and made available for operations by customer account type configuration. The following is an initial list of generalized information that will be captured • Customer account type • Names (organizational and individual) • Addresses (such as Primary, Billing, and Customer Service) • Phone numbers • Texting phone numbers • Email addresses • Website/Mobile usernames/encrypted password • Security questions and answers			
6.3.2-10	The CRM application will be able to capture passenger type (such as Adult, Senior, and Youth) and capture one or more additional classifications (such as Access eligibility). The source for this information will be determined during design.			
6.3.2-11	The Agencies will be able to use the CRM to serve as administrators for their own customer accounts and other organizational programs as necessary.			
6.3.2-12	The CRM application will allow transit account customers to be disassociated with customer accounts.			

Capability Number	Capability	ully Conforming	NonConforming	Comments
6.3.2-13	The CRM application will support adding fare products including E-purse value to a transit account that contains a current or expired business product.			
6.3.3-1	The CRM application will support customer account programs that allow for tracking and management of business rules for distribution channels, fare products, and special programs. The ability to perform this function is configurable by customer account type.			
6.3.3-2	Customer account program administrators will be able to associate transit accounts to their customer accounts individually using credentials, and through a bulk process using an imported file in an Agency-defined format. The ability to perform the bulk process will be configurable by customer account type.			
6.3.3-3	The CRM application will allow customer accounts with appropriate privileges to remove fare products supplied by customer accounts from associated transit accounts and block remaining use of passes. This will be possible without the deletion of the transit account or removal of any E-purse value or passes purchased directly by the transit account holder.			
6.3.3-4	When fulfilling a bulk EU fare media order for a customer account, the System will automatically generate an import file pre-populated with the credentials to support the addition of customers by the customer account. The ability to perform this function is configurable by customer account type.			
6.3.3-5	The CRM application will enable the placement of bulk orders for fare media to be delivered by the mail center. Bulk sales may include media where the associated transit accounts are pre-loaded with value. The ability to perform this function is configurable by customer account type.			
6.3.3-6	Read and write permissions by the customer account administrator will be determined by preset permissions associated with their credentials and customer account type.			
6.3.3-7	The CRM will support contracted pricing for Business Passport agreements, including both fixed and per-trip pricing.			
6.3.3-8	The CRM application will enable the bulk sale and issuance of fare media, including the initialization and loading of the associated transit accounts, through entry of a transit account/fare media identifier range or upload of a file.			
6.3.3-9	At a minimum, the following configuration parameters will be supported to govern participation in customer account programs: • Program type (e.g., Business Choice, Passport) • Qualifying customer account types • Available fare media • Available fare products • Fare media and product pricing • Fare media and product ordering windows • Payment type (e.g., prepay or invoice) • Payment terms The customer account program configuration parameters will be set by the Agencies during registration of a customer account customer and will be stored in the customer account.			
6.3.3-10	Customer account programs will include post-bill programs where the account is invoiced based on the customer's actual usage of the System. For these programs, the customers' transit accounts will be loaded with an unlimited-ride pass (i.e., Passport), and the System will calculate the amount due on-a-monthly basis using pass ridership data and an Agency-defined formula.			
6.3.3-11	The Agencies may use the CRM application to register a customer account and configure all parameters governing the customer account's participation.			
6.3.3-12	All data associated with customer accounts will be stored securely and associated with the Accounts Receivable and Billing, CRM application and the customer website.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.3.3-13	When associating transit accounts, the customer account will be able to provide fare media personalization information (e.g., employee name or ID) that uniquely identifies the customer in possession of the associated fare media. If personalization information is provided, it will be stored in the transit account and serve as a unique identifier separate from customer registration data, should the customer choose to register the transit account.			[redacted]
6.3.3-14	Customer account program administrators will be able to disassociate transit accounts from their customer account program, individually by selection and through a bulk process using an imported file in an Agency-defined format. The actual individual transit account will remain.			
6.3.3-15	The CRM application will support the management of customer account programs, which will allow transit accounts to be associated to a customer account (e.g., employer or school) for account management and the loading of value.			
6.3.3-16	The CRM application will support the current range of business (organizational) account programs offered by the Agency, and future programs, including but not limited to: • U-Pass and other college programs • School (K-12) programs • Corporate and employer programs • Government and military programs • Social service agency programs • Local attraction and tourist programs • Partner programs supporting transit-related services, including parking • Agency promotional programs • Residential pass programs			
6.3.3-17	The CRM application will allow customer accounts with appropriate privileges to provide a means of funding transit accounts that will charge the funding source only for value used by the associated transit accounts. This could be achieved by a customer providing a funding source to transit accounts that has a configured maximum that can be drawn on by each transit account, or by a method to reclaim funds that are used to pay for unused E-purse or products by a configurable date or time period. Customers will be able to perform this function for an individual transit account or a group of transit accounts.			
6.3.4-1	The CRM application will support call center and in-person customer service operations by providing a complete view of the customer and related transit and customer account activity, including all activity associated with anonymous transit accounts.			
6.3.4-2	The CRM application will allow customer service staff, based upon security roles and customer account type, to perform customer account actions, including but not limited to: • Create new customer account • Assign customer account type designation to the customer account • View customer account status and data • Modify customer account data • Associate a transit account to a customer account • Disassociate a transit account from a customer account • Add, update and delete a funding source from a customer account • Close or suspend a customer account			
6.3.4-3	The CRM application will provide the capability to store all customer account correspondence related to invoicing and/or payments.			

Capability Number	Capability	ully Conforming	onConforming	
6.3.4-4	The CRM application will allow Regional Reduced Fare Permits (RRFPs) for persons with disabilities to be associated with a transit account configured with a Personal Care Attendant (PCA) designation. PCA designation will be reflected on the printed RRFP cards.			
6.3.4-5	Agency/customer service staff will have the ability to set up fare products (e.g., stored value, multi-ride products, and passes) for autoload, or to automatically reload based on time or value thresholds. The Program needs the SI to enable this functionality through the CST, CRM application, customer website, and customer mobile app.			
6.3.4-6	The CRM application will enable customer service staff to perform transit account actions, including but not limited to: • Sell all supported fare media (and create new transit accounts) • Sell all supported fare products (e.g., stored value and passes) and load fare products to transit accounts • Query transit account status (e.g., associated passenger type, active/inactive, blocked/unblocked) • View fare payment transaction history • View sales transaction history • View adjustment transaction history • Enable fare product for autoload (requires funding source in customer account) • Generate fare payment reversal (e.g., cancellation) • Generate sales reversal • Generate sales refund • Generate an account adjustment (e.g., credit or debit) • Transfer balance between two transit accounts • Block/unblock card, account, or individual fare product • Replace lost, stolen, or damaged card (e.g., associate new card with existing account) • Generate an opt-out refund (e.g., close transit account and issue refund) • Capture open-ended notes (size to be determined during design)			
6.3.4-7	The CRM application will enable the bulk registration and loading of transit accounts in support of special fare programs through entry of a transit account/fare media identifier range or upload of a file.			
6.3.4-8	The CRM application will enable the bulk blocking of transit accounts and issuance of transit account adjustments through entry of a transit account/fare media identifier range or upload of a file.			
6.3.4-9	The CRM application will enable the CSR to print packing slips and mailing labels.			
6.3.4-10	The CRM application will track all customer service contacts and requests, and the actions taken to resolve those requests, in customer service records that can be created, viewed, and modified using the CRM tool.			
6.3.4-11	Customer service records will be created automatically based on customer-initiated actions performed through the customer website and customer mobile app.			
6.3.4-12	All actions performed by customer service staff that result in a change to a customer or transit account will automatically generate a customer service record.			
6.3.4-13	Customer service staff will be able to manually create or update (e.g., add notes) a customer service record when responding to customer service requests in person, over the web, or by phone.			
6.3.4-14	Customer service records will be created for actions associated with both anonymous and registered transit accounts, and will be indirectly associated all linked customer accounts whenever possible.			
6.3.4-15	The CRM application will support the classification of customer service records by type and severity, using pre-defined selections and Agency-specific custom text fields.			
6.3.4-16	The CRM application will allow viewing and modification of all customer account data. A request by the customer to reset a password will require the answering of security questions set at the time of registration. For password resets, a temporary password will be automatically emailed or texted to the customer.			

Capability Number	Capability	ully Conforming	onConforming	Comments
6.3.4-17	The CRM Application will enable the bulk uploading of customer information using an Excel or .csv file. This can be used by appropriately configured customer account types and by Agency staff to load large numbers of individual customers at one time.			
	Section 6.4 Asset Incident Management application (AIM)			
6.4-1	The SI will deploy an Asset Incident Management application (AIM) to support the management of all ORCA assets, including spares, and incidents associated with the assets.			
6.4-2	The AIM will have workflow functionality to support the addition, commissioning, testing, and retirement of assets. Workflow will also support the incident process and routing of incidents to the right departments and approval for closing.			
6.4-3	The AIM will have security functionality to support the management of access which is configurable by user role.			
6.4-4	The AIM will have functionality to support the configuration of assets for fields including Agency, manufacturer, asset type, location, owner, etc.			
6.4-5	The AIM will have functionality to support the configuration of incident information including owner, status, origination, type, severity etc.			
6.4-6	The AIM will have standard and ad hoc reporting capabilities to monitor assets and incidents. Ad hoc reports will be easy and intuitive to build and run.			
6.4-7	The AIM will be accessible over the web using any commonly available browser and mobile friendly using either a native app or browser capability.			
6.4-8	The AIM will have workflow functionality to support the incident process. Workflow will allow for routing of incidents to the right departments and review, resolve, approve, and closure process.			
6.4-9	The AIM will use the SI-provided API to allow remote systems (such as CRM to create customer service initiated incidents) to query and create incidents.			
6.4-10	The AIM will use the SI-provided API to integrate with the System Manager for asset information and events that create incidents.			
6.4-11	The AIM will provide a user-friendly interface that can be learned quickly by end users with minimal training.			
6.4-12	The AIM will have functionality that allows remote systems (such as the CRM) to create incidents for an asset in the AIM or link to the incident if it already exists.			
6.4-13	The AIM will allow for incidents to be linked together and unlinked.			
6.4-14	The AIM will have mapping capability to link assets to locations and incidents to locations and assets at that location.			
6.4-15	The AIM will have functionality to support incident management that includes creation, management, resolution, closure, and reporting.			
6.4-16	The AIM will have functionality to support incident categorization and prioritization.			
6.4-17	The AIM will have functionality to support logging information and activity associated with an incident.			
6.4-18	The AIM will provide for manual .csv or Excel upload of device inventories by the Agencies of new equipment received.			
6.4-19	The AIM design will not preclude future integration through an API or industry standard center-to-center interface with the Agency enterprise asset management, maintenance, or decision support applications for static and real time device information.			
6.4-20	The AIM will have fields for basic device inventory information including but not limited to device name, serial number, location, model, Agency owner, maintenance history, break history, device type, date in service, date out of service, etc. The addition of user defined fields will be possible.			
6.4-21	The AIM will provide for manual .csv or Excel download of device inventories by the Agencies.			
6.4-22	The AIM will have operational lookup capabilities on any of the fields or combination of fields within the application, including device, owner, alert type, devices type, location, etc.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.4-23	The AIM will provide a tool to perform ad hoc reporting and build configured reports available to end users.			
6.4-24	The AIM application will provide the "next number" to issue when adding new assets to the inventory.			
	Section 6.5 System Manager			
6.5-1	The System Manager will monitor and display in real-time the status of all back office systems, subsystems, applications, databases, and processes. Details of which processes will be monitored will be provided during design review.			
6.5-2	The System Manager will have functionality that allows for the creation of incidents associated with certain events related to assets in the AIM.			
6.5-3	The System Manager will automatically monitor asset status, record asset problems and failures, notify selected staff and initiate appropriate action.			
6.5-4	All equipment will be remotely monitored, configured, and managed through the System Manager using the SI-delivered API.			
6.5-5	The System Manager will have user security to allow different roles with different levels of access.			
6.5-6	The System Manager will have the means to provide for a controlled shutdown of a device or system component and create a maintenance event.			
6.5-7	The System Manager will monitor the operational status and performance of the devices and their components, including but not limited to: • Onboard and wayside validators • Mobile access routers • Driver displays units • Vending machines • Customer service terminals • Mobile validation and inspection devices			
6.5-8	System Manager queries will include tables and graphical charts showing the current and historical performance of each device under measurement. Queries will include but not be limited to device type, Agency, location, and individual device.			
6.5-9	The SI shall deploy a System Manager that enables the central monitoring and management of all next gen ORCA system devices.			
6.5-10	Equipment software and configuration updates, including all valid and invalid card lists, will be managed through the System Manager application.			
6.5-11	The System Manager dashboard will include a system map that can be drilled-down into by location or Agency to view and control that status of system components. The System map will be dynamically updated when devices or systems are added and removed, and configurable to allow editing of device groups, locations, and location names as the System expands.			
6.5-12	The System Manager will include a web-based interface that provides access to all monitoring and management functions, and provides all information in a clear, organized dashboard using color graphics and text as approved during the System design.			
6.5-13	The System Manager will provide integration to the electronic monitoring and fault detection systems associated with devices.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.5-14	The System Manager will have the means to detect failure of any device (including cooling device) and provide for a controlled shutdown of the System components and generation of a maintenance event.			
6.5-15	Device status reported by the System Manager will include operational status (e.g., in service, degraded mode, out of service, or no communications), maintenance alarms associated with individual device modules, and revenue alerts (e.g., vault almost full/full and low stock/out of stock), as described in the equipment sections of this SOW.			
6.5-16	Events will be configurable with different severity and actions based upon severity.			
6.5-17	The System Manager will have the ability to monitor devices trying to connect to the next gen ORCA system that are not in the inventory list ("rogue" devices).			
6.5-18	For each alarm event, a corresponding event to clear the alarm will be transmitted by the VM as soon as the alarm condition is no longer present. Alarm conditions may be cleared either automatically by the VM or manually by service staff.			
6.5-19	Processor load, memory utilization, errors, and other system performance indicators will be available in real-time to help prevent performance degradation and troubleshoot back office issues. Alarm types and thresholds will be able to be configured to allow for custom alerts.			
6.5-20	Field devices or systems that are not reporting status for any reason will be easily identifiable in the System Manager, and the last known status and history will be available as approved during system design and accepted during user testing.			
6.5-21	The System Manager will display device attributes, including but not limited to device type, device ID, location, status, events, and alarms.			
6.5-22	The System Manager will provide real-time performance and status monitoring for all devices, back office applications, and network nodes using the SI-provided System Management API.			
6.5-23	The System Manager will support the real-time issuance of device commands, and device configuration, using the SI-provided System Management API.			
6.5-24	The System Manager will support the issuance of device commands system-wide and by device type, Agency, location, and individual device.			
6.5-25	Command sets will vary by device, but will include configuration, maintenance, revenue, and customer service functions, as described in the equipment sections of this SOW. Commands will be defined during design review.			
6.5-26	System Manager commands will utilize an appropriate command protocol based on industry standards, such as SNMP3, or a modern functional equivalent. The protocol chosen will be supported by all devices and systems, and take into account expected network traffic and potential for intermittent communications.			
6.5-27	The System Manager will support the setting and distribution of all configuration parameters stored locally at the devices, including positive and negative lists, as described in the System specifications.			
	Section 6.6 Fare Media Management Application			
6.6-1	The SI shall deploy a Fare Media Management application (FMM) that maintains a full inventory of all fare media procured and issued by the Agencies.			
6.6-2	The FMM will maintain an inventory of all serialized Agency-issued fare media (e.g., EU media) as it is held by the Agencies, regional partners, and third-party distributors, and eventually issued to customers.			
6.6-3	The FMM will track the current and historical status of all media in inventory. Whenever a transaction causes a change in media status, the FMM will update all records accordingly. A history of all updates will be maintained to provide an audit trail.			
6.6-4	The FMM will maintain the item number and type of inventory at all locations (including consignment locations) at all times. Tracking will include type of inventory, ID numbers, and counts at each location.			
6.6-5	The System will have the ability to record all sales at each location by type of inventory, type of sale (e.g., cash, credit, or check), identifying inventory number of each sale item, amount of sale, date, customer account and other applicable data.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.6-6	The fare media inventory data maintained within the FMM will include at a minimum: • Media serial number • Media type • Media status • Transit account status • Expiration date • Batch ID • Order ID • Location • Ship date Final data fields used for inventory management purposes will be determined during design review.			[redacted]
6.6-7	The FMM will support the bulk issuance of EU fare media by identifying appropriate batch IDs and serial number ranges to fulfill orders placed by regional distribution partners, and through the AR/Billing Module/CRM/customer website.			
6.6-8	The System will be able to issue EU fare media associated with transit accounts with preloaded fare product in bulk for special promotions.			
	Section 6.7 Financial Management Application			
6.7.1-1	The System will have the ability to allow online inquiry of balances (MTD, YTD) or for any timespan.			
6.7.1-2	The System will have the ability to support suspense account utilization with a user entered reference code for analysis and account tracking.			
6.7.1-3	The System will have the ability to require each journal entry to have a unique number by type of journal.			
6.7.1-4	The System will have the ability to support standard calendar or fiscal year of 12 periods or 13 periods as defined by the user. The System will have the ability to establish 13 or more accounting periods in a single fiscal year.			
6.7.1-5	The System will have the ability to assign general authorization journal processing and rules by account code, amount, company, and user.			
6.7.1-6	The System will have the ability to support calendar or fiscal business year accounting.			
6.7.1-7	The System will have the ability to allow authorized users to make additions and changes to the GL accounts without program or system changes.			
6.7.1-8	The System will provide the ability to capture the following accounting line item detail on all documents: line item number, line item amount, and line item accounting classification information.			
6.7.1-9	The System will have the ability to generate error reports for any data failing validation.			
6.7.1-10	As part of design review, the SI shall be responsible for mapping each transaction type generated by the System to the appropriate GL entries to support automated categorization and summarization by the System.			
6.7.1-11	The System will have the ability to provide a mechanism to correct out-of-balance conditions.			
6.7.1-12	The System will have the ability to save a transaction prior to posting and to continue processing the transaction at a later date. The System will make sure that journal entries are balanced before final posting to the GL. The System will allow saving of incomplete and unbalanced journals; however, posting can only occur when journal is valid and balanced			
6.7.1-13	The System will have the ability to prevent transactions from posting to GL accounts that have been de-activated.			
6.7.1-14	The System will have the ability to prevent transactions from posting that would cause GL debits and credits to be out-of balance at any level of the organization's accounting classification structure specified on a transaction.			
6.7.1-15	The System will have the ability to allow real time validation of all transaction related data coming from integrated systems against the GL tables (e.g., account, Agency, active/inactive date) and create exception reports for all transactions.			

Capability Number	Capability	ully Conforming	NonConforming	Comments
6.7.1-16	The System will have the ability to allow an authorized user to reprint a journal entry.			
6.7.1-17	The System will have the ability to support user-defined accounting periods.			
6.7.1-18	The System will have ability to generate next account for chart of accounts additions.			
6.7.1-19	The System will have ability to inactivate accounts within chart of accounts, while maintaining archive status and ability to retrieve, review, and/or reactivate.			
6.7.1-20	The System will have the functionality to create and maintain allocations. Allocations will be configurable using any financial account or statistical account in the Financial Management application, formulas, prior periods/years, multiple input/output sources, effective dates, account ranges, accounting period and existing balances to create the pools and targets of allocation. Allocations can be single and multi-step with no limit to the number of allocations. The Financial Management application will automatically create the journal entries for each allocation referencing the date and allocation name with a full transaction trail in each transit account impacted.			
6.7.1-21	The System will have the ability to identify which ledger to post journal entries through configuration rules.			
6.7.1-22	The System will have the ability to make sure that total debits equal total credits for a single journal entry (e.g., double-entry accounting).			
6.7.1-23	The System will have the ability to accept and post only balanced journal entry transactions (debits equal credits).			
6.7.1-24	The System will have the ability to view date, amount, account name, account number, user ID, user name, and description when processing journal transactions.			
6.7.1-25	The System will have the ability to provide full audit trail of allocations.			
6.7.1-26	The System will have the ability to download results of allocations and reports to Excel for further analysis.			
6.7.1-27	The System will have the ability to track source information during journal transaction processing.			
6.7.1-28	The System will have the ability to display in real time running totals when inputting debit and credit journal entries.			
6.7.1-29	The System will have the ability to create journal entries for current period, any future periods and prior periods subject to user access limits.			
6.7.1-30	The System will have the ability to copy description and accounting from a previous line to the next line.			
6.7.1-31	The System will have the ability to capture user defined attributes including journal category, journal source, create by user, create date, updated by user, update date, etc.			
6.7.1-32	The System will have the ability to capture description at header level and line level.			
6.7.1-33	The System will have the ability to batch, edit, post, and search journal entries in real time.			
6.7.1-34	The System will have the ability to auto generate offsetting accounting entries based on user defined business rules.			
6.7.1-35	The System will have the ability to allow the creation of templates for standard journals.			
6.7.1-36	The System will have the ability to add multiple lines to a journal entry.			
6.7.1-37	The System will have the ability to search Chart of Accounts (COA) by code or description.			
6.7.1-38	The System will provide the ability to generate recurring entries in future accounting periods.			
6.7.1-39	The System will have the ability to create multiple charts of accounts -- global, local statutory, and consolidation for all divisions and Agencies.			
6.7.1-40	The System will have the ability to use a chart of accounts consistent with the basic numbering structure provided by the FTA and allow for expansion of accounts segments.			
6.7.1-41	System will have ability to accept automated recording of journal entries directly from subsidiary ledgers.			
6.7.1-42	The System will have the ability to automatically number journal entries.			

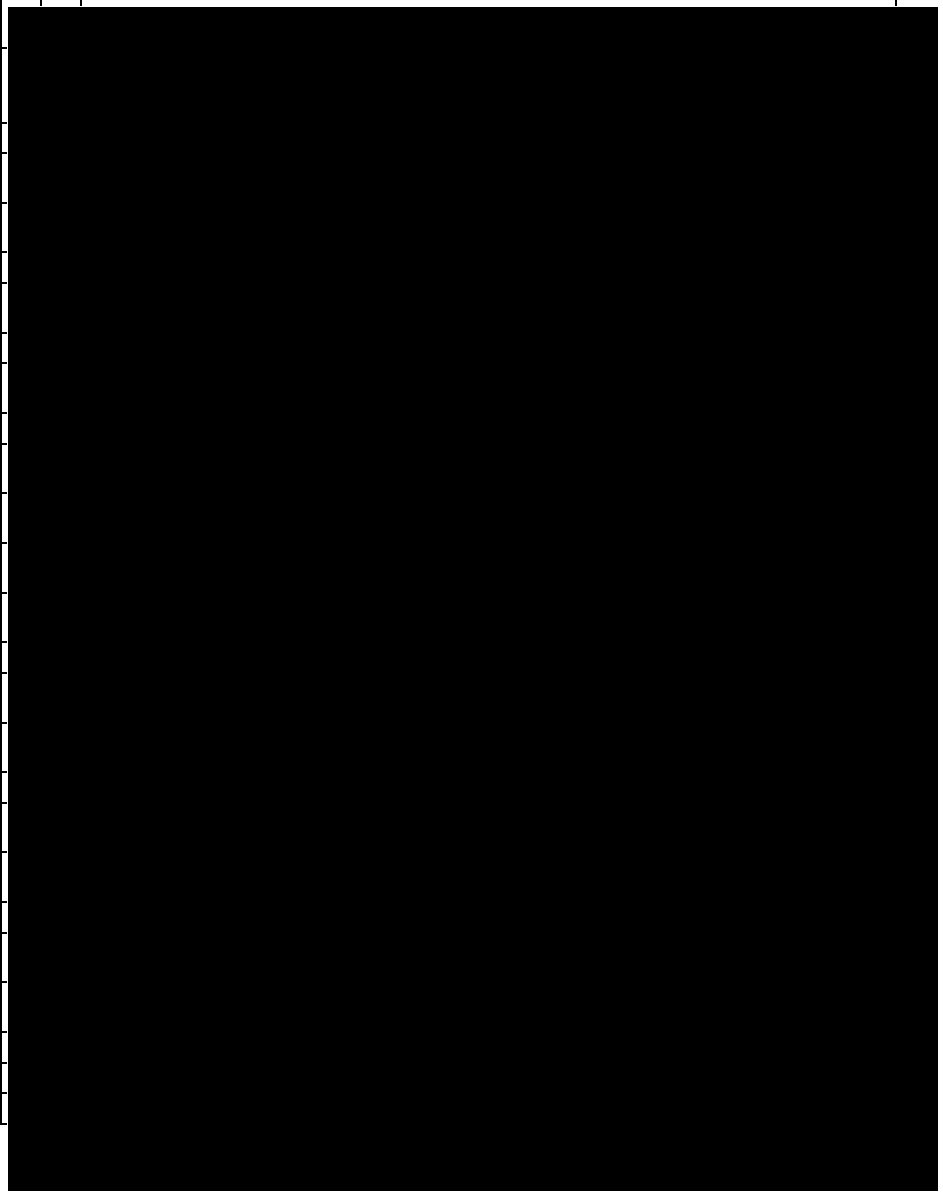
Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.7.1-43	The System will have the ability to enter statistical journal entries for posting data such as head count, square feet, ridership and/or unit volumes or fixed percent rates to be used in allocations or reporting.			
6.7.1-44	The System will have the ability to perform auto generation of serial number and batch number for the journal entry.			
6.7.1-45	The System will have the ability to validate that the total amount of the batch transactions is equal to the batch header total. The System will allow for automatic validation rather than manual.			
6.7.1-46	The System will have a financial data architecture that allows for elements to code transactions. These include financial accounts, products, Agency, sales channel, department and at least two additional configurable elements. The elements will be available in the GL and all subsidiary ledgers and modules for use in coding and reporting.			
6.7.1-47	The System will perform the revenue distribution based upon calculations from the ATP and provide the necessary reporting to enable the settlement of funds.			
6.7.1-48	The System will be implemented using a COTS, SaaS if possible, enterprise-level financial management software that interfaces with SI-designed software modules as necessary to provide the required functionality.			
6.7.1-49	The Program needs the SI to employ an expert with the accounting and technical knowledge necessary to fully setup an configure the Financial Management application based on accounting best practices and the specific design of the delivered system.			
6.7.1-50	The System will have the ability to perform allocations by any data within the Financial Management application (e.g., account, department, Agency) including statistical accounts.			
6.7.1-51	The System will have the ability to define workflow rules for journal approval routing based on amount or other criteria.			
6.7.1-52	The System will have the ability to allow users to decide whether changes will update real-time or in batch.			
6.7.1-53	The System will have the ability to use standardized rules (e.g., GL posting rules, edits, etc.) identified by reference code to control transaction editing and posting to the appropriate GL account, and updating other information maintained.			
6.7.1-54	The System will have the ability to validate all accounts again during posting.			
6.7.1-55	The System will have the ability to validate accounts in all input transactions, including online entries, spreadsheet uploads and interfaces. The System will validate all portions of the account key.			
6.7.1-56	The System will have the ability to change error handling default (i.e., error recycle or suspense) at the journal entry level.			
6.7.1-57	The System will have the ability to assign responsibility and ownership of accounts for reconciliation.			
6.7.1-58	The System will have the ability to allow authorized users to correct out-of-balance conditions discovered during the reconciliation process. The System will maintain an audit trail of any such corrections.			
6.7.1-59	The System will provide the ability to automatically post to GL weekly or more frequently if needed.			
6.7.1-60	The System will perform integrity checks on batches received via interfaces. Checks will include a batch number and amount, and make sure amounts in header agree with records in the batch.			
6.7.1-61	The System will have the ability to allow establishment of permanent (balance sheet) accounts in GL that can only be updated by subsidiary systems with allowance for authorized override.			
6.7.1-62	The System will provide the ability to restrict the accounting date to open periods.			
6.7.1-63	The System will have the ability to suspend a batch if a journal entry transaction is not balanced.			
6.7.1-64	The System will have the ability to restrict, based on security level, who can change error handling defaults on journals.			
6.7.1-65	The System will have the ability to reprocess suspended journal for posting.			
6.7.1-66	The System will have the ability to reject journals in error, correct errors online, and reprocess journal for posting.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.7.1-67	The System will have the ability to allow an authorized user to delete an unposted journal entry.			
6.7.1-68	The System will have the ability to allow an authorized user to copy journals.			
6.7.1-69	The System will have the ability to view online whether or not a journal is reversing as well as if the transaction line is reversing.			
6.7.1-70	The System will have the ability to restrict posting unapproved journals.			
6.7.1-71	The System will have the ability to create a future dated journal to closed periods.			
6.7.1-72	The System will have the ability to edit all entered, but not posted journals.			
6.7.1-73	The System will have the ability to conduct journal entry and posting in separate stages.			
6.7.1-74	The System will have the ability to capture processing date together with effective date of journal entry.			
6.7.1-75	The System will have the ability to rollup expenses for the same cost center/Agency across business units.			
6.7.1-76	The System will have the ability to apply allocations to both actual and budget fields.			
6.7.1-77	The System will have ability to review journal entries in workflow and approve them prior to entry into GL.			
6.7.1-78	The System will have the ability to capture comments on transactions at the lowest level (i.e., comments can be both text and attachments).			
6.7.1-79	The System will have the ability to define skeleton journals where the amounts change monthly, but the accounts remai the same.			
6.7.1-80	The System will have the ability to drill down (e.g., to descriptions, from journal to source activity).			
6.7.1-81	The System will have the ability to enter a journal entry without authority for posting it.			
6.7.1-82	The System will have the ability to enter and maintain statistical information either along with or independently of journal entries.			
6.7.1-83	The System will have the ability to provide a free-form notes section to attach to a journal entry or transaction.			
6.7.1-84	The System will have the ability to create and approve journals.			
6.7.1-85	The System will have the ability to reverse a posted journal entry manually or systematically.			
6.7.1-86	The System will have the ability to schedule automated, integrated, and recurring journals to run and post without user intervention.			
6.7.1-87	The System will have the ability to view or print journals online in a summary or detail format.			
6.7.1-88	The System will provide the ability to capture start dates, end dates, and posting frequency for recurring entries.			
6.7.1-89	The System will provide the ability to capture the date a transaction is effective in the GL (i.e., the date a financial event is recognized).			
6.7.1-90	The System will provide the ability to generate and modify online reversing entries in future accounting periods.			
6.7.1-91	The System will include a user access management tool that will control and configure user access privileges to each module or component of the entire system.			
6.7.1-92	The System will support business rules and procedures that provide fast and efficient month end close processing including workflow for approvals and messaging, and subsystem posting.			
6.7.1-93	The System will have the ability to reopen the final accounting period to post audit adjustments.			
6.7.1-94	The System will have the ability to allow authorized users to define general ledger posting rules and the logic associated with each transaction.			
6.7.1-95	The System will provide a method to create transaction corrections in a manner that allows subsystems to update the G keeping it in sync.			
6.7.1-96	The System will provide the ability to process year-end adjustments.			
6.7.1-97	The System will have the capability to carry forward into the new fiscal year GL account balances and updates for curren activity prior to the final year-end closing.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.7.1-98	The System will have the ability to allow authorized end users to add/change/delete business logic, based upon design and testing, within Chart of Account and report hierarchies.			
6.7.1-99	The System will support the full auditing of all system financial activity, including reconciliation of all Agency revenue and customer accounts, and end-to-end tracking of revenue as it is generated and recognized by the participating Agencies.			
6.7.1-100	The System will support daily cash settlement to Agency bank accounts.			
6.7.1-101	The Agencies will have the capability to generate manual GL postings to support corrections and the tracking of activity that is not performed by the System.			
6.7.1-102	Summary entries will be posted to the GL automatically at the end of each closeout period, no less than daily.			
6.7.1-103	The System will support the reconciliation of the stored value deferred revenue GL account balance to the total transit account balances maintained within the ATP at any point in time.			
6.7.1-104	The System will provide support for current and future standard banking formats such as SWIFT and BAI.			
6.7.1-105	The System will provide interfaces or related files to support banking capabilities such as positive pay and monthly reconciliation for checks issued.			
6.7.1-106	The System will have the capability to reconcile checks/wire transfers.			
6.7.1-107	The System will have the capability to produce a file containing all rejected check reconciliation transactions which could be available for corrections.			
6.7.1-108	The System will have the capability to identify un-reconciled customer account check payments online and from reports.			
6.7.1-109	The System will have the capability to determine online if a customer account check has cleared at the bank based upon reconciliation data.			
6.7.1-110	The System will have the capability to allow for automatic bank reconciliation via bank interface of bank cleared funds, direct debits, receipts compared to system payment records.			
6.7.1-111	The System will provide the capability to define unlimited number of banks and unlimited bank accounts for each bank and capability to pay from different banks.			
6.7.1-112	The System will provide the ability to assign a transaction number.			
6.7.1-113	The System will have the ability to trace back from allocated to original source of the cost.			
6.7.1-114	The System will have the ability to support Excel spreadsheet upload and download of journals.			
6.7.1-115	The System will have the ability to capture descriptive information on journals.			
6.7.1-116	The System will have the ability to maintain an audit trail from the original postings to the final posting when the accounting structure is modified.			
6.7.1-117	The System will have the ability to automatically reclassify accounting data when a reorganization of the classification structure is necessary, such that manual reversals of previously recorded detailed transaction activity is not needed.			
6.7.1-118	The System will have the ability to auto-generate a new chart of account combination if it meets the segment combination validation rules defined.			
6.7.1-119	The System will provide the ability to automatically close the subledgers on scheduled dates.			
6.7.1-120	The System will have the ability to rollover GL account balances after closing. (Note that this includes sub-accounts.)			
6.7.1-121	The System will have the ability to perform automated month-end closing of GL accounts, with approval.			
6.7.1-122	The System will have the ability to close subsystems on a different schedule from GL.			
6.7.1-123	The System will have the ability to allow selected transactions for closing, e.g., adjustments, to be processed.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.7.1-124	The System will have the ability to re-open prior periods and make adjusting financial entries; re-run allocations using the appropriate allocation methodology which may not be the current month's methodology.			[redacted]
6.7.1-125	The System will have the ability to open/close prior closed periods multiple times based on business rules (not externally reported).			
6.7.1-126	The System will have the ability to support at year-end close that all entries are in balance and that all periods have been closed.			
6.7.1-127	The System will have the ability to close accounting periods and prevent the posting of new transactions to any closed period.			
6.7.1-128	The System will process transactions originating in other systems, recording and keeping track of such transactions and related information, in order to provide the basis for central financial control.			
6.7.1-129	The System will support the management of monthly and annual accruals. Include automated accruals to the general ledger, ability to enter accrual journal and automatically post reversal in future period and ability to link the accrual to the reversal.			
6.7.1-130	The System will have the ability to set up standard journal entries with multiple line items and debits and credits lines may be uneven.			
6.7.2-1	The Accounts Receivable (AR) module will provide the capability to allow invoices to contain pertinent information (e.g. date of invoice, date of delivery, due date,) that will be defined and approved during design.			
6.7.2-2	The AR module will have capability to update GL accounts for all accounts receivables, sales, receipts, and other adjustments originating in the subsidiary ledger.			
6.7.2-3	The AR module will be fully installed and configured by the SI, and will support the creation and management of receivables and customer accounts with integration to the GL.			
6.7.2-4	The AR module will provide capability that allows default customer account data such as terms to automatically populat when invoices are being entered. Default data will be configured according to the customer account type.			
6.7.2-5	Data available for a customer account will include at a minimum: • Customer account name • Administrator name • Multi addresses (mailing, shipping, billing, etc.) • Phone numbers • E-mail addresses • Special Instructions • Contract account agreements • Customer account ID			
6.7.2-6	Payment terms for customer accounts will be configured as part of the account setup. The Agencies will be able to configure customer accounts such that payment is required at the time an order is placed, or to allow the customer account to be invoiced based on established payment terms.			
6.7.2-7	The AR module will provide functionality to manage multiple payment terms of the course of a contract with customer accounts.			
6.7.2-8	The AR module will allow customer accounts to be assigned to a specific Agency and allow for customer accounts to be managed by the Agency.			
6.7.2-9	The AR module will provide the capability for Agencies to configure custom business rules and terms for their customer accounts.			
6.7.2-10	The AR module will have the capability to differentiate customer account sales and inventory sold by cash, credit card, check, and ACH as well as totals.			
6.7.2-11	The AR Billing module will have the capability to capture multiple contacts for every customer account.			
6.7.2-12	The AR module will support the aging of receivables and an automated, fully auditable write-off process to be defined during design review.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.7.2-13	For customer account orders where invoicing is configured, an invoice will automatically be generated in the AR module, available for display on the customer website, and sent electronically.			
6.7.2-14	For customer accounts where prepayment is required, the customer will be required to provide a funding source in the form of a credit card, debit card, or bank account (e.g., ACH). Funding source information will be stored securely within the CRM in a tokenized form.			
6.7.2-15	The AR module will have the capability to post credits to customer accounts.			
6.7.2-16	The AR module will support the automatic generation of invoices and monthly statements detailing account activity, including consolidation of multiple AR accounts on a single customer account statement.			
6.7.2-17	The AR module will have the ability to calculate amount of invoice based on products sold, ridership use or contractual agreement.			
6.7.2-18	The AR module will have ability to calculate amount of invoice utilizing customized pricing.			
6.7.2-19	The AR module will provide the ability to include invoice transaction details such as any applicable surcharges, discounts, extended price, penalties, price, product/service code, volume, Agency, and mode.			
6.7.2-20	The AR module will provide the ability to include advances and prior collections received on invoices.			
6.7.2-21	The AR module will provide the ability to track original invoice amounts and remaining balance after receiving partial payments.			
6.7.2-22	The AR module will provide the ability to allow for invoices to be canceled, deleted, or voided.			
6.7.2-23	The AR module will provide the ability to allow historical data to be viewed online for amounts invoiced, amounts paid, credit memos, debit memos, adjustments, and tolerance written off.			
6.7.2-24	The AR module will provide the ability to automatically print copies of previously issued invoices at any time without recalculation or regeneration.			
6.7.2-25	The AR module will provide the ability to print current and cumulative invoice totals on the same page within the specified invoice template.			
6.7.2-26	The AR module will provide the ability to define different invoice formats for different types of invoices or different Agencies.			
6.7.2-27	The AR module will provide the ability to print free-form recurring text on each invoice page.			
6.7.2-28	The AR module will provide the ability to customize the text and data elements to be displayed on system-generated invoices, by customer type, receivable type, or billing method.			
6.7.2-29	The AR module will provide the ability to define reason codes and related descriptions for invoice processing actions such as invoice adjusted, invoice held for payment schedule, and invoice canceled.			
6.7.2-30	The AR module will provide the ability to derive the invoice date from the System date.			
6.7.2-31	The AR module will provide the capability to support a system link to trace voided (original) invoice to the revised invoice.			
6.7.2-32	The AR module will provide the ability to store a complete copy of the contract with online review and print capability.			
6.7.2-33	The AR module will not reuse voided invoice numbers.			
6.7.2-34	The AR module will provide the capability to allow default customer account data such as name to automatically populate when invoices are being entered.			
6.7.2-35	The AR module will provide capability that allows customer data such as customer account number to automatically populate when invoices are being entered.			
6.7.2-36	The AR module will provide capability for comments to be entered against an invoice.			
6.7.2-37	The AR module will have the capability to capture unlimited document line items per invoice.			
6.7.2-38	The AR module will provide the capability to update the invoice date on each record.			



Capability Number	Capability	ully Conforming	NonConforming	Comments
6.7.2-39	The AR module will provide the capability to store journal ID, user, paid date, posted date, transaction amount, transaction ID, transaction type, etc. for all invoice transactions.			
6.7.2-40	The AR module will provide the capability to produce invoices to any customer account for NSF checks received.			
6.7.2-41	The AR module will have an option to generate a receipt for customer account payments.			
6.7.2-42	The AR module will have the capability to record cash receipts and apply to a GL account.			
6.7.2-43	The AR module will provide the capability to reconcile any payments to the appropriate invoice.			
6.7.2-44	The AR module will support the capability to record billing items (e.g., fare media and products) by line item in order to identify unique accounting classification codes.			
6.7.2-45	The AR module will support the setting of configurable credit limits for customer accounts. The AR module will support the automated generation of credit holds, and disabling of order privileges within the customer website, when the cred limit is reached.			
6.7.2-46	The AR module will support the application of payments (full and partial), credit memos, and adjustments against customer accounts. The process will support batch entry of receipts and lockbox functionality. The AR module will provide the capability to apply partial payments against an invoice and the ability to apply one payment to multiple invoices.			
6.7.2-47	The AR module will provide the capability to track and post refunds to a customer account against the applicable contract and/or invoice.			
6.7.2-48	The AR module will provide the capability to track check number, payment reference (for electronic payments), check date, check amount, contract number, account name, address, point of contact name when duplicate payment returne to issuing customer account.			
6.7.2-49	The AR module will provide tracking and collection processes for open accounts receivable.			
6.7.2-50	The AR module will provide the capability to store a copy of demand letter for payment.			
6.7.2-51	The AR module will have the option of sending a form letter along with any statement either electronically or physically			
6.7.2-52	The AR module will provide automated write-offs capability based on user defined criteria.			
6.7.2-53	The System will have the capability to generate statements on request, categorized by month, displaying history, invoic number and date, check number received and amount, customer, and amount due.			
6.7.2-54	The AR module will support the automatic generation of interest charges for charges that are past due, and generate dunning (e.g., collection) letters for overdue receivables when they become delinquent.			
6.7.2-55	Accounts Receivable and Billing reports will be created and used to make manual entries in the participating Agencies' financial applications. All reports can be exported to .csv or excel and can include invoice amounts, customer account name, amounts paid, outstanding balances and other information in The AR module.			
6.7.2-56	The AR module will track receivables for prepaid, post-bill fare media and product sales initiated through the CRM application and customer website to support bulk sales and special fare programs.			
6.7.2-57	The AR module will provide the capability to perform online queries of account activity (e.g., billing, collection, and adjustment) by customer account and receivable to support the display of invoice, account, and payment status in the CRM application and on the customer website.			
6.7.3-1	The Accounts Payable (AP) module will support the issuance of customer account refunds via check or wire transfer depending on transaction amounts.			
6.7.3-2	The AP module will prohibit a vendor from having more than one Vendor ID in the System. The System will also provide the ability to define parent/child/partner/other relationship fields/categories to facilitate vendor-based reporting.			
6.7.3-3	The AP module will provide the ability to process refunds from Accounts Payable or CRM. The Customer Account Management API will provide integration with the Financial management application through Accounts Payable for the issuance of customer account refunds.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.7.3-4	The AP module will have the ability to create vendors and maintain the necessary information for correspondence, payment and 1099 tracking (e.g., name, address, contract, payment terms, payment method, tax ID).			
6.7.3-5	The AP module will allow assigning payment method (check, ACH, wire transfer, etc.) to the vendor and only authorized users can make changes.			
6.7.3-6	The AP module will provide the ability to default vendor payment terms and capture payment terms on an invoice that are different than those specified on the associated vendor record.			
6.7.3-7	The AP module will have the ability to produce letters for vendors who have not yet provided a tax id.			
6.7.3-8	The AP module will provide the ability to update payment status after confirmation from bank interface.			
6.7.3-9	The AP module will provide the ability to access vendor list when processing invoices.			
6.7.3-10	The AP module will provide fields to differentiate the invoice date from the received date for vouchers.			
6.7.3-11	The AP module will provide the ability to do paperless matching between invoice, purchase order and/or receipt.			
6.7.3-12	The AP module will provide the ability to void a payment and reissue without rekeying the invoice.			
6.7.3-13	The AP module will provide the ability to either withhold, transfer, or release retainage and costs.			
6.7.3-14	The AP module will provide the ability to enter comments while processing invoices.			
6.7.3-15	The AP module will provide the ability to enter invoices and code them to specific projects, departments, or Agency.			
6.7.3-16	The AP module will provide the ability to establish funding schedules for each bank account.			
6.7.3-17	The AP module will provide the ability to link bank wire number to invoice number.			
6.7.3-18	The AP module will provide the ability to make accounting adjustments to invoice after posting but before payment.			
6.7.3-19	The AP module will provide the ability to record internal comments on invoices that will not appear on the check remittance advice and the ability to record external comments that will appear on the check remittance advice.			
6.7.3-20	The AP module will provide the ability to categorize invoice types.			
6.7.3-21	The AP module will provide the ability to default accounting fields for payments.			
6.7.3-22	The System will provide the capability to create a positive pay file for the bank.			
6.7.3-23	The AP module will support partial payments to vendors.			
6.7.3-24	The AP module will provide the ability for vendors to participate as an ACH payee.			
6.7.3-25	Payment will be considered to be made on the settlement date for an EFT payment or the date of the check for a check payment. Payments falling due on a weekend or federal holiday may be on the following business day without incurring late payment interest penalties.			
6.7.3-26	The AP module will provide the ability to identify payments to be disbursed in a particular payment cycle based on their due date.			
6.7.3-27	The AP module will provide the ability to record payments made on behalf of another Agency, citing the other Agency.			
6.7.3-28	The AP module will provide the ability to void payments and reverse invoices.			
6.7.3-29	The AP module will provide the ability to modify recurring payments schedules.			
6.7.3-30	The AP module will have the ability to link a copy of a check to a corresponding invoice.			
6.7.3-31	The AP module will provide the ability to allow check remittance advice prints with the check.			
6.7.3-32	The AP module will provide the ability to allow processing of prepayments (advances) and applying prepayments to invoices once invoices are received.			
6.7.3-33	The AP module will provide the ability to prevent the creation of EFT (Fedwire, ACH, or CTX) funding that does not contain a RTN, bank account number and account type (checking or savings).			

Capability Number	Capability	ully Conforming	onConforming	
6.7.3-34	The AP module will provide the ability to process debit/credit memos.			
6.7.3-35	The AP module will provide the ability for the starting payment number to be entered when printing checks.			
6.7.3-36	The AP module will provide the ability to pay from multiple bank accounts.			
6.7.3-37	The AP module will provide the ability to pay invoices individually (one check per invoice).			
6.7.3-38	The AP module will have the ability to show both pending and released payments.			
6.7.3-39	The AP module will provide the ability to perform multiple check runs in a given day.			
6.7.3-40	The AP module will provide the ability to prevent payment to vendors with a debit balance (AR/AP netting).			
6.7.3-41	The AP module will be able to attach supporting documentation, such as receiving documents and correspondence relating to the invoice.			
6.7.3-42	The AP module will provide the ability to assign unique application-generated document numbers to invoices along w the vendor invoice number.			
6.7.3-43	The AP module will provide the ability to scan and store invoice documents.			
6.7.3-44	The AP module will provide the ability to automatically create invoice and line detail from a corresponding purchase order/receipt.			
6.7.3-45	The AP module will provide the ability to allow for user-defined treatment of matching differences to include: payme hold, payment with debit memo, or payment after workflow routing for proper authorization.			
6.7.3-46	The AP module will provide the ability to allow partial approval of invoices.			
6.7.3-47	The AP module will provide the ability to assign invoices to individuals for approval.			
6.7.3-48	The AP module will provide the ability to enable workflow for approval routing of invoices and vendors.			
6.7.3-49	The AP module will provide the ability to identify and resolve matching exceptions.			
6.7.3-50	The AP module will provide the ability to include reason codes and a comment field on invoices that are not approved			
6.7.3-51	The AP module will provide the ability to apply credit memos to existing invoices or on the vendor's account.			
6.7.3-52	The AP module will provide the ability to specify multiple approvers with business rules within workflow.			
6.7.3-53	The AP module will provide the ability to apply the credit to any transit account specified regardless of the actual disbursement against which the credit may be applied.			
6.7.3-54	The AP module will provide the ability to process future dated invoices.			
6.7.3-55	The Financial Management application will provide the ability to use multiple inter-company accounts for accounts payable purposes			
6.7.3-56	The AP module will provide the ability to calculate discounts based upon invoice date.			
6.7.3-57	The AP module will provide the ability to calculate multiple due dates when items on an invoice have different payme terms.			
6.7.3-58	The AP module will provide the ability to notify vendors of payments that have been offset by credit memos. Specifyi the invoice number, invoice amount, payment amount, and payment date.			
6.7.3-59	The AP module will provide the ability to split invoice lines between 1099 and non-1099 lines.			
6.7.3-60	The AP module will provide the ability to prevent payments without corresponding invoices.			
6.7.3-61	The AP module will provide real-time visibility of vendor payment status to authorized users.			
6.7.3-62	The AP module will provide the ability to view outstanding vendor balances.			
6.7.3-63	The AP module will have the ability to retain cleared checks in a database for inquiry and/or reporting purposes.			
6.7.3-64	The AP module will have the ability to perform online query to provide payment information via accounts payable transactions by an invoice number.			

Capability Number	Capability	ully Conforming	onConforming	
6.7.4-1	The System will have the ability to allow users access to historical general ledger entries and be able to sort them b financial data architecture elements (e.g., account, department, product, Agency).			
6.7.4-2	The Financial Reporting and Query Module will have functionality to run custom queries and provide a dashboard can be configured.			
6.7.4-3	Financial reports will have access to all data and fields in the financial, accounts receivable, and billing modules.			
6.7.4-4	The Financial Reporting and Query Module will have an easy-to-use interface as defined during design review and acceptance testing. The interface will allow end users to create (select a title, add fields, add parameters such as d save, and "keep private" or "make public" based on security and access. The user interface will have simple look-u find fields or create parameters.			
6.7.4-5	The Financial Management application will include a robust reporting tool that generates canned and custom repo The reporting tool will allow the viewing, running, and scheduling of predefined reports, as well as the creation of custom reports.			
6.7.4-6	The System will provide audit history and reports to clearly track changes in data.			
6.7.4-7	The Financial Reporting and Query Module will allow for all reports to be exported to pdf, .csv, Excel, or other defi format.			
6.7.4-8	Financial Reporting and Query Module will allow for configured, ad hoc queries, saved queries and pre built report			
6.7.4-9	Access to the Financial Reporting and Query Module will be controlled through the same role based security mode the financial, accounts receivable and billing modules.			
6.7.4-10	Reports built by the SI as part of the initial implementation will include at minimum: • Trial balance • next gen ORCA financial Statements • Revenue and expenses by Agency • Revenue by product • Revenue by sale channel • Revenue by Agency • Revenue by customer account • Accounts receivable aging • Customer account invoice • Customer account invoices by date • Customer account statement • Customer account statements by date			
6.7.4-11	Financial reports will be created and used to make manual entries in the participating Agencies' GLs. The reports w provide the accounting details required to make the journal entries in the Agencies' financial management applica No electronic interfaces between the fare collection and the Agencies' existing financial systems will be required.			
	Section 6.8 Central Payment Application			
6.8-1	The System will use solution that meets the ISMS security control baseline for all funding sources stored within the System. The SI shall make use of a third-party service so that no payment data, encrypted or otherwise, is stored w the System.			
6.8-2	The integration to the payment processor will be built using an API. All devices and systems processing payments the API to connect to the SI-provided Central Payment application.			
6.8-3	All devices and systems accepting payments will support a configurable amount for limits associated with a signatu credit card transactions.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.8-4	If a payment authorization is not completed within a configurable time period, or is interrupted, the ATP will cancel the transaction and notify the customer if possible and/or Agency staff. Any canceled transactions will be recorded.			
6.8-5	The System will maintain payment records to support the auditing of all payments processed, and to support payment dispute and chargeback resolution.			
6.8-6	The SI shall be responsible for integrating with the bank card processor/processing service for sales through all fare sale channels processed by the back office that uses a single merchant account with a transit merchant category code.			
6.8-7	The customer mobile app and customer website will support refunds. The refund process will be detailed and approved during design review. Refunds for bank card purchases will be available for automatic refund without having to re-ente the bank card number.			
6.8-8	Devices and systems requiring an interface to the payment processor include, but are not limited to: • ATP • VMs • CSTs • CRM application (for the call center) • Customer website • Customer mobile app • Validators (for open payments in the future) The System will be able to support open payments if accepted in the future.			
6.8-9	All devices and systems accepting payments will support split payments, with the use of up to three (3) funding sources to complete payment for a single sale, including use of multiple credit/debit cards, ACH funding sources, and cash.			
6.8-10	All devices and systems accepting payments will support configurable minimum and maximum payment amounts. The minimum and maximum amounts will be able to be independently set by distribution channel and payment type, including by credit/debit card type (e.g., Visa, MasterCard, American Express, and Discover).			
6.8-11	During payment processing, the System will be able to identify pre-tax benefit cards issued by the government and pre-tax benefit providers based on the Issuer Identification Number (IIN). Stored value and products loaded using this fare media will be identified as such and segregated within the transit account to support compliance with all applicable IRS regulations.			
6.8-12	The System will accommodate the ability to change bank processors in the event that the Agencies wish to do so. The Program needs the SI to be responsible for integration tasks.			
6.8-13	Bank card processing for the retail network and WSF toll booths will be performed through their separate point of sale systems.			
6.8-14	The Central Payment application will accept credit and debit cards through all channels, including customer service offices, VMs, call centers, and customer website.			
6.8-15	The Central Payment application will accept ACH transfers through the customer website, customer mobile app, and th CRM.			
6.8-16	The System will support full transaction-level reconciliation of all bank card payments processed through the System, including those accepted for customer account orders. This reconciliation will be automatic with any exceptions reported, the process will be approved during design.			
6.8-17	The Program needs the SI to provide all labor and materials required for Central Payment application testing, including but not limited to all bank cards, and all support services and facilities required to stage, inspect, and test all hardware and software being supplied.			

Capability Number	Capability	ully Conforming	NonConforming	Comments
6.8-18	Chargebacks will be automatically processed so that any remaining value associated with the purchase will be blocked.			
6.8-19	The Central Payment application will incorporate any services supported by the payment processor for the automated update of card data on file.			
	Section 6.9 Configuration & Change Management Application			
6.9-1	The SI will deploy a COTS, preferably SaaS, solution for software configuration management and version control.			
6.9-2	All workflow functionality and setup within the Configuration & Change Management application will be drag and drop to support simple administration and implementation.			
6.9-3	The Configuration & Change Management application will support the maintenance and consistency and updates within each software release.			
6.9-4	The Configuration & Change Management application will have functionality to track the physical attributes, design, and operational information for each environment throughout its life.			
6.9-5	The Configuration & Change Management application will support the planning, designing, development, and release fo all software development.			
6.9-6	The Configuration & Change Management application will have functionality to allow for collaborative team software development.			
6.9-7	Software updates to back office software, databases, and associated modules will be centrally managed with appropriat version control in place. Software releases will only be released by authorized system administrators following Agency approval.			
6.9-8	Functionality will allow for issue and resolution tracking.			
6.9-9	Functionality will allow for prioritization of tasks and development			
6.9-10	Each update will have a unique version number and include an activation date and time if applicable. Updates will be able to be downloaded and applied at that activation time, or activated immediately after download and verification is confirmed.			
6.9-11	The Configuration & Change Management application will have functionality to manage and monitor software capabilities, development, testing, environments, and migrations between environments.			
6.9-12	The Configuration & Change Management application will have workflow functionality to review and approve tasks, assign tasks, and monitor workloads.			
	Section 6.10 Tariff Management Application			
6.10-1	SI will design, build, and deploy a Tariff Management application that integrates with all the back office components allowing fare product changes and updates to be controlled by the Agencies.			
6.10-2	The fare tables will be easy to view, review, and test when entering during creation of initial tables and any future fare updates. This will be addressed during design and testing.			
6.10-3	The Tariff Management application will allow configuration by Agency, sales channel, location, and individual device.			
6.10-4	The Tariff Management application will integrate with frontend devices including the website and physical equipment where applicable.			
6.10-5	The Tariff Management application will have role-based security access to control who can access what based upon role			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
6.10-6	The Tariff Management application will allow a separate workflow process for each Agency and regional fare product so that changes can go through a formal review and approval process.			
6.10-7	The Tariff Management application will allow for design of fare sets. This includes all fare tables, fare rules, and other parameters necessary to support the fare structure by Agency by product. Different rules and structures will be available by Agency by product. Regional fare products will be configured centrally.			
6.10-8	The Tariff Management application will be able to manage, store, and deploy an active fare set and at least two (2) pending fare sets. An active fare set will become effective immediately upon publication. Pending fare sets will be able t be activated manually, or automatically based on a future activation date configured.			
6.10-9	The Tariff Management application will have an online manual and training guide.			
6.10-10	The Tariff Management application will allow Agencies to view and compare draft fare sets and changes to active and pending fare sets by Agency and regionally, by sales channel, and by fare product.			
6.10-11	The System will have the flexibility to support Agency fare changes without software modifications. All fare changes will be through fare table and other configuration changes.			
6.10-12	The back office will be capable of supporting at least four (4) fare tables (one current, two future, and one past), which includes all fare and configuration data required to sell and validate fare products.			
6.10-13	The Tariff Management application will have the ability to roll back to a previously used fare set.			
6.10-14	All fare product configurations will be able to be performed by the Agencies, as well as by the SI during implementation and throughout the warranty and software maintenance agreement terms.			
6.10-15	The System will allow fare set changes on a frequent, including daily, basis without regard to additional pending changes For example, an Agency could change fare rules regardless of other Agency changes that are pending.			
	Section 7 Fare Media			
	Section 7.1 General Capabilities			
7.1-1	Smart card media will be available for competitive purchase from multiple U.S. sources. The SI shall provide the specifications and associated documentation necessary to support the Agencies' future procurement of smart card media from third-parties.			
7.1-2	All fare media will be designed for use in an account-based system, and serve as a credential for accessing closed-loop transit accounts maintained within the back office. No data will be written to the media when loading or using fare value with the exception of data required to support risk mitigation techniques.			
7.1-3	The SI shall provide the initial supply of fare media to support the first year of operation following system launch.			
7.1-4	The System will support a one-time charge, or "card fee," for issuance of new fare media. This card fee will be able to be configured based on fare media type, passenger type, and distribution channel, and may be set to zero for specific fare media types, specific passenger types, or sales through specific channels.			
7.1-5	Agency-specific and regional fare products will be sold for use on next gen ORCA media.			
7.1-6	Sales channels and fare distribution devices will have the capability of issuing EU fare media. The System will also support other media types such as LU fare media should they be needed in the future.			
7.1-7	The Program needs the SI to design, develop, and provide manufacturing and delivery of all fare media required for successful deployment of the new System. The Program needs the SI to deliver all graphics files and related materials required for manufacture of the fare media to the Agencies for review and approval no less than 120 calendar days prior to the start of fare media production.			
7.1-8	All supplied fare media will undergo a comprehensive quality assurance process prior to delivery to confirm adherence to all required performance standards and certifications. Media that fail to meet these capabilities will be replaced by th SI at their own expense.			
	Section 7.2 Fare Media Format			

Capability Number	Capability	ly Conforming	nConforming	
7.2.1-1	All contactless fare media will comply with the most recent versions of ISO/IEC 14443-1 for physical characteristics and ISO/IEC 7810 ID1 for physical dimensions. Thickness and other physical characteristics not defined by these standards will be finalized during design reviews.			
7.2.1-2	EU fare media will be constructed of appropriate durable materials for a minimum useful life of 10 years. The media will comply with the most recent versions of ISO/IEC 10373 and ANSI INCITS 322 for durability. Media supplied by the SI that fails to meet these capabilities will be replaced by the SI at their own expense.			
7.2.1-3	The System will support the printing of personalized and customized media using the CST.			
7.2.1-4	In the future, the System may accept media issued by third parties, including but not limited to: • Reduced fare media (youth, senior, disabled, low income, etc.) • Employee IDs • College and school IDs			
7.2.1-5	The fare media will have read/write performance of not less than 200,000 read/write cycles.			
7.2.1-6	In addition to the contactless interface, EU fare media may be produced with barcodes and/or magnetic stripes to allow interaction with third-party systems outside the scope of the new System. If required, the format and data content of any barcodes or magnetic stripes will be defined during design review.			
7.2.1-7	All fare media will include an etched, unique non-sequential serial number for the purposes of traceability that is separate from the credential and smart card Unique Identification Number (UID) and a three-digit security code.			
7.2.1-8	Fare media will be produced based on branding developed by the Agencies and a card design developed jointly with the SI. Fare media will also be produced with one or both sides left blank for custom printing following manufacture.			
7.2.1-9	All pre-printed graphics will be protected by a clear coat that covers the entire surface of the card. This coating will not prevent secondary printing of cards.			
7.2.1-10	EU fare media will be printed using a four-color process, front and back, and support edge to edge printing.			
7.2.2-1	The transit payment application will be compatible with all modern MIFARE formats, including but not limited to: Ultralight C, MIFARE Plus, DESFire, and SmartMX. The specific platform to be used for the Agency-issued fare media will be proposed by the SI and approved during design review.			
7.2.2-2	The fare media will support account-based closed-loop fare payments in both single- and multi-application smart card environments.			
7.2.2-3	The fare media format will support a minimum of a 7 byte smart card Unique Identification Number (UID).			
7.2.2-4	In addition to the 14443 contactless interface, EU fare media may be produced with Indala 125KHz, 26 bit Weigand proximity technology to support King County Metro issuing a single card for ORCA use and its access control for employees. If required, the format and data content of any additional contactless interface will be defined during design review.			
7.2.2-5	The transit payment application will support the secure storage of a unique credential used to access a transit account maintained within the back office. The secure transit account credential will not be the smart card UID or transit account number used within the back office, and will not be printed on the media or otherwise accessible using a non-system device.			
7.2.2-6	The transit application will support the encoding of additional data at the time of manufacture and use to support risk mitigation techniques.			
7.2.2-7	The SI-developed transit payment applications and formats will be fully owned by or licensed to the Agencies, including the right to distribute specifications to third-parties for media production and to support multi-application smart card implementations without further approval, license, or payment.			

Capability Number	Capability	Fully Conforming	NonConforming	Comments
7.2.2-8	The Program needs the SI to publish bit-level specifications for all transit payment applications across all supported fare media within the System, including information on all security protocols necessary to access and encoded data on the media. The software specifications will be subject to Agency review and approval during design review.			[redacted]

SECTION FOUR EXHIBITS

EXHIBIT A [PROPOSED] AGREEMENT

Section 00 Agreement Form

Section 01 Systems General Conditions

Section 02 Federal Provisions

Section 03 Insurance Requirements

Section 04 Liquidated Damages Amounts

Section 05 Labor Compliance Manual

Section 06 Prevailing Wages

AGREEMENT SECTION 01 – AGREEMENT FORM

THIS AGREEMENT between CENTRAL PUGET SOUND REGIONAL TRANSIT AUTHORITY ("Sound Transit"), on behalf of the Regional Fare Collection System, and [Contractor name], hereinafter called the "Contractor" agree as follows:

The Contractor, for the consideration specified in the Contract Documents, shall in strict accordance therewith perform all the activities required by the Contract Documents for the following project:

SYSTEMS INTEGRATOR FOR NEXT GENERATION ORCA
Contract No. RTA/RP 0119-17

Sound Transit agrees to pay the Contractor for fulfillment of the Work and performance of the covenants set forth in Attachment A, Scope of Work and the other Contract Documents.

The Contract Documents consist of the documents listed below issued prior to execution of this Contract Agreement and all Change Orders issued subsequent to execution of this Contract Agreement. The following is an enumeration of the documents, not in their order of precedence:

- Change Orders
- This Agreement Form and Attachment A Scope of Work, [DATE]
- Addenda, issued for RFP No. RTA/RP 0119-17
- RFP No. RTA/RP 0119-17
- Contractor's Proposal Submittal, [DATE]
- Addenda, submitted to revise Contractor's Proposal Submittal, [DATE]
- Systems General Conditions, [DATE]
- All other Agreement Sections, [DATE]

Such Contract Documents form the Contract and all are as fully a part of the Contract as if attached to this Contract Agreement or repeated herein.

The Contractor agrees to complete the Work, furnish all tools, materials, facilities, and equipment necessary on the terms and conditions specified in the Contract Documents. The Contractor further agrees to assume and perform all of the covenants and conditions required of the Contractor pursuant to these Contract Documents, for the total not-to-exceed Contract Price of [$AMOUNT].

Except as expressly provided in the Contract Documents, no liability shall attach to Sound Transit by reason of entering into this Contract Agreement.

IN WITNESS WHEREOF, the parties have caused this Contract Agreement to be executed as of the dates indicated below.

SOUND TRANSIT:	*CONTRACTOR:*
By: _____	By: _____
Michael Harbour Deputy Chief Executive Officer	_____ Print Name and Title
Date: _____	Date: _____

Approved as to Form:

_____
Sound Transit Legal Counsel

END OF FORM

Attachment A **Scope of Work**

SECTION 01 - SYSTEMS GENERAL CONDITIONS

SYSTEMS GENERAL CONDITIONS

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ARTICLE 1 GENERAL

DEFINITIONS

A. **Acceptance** – ~~The~~ A written notice from Sound Transit to Contractor indicating full and satisfactory physical completion of specific Work ~~all~~ or part of the Work including all physical Punch List work.

B. **Addenda/Addendum** – Written modifications issued by Sound Transit to the Request for Proposals (RFP) that make changes to the Instruction to Proposers and /or Contract Documents.

C. **As-Built Drawings** – Neatly and legibly marked set of Contract Drawings, maintained by the Contractor with up to date information, showing all Changes in the Work, including final locations of all items of Work.

D. **Change** – A~~n~~ written alteration that modifies the scope of Work, equipment, materials, facilities, services, site, performance, schedule, or other material provision of the Contract.

E. **Change Notice** – Request for Proposal (CN-RFP) - A written request by Sound Transit to the Contractor for a Cost and Schedule proposal for a Change to the Contract. A CN-RFP does not authorize the Contractor to commence performance of the changed Work

F. **Change Notice** – Work Directive (CN-WD) - A written directive by Sound Transit to the Contractor to immediately proceed with a Change in the Work. Work Directives are incorporated into the Contract by a subsequent Change Orders.

G. **Change Order** – A written document signed by ~~Sound Transit~~ the parties that alters the scope of the Work, the Contract Time, the Contract Price, or makes any other change to the Contract.

H. **Claim** – A written demand by the Contractor seeking (1) the payment of money or adjustment to the Contract Price; (2) an extension of Contract Time; (3) an adjustment of Contract terms; and /or, (4) other relief arising under or relating to this Contract.

I. **Contract (aka "Agreement")** – Written agreement executed by Sound Transit and the Contractor which sets forth the rights and obligations of the parties in connection with the Work.

J. **Contract Documents** – The Change Orders, Agreement Form with attachments, Special Conditions, General Conditions, Contract Specifications, Contract Drawings, Diversity Program Provisions, any materials referenced therein, and any other documents listed in the Contract as embodying the legally binding obligations between Sound Transit and the Contractor for completion of the Work.

K. **Contract Drawings** – Plans, profiles, typical cross sections, general cross sections, elevations, schedules, and details listed or included in the Contract Documents.

L. **Contract Milestone** – A date specified in the Contract by which the Contractor is required to complete a designated portion, delivery or increment of the Work.

M. **Contract Price** – The amount payable to the Contractor under the terms and conditions of the Contract based on lump sum prices, unit prices, provisional sums, or combination thereof, with adjustments made in accordance with the Contract.

Commented [Legal1]: The change to this definition makes it clear that acceptance notice should be in writing and that it relates to specific Work. Such changes would reduce the risk of any uncertainty as to when Acceptance takes place and it clarifies what Work it relates to.

Commented [Legal2]: The added language clarifies the paragraph. The change would reduce the risk of confusing the change details.

Commented [Legal3]: The added/changed language clarifies the paragraph and makes it more balanced. The change would make it clear that both parties need to sign a Change Order. This will clarify any Change Order and reduce risk of uncertainties.

Commented [Legal4]: The changed/added language clarifies the paragraph. The change would make it clear that both parties need to sign a Change Order. This will reduce risk of uncertainties.

N. **Contract Specifications** – The part of the Contract Documents containing written directions or requirements that specify the requirements which have to be fulfilled for the completion of the Work.

O. **Contract Time** – The time allotted in the Contract Documents for completion of the Work. The Contract Time begins upon the receipt by Contractor ~~effective date~~ of the Notice to Proceed and ends on the date of Final Acceptance. Contract Time incorporates the Contract Milestones established for the Contract.

P. **Contractor** – The person, persons, partnership, joint venture, company or corporation which enters into this Contract with Sound Transit for the performance of Work required by this Contract.

Q. **Contractor's Project Manager** – Contractor's authorized representative designated to perform technical and administrative functions of this Contract, ~~that is charged with the professional execution of this Contract,~~ as designated in writing to Sound Transit.

R. **Cost and Schedule Proposal** – A document prepared by the Contractor at the request of Sound Transit, which proposes in detail changes to the Work and/or adjustments to the Contract Price and/or Contract Time.

S. **Critical Path** – The longest, continuous sequence of activities that begins at the start of the Contract (~~effective date~~ receipt by Contractor of the Notice to Proceed) and concludes with the completion of the Contract Milestone(s). This path represents the longest chain of interrelated activities throughout the network from beginning to end. These activities are critical because delay to an activity on this path ~~will~~ may extend the Contractor's attainment of one or more Contract Milestone(s).

T. **Days or days** – Calendar days, unless otherwise specified.

U. **Defective Work** – Specific elements of the Work that do not conform to the requirements of the Contract and that will not be accepted by Sound Transit, at Sound Transit's discretion.

V. **Equitable Adjustment** – An adjustment to the Contract Price and / or Contract Time to compensate the Contractor for Extra Work, as part of a negotiated Change Order.

W. **Equivalent** – Equal or better quality and performance to that specified in the Contract Documents.

X. **Extra Work** – Furnishing of materials and equipment and the performance of Work neither directly nor by implication called for in the Contract Documents that is necessary for the Contractor's timely completion of the Work through no fault, error, omission, negligence, neglect, lack of planning, or lack of diligence of the Contractor.

Y. **Field Clarification** – a document prepared by Sound Transit and issued to the Contractor that clarifies and/or corrects minor discrepancies in the Contract Documents that do not affect the cost or schedule of the Work.

Z. **Final Acceptance** – Written notice from Sound Transit acknowledging that the Contractor has fulfilled all of its obligations under the Contract and that Sound Transit has accepted the Work as of the date stated in the Notice. Final Acceptance is a condition precedent to Final Payment.

Commented [Legal5]: The addition clarifies that the time for completion only starts when the contractor receives the Notice to Proceed.

Commented [Legal6]: The changed/added language would make the term consistent with Sound Transit's own definition of the duties for its Regional Project Manager. (RFP Article – "Definitions" – UU.)

Commented [Legal7]: The changed/added language clarifies the clause. The change will provide clarity as to when the Critical Path starts, as well as making it clear that this may extend the Contractor's attainment of one or more Contract Milestone(s).

AA. **General Conditions** – Sound Transit's standard general contractual provisions for contracts which, as augmented and supplemented by other Contract Documents, describe the contractual relationship of the parties and their rights and responsibilities to each other.

BB. **Hazardous or Contaminated Substance** – (a) any substance, product, waste, or material of any nature whatsoever which is or becomes listed, regulated, or addressed pursuant to the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. Section 9601, et seq. ("CERCLA"); the Hazardous Materials Transportation Act, 49 U.S.C. Section 1801, et seq.; the Resource Conservation and Recovery Act, 42 U.S.C. Sections 6901, et seq. ("RCRA"); the Toxic Substances Control Act, 15 U.S.C. Sections 2601, et seq.; the Clean Water Act, 33 U.S.C. Sections 1251, et seq.; or any other federal, state, or local statute, law, ordinance, resolution, code, rule, regulation, order, or decree regulating, or imposing liability or standards of conduct concerning any hazardous, toxic, or dangerous waste, substance, or material, as now or any time thereafter in effect; (b) any substance, product, waste, or other material of any nature whatsoever that may give rise to liability under any of the above statutes or under any reported decision of a state or federal court; (c) petroleum or crude oil, excluding de minimus amounts; and (d) asbestos.

CC. **Industry Standards** – Drawings and specifications or portions thereof published by industry organizations, which are not Contract Documents unless specifically listed as such in a Specification.

DD. ***Partial Payment Schedule*** - The breakdown of the Contract Price into incremental performance stages or deliveries..

EE. **Non-Conforming Work** – Specific elements of the Work that do not conform to the requirements of the Contract but that otherwise may be acceptable to Sound Transit, at Sound Transit's discretion.

FF. **Notice** – Communication in writing, unless otherwise specified, which complies with the notice requirements of the Contract Documents, to provide or issue any information, warning, announcement, instruction, consent, approval, certificate or determination by any person or party to the Contract.

GG. ***Notice of Intent to Claim*** - A written notice of a potential claim submitted by the Contractor to Sound Transit within the time limits and in accordance with the conditions specified in the Contract Documents.

HH. **Notice to Proceed** – Written notice issued by Sound Transit which, on the date received by the Contractor establishes the date on which the Contractor may commence Work and directs the Contractor to proceed with all or a portion of the Work.

II. **Partial Payment** – Payment of a portion of the Contract Price before the contract is completed for delivery or performance in increments. Delivery and performance incremental stages are defined in the Partial Payment Schedule.

JJ. **Product Data** – Information furnished by the Contractor to describe materials used for some portion of the Work, such as written or printed descriptions, illustrations, standard schedules, performance charts, instructions, brochures, and diagrams.

Commented [Legal8]: Should be moved to be in alphabetical order – consistent with other definitions.

Commented [Legal9]: The change clarifies the timing of when Notice to Proceed is received and would reduce uncertainty. The definition heading is not in alphabetical order as the rest of the defined terms, and for clarification should be moved to be consistent.

KK. **Project** – Sound Transit's Project, of which this Contract is a part.

LL. **Project Schedule** – The schedule, prepared by the Contractor in accordance with the requirements of the Contract and accepted by Sound Transit, setting forth the logical sequence of activities required for the Contractor's orderly performance and completion of the Work in accordance with the Contract and specifically to meet the specified Contract Milestones.

MM. **Proposal** – The written proposal submitted to Sound Transit as required by the Request for Proposals.

NN. **Proposal Documentation** – Any and all work papers, spreadsheets, takeoffs, material lists, subcontractor quotes, vendor or material quotes, lists of wage rates and equipment rates (both rented and owned) and any and all papers, documents and electronic information or computer files created or used by Contractor when preparing its Proposal.

OO. **Proposer** – An individual, firm, partnership, corporation, joint venture or other legal entity submitting a proposal for the work.

PP. ***Provisional Sum or Allowance*** - An amount established in the Contract Documents for inclusion in the Contract Price to cover the cost of prescribed items not specified in detail, with provision that variations between such amount and the finally determined cost of the prescribed items will be reflected in Change Orders appropriately adjusting the final Contract Price. Any amount included in the Contract Price but not used in the course of the Work shall be returned to Sound Transit by way of deductive Change Order.

QQ. **Punch List** – The list(s) of elements of the Work that remain to be completed or corrected after achievement of Substantial Completion of the Work or portions of the Work which must be completed as a condition of Acceptance.

RR. **Reference Documents** – Drawings, specifications, and other documents that do not specify Work required by the Contract, but which provide supplemental information regarding the Contract.

SS. **Reference Specifications** – Specifications prepared by or belonging to Utilities or third parties (including but not limited to other governmental bodies) in whose rights-of-way, easements or properties all or part of the Work is to be executed.

TT. **Request for Information (RFI)** – The document by which the Contractor requests clarification, verification or information on a portion of the Work.

UU. **Regional Program Manager** – Sound Transit's authorized representative designated to perform technical and administrative functions of this Contract.

VV. **Safety Certification** – A formal process implemented to ensure that all of Sound Transit's Rail Transit System facilities, equipment, and training programs conform to the established requirements. This includes reviewing and certifying items for compliance with operational safety requirements prior to the start of revenue service to ensure a safe operating Rail Transit System.

WW. **Safety Critical Item** – Any submittal, installation, inspection, or test identified in the Specification Conformance Checklist that has been determined by Sound Transit to have an impact on the safe operation of its Rail Transit System.

XX. **Samples** – 1) Representative quantities of materials taken in specified amounts and frequencies for subsequent testing in accordance with specified procedures; or 2) physical examples of materials to be supplied or workmanship, which shall, when approved by Sound Transit, establish standards by which the Work shall be compared and evaluated.

YY. **Site (aka Project Site)** – The areas that are occupied by or used by the Contractor, Subcontractors, Consultants, Subconsultants during performance of the Work in the Puget Sound area of Washington, and are indicated in the Contract Documents as being within the project limits. This includes any areas outside the project limits, which are designated in writing by Sound Transit as being part of the Project Site. For purposes of the Contract Documents, and not for prevailing wage determinations, off-site precast factories/facilities will not be considered part of the Site.

ZZ. **Software System** – A term used for a system software, written programs or procedures, or rules, and associated documentation designed to perform an intended purpose and identified in the contract documents and requirements. This system may be made up of multiple software programs that are developed by Contractor and licensed ~~for~~ to Sound Transit and/or third party software applications.

AAA. **Sound Transit** – The Central Puget Sound Regional Transit Authority.

BBB. **Special Conditions** – A part of the Contract Documents, which modify the General Conditions and provide information specific to this Contract.

CCC. **Specification Conformance Checklist** – A document that provides evidence that the Sound Transit's Rail Transit System will operate safely in accordance with safety critical requirements for documentation, installation, inspection and testing referenced in the Contract Specifications.

DDD. **Subcontract** — Any Contract between the Contractor and a Subcontractor, or between Subcontractors of any tier, to perform a portion of the Work.

EEE. **Subcontractor** – An individual, firm, partnership, or corporation that has a contractual obligation with a Consultant, Contractor or other Subcontractor to perform some part of the Work required for the completion of the Contract, and whose principals or employees are actively performing such Work at the Project Site.

FFF. **Submittal** – Written or graphic document or sample that is required by the Contract Documents and is prepared for the Work by the Contractor, a Subcontractor or Supplier, and submitted to Sound Transit by the Contractor, including shop drawings, product data, samples, certificates, schedules of material or other data. Submittals are not Contract Documents.

GGG. **Substantial Completion** – The time at which the Work or a portion thereof has progressed to the point where it is sufficiently complete in accordance with the Contract Documents, so that the Work, or a specified portion thereof, can be utilized for the purpose for which it is intended.

HHH. **Substitution** – An item of significant difference in material, equipment or configuration which functionally meets the requirements of the Contract Documents but does not meet the

Specifications and is equivalent to the specified item.

III. **Suppliers** – Any person, firm, partnership, corporation, joint venture, or combination thereof, other than a Subcontractor, contracting with the Contractor, either directly or through a lower-tiered contractual relationship, to furnish goods or services in connection with the Contract.

JJJ. Intellectual Property of Contractor ~~***Technical Data***~~ - Any plans, drawings, designs, specifications, technical reports, operating manuals, notes, data, documentation, and computer software (in source code and object code form), ~~not specifically~~ other than those licensed by ~~designated as existing proprietary know-how of the~~ Contractor, its Subcontractors or Suppliers~~, which are required~~ to be supplied as part of the Work.

Commented [Legal10]: These changes make it clear that it is the Intellectual Property of Contractor that is referenced. Moreover, that such property is the property of the Contractor, and that Contractor has agreed to license said IP to Sound Transit. If the change of description for heading is accepted, the term needs to be moved to be in alphabetical order under "Definitions".

KKK. ***Third Party Software***- Any software, firmware, or program reasonably necessary to operate or maintain any part of the System that does not constitute Contractor Software.

LLL. **Unknown Hazardous and Contaminated Substances** – Hazardous or Contaminated Substances that were not indicated in the Contract Documents that were present on the Site, and that are unexpectedly encountered by the Contractor during the performance of the Work.

MMM. **Utility or Utilities** – All public and private facilities, other than the Sound Transit system facilities, which relate to 1) the conveyance and supply of water, sewage, gas, chemicals, steam, petroleum products, and other piped installations; or 2) electrical energy, telephone, telegraph communications, radio, television, and public transit installations.

NNN. **Utility Standards** – Drawings and specifications for Utilities published or issued by municipalities or utility companies.

OOO. **Work** – The requirements of the Contract as specified, shown, indicated or implied in the Contract Documents, including all alterations, amendments or extensions thereto made by Change Orders.

INTENT AND INTERPRETATION OF CONTRACT DOCUMENTS

A. The intent of the Contract Documents is to describe the Work and completion of the Work. Where the Contract Documents describe portions of the Work in general terms, but not in complete detail, the Contractor shall use its best practice ~~shall be followed~~ and, unless otherwise specified herein, Contractor shall use only materials and workmanship that it considers of best quality ~~shall be used~~. Unless otherwise specifically stated in the Contract, the Contractor shall furnish, deliver, provide, and pay for all materials, labor, professional services, tools, equipment, water, light, power, heat, transportation, supervision, temporary Work of any nature, consumables, and other services and facilities of any nature, whatsoever necessary, to execute, complete and deliver the Work within the Contract Time. The Work shall be executed in strict conformance to the Contract requirements.

Commented [Legal11]: It makes it clear that it is Contractor's best practice which is referred to. The second change reflects that there could be references in other documents as to the type of materials and/or workmanship to be applied.

B. The Contract Documents set forth the requirements as to the nature of the completed Work and do not purport to control the means and methods of performing Work, unless specifically set forth in the Contract Documents. The Contractor is wholly responsible for making its own decisions about the means and methods of performing the Work. If any references have been made in the Contract Documents to responsibilities of work by crafts and specialty or trade contractors, these references were made for the convenience of preparing the Contract Documents and are not intended to limit any responsibility of the Contractor to provide a complete installation under the Contract.

CONTRACT IS SUBJECT TO FEDERAL PROVISIONS

The Contract is partially funded by the Federal Transit Administration ("FTA") and/or the Federal Highway Administration ("FHWA") is therefore subject to certain federal provisions. Further, the FTA and FHWA require that certain terms and conditions of the Contract Documents be included in all Subcontracts. The Contractor shall be responsible for ensuring all applicable mandatory Federal provisions are included in all Subcontracts. These mandatory Federal provisions are set forth in Section 02 Federal Provisions.

CONFORMITY TO CONTRACT DOCUMENTS

The Work in all cases shall conform to the Contract Documents or approved modifications thereto, and shall be within the tolerances specified, or, if no tolerance is specified, as determined by the Regional Program Manager.

ORDER OF PRECEDENCE

A. The Contract Documents are intended to be complimentary and to describe and provide for a complete Work. They are also to be interpreted in harmony so as to avoid conflict, with words and phrases interpreted consistent with design industry standards. The documents identified below are listed in order of precedence. To the extent that there are different provisions in Contract Documents that address the same matter or subject and these different provisions conflict, the document having the highest priority that addresses the matter or subject shall control. If conflicting provisions within the same level of Contract Documents exist, and one is more stringent than another, the more stringent provision will prevail.

- Change Orders/Contract Amendments with the most recent taking precedence over earlier dated
- Section 00 Agreement Form with Attachment(s), [DATE]
- Section 01 Systems General Conditions, [DATE]
- Section 02 Federal Provisions, [DATE]
- Section 03 Insurance Requirements, [DATE]
- Section 04 Liquidated Damages, [DATE]
- Section 05 Labor Compliance Manual, [DATE]
- Section 06 Prevailing Wage Rates, [DATE]
- Contract Drawings, [DATE]
- Industry Standards, only when specifically incorporated into a Contract Scope of Work
- Reference Specifications
- Reference Drawings
- Contractor's Proposal

Commented [Legal12]: Language added since Contract Amendments may not be considered Change Orders.

Commented [Legal13]: In accordance with Section 01 Agreement Form – Contract Documents.

B. In case of differences between small and large-scale drawings, the large-scale drawings shall govern. Schedules on drawings shall take precedence over conflicting notations on drawings. In the event of discrepancy between any drawing and the figures written thereon, the figures, unless otherwise indicated, shall govern over-scaled dimensions.

C. References to Industry Standards, material specifications, test methods, or other publications of the Washington Department of Transportation (WSDOT), American Association of State Highway and Transportation Officials (AASHTO), Federal Railroad Administration (FRA),

American Association of Railroads (AAR), American Railroad Engineering and maintenance of Way Association (AREMA), Institute of Electrical and Electronic Engineers (IEEE), American

Society for Testing and Materials (ASTM), other governmental agencies, or other recognized national organizations are those officially adopted by those agencies and organizations. Industry Standards (if specifically incorporated by any Specification) apply only to material, workmanship and procedure. Commercial terms (e.g. Control of Work, Temporary Traffic Control, Legal Relations and Responsibilities to the Public, and Measurement and Payment) are not included in the reference. All material, equipment and workmanship specified by the number, symbol, or title of a referenced Industry Standard shall comply with the latest edition or revision thereof and all amendments and supplements thereto in effect on the date of the Request for Proposals, except where a particular edition or revision thereof is indicated in the reference.

REQUESTS FOR INFORMATION / FIELD CLARIFICATIONS

A. Request for Information

1. If the Contractor discovers, or in the exercise of reasonable diligence should have discovered, that the Work to be performed is not sufficiently detailed or explained in the Contract Documents, or that there is an apparent conflict or inconsistency between any part of the Contract Documents, the Contractor shall promptly apply a Request for Information in writing to the Regional Program Manager for such further written explanations as may be necessary. The Regional Program Manager ~~will~~ shall promptly address the RFI in writing. Before submitting a RFI, the Contractor shall diligently and thoroughly examine the Contract Documents. Costs incurred by Sound Transit to respond to RFIs which could have been avoided had the Contractor examined the Contract Documents shall be the responsibility of the Contractor. The Contractor shall also plan its Work in an efficient manner so as to allow for timely responses to RFIs. If requested by the Regional Program Manager, the Contractor shall prioritize its RFIs and explain the reasons for such priority. The Contractor's submission of an RFI shall be a condition precedent to a Contractor submitting a claim related to any conflict or inconsistency, and the Contractor's failure to apply to the Regional Program Manager for interpretation or clarification of any known conflict or inconsistency shall bar any subsequent claim related to the conflict or inconsistency. The Contractor's submission of an RFI does not fulfill the requirements of Article 10 for timely Notice of Intent to Claim or Notice of Delay and shall not constitute a Claim.

2. Sound Transit will reply to the RFI with reasonable promptness. If Contractor submits an RFI on an activity less than twenty (20) days prior to the commencement of that activity, Contractor shall not be entitled to any time extension or adjustment to the Contract Price due to the time it takes Sound Transit to respond to the RFI.

3. Responses by Sound Transit to RFIs are not changes to the Contract. If Contractor believes a response to an RFI constitutes changed work or causes an adverse impact to performance of the Work or schedule, the Contractor is required to submit a Request for Change in accordance with the requirements of Article 4.02.

B. Field Clarification

If Sound Transit identifies minor discrepancies in or a need to clarify information contained in the Contract Documents, Sound Transit may issue a Field Clarification to so correct the minor

Commented [Legal14]: Language is added/changed for clarification of the paragraph. Time is of essence to both parties and words indicating action timing have been added.

discrepancies or provide the clarification. Because Field Clarifications should not have any effect on the cost or time of performance of the Work, they do not provide for either a time extension or a change in the Contract Price. If Contractor believes that a Field Clarification constitutes changed work for which a time extension or additional compensation is necessary, the Contractor is required to submit a Request for Change in accordance with the requirements of Article 4.02.

SITE INVESTIGATION AND CONDITIONS AFFECTING WORK

A. By submitting its Proposal for the Work and executing the Contract, the Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the condition of the site itself, including without limitation the general and local conditions which can affect the work or its costs, including but not limited to local weather, traffic patterns, availability of labor, available utilities, local requirements, adequacy and accuracy of Contract Documents, the character of equipment and materials required to perform the Work, and conditions bearing upon utilities as relates to temporary or permanent relocation or installation thereof.

B. The Contractor acknowledges that any equipment or site reports referenced in the Contract Documents are only intended to describe the conditions at a particular point in time, and are not guaranteed to represent the actual conditions the Contractor will encounter during the course of the Work. The Contractor acknowledges that it has satisfied itself as to the character, quality and quantity materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the equipment or site and information available to the Contractor in the Contract Documents or Reference Documents.

C. Any failure of the Contractor to take actions described and acknowledged in this Article will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the Work, or for proceeding to successfully perform the Work without additional expense to Sound Transit.

D. By submitting a Proposal for the Work and by executing the Contract, the Contractor certifies that it has carefully reviewed, has had clarified, and understands all of the Contract Documents; has inspected the equipment and site as needed to evaluate and assess all pertinent existing conditions applicable to the Work, and is satisfied as to its ability and intention to conduct and complete the Work required in the Contract Documents on the terms and conditions stated in the Contract. In particular, the Contractor certifies that it has reviewed the requirements for the format and detail of records to be maintained at all times during the performance of Work, and that it has instituted or will implement the preparation and maintenance of all such records. In particular, the Contractor represents as follows:

1. It is familiar with and is satisfied as to all Federal, state and local laws and regulations that may affect the cost, progress, performance and furnishing of the Work;

2. It has correlated with the Contract Documents the information known to the Contractor, information and observations obtained from visits to the site, and reports and drawings identified in the Contract Documents; and

3. It has given Sound Transit written notice of all conflicts, errors, ambiguities or discrepancies that the Contractor has discovered in the Contract Documents and that

the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 2 AUTHORITY AND RESPONSIBILITY

CONTRACT IS BETWEEN CONTRACTOR AND SOUND TRANSIT

The Contractor is an independent contractor with respect to the performance of all Work hereunder, retaining control over the detail of its own operations and the Contractor shall not be considered the agent, partner, fiduciary or trustee of Sound Transit. The Contractor shall not conduct itself as nor claim to be an officer or employee of Sound Transit. The Contractor will not make any claim, demand or application to or for any right or privilege applicable to an officer or employee of Sound Transit, including, but not limited to, worker's compensation coverage, unemployment insurance benefits, social security coverage or retirement membership or credit. No employee of the Contractor or any Subcontractor is or shall be deemed to be an officer or employee of Sound Transit. Subcontractors to the Contractor will not be recognized as having a direct relationship with Sound Transit, nor are Subcontractors intended or incidental third-party beneficiaries to this Contract.

DUTY OF CONTRACTOR

A. The Contractor has sole authority and responsibility to employ, discharge and otherwise control its employees and has complete and sole responsibility as a principal for its agents, for all Subcontractors and for all other persons that the Contractor or any Subcontractor hired to perform or assist in performing the Work.

B. The Contractor shall enforce strict discipline and good order among its employees at all times and shall not employ on the Work any unfit person or anyone not skilled in the task assigned to him or her. Any person employed on the project by the Contractor or any of its Subcontractors who, in the opinion of Sound Transit, is not needed to perform assigned work, is not qualified or licensed, does not perform his or her work in a proper and skillful manner or is intemperate, disorderly, reckless, or engages in any abuse or harassment, shall, at the written request of Sound Transit, be removed forthwith by his or her employer, shall not again be employed on the project without the approval of Sound Transit, and shall at the Contractor's own expense be replaced by a suitably qualified person.

AUTHORITY OF REGIONAL PROGRAM MANAGER

A. Sound Transit will designate a Regional Program Manager prior to or concurrent with Sound Transit's issuance of the Notice to Proceed. The Regional Program Manager is Sound Transit's point of contact for the Contractor. The Regional Program Manager shall have the authority to manage the Contract so that the completion thereof may be accomplished in accordance with the contractual requirements.

B. The Regional Program Manager may designate technical support staff to perform functions under the Contract, such as inspection of the Work, review and/or inspection and acceptance of materials, supplies, services, witness of functional testing, and other functions of a technical or administrative nature.

C. Sound Transit and the Regional Program Manager, or a designee, shall have access to the Site and the Work at all times. Should the performance of the Contractor, or the quality of the

Contractor's work or materials furnished, not meet the standards specified, the Regional Program Manager may take or require such measures as the Regional Program Manager deems necessary to ensure compliance with contractual requirements. Any failure by the Regional Program Manager to take these actions shall not relieve Contractor from performing its Contract obligations. The Contractor shall carry out the instructions of the Regional Program Manager or any person to whom the Regional Program Manager delegates authority and gives the Contractor written notice of said delegation, concerning the Work.

CONTRACTOR'S PROJECT MANAGEMENT AND SUPERVISION

A. The Project Manager shall be Sound Point's main point of contact for the Contractor. The Project Manager shall have the authority to manage the Contract so that the completion thereof may be accomplished in accordance with the contractual requirements. ~~shall have complete authority to represent and to act for the Contractor~~. If for any reason and at any time, the Project Manager and/or Lead Engineer submitted by the Contractor is not acceptable to Sound Transit, or becomes unacceptable, the Contractor shall propose additional candidates within ten (10) days of receiving written notice from Sound Transit. If the Contractor wishes to replace its Project Manager or Lead Engineer at any time during the performance of this Contract, it first shall submit the résumé of its new candidate to Sound Transit for Sound Transit's approval, which shall not be unreasonably withheld or delayed. The Contractor shall not make the substitution without Sound Transit's prior written approval. Sound Transit shall have the right to require the Contractor to remove the Project Manager or Lead Engineer from the Site in the event either fails to uphold or meet the requirements of the Contract or fails to perform in a competent, qualified or professional manner. Failure by Sound Transit to remove such personnel shall not relieve Contractor of its Contract obligations.

Commented [Legal15]: Change made to make it clear who is Contractor's Project Manager point of contact during the Project.

Commented [Legal16]: Term added since time is of essence to the parties and any cause of action which is delayed may negatively impact the time-line for the project, and therefore such approval should not be delayed.

A. The Contractor's Project Manager, or a designee, shall be present at the site of the Work at all times while the Work is actually in progress. The Contractor's Project Manager shall notify the Regional Program Manager of the name(s) and means to contact the individual(s) who have the authority to act for the Contractor's Project Manager at such times that the Contractor's Project Manager is not present on any particular part of the Work. In the absence of such notification, the Regional Program Manager may give direction to the superintendent or foreman in charge of the particular part of the Work in reference to which the directions are given so long as said directions are confirmed by the Regional Program Manager in writing to the Contractor's Project Manager.

B. The Contractor was awarded the Contract due in part to the Contractor's submittal of qualifications for key personnel. Contractor's failure to use such key personnel after award of the Contract shall (subject to the exception in ~~Part~~ Article 2.04D) constitute a breach of Contract entitling Sound Transit at its option to any and all remedies, including but not limited to specific performance, revocation of the Contract Award, refusal to authorize Notice to Proceed, suspension of Work for such time period as is necessary for Contractor comply with the Contract by mobilizing the specific individuals, and/or termination of the Contract. If Sound Transit elects to continue the Work with Contractor's replacement key personnel, Sound Transit may, in addition to all other remedies available to it, deduct 0.3 percent of the initial Contract Price as damages for such substitution of one or more of the key personnel. Contractor acknowledges that in that event such amount is not a penalty and constitutes a reasonable estimate of damages to Sound Transit associated with the replacement of the key personnel on which Sound Transit relied for the award of this Contract.

C. Sound Transit will not enforce the provisions in ~~Part~~ Article 2.04C in the event compliance becomes impossible or commercially impracticable, provided Contractor first submits substitute key

personnel of equivalent skills, credentials and experience for approval by Sound Transit which shall not be unreasonably withheld or delayed.

Commented [Legal17]: The first change is just a clarification to use the term Article instead of Part. (Article is used otherwise in the Contract.) The second change is explained above under changes to 2.4, as with regards to delay, and is added to make it clear that delay is not a proper cause for not acting since such action may prevent Contractor to continue work on the project in a timely manner.

SUBCONTRACTING

A. The Contractor was awarded the Contract due in part to the Contractor's submittal of qualifications for major Subcontractors and suppliers. Contractor's failure to use such Subcontractors after award of the Contract shall (subject to the exception in ~~Part~~ Article 2.05B~~)~~ constitute a breach of Contract entitling Sound Transit at its option to any and all remedies, including but not limited to specific performance, revocation of the Contract Award, refusal to authorize Notice to Proceed, suspension of Work for such time period as is necessary for Contractor comply with the Contract by mobilizing the specific individuals, and/or termination of the Contract. If Sound Transit elects to continue the Work with Contractor's replacement Subcontractor, Sound Transit may, in addition to all other remedies available to it, deduct 0.3 percent of the initial Contract Price as damages for such substitution of one or more of the Subcontractors. Contractor acknowledges that in that event such amount is not a penalty and constitutes a reasonable estimate of damages to Sound Transit associated with the replacement of the Subcontractor on which Sound Transit relied for the award of this Contract.

Commented [Legal18]: Term changed to be consistent with the use of Article otherwise in the Contract.

B. Sound Transit will not enforce the provisions in ~~Part~~Article 2.04A in the event compliance becomes impossible or commercially impracticable, provided Contractor first submits substitute Subcontractor of equivalent skills, credentials and experience for approval by Sound Transit which shall not be unreasonably withheld or delayed.

Commented [Legal19]: Language was changed to reflect the use of the term Article as used otherwise within the Contract. The second change as to "delayed" is explained above (2.4.A & D.) and is added to make it clear that delay is not a proper cause for not acting since it may prevent Contractor to continue work on the project during the delay.

C. The Contractor shall be responsible for obtaining from its Subcontractors and submitting to Sound Transit all required certifications, documentation, and submittals, including but not limited to technical submittals, federal certificates, small business compliance forms, or other documentation that is required to be submitted under the terms of this Contract. The Contractor shall be responsible for ensuring that all Contract requirements provided for in the Contract Documents that are specific to subcontracting will be included in Subcontracts, including but not limited to all reporting requirements and mandatory Federal provisions set forth in Section 02, Federal Provisions.

D. The Contractor is responsible for evaluating each of its Subcontractors under this Contract and shall award subcontracts only to responsible Subcontractors. All Subcontractors shall be properly licensed, registered, or certified, as applicable, to perform the assigned Work. If requested by Sound Transit, the Contractor shall provide documentation regarding the Contractor's evaluation of any Subcontractor's responsibility and that the Subcontractor is properly licensed, registered or certified, as applicable. The Contractor shall require all Subcontractors to comply with all provisions of this Contract and shall pass down the requirements of this Contract to its Subcontractors so that all the applicable provisions of this Contract are fully effective.

E. Within thirty (30) days of the signing of each subcontract, the Contractor shall submit to Sound Transit a Business Participation Plan. The Business Participation Plan shall identify the Subcontractor, provide the data on which the responsibility determination was based, and provide the socio-economic profile data of the Subcontractor. The Contractor shall include a copy of the subcontract (or at least that portion of the subcontract that demonstrates that all required federal clauses were included in the subcontract) with the Subcontractor Participation

Commented [Legal20]: The change reflects the need for Sound Transit to define the term. The term is capitalized but not defined in section "Definitions", nor is it defined within the article(s) in which the term is used.

Plan. The copy of the subcontract that is submitted to Sound Transit shall have been signed by both the Contractor and the Subcontractor. Proprietary provisions may be redacted. A sample Subcontractor Participation Plan form will be provided by Sound Transit.

F. Contractor shall submit a Monthly Report on Subcontractors, on a form provided by Sound Transit, as part of its monthly partial payment request. Submission of a completed Monthly Report of Subcontractors shall be a condition precedent to Sound Transit processing partial payment requests.

G. If the Contractor believes that a Small Business / Disadvantage Business Enterprise (SB/DBE) Subcontractor that was listed at any tier to fulfill the Contractor's SB/DBE commitment may not be able to successfully complete any portion of the subcontracted Work, the Contractor shall immediately identify to the Regional Program Manager the Subcontractor at issue, the reason for believing such subcontractor may not be able to perform the subcontracted Work, and any actions being taken by the Contractor to mitigate such possibility.

H. No Work shall be subcontracted to new Subcontractors without written notification to Sound Transit, on a form provided by Sound Transit. No substitutions shall be made for any Small Business/Disadvantaged Business Enterprise Subcontractor that was listed to fulfill the Contractor's SB/DBE commitment without written notification to, and approval by, Sound Transit; such approval to be neither unreasonably withheld or delayed. The Contractor's Request for Substitution of Subcontractors shall be made on a form provided by Sound Transit.

I. Subcontracting shall create no contract between Sound Transit and the Subcontractor, nor shall the Subcontractor have any rights against Sound Transit by reason of its Subcontract with the Contractor. The Contractor shall be responsible for all Work furnished, and no Subcontract shall relieve the Contractor of any of the Contractor's obligations or liabilities under the Contract.

J. The Contractor shall be fully responsible and liable for the acts or omissions of all Subcontractors and Suppliers including persons directly or indirectly employed by them, their guests, and invitees. The Contractor shall have sole responsibility for managing and coordinating the operations of its Subcontractors and Suppliers, including the settlement of disputes with or between them.

K. If a Subcontractor's work fails to meet Contract requirements or demonstrates careless or unacceptable workmanship and the Subcontractor fails to respond to notice of such defective work or to improve workmanship, the Regional Program Manager may direct the Contractor to replace the Subcontractor, in which event the Subcontractor shall not again be employed on the Work under the Contract.

L. The on-site production of materials produced by other than the Contractor's forces shall be considered as subcontracted. The erection, establishment, or reopening of on-site facilities for production of materials and the operation thereof in the production of said materials for use on the Work shall conform to the requirements relating to labor and insurance set forth in the Contract Documents.

M. The performance of the Work may require Sound Transit or other ORCA partner agencies to work and/or communicate directly with Subcontractors from time to time. As such, Sound Transit or other ORCA partner agencies shall not direct Subcontractors to do work without advance written permission from the Contractor.

Commented [Legal21]: The change adds language to protect any proprietary information in the Subcontract.

Commented [Legal22]: Language added to make sure that work continues as soon as possible.

Commented [Legal23]: The term is added to clarify that such notice needs to be provided before such communication is attempted.

CONTRACTOR'S FACILITIES AND EQUIPMENT

The Contractor shall furnish facilities and equipment that shall be of adequate number, size, and condition to produce satisfactory quality of Work, including without limitation all applicable federal requirements. All facilities and equipment used by the Contractor shall meet all applicable safety, noise, and emission regulations and permit requirements as well as other requirements of the Work. Facilities and equipment that fails to meet the requirements of the Contract or to produce a satisfactory product or result shall, upon written order by Sound Transit, be removed immediately and not used again on the Project without Sound Transit's prior written approval. All additional costs, delay or impact resulting from Contractor's use of facilities or equipment failing to meet Contract requirements shall be at Contractor's expense.

ACCEPTANCE OF EXISTING CONDITIONS

If any part of the Contractor's Work depends on proper execution of the work of other forces or existing conditions, the Contractor shall report to the Regional Program Manager, before using the work, all defects found in such work that render it unsuitable for the Contractor's Work. Such report shall be in writing and shall be submitted within thirty (30) days of being granted access to the work. Failure of the Contractor to report such defects shall constitute an acceptance of the other forces' work or existing conditions as fit and proper for the execution of the Contractor's Work and shall preclude any claim for additional compensation or schedule extension for uncovering the Work or correcting defects, except for defects in the other force's work which are latent and not reasonably discernible. Any request for additional compensation based on defective work of others or existing conditions shall be governed by the procedures of Article 4, Changes and Change Order Process.

ARTICLE 3 CONTROL OF THE WORK

NOTICES AND COMMUNICATIONS

A. Sound Transit

All notices, communications, product data, submittals, and other documentation (hereinafter "Communications") submitted by the Contractor to Sound Transit during the course of Contract performance shall be in writing and in English. The Contractor shall deliver Communications to the Regional Program Manager either in person or at his/her designated office via courier, U.S. Postal Service, or overnight delivery service. Communications by facsimile and e-mail shall be confirmed with original documents properly numbered and delivered.

B. Contractor

Communications from Sound Transit shall be delivered through the Regional Program Manager and shall be deemed to be well and sufficiently given to the Contractor if delivered to its project office, if mailed or delivered to the Contractor's post office box or address as stated in the Contract, or if faxed to the Contractor at a designated fax number or emailed, followed up by hard copy.

C. Communications shall be numbered and marked in accordance with specifications related to Document Control in the Contract Documents.

COORDINATION WITH OTHERS

A. Sound Transit reserves the right to perform work not included in the Contract or let other contracts to third parties to perform other work in the vicinity of, or relating to, this Contract. Other government agencies may also be performing other work in the vicinity of or relating to this Contract such as inspections, maintenance / relocation / equipment installation / and other activities. Private developers or businesses may be engaged in activities in the vicinity of, or relating to, this Contract. The Contractor shall cooperate with Sound Transit, other agencies, and other contractors or developers in scheduling and coordinating the Contractor's Work with the work of others in order to minimize conflicts, avoid interruptions or delays to others and promote the orderly completion of the Work as a whole. The Contractor shall not commit or permit any act that will interfere with the performance of work by any government agency, contractor, developer, or Sound Transit. In the event Contractor incurs additional costs or extended delays as a result of such compliance Contractor shall be entitled to make claim for additional time and/or compensation.

Commented [Legal24]: Sentence added, since it is reasonable that Contractor should be entitled to make a claim for additional time and/or compensation for these types of incidents not caused by the Contractor but by the actions of Sound Transit and/or its agents and/or other partners of Sound Transit.

B. Unless specifically identified otherwise, the Contractor may not have exclusive access to or use of work areas. Unless the Contractor has exclusive access to a work area, the Contractor may be required to use facilities and areas concurrently with others. When other forces are employed on related or adjacent work, the Contractor shall conduct its operations in such manner as to cause the least possible delay and hindrance to the other forces. The Contractor shall be responsible to Sound Transit for all damage to the Work, persons, and property caused to other forces by Contractor's operations and for loss to other forces caused by the Contractor's unnecessary delays and for failure to finish the Work within the time specified for completion.

C. If the Contractor is unreasonably delayed by others, immediate notification shall be made in writing to the Regional Program Manager. Any request for a time extension or additional compensation allegedly resulting from such delay shall be made in accordance with the procedures of Article 4, Changes and Change Order Process and Article 10.02 B, Delays. The Contractor shall mitigate and minimize any such delay by other forces.

CONTRACT RECORDS

A. The Contractor shall keep and maintain comprehensive records and documentation relating to the Work under this Contract, as well as documents related to the Contractor's proposal for this Contract. The Project Records shall include, but are not limited to, submitted Proposal, Contract Documents, subcontracts (if any), purchase order(s), employment records, payrolls, project cost accounting records, prevailing wage records, plans, specifications, addenda, shop drawings, Change Orders, and all working documents leading to Change Orders, field test records, quality control documents, daily logs by all field supervisors and project management personnel, correspondence relating to the Contract, and drawings labeled as as-built. Project records shall be maintained and retained by the Contractor for the audit period required under Article 3.04 below.

B. EEO/Non-Discrimination Documentation. The purpose of this sub-section is to ensure that the Contractor and all of its subcontractors at every tier maintain sufficient written documentation so that Sound Transit can easily and quickly verify that all hiring and termination decisions related to workers fully complies with applicable Title VI, equal employment opportunity and non-discrimination laws, regulations, and policies. When any employee or prospective

employee of the Contractor or in the event Contractor becomes aware a subcontractor at any tier (including, but not limited to, an apprentice or journey-level worker sent by the appropriate union hall) is terminated, turned

away without the opportunity to work, or otherwise denied the opportunity to work on the Site for any reason other than completion of all work to be performed by individuals with the skills of the particular worker, the Contractor shall retain, and make available to Sound Transit within 5 business days of a request to review, the following documentation:

1. Written documentation explaining why the specific individual was terminated, turned away, or otherwise denied the opportunity to work on the Site; and

2. Written objective, non-discriminatory criteria used to determine whether such individual was sufficiently qualified to perform the work and how such criteria relates to the particular work.

If, without excusable event, Contractor fails to provide complete and detailed documentation to Sound Transit within 5 business days of receipt of Sound Transit's written request, liquidated damages not exceeding ~~in~~ the amount of $10,000 in total will be assessed ~~per business day that such documentation has not been provided to Sound Transit~~. Contractor acknowledges that liquidated damages will not be considered a penalty and constitutes a reasonable estimate of damages to Sound Transit associated with the Contractor's failure to timely submit the required documentation and Sound Transit's inability to publicly demonstrate that the Contractor is fully complying with Title VI, EEO and non-discrimination requirements in the Contract.

C. Cost records shall be kept in accordance with generally accepted accounting principles and the Contract Documents and shall include all records reasonably necessary, as reasonably determined by Sound Transit and provided in writing, in advance to Contractor, to verify all costs incurred and any schedule revision required.

D. The Contractor shall ensure each of its Subcontractors maintains and retains for said audit period all Project Records pertaining to the performance of the Subcontractor's Work under this Contract in full compliance with Article 3.03A and B. In the event this Contract is funded in part with federal funds, and the federal grant requires different reporting or retention periods, the more stringent requirement will apply.

Commented [Legal25]: This addition is added in the event a Subcontractor fails to keep such records.

Commented [Legal26]: The additions and/or changes are made to provide the Contractor with some protection if it relates to an excusable event, and that the clock does not run until the written request from Sound Transit is received by Contractor. This refers to the duties imposed on the Contractor under this paragraph. The amount of damages for a breach of this clause should not exceed $10,000 in total since this sum bears a more reasonable relationship with the alleged harm.

Commented [Legal27]: The words added are to ensure that Contractor has adequate notice.

AUDIT ACCESS TO RECORDS

The Contractor shall permit, and shall require Subcontracts to permit, authorized representatives of Sound Transit, the U.S. Department of Transportation, and the Comptroller General of the United States to audit, inspect, examine, and copy the Project Records that are maintained by Contractor, any affiliated company or any Subcontractor involved in the Contract at any reasonable time and shall provide such assistance as may be reasonably required in the course of such inspection, including the right to interview personnel. Sound Transit further reserves the right to examine and re-examine the Contract Records during the six (6) year period following the Final Payment and until all pending matters are closed. Such audit(s) may include examination of the Contract Records for evaluation of any Change Order or Claim, or any issue related to performance of the Work. The Contractor shall in no event dispose of, destroy, alter, or mutilate said Contract Records in any manner whatsoever for six (6) years after Final Payment and until all pending matters are closed. No additional compensation will be provided to the Contractor for compliance with the requirements of this Article.

SUBMITTALS AND SHOP DRAWINGS

A. Where required by the Contract Documents, the Contractor shall submit specified information that will demonstrate that the Contractor's proposed materials, equipment, or methods of Work

are in compliance with the Contract Documents. Sound Transit will not be obligated to accept or pay for materials, equipment or Work for which submittals are required herein, unless and until all submittals have been submitted and reviewed in accordance with the Contract Documents.

B. Review and other appropriate action with regard to Submittals by Sound Transit shall be for general conformance with the Contract requirements and shall not relieve the Contractor of responsibility for any errors or omissions in such Submittals, nor from compliance with the requirements of the Contract Documents; and further, the Contractor shall have no claim under the Contract on account of the failure, or partial failure, of the method of work, material, or equipment so reviewed. Review by Sound Transit shall not constitute approval of the safety precautions employed by the Contractor or constitute approval of the Contractor's means or methods of the Work. The Contractor shall not deviate from shop drawings, product data, samples, or similar submittals that have been reviewed with a finding of "No Exception Taken" without submitting the proposed deviation for Sound Transit's review and appropriate action.

C. Sound Transit reserves the right to charge the Contractor for all, or some portion of, the costs of excessive or unreasonable costs of reviewing submittals repeatedly rejected for being incomplete or inadequate.

D. Submittals offered to demonstrate methods, procedures, sequences, or duration for performing the Work or to detail temporary elements such as shoring or formwork, shall be reviewed by Sound Transit for general compliance with applicable requirements of the Contract. Such review will not include a detailed analysis of the design or an evaluation of the adequacy of the method, procedure, resource commitments, or time allocated for performance.

E. Contractor shall make Submittals to Sound Transit only after (1) reviewing all Contractor and Subcontractor Submittals for accuracy and compliance with the Contract and (2) coordinating all Submittals with all Work by other trades.

CUTTING AND PATCHING

The Contractor shall be responsible for all cutting, fitting, and patching required to complete the Work or to make its parts fit together properly. The appearance following any cutting, fitting, or patching shall conform to the appearance of adjacent like materials or surfaces and be consistent with the overall appearance of the Project. The Contractor shall be responsible for any damages caused by its cutting, fitting, and patching, whether of its own Work or of other work affected by the cutting, fitting or patching. The Contractor may not alter any work other than its own except by permission by Sound Transit. Such permission by Sound Transit shall not relieve the Contractor from responsibility for the Work affected by the cutting, fitting, or patching.

INSPECTION, SAMPLING, AND TESTING

A. Contractor Testing

1. It is the Contractor's responsibility to provide materials, supplies, equipment and workmanship that conforms to the Contract Documents. Unless specifically provided otherwise in the Contract Documents, the Contractor shall be responsible for demonstrating and documenting that the materials or equipment to be incorporated into the Work comply with the Contract Documents. Materials testing shall be

performed by an Independent Testing Laboratory in accordance with the Contract Documents. The Contractor shall bear all costs of said tests.

2. In the event that a third-party public agency has authority over materials or equipment, approval must be obtained from said third-party public agency prior to Sound Transit's approval. Approval by a third-party public agency does not constitute approval by Sound Transit. The Contractor shall provide Sound Transit, and any applicable third-party public agency, with a schedule by which any testing will be conducted as well as timely notice of the time and place of any such tests. The Contractor shall maintain complete test records and submit them to Sound Transit upon request or as required elsewhere by the Contract Documents.

3. Any mechanical, electrical and instrumentation systems which function as a completed system must be tested or inspected as a complete system in addition to any tests or inspections conducted for the component parts.

4. If conformance of materials or equipment to the requirements in the Contract is not determinable through inspection and tests, the Contractor shall provide properly authenticated documents, certificates, or other satisfactory proof of conformance. Such documents, certifications, and evidence shall include performance characteristics, materials, and the physical and chemical characteristics of materials. All costs associated with such certification shall be paid by the Contractor.

B. Sound Transit Inspection and Testing

1. Sound Transit reserves the right to sample, inspect, or test the materials, equipment, and Work, as it deems necessary at any reasonable time during the Work. Said testing and inspection may occur on or off the site. Sound Transit shall conduct such tests or inspections in a manner that will cause no undue delay in the Work. The Contractor shall provide Sound Transit with sufficient notice, access, and assistance to allow Sound Transit's representative to inspect, sample, and test materials and equipment prior to their incorporation into the Work or to inspect, sample, or test Work prior to covering the Work. Re-inspection or re-testing required because of non-conformance to specified requirements will be charged to the Contractor.

2. Sound Transit, at any time prior to Final Acceptance, may require the Contractor to uncover either portions of or all of the Work for inspection, sampling, and testing. The Contractor shall restore these portions of Work to the standard required by the Contract. The uncovering and restoration shall be done at the Contractor's expense, if the Work uncovered does not comply with the Contract, if it complies but was done without required documentation, or if Sound Transit was given insufficient notice to allow adequate time for inspection, sampling, or testing. If the Work uncovered meets the Contract requirements and was done with sufficient notice to Sound Transit, the costs of uncovering and restoration shall be paid by Sound Transit in accordance with Article 4, Changes and Change Order Process.

3. The Regional Program Manager may inspect the production of material or the manufacture of products at the source of supply. Facilities inspection, however, will be undertaken with the cooperation and assistance of both the Contractor and the material

Commented [Legal28]: The term is capitalized but not properly defined in the paragraph used, nor it is defined in "Definitions" under Article 1, and as such needs to be defined by Sound Transit.

producer. The Regional Program Manager or the Regional Program Manager's authorized representative shall have reasonable entry at all times to such parts of the facilities as concern the manufacture or production of the materials. Adequate facilities shall be furnished free of charge to make the necessary inspection. The Regional Program Manager assumes no obligation to inspect materials at the source of supply. The responsibility for incorporating satisfactory materials in the Work rests entirely with the Contractor, notwithstanding any prior inspections or tests.

4. The Regional Program Manager's inspection is conducted to verify that the Contractor has performed its work properly. Any observation, verification, inspection, or approval of the Work or materials by Sound Transit shall not relieve the Contractor of any of the Contractor's obligations to fulfill the Contract as prescribed. Work and materials not meeting Contract requirements shall be made acceptable to Sound Transit. Unsuitable work or materials may be rejected, notwithstanding that payment for such Work or materials may have been previously authorized and included in a Partial Payment.

5. Unless the subject items are expressly accepted by Sound Transit in writing, any inspection and testing done by Sound Transit is for the sole benefit of Sound Transit only and does not constitute or imply acceptance; relieve the Contractor of responsibility for providing adequate quality control measures; relieve the Contractor of responsibility for risk of loss or damage to the Work, materials, or equipment; relieve the Contractor of its responsibility to comply with the requirements of the Contract Documents; or impair Sound Transit's authority to reject defective or non-conforming Work or invoke any remedy to which it may be entitled.

NON-CONFORMING WORK AND DEFECTIVE WORK

A. Defective Work - If Sound Transit determines that material, equipment, or workmanship proposed for or incorporated in the Work does not fully comply with the requirements of the Contract and will not be accepted by Sound Transit (Defective Work), Sound Transit may reject such Work upon written notice to the Contractor. In such event, Sound Transit may, at its discretion, (1) require the Contractor to promptly repair, replace or correct all Work not performed in accordance with the Contract; (2) require the Contractor to provide a suitable corrective action plan, which shall only be performed if approved by Sound Transit; or (3) provide a suitable corrective action plan and direct the Contractor to execute it, and in such case Contractor shall have the option of (i) implementing the Sound Transit plan or (ii) promptly repairing, replacing or correcting all Work not performed in accordance with the Contract. Regardless of the option chosen by Sound Transit, the Contractor shall implement such plan with no delay to the Project Schedule, at no additional cost to Sound Transit, and within a period provided by Sound Transit. If the corrective action plan as accepted or directed by Sound Transit does not remedy the Defective Work, the Contractor shall remain responsible for remedying the Defective Work to Sound Transit's satisfaction and at no additional cost or schedule delay to Sound Transit. The Contractor shall also be responsible for repairing all property and work damaged by the Contractor at no cost or schedule delay to Sound Transit.

B. Non-Conforming Work - Sound Transit may at its option retain Work that does not fully comply with the requirements of the Contract. Sound Transit shall provide Contractor promptly with detailed written notice of the manner in which it considers the Work not fully in compliance with the requirements of the Contract. Failure to do so shall be considered full compliance by

Contractor of its obligation to provide Work fully in compliance with Contract specifications. A reasonable value for such Non-Conforming Work will be determined by Sound Transit, and appropriate deductions will be made in the payments due or to become due to the Contractor. Final acceptance will not act as a waiver of Sound Transit's

Commented [Legal29]: The changes made are so the Contractor have full notice of concerns Sound Transit may have as to the work.

right to recover from the Contractor an amount representing the deduction for retention of Non-Conforming Work.

C. Sound Transit's inspection of the Work or right to reject Work that does not fully comply with the Contract shall not relieve the Contractor of its responsibility for performing the Work in full conformance with the Contract Documents. Other than as set forth herein, ~~N~~no failure or forbearance of Sound Transit in notifying the Contractor of Work that does not fully comply with the Contract shall relieve the Contractor of its Contract responsibility to ensure that the Work is performed in accordance with the Contract Documents.

Commented [Legal30]: Language added for clarification, and it refers to the change made under subparagraph B.

ACCEPTANCE OF WORK

A. Inspection - When the Contractor has concluded the Work or a designated portion thereof, the Contractor shall notify Sound Transit in writing that the work is complete and ready for inspection. Upon receipt of the notification, Sound Transit will promptly by inspection determine the actual status of the Work in accordance with the terms of the Contract. If Sound Transit finds materials, equipment, or workmanship not in conformance with the Contract, Sound Transit will prepare a punch list of such corrective items and submit the list to the Contractor. At any time prior to Acceptance, Sound Transit may add punch list items. The Contractor shall complete all punch list items and notify Sound Transit that the Work is ready for Acceptance. Upon such notice, Sound Transit will verify that the Work has been completed. If such Work has not been completed and additional inspections become necessary because of the acts or omissions of the Contractor, the Contractor shall reimburse Sound Transit for its costs related to such inspections. Following completion of the corrective Work and inspection by Sound Transit, Sound Transit shall issue a Notice of Acceptance of the Work or a designated portion thereof.

B. Substantial Completion - At the Contractor's request or as determined by Sound Transit, Sound Transit will conduct an inspection and review of required documents to determine Substantial Completion of all or a designated portion of the Work. If upon inspection and document review, Sound Transit determines that the Contractor has in fact achieved Substantial Completion, Sound Transit will issue to the Contractor a Notice of Substantial Completion. The Notice of Substantial Completion will provide the Contractor with a punch list of corrective actions or other work to be completed for Acceptance. The Contractor shall complete all punch list work within thirty (30) days after receiving the Substantial Completion Notice. Failure to do so may result in a determination by Sound Transit to have the work done by others. The Contractor will be responsible for all costs associated with completing the punch list work. Further, Sound Transit reserves the right to commence use of any portion of Work that has been substantially completed. In such event, Sound Transit will assume care, custody and control of said portion of the Work, including responsibility for operation and maintenance costs associated with use of said Work. In no case shall the Notice of Substantial Completion be construed as relieving the Contractor from liquidated damages due to delay for any portion(s) of the Work not specifically referenced therein, or any other requirement under the Contract Documents. Such Notice shall not constitute Acceptance or Final Acceptance.

Prior to Sound Transit granting Substantial Completion for any Contract Milestone, the Contractor is required to have submitted acceptable copies of all as-built drawings, operation and maintenance manuals, test report and warranties, and Contractor must have provided and

completed all training of operations and maintenance personnel required by the Contract that are associated with the Milestone for which Substantial Completion is being requested.

C. Acceptance -A written Notice of Acceptance issued by Sound Transit shall constitute Acceptance of a designated portion of the Work. A Notice of Acceptance shall not waive claims by ~~or rights of~~ Sound Transit ~~to revoke acceptance or~~ for any unauthorized, Non-Conforming or Defective Work, nor shall the making of any Partial Payment be deemed a waiver of claims or rights of Sound Transit under this Contract. Sound Transit shall not be barred from requiring the Contractor to remove, replace, repair, or dispose of any unauthorized, Non-Conforming or Defective Work or from recovering damages for any such Work. Contractor shall remain responsible for site security where it has sole access through the date of Acceptance. Sound Transit's rights hereunder shall exist and remain to the full extent permitted by law and as set forth in this Contract. The Contract Warranty shall commence upon Acceptance.

Commented [Legal31]: The change is made since the Contractor should not be responsible where other parties have access to such area. Multiple access gives Contractor no control but could result in penalty as the paragraph was initially written.

D. Final Acceptance - A written Notice of Final Acceptance shall constitute Sound Transit's acknowledgement that the Contractor has fulfilled all of its obligations under the Contract and that Sound Transit has accepted the Work as of the date stated in the Notice. The Contractor may request Final Acceptance from Sound Transit upon full and satisfactory completion of all Contract Work and fulfillment of all obligations under this Contract.

USE OF COMPLETED OR PARTIALLY COMPLETED PORTIONS OF THE WORK

A. Sound Transit shall have the right to take possession of or use completed or partially completed portions of the Work notwithstanding that the time for completing such portions may not have expired. Such use by Sound Transit shall in no case be construed as Substantial Completion, Acceptance or Final Acceptance of the Work, and shall neither relieve the Contractor of any of its responsibilities under the Contract, nor act as a waiver by Sound Transit of any of the conditions thereof. Such use shall not trigger the commencement of Warranty provisions under this Contract or as provided by manufacturers, unless specifically provided otherwise in writing by Sound Transit. Operations and maintenance costs, as well as responsibility for all Work incurred as a result of Sound Transit's use of such portions will be borne by Sound Transit.

Commented [Legal32]: Language added to clarify that any such use will be on the responsibility of Sound Transit.

B. If such use increases the cost or delays the completion of remaining portions of the Work for which Contractor seeks payment and/or additional time, the Contractor must notify Sound Transit of its Request for Change in writing as required by the Contract and may be entitled to such additional compensation or extension of time, or both, as determined in accordance with Article 4, Changes and Change Order Process. Any disputes regarding such entitlement shall be resolved in accordance with the provisions of Article 10, Delays and Claims. The Contractor shall not be entitled to extra compensation for Sound Transit's possession of portions of Work that are specifically required in the Contract to be placed into use and operation or that are required to be turned over to Sound Transit upon a given Contract Milestone date before completion of the entirety of the Work.

C. In the course of such use, if the Work proves to not be in compliance with the Contract, Sound Transit shall have the right to continue such use until such portion of the Work can be taken out of service so that the Contractor can, at no additional cost to Sound Transit, correct defects, errors, omissions, or replace unsatisfactory materials, as necessary for such portions of the Work to comply with the Contract. Upon notice and opportunity to cure by the Contractor,

Sound Transit, at its option, may perform or have another entity perform the corrective work. The Contractor shall remain responsible for the cost of the corrective work. In the event that the Work is determined to be in compliance with the Contract at the time Sound Transit takes possession Sound Transit shall be fully responsible for all costs of whatever nature required to return the Work to its original state.

Commented [Legal33]: The language is added to protect Contractor in case the work was originally in compliance with Contract.

LOSS OR DAMAGE TO WORK AND MATERIAL

Other than as provided above, ~~U~~until Sound Transit's Acceptance of any completed or partially completed Work, the Contractor shall have the responsibility for care, custody and control of the Work and of the materials to be used therein, including materials for which the Contractor has received partial payment, materials in transit, and materials which have been furnished by Sound Transit, and shall, unless excused elsewhere herein, bear the risk of injury, loss or damage to any part thereof by the action of the elements or from any other cause. The Contractor shall replace, rebuild, repair or restore all damage to any portion of the Work and materials occasioned by any unexcused cause before its completion and Acceptance, at no additional cost to Sound Transit. Contractor shall, at the Contractor's expense, provide suitable drainage and erect such temporary structures as are necessary to protect the Work and materials as herein specified. A suspension of Work shall not relieve the Contractor of responsibility for the Work and materials as herein specified. The Contractor shall properly store materials for which partial payments have been made by Sound Transit or which have been furnished by Sound Transit. Such storage by the Contractor shall be on behalf of Sound Transit and Sound Transit shall at all times be entitled to possession of such materials, and the Contractor shall promptly return the same to the site of the Work when requested. The Contractor shall not dispose of any of the materials so stored except on written authorization from the Regional Program Manager.

Commented [Legal34]: Added language to clarify paragraph. The change is provided to make it clear that only work that is unexcused needs to be repaired etc. This clarification is fair in that it provides liability on the Contractor for such work, and it is consistent with the other changes in the paragraph.

WARRANTY OF WORK

A. The Contractor warrants that the Work and any portion thereof: (a) shall meet the requirements of the Contract, (b) shall be free of defects in material and workmanship, and (c) shall be free of defects in design(s) where such design(s) is performed or provided by the Contractor, Subcontractors or Suppliers. This Warranty shall apply to Defective Work and Non-Conforming Work that is discovered within twelve (12) months after the date of Acceptance. If corrective work is performed by the Contractor under this Warranty, the Warranty shall also apply to discrepancies and defects in the corrective work that are discovered within twelve (12) months after the corrected work is again placed in operation. These warranty terms shall be extended for any period that a portion of the Work cannot be used for the purpose intended as a result of discrepancies or defects. This Warranty shall apply whether or not designs, data or information have been reviewed or approved by Sound Transit or the Regional Program Manager, but shall not apply to defects caused by vandalism, misuse and/or improper operation or maintenance of the Work by Sound Transit.

Commented [Legal35]: The additional term is added and is a reasonable event to be exempt for this type of warranty.

B. Sound Transit will notify the Contractor in writing or facsimile confirmed in writing, on discovery of Defective Work or Non-Conforming Work covered by this Warranty in accordance with the provisions of Article 3.08, Non-Conforming Work and Defective Work. The Contractor shall commence to remedy the Defective Work or Non-Conforming work in accordance with the provisions of Article 3.08, Non-Conforming Work and Defective Work.

C. The Warranty provided under this Article shall be in addition to those specific warranty requirements for particular equipment or work items indicated in the Contract Documents, and in addition to other rights or remedies available to Sound Transit under this Contract ~~or at law~~.

Commented [Legal36]: Change made since the parties have agreed on the type of Warranty for the Work.

Warranties shall be secured by the Performance Bond, or in Sound Transit's sole discretion, other financial security acceptable to Sound Transit, such as a warranty bond or letter of credit.

1. In circumstances in which Sound Transit determines that it would be inefficient or impracticable for the Contractor to perform the corrective work, Sound Transit reserves the right to select another firm to perform the corrective work or to perform the corrective work itself upon notice to the Contractor. Such corrective work by another firm, or by Sound Transit, shall be at Contractor's expense, provided that Contractor is kept fully informed as to the details and costs of any such corrective work. If the Contractor performs work at the job site under these guaranty provisions, the Contractor shall furnish insurance coverage therefore as specified in Section 03 Insurance Requirements. Prior to beginning such work the Contractor shall furnish certification of insurance satisfactory to Sound Transit.

2. Unless otherwise required by Sound Transit, the Contractor shall commence to perform the corrective work required to satisfy this warranty within fifteen (15) days from the date of written notification. The Contractor shall at its sole expense perform the corrective work on an overtime and/or shift work basis, and shall procure required materials using the fastest means available when necessary to minimize the impact to other Sound Transit contractors or Sound Transit's loss of operating time. The Contractor shall diligently prosecute the corrective work and shall complete such corrective work within the time frame stipulated by Sound Transit.

3. If the Contractor fails to make or undertake the corrections or removal/replacement with due diligence within the time periods specified above, Sound Transit is hereby authorized to make such corrections. In case of an emergency, whereby delay could cause serious loss or damage in the opinion of Sound Transit, corrections or replacement may be made prior to or concurrent with notice being sent to the Contractor. All expenses in connection with such corrections or replacement by Sound Transit, including the cost for professional services, will be charged to the Contractor.

D. Nothing in this warranty is intended to limit any manufacturer's warranty, which provides Sound Transit with greater warranty rights than set forth in the Contract Documents.

WARRANTY OF TITLE

A. The Contractor shall have no property right in the materials and equipment used after they have been attached or affixed to the Work or existing real property, or after ~~any~~ full payment has been made by Sound Transit towards the value of materials delivered to the site of the Work, or stored subject to or under the control of Sound Transit. Title to all such materials shall become the property of Sound Transit upon being so attached or affixed or after ~~any~~ full payment towards the value of materials stored off site or delivered to the site of the Work or stored subject to or under the control of Sound Transit, whichever occurs earlier.

Commented [Legal37]: The added language makes it clear that title does not vest until payment is done in full.

B. No material, supplies, equipment, or items for the Work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein, or in any part thereof is retained by the seller or Supplier. The Contractor shall warrant good title to all materials, supplies, equipment, and items installed or incorporated in the Work. Upon completion of all the Work, the Contractor shall deliver the same together with all improvements and appurtenances constructed or placed thereon by the Contractor to Sound Transit free from any claims, liens, or charges. ~~Neither~~ Other than the Contractor no~~r~~ ~~any~~ person, firm, or corporation furnishing any material or labor for any Work covered by this Contract shall have

any right to lien upon any improvement or appurtenance thereon. This Article shall not defeat or impair the right of the persons furnishing materials or labor to recover under any payment bond given by the Contractor for their protection, or any rights under state law permitting such persons to look to retained funds due the Contractor in the hands of Sound Transit.

C. The provisions of this Article shall be inserted or referenced in or otherwise made a part of all subcontracts and material contracts, and notice of its provisions shall be given to all persons furnishing materials for the Work whenever no formal contract is entered into for such materials. Additionally, as a part of the subcontract, material contract, or notice, the Contractor shall provide to such Subcontractors and Suppliers the name, address, and phone number of the Contractor's bonding company and the bond number applicable to the Contract under which the Subcontractor or Supplier would make its claim.

MANUFACTURER'S WARRANTIES

The Contractor shall furnish to Sound Transit any manufacturer's or Supplier's guarantee or warranty furnished in connection with the purchase by the Contractor or any Subcontractor of any equipment, materials, or items required, provided such guarantee or warranty shall be in addition to those specific guarantee or warranty requirements for particular equipment or Work items indicated in the Specifications and shall not relieve the Contractor of its obligations under Article 3.12, Warranty of Work.

ARTICLE 4 CHANGES AND CHANGE ORDER PROCESS

CHANGES

A. Sound Transit reserves the right to make by written order, designated ~~or indicated~~ to be a Change Order, alterations to, deviations from, additions to, or deletions from the Contract Documents. Such changes may be made without notice to any surety(ies) or guarantors. Within the Performance and Payment Bonds and any financial guarantees, the surety(ies) and guarantors must waive notice of any Change Orders and agree to be bound in all ways to Sound Transit for any such Change Orders as if it (they) had received notice of the same. Change Orders are required to make any changes to the Contract Price, Contract Documents, or Contract Time. All additions, deductions, or changes to the Work as directed by Change Orders shall be executed under the conditions of the Contract.

B. Pending resolution of any issue or dispute related to a Change Order, RFC, CN-RFP and/or CN-WD, Contractor shall continue to perform all Work, including the Contract Work associated with the pending change unless Sound Transit explicitly waives this requirement in writing. Contractor shall also be governed by all applicable provisions of the Contract related to compensation and/or additional time for changed work, inclusive of Article 10.

C. Adjustments in the Contract Price - One of the following methods shall be used to determine the cost and/or value of any work covered by a Change Order, RFC, CN-RFP, CN-WD or Claim. Sound Transit and the Contractor shall negotiate in good faith to determine an equitable adjustment of the Contract Price. The available methods are:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities involved in the changed Work;

Commented [Legal38]: The changes made are to clarify the paragraph.

Commented [Legal39]: Term deleted. Redundant.

Commented [Legal40]: The term "Performance and Payment Bonds" which is capitalized indicates that it should have been defined by Sound Transit. There is no definition of the term in Article 1, "Definitions," nor in the paragraphs where the term is used.

2. Where Provisional Sums are provided for work items, the provisional sums shall be applied to changes for those work items;

3. By establishment of new unit prices and related quantities for the changed work;

4. By reference to catalog prices or other published prices offered to the public in the open marketplace;

5. By mutual acceptance of a firm fixed price (also referred to as lump sum);

6. On a time and materials basis in accordance with Article 9.09, Payment on Time and Material Basis.

In the event of disagreement, Sound Transit shall determine the method for calculating the adjustment to increase or decrease the Contract Price.

D. All Change Orders (CO) and Change Notices (CN) shall be issued through Sound Transit. No other order, statement, act of omission or conduct of any representative of Sound Transit or third party will be treated as a change hereunder. Nothing in this Article shall be construed to bind Sound Transit for acts of its employees or agents exceeding their authority.

E. Nothing in this Article shall be deemed to require a change in Contract Price or Contract Time when additional, extra, or changed work is the result of actual conditions or performance differing from that assumed by the Contractor (except for differing site conditions) or as a result of the Contractor's error in judgment or mistake in designing, estimating, contracting, constructing or otherwise performing the Work. The Contractor shall not be entitled to a change in the Contract Price or Contract Time for delays caused by the Contractor or its Subcontractors, employees, or agents or for any non-compliance with any Contract provisions, applicable law, regulations, or permit requirements affecting the Work.

F. The Contractor's records pertaining to Changes pursuant to this Article are subject to audit as set forth in Article 3.04, Audit Access to Records.

G. Where the firm fixed price/lump sum method is used, the Contractor shall provide a detailed cost breakdown supporting its requested compensation and any additional cost documentation requested by Sound Transit. Any adjustment to the Contract Price made under the firm fixed price/lump sum method shall include all applicable costs for labor, equipment, material, overhead and profit.

H. Where the firm fixed price/lump sum method is used and the cost of the Change is negotiated after completion of the Work, the allowed profit and overhead markup shall not exceed that for work performed on a time and material basis as permitted in Article 9.09, Payment on a Time and Material Basis.

I. Where the firm fixed price/lump sum method is used and the cost of the Change is negotiated before completion of the Extra Work, the negotiated profit and overhead markup is not subject to a fixed maximum and is to be based on a reasonable calculation of direct and indirect costs incurred in executing the Extra Work, including any delays, impacts or inefficiencies.

J. Where any unit price method is used, the applicable unit price shall include reimbursement for all direct and indirect, onsite and offsite, costs of the changed Work, including profit and overhead.

REQUEST FOR CHANGE

A. If the Contractor believes it is entitled to an adjustment of the Contract Price or Contract Time for any reason, Contractor shall submit a Request for Change (RFC) to Sound Transit in writing (in a format reasonably acceptable to Sound Transit) in accordance with the provisions of the Contract. The Contractor in the RFC must specify the reasons for such change, including relevant facts and any impacts on the cost and / or schedule.

Commented [Legal41]: The added language clarifies the form of the request.

B. The Contractor may request additional compensation and/or time through a RFC, but only in the event Contractor provides a written Notice to Sound Transit no later than fourteen (14) days after the onset or occurrence of the event or condition giving rise to the RFC.

C. The Contractor in its RFC shall provide Sound Transit with a reasonably detailed explanation of the nature and cause of the event or condition giving rise to the RFC, a reasonably accurate calculation of the adjustment to the Contract Price and/or Contract Time, and the reasons why Sound Transit is responsible for the relief sought. Sound Transit shall review the RFC and may require additional information or cost documentation from Contractor to help determine the validity and / or value of the requested change.

D. Any RFC that is approved by Sound Transit will be incorporated into a Change Notice or a Change Order. If the RFC is denied, but the Contractor believes that it does have merit, the Contractor must submit a Notice of Intent to Claim in accordance with Paragraph 10.01A, Notice of Intent to Claim, if it wishes to preserve its right to seek any adjustment to the Contract Price and/or Contract Time.

CHANGE NOTICE

A. Change Notice - Request for Proposal (CN-RFP).

1. Sound Transit may issue a Change Notice – Request for Proposal to the Contractor describing a proposed change and requesting the Contractor to submit a Cost and Schedule Proposal (in a format acceptable to Sound Transit). A CN-RFP does not authorize a Contractor to commence performance of the changed Work. After receipt of the Cost and Schedule Proposal, Sound Transit may:

   a. Proceed no further with the proposed change,

   b. Issue a Change Notice – Work Directive incorporating part or all of the proposed change, or

   c. Issue a Change Order incorporating part or all of the proposed change.

B. Change Notice - Work Directive (CN-WD).

1. Sound Transit may issue a Change Notice - Work Directive ordering the Contractor to proceed with a change in the Work. A CN-WD may be issued under one of the following circumstances:

a. To execute changes in the Work covered by the unit prices or a lump sum price contained in the Contract;

b. To execute changes in the Work on a Time and Material basis, in accordance with Article 9.09, Payment on Time and Material Basis; or

c. To direct the Contractor to execute change(s) in the Work pending resolution of an equitable adjustment to the Contract Price and/or Contract Time. If Sound Transit and the Contractor cannot reach agreement on changes to the Contract Price and/or Contract Time prior to starting on the changed Work, the Contractor shall maintain cost records in accordance with Article 9.09, Payment on Time and Material Basis.

2. The Contractor shall not commence performance of the Work described in the CN-WD, until the CN-WD is issued by Sound Transit. The CN-WD shall expressly specify the:

a. Intention to treat such items as changes in the Work;

b. Scope of the changes in the Work; and

c. Basis under which changes to the Total Contract Price and/or Contract Time will be determined.

3. When the Contractor receives a CN-WD, the Contractor shall promptly proceed with the Work as indicated in the CN-WD. The Contractor shall carry on the Work and adhere to the schedule. No work shall be delayed or postponed pending resolution of any dispute or disagreement except as Sound Transit and the Contractor may otherwise agree in writing.

4. Until such time as resolution of an equitable adjustment is reached, the Contractor shall maintain its records in accordance with Article 9.09, Payment on Time and Material Basis. The CN-WD shall become the basis for a Change Order when the amount of the adjustment to the Total Contract Price and/or Contract Time can be determined. The issuance of a CN-WD is sufficient authority for a Change Order, but only within the stated limits of the value of the CN-WD.

5. The CN-WD shall contain a Not to Exceed (NTE) amount. Contractor may invoice Sound Transit for changed work performed under the CN-WD but only up to and not in excess of the NTE amount. The Contractor is required to notify Sound Transit at the point at which 80 percent of the NTE amount has been expended, and provide an estimate of the cost to complete the changed Work. If Sound Transit agrees that costs in excess of the NTE amount are justified, Sound Transit may issue a revised CN-WD increasing the NTE amount or negotiate a lump sum amount for the changed Work.

C. Contractor's Cost and Schedule Proposal - If directed by Sound Transit in the Change Notice, the Contractor shall submit a Cost and Schedule Proposal to Sound Transit within fifteen (15) days (or more, if Sound Transit at its option so determines) after receipt of the Change Notice. The Cost and Schedule Proposal shall detail price and scheduling information, showing all of the impacts on the Contract Price and Construction Schedule, and the changes in the level of commitment for Small Business and Disadvantaged Business Enterprises as a result of the

changes identified in the Change Notice. If any prices or other aspects are conditional, such as orders being made by a certain date or the occurrence of a particular event at a specified time, the Contractor shall identify these conditions in its Cost and Schedule Proposal. The cost breakdown shall have separate estimates of the costs of added Work and any deleted Work and shall be prepared using one or more of the cost methods described in Article 4.01C as directed by Sound Transit, and shall be presented in a manner such that all phases of work can be easily identified. The Contractor shall submit detailed cost breakdowns as described above for any Subcontractor proposed to perform Work under the change. The Contractor shall also provide detailed scheduling analysis demonstrating the effect of the changed work on the Contract Milestones.

CHANGE ORDER

A. The Change Order shall expressly state that it is Sound Transit's intention to treat the items described therein as changes in the Work; identify scheduling requirements, time extensions, prices, and all costs of any nature arising out of the; and shall contain a statement that the adjustment to the Total Contract Price, if any, includes all amounts to which the Contractor is entitled as a result of the events giving rise to the Change Order. The execution of a Change Order by both parties shall be deemed to be an agreement to all costs and time of performance related to the change, including full and complete payment and final settlement of all extensions of time, changes, Claims, damages and costs for all time, direct or indirect overhead costs, profit and any and all other costs associated with delay, disruption, impact, inefficiency, acceleration, stand-by or any other costs related to the Work covered by or affected by the change.

B. Bilateral Change Order: Sound Transit will issue a Change Order as soon as practicable following agreement with Contractor's Cost and Schedule Proposal, if Sound Transit decides to proceed with the changed work. If the Contractor agrees with the terms and conditions of a Change Order, the Contractor shall sign the Change Order and return it to Sound Transit for execution by Sound Transit. There will be no reservation of rights by either party on a bilateral Change Order.

C. Unilateral Change Order: Sound Transit may unilaterally issue a Change Order at any time making changes within the general scope of the Contract, without invalidating the Contract and without providing notice to sureties. In addition, in the event that the Contractor and Sound Transit are unable to agree on the terms and conditions, the amount of any change or adjustment to be made to the Total Contract Price or Contract Time, Sound Transit may execute a Unilateral Change Order. If Contractor disagrees with the adjustment to Contract Price or Contract Time as stated in the Unilateral Change Order, Contractor must file a claim in accordance with the requirements of Article 10, Delays and Claims. If the Contractor fails to follow the claim procedures in Article 10, the Contractor shall not be entitled to any claim for additional compensation or schedule extension arising out of or relating to the Unilateral Change Order other than that specified in the Unilateral Change Order. The Contractor is required to continue with performance of all work associated with the Unilateral Change Order pending resolution of any Claim under Article 10.

D. When a Change Order has been executed by Sound Transit, the Contractor shall promptly proceed with the Work as indicated in the Change Order. The Contractor shall carry on the Work and adhere to the schedule during all disputes or disagreements with Sound Transit. No

work shall be delayed or postponed pending resolution of any dispute or disagreement, except as Sound Transit and the Contractor may otherwise agree in writing.

E. At Sound Transit's request the Contractor shall submit, on a form provided by Sound Transit, a Non-Conflict of Interest Certification for any Change Order

F. Special Rules When Pricing Change Orders

1. If this Contract is subject to the Project Labor Agreement, in accordance with the requirements of the Labor Compliance Manual, the Contractor and its Subcontractors are required to contribute five cents ($0.05) per hour for each hour of contract labor (those subject to prevailing wages requirements) utilized on the Contract to a Pre-apprentice Training Program Fund. Accordingly, the Contractor shall incorporate into each Change Order an amount equal to five ($0.05) per hour for each hour of contract labor.

2. Premium increase(s)/decrease(s) for Performance and Payment Bonds:

a. Premium increase(s) / decrease(s) for Performance and Payment Bonds will not be paid as a part of Change Order payments, but will be paid / deducted as a lump sum in the final payment. Verification of increased / decreased payment, from the surety, must be provided and will be included in the final reconciling Change Order.

b. If the surety should require an immediate payment for the increased Bond(s) value as a result of a large Change Order, the Contractor must supply evidence of the payment made and a copy of the surety's request for early payment.

SCHEDULE EXTENSIONS

If the Contractor is delayed in completion of the critical path of the Work either by reason of changes made under this Article, or by a delay for which the Contractor is entitled to additional time as specified in Article 10, Delays and Claims, and if Contractor meets all Contract requirements for seeking an increase in time to complete the Work associated with a Contract Milestone(s), the Contractor shall submit a Request for Change within the time allowed by the Contract Documents specifying the number of days of time requested. The Contractor shall demonstrate the schedule impact of changes and delays in order to justify any schedule extensions.

CONSTRUCTIVE CHANGE ORDER

Except as herein expressly stated, no order, statement, act, or omission of Sound Transit unless provided in writing shall be treated as a change or Change Order under the Contract or entitle the Contractor to an adjustment under the Contract. If the Contractor considers that an act, omission, order or statement by the Regional Program Manager or Sound Transit deviates from the Contract requirements or may entitle the Contractor to extra compensation or a time extension, the Contractor shall submit a Request for Change as provided above. Failure to submit a timely and documented RFC shall constitute a waiver of any Claim associated with the subject of such alleged constructive change. The Contractor shall not proceed with the Work until appropriate directions are received from Sound Transit.

EXCLUSIVE REMEDIES

The procedures specified herein and in Article 10, Delays and Claims, of these General Conditions are the Contractor's exclusive remedy for any claim against Sound Transit, whether for extension of the Contract Time, an increase in the Contract Price, actual or constructive changes, delays, impacts, inefficiencies, equitable adjustments or otherwise. The requirements of Article 10 cannot be waived except by explicit written waiver signed by Sound Transit and Contractor. No course of conduct or dealings between the parties, no express or implied acceptance of change or alterations to the Work, and no claim that Sound Transit has been unjustly enriched by an alteration or Change to the work, shall be the basis of any other claim for an increase in Contract Price or extension in the Contract Time for completion of the Work.

CHANGES IN QUANTITIES

A. This Article applies to unit price items on the Contract Price Schedule with an estimated quantity of four (4) or more and the measured quantities required to complete the Work.

B. Increases in Quantities of More than 25 percent.

Should the actual total quantity of a Contract Pay item of work shown on the Price Form exceed the estimated quantity shown on the Price Form by more than 25 percent, the Work in excess of 125 percent of such estimated quantity and not covered by an executed Change Order specifying the compensation to be paid, will be paid for by adjusting the Contract unit price as hereinafter provided or at the option of the Regional Program Manager, payment for the Work involved in such excess will be made on a time and material basis as provided in Article 9.09, Payment on Time and Material Basis.

1. The adjustment of the Contract unit price for such excess quantities will be the difference between the Contract unit price and the actual unit cost to perform the work, as determined in this Article. If the costs applicable to such item of Work include fixed costs, such fixed costs will be deemed to have been recovered by the Contractor by the payments made for 125 percent of the estimated quantity shown on the Price Form for such item, and in computing the actual unit cost; such fixed costs will be excluded. Subject to the above provisions, such actual unit cost will be determined by the Regional Program Manager in the same manner as if the Work were to be paid for on time-and-materials basis as provided in Article 9.09, Payment on Time and Material Basis, or such adjustment as agreed to by the Contractor and the Regional Program Manager.

2. When the total compensation payable for the number of units of an item of Work performed in excess of 125 percent of the estimated quantity is less than $5,000 at the applicable Contract unit price, the Regional Program Manager reserves the right to make no adjustment in said unit price.

C. Decreases of More Than 25 percent.

1. Should the total pay quantity of any item of Work required under the Contract be less than 75 percent of the estimated quantity thereof, an adjustment in compensation pursuant to this Article will not be made unless the Contractor so requests in writing. If the Contractor so requests, the quantity of said item performed, unless covered by an executed Change Order specifying the compensation payable therefore, will be paid for

by adjusting the contract unit price, or at the option of the Regional Program Manager, payment for the quantity of the Work of such item performed will be made on time and materials basis as provided in Article 9.09, Payment on Time and Material Basis.

2. Adjustment of the Contract unit price for such decreased quantities will be the difference between the Contract unit price and the actual unit cost, which will be determined as hereinafter provided, of the total pay quantity of the item, including fixed costs. Such actual unit cost will be determined by the Regional Program Manager in the same manner as if the Work were to be paid for as provided in Article 9.09, Payment on Time and Material Basis, or such adjustment will be as agreed to by the Contractor and the Regional Program Manager.

3. No compensation shall be made in any case for loss of anticipatory profits.

D. If the Contractor disagrees with an equitable adjustment determination by the Regional Program Manager, the Contractor shall strictly follow all procedures in accordance with Article 10, Delays and Claims. Failure to do so shall constitute the Contractor's acceptance of determinations by the Regional Program Manager. When ordered by the Regional Program Manager, the Contractor shall proceed with the Work pending determination of the adjustment in costs or time, as applicable.

E. When Sound Transit has entered an amount for any proposal price item, whether unit or otherwise, solely for the purpose of providing a common proposal price for all proposers, this Article 4.09, Changes in Quantities, shall not apply. Any impact due to an increase or decrease in the amount provided for the purpose of obtaining a common proposal price shall be the sole risk of the Contractor.

ELIMINATED WORK

A. Sound Transit may, by written order to the Contractor, omit work, equipment and/or material to be provided under this Contract, and the value of the omitted work equipment and/or material (inclusive of associated profit and overhead) will be deducted from the Contract Price. The deducted value will be based upon the applicable unit price or lump sum, or if there is no such price, the deducted value will be a lump sum agreed upon in writing by the Contractor and Sound Transit based on the Contract Price Schedule and other cost information submitted by the Contractor or obtained otherwise by Sound Transit. In the event that no agreement can be reached on a lump sum basis, Sound Transit shall be entitled to a deduction based on the value as if the work were to be paid for on a Time and Material basis as provided in Article 9.09, Payment on Time and Material Basis.

B. Should any Contract item of the Work be eliminated in its entirety, in the absence of an executed Change Order covering such elimination, payment will be made to the Contractor for actual costs incurred in connection with such eliminated Contract item if incurred prior to the date of notification in writing by the Regional Program Manager of such elimination.

C. If acceptable material is ordered by the Contractor for the eliminated work prior to the date of notification of such elimination by the Regional Program Manager, and if orders for such material cannot be canceled, it will be paid for by Sound Transit at the actual cost to the Contractor. In such case, the material paid for shall become the property of Sound Transit and the actual cost of any further handling will be paid for by Sound Transit. If the material is

returnable to the vendor and if the Regional Program Manager so directs, the material shall be returned and the Contractor will be paid for the actual cost of charges made by the vendor for returning the material. The actual cost of handling returned material will be paid for by Sound Transit.

DIFFERING SITE CONDITIONS

A. The Contractor shall immediately upon discovery and before the conditions are further disturbed, notify the Regional Program Manager, verbally and in writing of:

1. Subsurface or latent physical conditions at the Site which differ materially from the conditions indicated in the Contract Documents;

2. Unknown physical conditions at the site, of an unusual nature, which differ materially from the conditions ordinarily encountered and generally recognized as inherent in the Work of the character provided for in the Contract.

B. In areas not affected by the alleged differing site conditions, the Contractor shall continue with performance of the Work.

C. The Regional Program Manager will promptly investigate the conditions and provide direction with respect to continuing performance of the Work in the area of the alleged differing site conditions.

D. Unless otherwise agreed upon in writing by Sound Transit, within seven (7) days of the Contractor's initial written notification of the Differing Site Condition to Sound Transit, the Contractor shall provide:

1. A detailed description of the Differing Site Condition;

2. A reasonable estimate of the price and time impacts such Differing Site Condition shall cause to the Contract; and

3. Substantive, contractual, and technical basis supporting the existence of the Differing Site Condition and its impacts.

E. Within fourteen (14) days from receipt of the Contractor's detailed description of impacts, Sound Transit shall either:

1. Issue a Change Notice (CN) or a Change Order (CO);

2. Make a written determination that the event or condition does not justify any changes to the Contract;

3. Request additional information, or

4. Respond to the Contractor and indicate when a determination will be made, if it cannot be made within the above stated fourteen (14) days.

F. If Sound Transit finds that conditions are materially different and cause a material increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the Work under this Contract, the Regional Program Manager will make an equitable adjustment in

the cost or the time required for the performance of the Work, as provided in Paragraph H below.

G. No request by the Contractor for an equitable adjustment to the Contract or claim for a Differing Site Condition shall be allowed unless the Contractor has fully complied with the written notice required in Paragraphs A and D above, unless by explicit written waiver Sound Transit has agreed to extend the applicable notice deadline prior to its expiration. Such notice shall be a condition precedent to any request for an equitable adjustment or claim, and failure to comply shall waive the Contractor's right to make a request for an equitable adjustment or claim.

H. Cost and time adjustments for a differing site condition accepted as a change by Sound Transit shall be resolved in accordance with this Article and Article 10, Delays and Claims, except to the extent that an equitable adjustment for any condition, otherwise within the scope of this Article, has been addressed by unit price or Provisional Sum item, which shall control if provided. All other provisions and requirements of this Article shall apply to such conditions, including without limitation, notification obligations and investigation requirements with respect to any such conditions.

I. After providing Notice to Sound Transit and upon receiving direction from the Regional Program Manager, the Contractor shall be required to continue with performance of all work and maintain its progress with the Work pending resolution of the Differing Site Condition.

J. If the Contractor does not agree with Sound Transit's determination that the event or condition does not justify any change to the Contract, the Contractor must file a Claim in accordance with Article 10, Delays and Claims, or such right to any adjustment in Contract Price and/or Contract Time shall be waived.

VALUE ENGINEERING CHANGE PROPOSALS (VECPS)

A. Sound Transit encourages the Contractor to submit Value Engineering Change Proposals (VECPs) in order to avail Sound Transit of potential cost or time savings or increased safety during the Work. The Contractor and Sound Transit will share any savings in accordance with this Article. VECPs may be submitted at any time after Notice to Proceed. A proposal merely to delete or reduce scope of Work does not constitute a VECP.

B. The Contractor shall submit VECPs directly to the Regional Program Manager. As a minimum, the following information shall be submitted by the Contractor with each VECP:

1. Description of the existing Contract requirements that are involved in the proposed change;

2. Description of the proposed change;

3. Discussion of differences between existing requirements and the proposed change, together with advantages and disadvantages;

4. Itemization of the Contract requirements that shall be changed if the VECP is accepted (e.g., drawing numbers and specification);

5. Justification for changes in function or characteristics of each affected item, and effect of the change on performance of the end item;

6. Effect of proposed change on life-cycle costs, including operation, maintenance, replacement costs, and life expectancy;

7. Date or time by which a Change Order adopting the VECP shall be issued in order to obtain the maximum cost reduction, noting any effect on contract completion time or delivery schedule; and

8. Cost estimate for existing Contract requirements correlated to the Contractor's unit price or lump sum breakdown and the proposed changes in those requirements.

9. Costs of development and implementation by the Contractor shall be provided.

10. Additional costs to Sound Transit (e.g., costs of testing, redesign, and effect on other contracts) shall also be estimated.

C. Sound Transit retains the right to reject a VECP without review, without recourse by the Contractor if a similar change is already under review; or if in Sound Transit's sole opinion, the potential savings are unlikely to justify the cost of the review; or if the proposed change is otherwise unacceptable to Sound Transit.

D. Sound Transit shall expeditiously process VECPs accepted for review but shall not be liable for any delay in acting upon any VECP submitted pursuant to this Article. Sound Transit may accept, in whole or in part, by Change Order, any VECP submitted pursuant to this Article. Until an order to proceed is issued on a VECP, the Contractor shall remain obligated to perform in accordance with this Contract. Change Orders made pursuant to this Article will so state. Sound Transit's decisions as to acceptance or rejection of any VECP shall be at Sound Transit's sole discretion and shall be final and not subject to review by a dispute resolution process or otherwise.

E. If a VECP submitted by the Contractor pursuant to this Article is accepted, the Contract Price shall be reduced by an amount equal to 50 percent of the Estimated Net Savings (ENS) to the Contractor plus 50 percent of Sound Transit's Review Costs (STRC) (or the reduction = 0.5ENS + 0.5STRC). The Estimated Net Savings shall be calculated by subtracting the Contractor's Costs from the Contractor's Estimated Gross Savings. For the purposes of this Article, the Contractor's Costs are defined as the reasonable costs incurred by the Contractor in preparing the VECP and making the change, such as cancellation or restocking charges; and the Contractor's Estimated Gross Savings are defined as the difference between the cost of performing the Work according to the existing requirement and the cost to perform the Work according to the proposed change. The Contractor's profit shall not be considered part of the cost and shall not be reduced by application of the VECP.

F. The Contractor shall include appropriate value engineering incentive provisions in all subcontracts of $100,000 or greater, and may include those provisions in any subcontract. In determining Estimated Net Savings for cost reduction proposals that involve a Subcontractor, only actual costs to the Contractor and Subcontractor, as defined in Paragraph E above, will be allowed as Contractor Costs. Incentive payments made to the Subcontractor by the Contractor in connection with the cost reduction proposal will not be allowed in determining Net Savings.

G. Sound Transit is subject to public disclosure of records in accordance with Washington State Law. Material and information, which may be submitted as part of any VECP, will be subject to such public disclosure pursuant to State law.

H. The compensation provisions of this Article shall constitute the Contractor's exclusive and complete compensation for Sound Transit's use of the VECP, and the Contractor shall have no right to additional compensation for future or additional uses of the VECP. Sound Transit shall have an absolute and unrestricted right to use the concepts, ideas, methods, materials, and any other salient feature of a VECP, for any purpose other than on the Contract or contracts for which it was submitted.

I. In the event Sound Transit and Contractor cannot agree on the Estimated Net Savings, Sound Transit may at its option (i) terminate the proposed VECP or (ii) unilaterally determine the Estimated Net Savings. If Contractor disagrees with such unilateral determination and seeks to assert a Claim, Contractor shall comply with the Claim requirements of the Contract Documents.

ARTICLE 5 MATERIALS AND EQUIPMENT

GENERAL

A. The Contractor shall furnish all materials, including without limitations, equipment and completely or partially assembled items, required to complete the Work, except materials that are designated in the Contract Documents to be furnished by Sound Transit.

B. Material and equipment furnished and installed for this Work shall be new and of a quality equal to or better than that specified.

C. Sound Transit's acceptance of materials on the basis of compliance documentation, inspection or testing shall not relieve the Contractor of its obligation for conformance with the Contract.

D. Manufacturers' warranties, instruction sheets, and parts lists, which are to be furnished with certain materials, shall be delivered to the Regional Program Manager before Substantial Completion.

E. The materials and equipment provided and work performed by the Contractor shall strictly conform to the requirements contained in the Contract Documents. The burden of proof that the completed Work conforms to the Contract Documents shall be on the Contractor.

F. The Contractor shall not use any permanently incorporated materials or equipment unless such use is approved in writing by Sound Transit. Where Contractor's request is granted for the use of certain materials, the Contractor shall properly use and maintain, and upon completion of its use, and at its own expense, recondition such materials or equipment to the satisfaction of Sound Transit.

MATERIALS CERTIFICATIONS

A. All materials except materials specified by brand name or mark or manufacturer, furnished for use or incorporation in the Work, shall be covered by quality certifications, test results or other documentation as required by the Contract to establish compliance of the products with Contract requirements. Unless specific tests are required by the specifications, the Contractor may provide certifications to establish acceptability of the products furnished. Materials or

products which require certification or other documentation shall not be incorporated until certifications have been delivered and the product approved by Sound Transit for incorporation.

B. When the Contract requires documentation that materials comply with a given specification or Industry Standard, the Contractor shall provide documents that include a certification that the material conforms to all applicable Contract requirements. The documentation shall identify the material, list the applicable specifications and tests covered by the certification, describe the source of the material, and the quantity of material certified. The certifying document shall originate with manufacturer or producer of the material and shall bear the signature of a person qualified to perform the certification and authorized to sign on behalf of the manufacturer or producer. If applicable, the certificate shall list any marking or other identification of the certified material.

C. For fabricated or manufactured materials, in addition to the documentation required by this Article, the Supplier shall furnish documentation that the fabrication or manufacturing process complies with Contract requirements. The documentation shall be comparable to that required by this Article and shall list the name and address of the manufacturer or fabricator, the specific processes covered by the certification and procedures and equipment used, tests performed and testing frequency, and any other pertinent information required to demonstrate Contract compliance.

D. For materials specified or approved by brand name or mark, an identifying label or other marking affixed by the manufacturer, which contains sufficient information to verify that the material furnished is the material specified, will be accepted as documentation in lieu of additional certification. Other physical characteristics or packaging information may be accepted at Sound Transit's discretion to demonstrate compliance.

E. Sound Transit may require testing at the Contractor's expense of materials that are delivered without acceptable identification, certification or other required documentation. Work that incorporates materials for which the required documentation has not been provided will be considered nonconforming work.

F. Sound Transit reserves the right to sample and test any material provided for use or incorporation into the Work. The Contractor shall furnish, at no cost to Sound Transit, all samples requested for testing. If Sound Transit's tests indicate that the material tested does not comply with Contract requirements, all materials covered by the same certification as the test sample shall be considered as non-conforming.

G. If, at any time, Sound Transit deems the Contractor's testing is not adequate, the Contractor shall immediately take corrective action as directed by Sound Transit.

EQUIVALENT MATERIALS AND EQUIPMENT

When material or equipment is specified by one or more patents, brand names, or catalog numbers, it shall be understood that this is for the purpose of defining the performance or other salient requirements and shall be understood as if followed by the words "or equal," whether or not such words appear. Should the Contractor propose to furnish an "or equal" material or equipment then Contractor shall demonstrate conformance to the specified performance, testing, quality or dimensional requirements and suitability of the material or equipment for the use intended. The Regional Program Manager shall promptly review and approve or disapprove Contractor’s proposed “or equal” material or

equipment and any such approval shall not relieve Contractor of its obligations to achieve the specified performance, testing, quality or dimensional requirements and suitability of any approved "or equal" material or equipment for the use intended under this Contract.

SUBSTITUTIONS

A. If material or equipment is specified as a sole source, Sound Transit will not consider substitutions.

B. Materials or equipment of equal or better capacity, quality, or function may be allowed by Sound Transit, in its sole discretion, upon written request for substitution by the Contractor. Requests for substitution shall be made in accordance with these Contract Documents. Denial of a request for substitution is not grounds for any claim against Sound Transit.

C. Except for sole source materials or equipment, the Contractor may offer material or equipment of equal or better quality and performance in substitution for those specified in the Contract Documents. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor. Sound Transit will consider offers for substitution only from the Contractor and not from Suppliers, distributors, manufacturers, or Subcontractors. If the offered substitution necessitates changes to or coordination with other portions of the Work, the Contractor, as a condition of Sound Transit's acceptance of the substitution, shall perform such changes or coordination at no additional cost to Sound Transit. Substitutions shall be submitted to Sound Transit in sufficient time to avoid delays to the Work. The Contractor shall be responsible for any delay or cost resulting from untimely submittal of substitution requests.

D. The Contractor has the burden of demonstrating that the proposed substitution's function, quality, and performance will be equal in all respects to that of the specified item.

E. A request for substitution constitutes a representation that the Contractor:

1. Has investigated the proposed product and determined that it meets or exceeds the quality level of the specified product;

2. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Sound Transit;

3. Waives claims for additional costs or time extension that may subsequently become apparent; and

4. Bears all Sound Transit costs of any redesign or modification to other systems, parts, equipment or components of the Contract Work resulting from the substitution.

F. Substitutions will not be considered when they are indicated or implied on Shop Drawings or product data submittals without a separate written request. Substitutions will not be considered when they are due to the Contractor's failure to order the specified items in a timely manner.

G. Sound Transit shall be the sole judge of whether the offered substitution is in conformance with the Contract Documents for the Work and whether the changes to other portions of the Work necessitated by the incorporation of the offered substitution are acceptable. Any savings

resulting from the use of a substituted item shall be passed on to Sound Transit in the form of a Value Engineering Cost Proposal.

H. Sound Transit may, at its option, supply hardware, software, licenses, warranties, infrastructure, or materials outside of this Contract in accordance with design specifications provided by the Contractor. In the event that ST supplies any such items, they shall be delivered in new condition and working order and in a timely fashion to the Contractor at a location and date to be determined in advance and agreed in writing.

MANUFACTURER'S DIRECTIONS

Manufactured articles, materials, solvents, and equipment or other goods shall be transported, stored, applied, installed, connected, erected, adjusted, tested, operated, and maintained as recommended by the manufacturer, unless otherwise specified herein. Items shall be installed by the manufacturer where recommended or directed; however, the Contractor shall not be relieved of responsibility for such installation and costs.

RESPONSIBILITY FOR PERFORMANCE

Designation of brand names, components, and/or equipment in the Specifications shall not relieve the Contractor from responsibility for performance in accordance with contractual requirements. The Contractor is responsible for notifying the Regional Program Manager of any inappropriate brand name, component, and/or equipment that may be called for in the Specifications, and for proposing a suitable alternate for consideration. Any substitution required by Sound Transit or the Regional Program Manager under this Article shall be implemented in accordance with the procedures set forth in Article 4, Changes and Change Order Process.

ARTICLE 6 PROSECUTION AND PROGRESS OF THE WORK

CONTRACT TIME

A. All time requirements set forth in the Contract Documents are of the essence in the performance of this Contract. Unless specifically authorized in writing by Sound Transit, the Contractor is not allowed to perform Work or incur costs under this Contract until the effective date of the Notice to Proceed. The Contractor shall proceed with performance of the Work under this Contract immediately after the effective date of Notice to Proceed and shall continuously and diligently prosecute the Work and specified portions thereof to completion on or before the time or times set forth in this Contract. Any work performed by the Contractor prior to the effective date of Notice to Proceed shall be at the Contractor's risk. The Contract Time shall not be extended or reduced except by Change Order. The Contractor shall not be entitled to receive delay damages or costs for non-realization of anticipated early completion of the Work before a Contract specified Milestone date.

B. The Contractor shall work such hours including overtime operations and/or extra shifts, within the parameters of permitted working days and hours, as may be necessary to meet its performance obligations under the Contract.

C. The Contractor shall comply with all local requirements and permit conditions relating to acceptable hours of operation for work locations, and to noise control and abatement. If the Contractor deems that a waiver of any local requirements is necessary to enable the Contractor

to perform the Work in accordance with the Contract requirements, it is the Contractor's responsibility to obtain said waivers, at no additional cost to Sound Transit.

D. All time periods measured in days for Contract Milestones and Notices shall be based upon calendar days, unless specified otherwise. Time periods measured in days for each Contract milestone and notice shall be computed by excluding the day upon which the period begins to run and including the last day of the period unless the last day is Saturday, Sunday or a legal holiday as defined in RCW 1.16.050. If the last day of the period is a Saturday, Sunday or legal holiday, the period shall run until, and shall include, the next day that is not a Saturday, Sunday, or legal holiday.

E. When an extension of time for completion of a milestone is granted, the extended date for completion of that milestone shall be calculated using the sum of the number of days originally allowed plus the number of days extension of time, commencing on the effective date of the Notice to Proceed, unless otherwise noted in the Special Conditions.

PROJECT SCHEDULES

A. Preparation and Submittal of Schedules

1. The Contractor shall develop and deliver, in accordance with the Contract Documents, the various schedules and progress reports to Sound Transit for review and acceptance. Sound Transit's review shall not constitute approval or acceptance of the schedules' sequencing or time of completion, nor of the Contractor's means and methods.

2. The Contractor shall not be entitled to payment, nor shall Sound Transit be required to make payment for any Contract Work, until the Project Schedule complies with the Contract requirements.

B. Float

1. Float is defined as the number of days by which a Work activity identified in the project schedules could be delayed from its "early start date" until the date upon which the Work activity would become a Critical Path Activity.

2. Any float (other than Sound Transit Controlled Float), slack time, or contingency within the Project Schedules (i.e., the difference in time between the Contract's early completion date and the Contract Milestone(s)) is not for the exclusive use of either Sound Transit or the Contractor, but is jointly owned by both and is a resource available to and shared by both parties as needed to meet Contract Milestones. Use of such jointly owned float shall be on a first come, first served basis and may be applied to delays caused (without limitation) by unmarked utility interferences or third parties.

3. The Contractor shall not sequester shared float through such strategies as extending activity duration estimates to consume available float, using preferential logic, or using extensive crew/resource sequencing, etc. Since float time, other than Sound Transit Controlled Float, within the schedule is jointly owned, no time extensions will be granted nor delay damages paid until a delay occurs which extends the work beyond the Contract Milestone(s). Since float time within the project schedule is jointly owned, it is acknowledged that Sound Transit-caused delays on the Contract may be offset by Sound

Transit-caused time-savings. In such an event, the Contractor shall not be entitled to receive a time extension or delay damages until all Sound Transit-caused time-savings are exceeded.

FAILURE TO MAINTAIN PROGRESS

If, in the opinion of the Regional Program Manager, the Contractor is not maintaining its anticipated progress towards the completion of the Milestones and / or falls behind the approved project schedules, the Contractor shall take any and all steps necessary to improve its progress. If the Contractor fails to implement appropriate remedial actions, the Regional Program Manager may require the Contractor to increase the number of shifts, increase the number of crews and/or operations, initiate or increase overtime operations, increase days of work in the work week, increase the amount of facilities and equipment, or all of the foregoing. Sound Transit may also require the Contractor to submit for approval supplemental progress schedules that detail specific operation changes to be instituted to regain the approved schedule. The cost of the actions necessary to improve the Contractor's progress will be the responsibility of the Contractor and will not be reimbursed by Sound Transit.

PROTECTION OF PROPERTY

In addition to the requirements set forth elsewhere in the Contract documents, the Contractor shall comply with the following general requirements:

A. Protect all public and private property, insofar as it may be endangered by the Contractor's operations, and take every reasonable precaution to avoid damage to such property.

B. Restore and bear the cost of restoration of any public or private improvement, facility, structure or land and landscaping inside or outside of the right-of-way or easement, which is damaged or injured directly or indirectly by or on account of an act, omission, or neglect in the execution of the Work; restore to a condition substantially equivalent to that existing before such damage or injury occurred, by repairing, replacing, rebuilding, or otherwise affecting restoration thereof, or if this is not feasible, make a suitable settlement with the owner of the damaged property. All restoration shall be governed by the requirements of local authorities, including but not limited to local codes, standards, and permit conditions.

C. Give reasonable notice through the Regional Program Manager to occupants of buildings on property adjacent to the Work to permit the occupants to remove vehicles, trailers and other possessions as well as salvage or relocate ~~facilitiess~~facilities, trees, fences, sprinkler systems, or other improvements in the right-of-way which are designated for removal or which might be destroyed or damaged by work operations.

D. Protect all trees, lawns, and ~~facilitiesed~~facilities areas within the Right-of-Way or Easements that are designated for preservation.

Commented [Legal42]: Term misspelled.

E. Not operate tracked equipment on the streets that are not scheduled for demolition and repaving under this Contract. In the event tracked equipment is used, the streets shall be fully protected.

PUBLIC SAFETY AND CONVENIENCE

The Contractor shall conduct its operations to ensure the least possible obstruction and inconvenience to the public, and the Contractor shall have no greater amount of work than the Contractor can prosecute properly with due regard to the rights of the public.

EMERGENCY WORK

A. In an emergency affecting the safety of persons, the Work, or adjoining property, the Contractor, without special instructions or authorization from the Regional Program Manager, shall act to prevent such threatened loss or injury. In such an emergency, the Contractor shall perform such additional work as required. Any compensation claimed by the Contractor on account of emergency work shall be governed by Article 4, Changes and Change Order Process, or as deemed appropriate by the Regional Program Manager.

B. If, during the Warranty period or during the progress of the Contract, the Contractor is absent from the locations of the Work at the time when a failure or faulty condition of the Contractor's work requires emergency action in the public interest, Sound Transit shall have the right to make repairs or corrections by itself or with other forces, as required, and Sound Transit may withhold from monies due the Contractor any costs which Sound Transit incurs from such emergency work.

PROTECTION OF UTILITIES

A. Facilities and installations of various utilities may be present in the area of Work. In general, the locations of existing major utilities, whether aboveground or underground, are indicated on the Contract Drawings. This information has been obtained from utility maps and field surveys. Sound Transit does not guarantee the accuracy or completeness of the information. It is understood that other facilities not shown on the Contract Drawings may be encountered during the course of the work. In any case, most minor lines such as water, gas, electric power and communication, sewer services, and sprinkler irrigation lines may not be indicated. The Contractor shall protect any utility property that is on or adjacent to the Site or affected by the Work. Existing utilities, whether shown on the Contract Drawings or not, shall be maintained, relocated, rerouted, removed, repaired, and restored as may be necessary by the Contractor in a manner satisfactory to owners and operators of the utilities and to Sound Transit. The Contractor shall contact the utility owners and arrange operations and schedules to minimize any interruption of utility services. The Contractor shall provide utility owners with notice as may be required by said utilities for location of utility services, scheduling of outages, or other utility activities needed to accommodate the Contractor's operations.

B. The Contractor shall comply with the requirements of RCW 19.122, Underground Utilities, and take steps to ascertain the exact location of all facilities prior to doing work which may damage such facilities or interfere with their service. Where the location of a facility is not indicated, or is, in the opinion of the Regional Program Manager, doubtful, the Contractor may be directed to make such excavations and explorations as are necessary to ascertain the correct location.

C. When performing work in streets and easements, the Contractor shall notify all affected utilities and local agencies of its proposed operations and properly coordinate and expedite the Work in such a manner as to cause the least amount of conflict and interference between the work and operations of other agencies. In the event of disruption or threat of disruption to utility services

as a result of Work-related activities, regardless of cause, the Contractor shall notify Sound Transit immediately and shall notify and cooperate with the utility as well as any fire, police, or other public authority which may be affected by the disruption, as required by said utility, agency, or authority.

D. The Contractor shall document all incidents of damage or impacts to utilities that are the result of Work activity, and report all such incidents to Sound Transit immediately with the date, time, place and type of property damage.

E. The Contractor shall ensure that unauthorized personnel are strictly prohibited from the operation of utility or agency water valves and hydrants and shall obtain written permission from the applicable proper utility or agency prior to using any water hydrant or operating any water valve. No Work shall be undertaken around fire hydrants until provisions for continued access and service have been approved by the local fire authority.

TEMPORARY FACILITIES AND UTILITIES

A. Temporary facilities and utilities shall be installed in compliance with federal, state, and local codes and statutes, at the Contractor's expense. The installation and maintenance of all temporary facilities will be subject to the approval of Sound Transit, and unless otherwise authorized in writing by Sound Transit, all such facilities shall be removed before Acceptance of the Work.

B. Before proceeding with the erection of any facilities, including temporary structures, machinery, offices, and warehouses, the Contractor shall, at its expense, notify and furnish Sound Transit with such information and drawings as Sound Transit may request showing locations of such facilities, capacities and capabilities of the machinery and equipment, and projected utility requirements. Such facilities shall be fully adequate for the uses intended and fully comply with the requirements of the Contract.

TEMPORARY REARRANGEMENT OF UTILITIES

The Contractor may desire to rearrange utilities temporarily for Contractor's convenience. In this case, the Contractor shall make whatever arrangements are necessary with the owners of such utility or other facility for such rearrangement and bear all expenses in connection therewith. Further, the Contractor shall maintain all utility facilities placed by the Contractor in temporary locations, and all utilities within the work area not required to be permanently rearranged but which are required to be shored or supported during the Work period. Unless otherwise indicated, the cost of such temporary rearrangement and maintenance shall be borne by the Contractor and no other compensation shall be due the Contractor for this work.

REARRANGEMENT OF UTILITIES BY OTHERS

Some or all of the utilities and other facilities, both above ground and below ground, which are required to be rearranged to accommodate the specified work, may be rearranged by other forces. In the event that rearrangement will be performed prior to the start of the Contractor's operations, or where the rearrangement must be coordinated with the Contractor's Work operations, the existing facilities which are to be rearranged by others will be indicated in the Contract Documents. Where such a rearrangement by others is indicated in the Contract Documents, the Contractor will have no liability for the cost of performing the work; however, the Contractor shall cooperate with those involved in such

rearrangement. Wherever necessary, the work of the Contractor shall be coordinated with the rearrangement of utility or other facilities, and the Contractor shall make arrangements with the owner of such facilities for the coordination of the work. The Contractor shall anticipate potential delays by the utility owners and such reasonable delays shall not be the basis for additional compensation or time extensions. Only in the event that the utility owners fail or refuse to relocate or do so in a manner causing unreasonable delays to the critical path of the Work, may the Contractor request a time extension as provided in Article 4, Changes and Change Order Process.

EXPLORATION FOR UTILITIES

Where excavations or explorations to determine the location of utilities are directed by the Regional Program Manager and where it is determined by the Regional Program Manager that the rearrangement of an underground facility, which is not shown in the Contract Documents, is essential in order to accommodate the Work, the Regional Program Manager will provide for the rearrangement of such facility by other forces or, when so ordered by a CN-WD or CO, such rearrangement shall be performed by the Contractor and will be paid for as provided in Article 4, Changes and Change Order Process. In the event of unscheduled or unanticipated disruption(s) or threat of disruption(s) to utility services as a result of work-related activities, regardless of cause, the Contractor shall promptly notify Sound Transit, the affected utility, and fire and/or police agencies as necessary, and shall cooperate with those authorities. If temporary disruption(s) of utility service(s) is (are) unavoidable pursuant to the Work, the Contractor shall immediately notify the Regional Program Manager and secure authorization from Sound Transit before disrupting the utility service(s). Operation of utility or agency water valves and hydrants by unauthorized personnel is strictly prohibited without obtaining written permission from the applicable authority prior to using any water hydrant or operating any water valve. No work shall be undertaken around fire hydrants until provisions for continued access and service have been approved by the local fire authority.

SAFETY, FIRST AID AND SECURITY

A. The Contractor shall be solely and completely responsible for conditions of the Site and the safety of all persons and property twenty-four (24) hours per day during the performance of the Work of this Contract. The Contractor shall:

1. Maintain the site and perform the work in a manner that meets statutory, regulatory and common law requirements for the provision of a safe place to work and that does not pose unreasonable safety risks to employees of Sound Transit or the public;

2. Initiate, maintain, and supervise all safety precautions and programs in connection with the performance of the Work;

3. Protect the lives and health of employees performing the work and other persons who may be affected by the Work, and

4. Prevent damage to and theft of materials, supplies, and equipment whether on-Site or stored off-Site.

B. The Contractor shall comply with all applicable local, state and federal laws, ordinances, rules, regulations and orders of any public authority building and codes, and safety regulations bearing on the safety of people and property and their protection from damage, injury or loss. In the case of conflict, the more stringent requirement shall apply. Any review of the Contractor's

performance conducted by Sound Transit or its consultants, does not and shall not be intended to include review of the adequacy of the Contractor's safety measures in, on, or near the Site.

C. The minimum safety requirements and procedures for accident prevention, safety and loss prevention, accident and incident reporting, and control for the Work are contained in other Contract Documents. Failure to comply with these minimum requirements may result in a material breach of contract. The minimum safety requirements contained in the Contract are intended to supplement, and not replace the Contractor's Safety and Security Program or Site Safety and Security Plan.

D. Prior to work, the Contractor shall have in place a Contractor's Safety and Security Program (CSSP). From this Program the Contractor shall prepare a Contractor's Site Safety and Security Plan (SSSP) identifying the methods by which all applicable safety and security requirements of this Contract and the applicable Federal, state and local requirements will be met. The Contractor shall ensure its Subcontractors have either a written safety program that conforms to the applicable requirements or formally adopt the Contractor's Safety and Security Program and Site Safety and Security Plan. The Contractor shall designate a Safety and Security Officer who shall be responsible for proper implementation of the CSSP and the SSSP. The Contractor shall submit a copy of its CSSP and SSSP to Sound Transit in accordance with the Contract Documents. Sound Transit's review of the CSSP or SSSP shall not be deemed to constitute approval or acceptance thereof and shall not transfer any responsibility for the safety of the Work site from the Contractor to Sound Transit.

E. The Contractor shall conduct a monthly safety meeting with all on-site Subcontractors and supervisors to discuss general and specific safety matters. The Contractor shall keep a log of such monthly safety meetings and provide it upon request by Sound Transit, including a sheet on which each attendee signed in and a description of the safety topics discussed at the meeting. The Contractor also shall conduct weekly safety or "tool box" meetings with employees of the Contractor and Subcontractors. The Contractor shall keep a log of such weekly safety meetings and provide it upon request by Sound Transit.

F. As the property owner, Sound Transit retains the right to grant consent to inspections pursuant to State and Federal law. This includes all accident and criminal investigations and general schedule, complaint, and follow-up safety and health inspections conducted by the State of Washington Department of Labor and Industries (WISHA) and the Federal Occupational and Health Administration (OSHA).

ORDER OF WORK

When required by the Contract Documents, the Contractor shall follow the sequence of operations set forth therein. Full compensation for conforming to such requirements will be considered as included in the prices paid for the various Contract items of the Work and no additional compensation will be allowed therefore.

LIABILITY FOR EXPENSES

The Contractor shall be liable to Sound Transit for expenses incurred due to the Contractor's failure to perform tasks in accordance with the Contract requirements. Such expenses may include costs to Sound Transit for providing personnel to perform tasks on behalf of the Contractor and shall be subject to an advance notice to the Contractor that such expenses are expected to be incurred. These expenses may

be deducted as unilateral credit Change Orders or as part of the Change Orders issued in accordance with Article 4, Changes and Change Order Process.

ARTICLE 7 LEGAL REQUIREMENTS

HEADINGS

The parties agree that Article and Section headings and other titles used in this Contract are for convenience only, and are not to be used to interpret this Contract.

WAIVER OF CONTRACT TERMS

Commented [LC43]: Needs to be for both parties.

No act or failure to act on the part of Sound Transit with respect to the exercise or enforcement of any provision of this Contract (including but not limited to rights or remedies conferred upon Sound Transit under this Contract, performance, or standards) shall be deemed to be a waiver on the part of Sound Transit of any provision of this Contract. No waiver of one provision by Sound Transit shall act as a waiver of any other provision or as a subsequent waiver of the same provision. No waiver shall be effective against Sound Transit except an express waiver in writing.

PROHIBITED INTEREST

The Contractor shall not offer or confer any interest, direct or indirect, in this Agreement or the proceeds thereof (or hire or retain in any way, directly or indirectly) to or on any member, officer, or employee of Sound Transit or its governing body, or of any of its component agencies during such person's tenure or one year thereafter, unless such interest has been disclosed in writing to Sound Transit and Sound Transit has determined that no prohibited conflict of interest or ethical violation exists in the circumstances.

SUCCESSOR'S OBLIGATIONS

The grants, covenants, provisos and claims, rights, powers, privileges and liabilities contained in the Contract shall be read and held as made by and with, and granted to and imposed upon, the Contractor and Sound Transit and their respective heirs, executors, administrators, successors and assigns. A Surety under the Performance Bond allowed by Sound Transit to complete the Work in the event of a default, termination, or other failure of the Contractor to perform the Work, shall comply fully with all Contract requirements and shall not use the defaulted or terminated Contractor for continuation or completion of the Work unless Sound Transit consents.

ASSIGNMENT OF CONTRACT

The Contract shall not be assigned in whole or in part by the Contractor without the prior consent of Sound Transit. To the maximum extent permitted by law, involuntary assignment of the Contract caused by the Contractor being adjudged bankrupt, assignment of the Contract for the benefit of the Contractor's creditors, or appointment of a receiver on account of the Contractor's insolvency shall be considered as a failure to comply with the provisions of the Contract and subject to the termination provisions contained herein.

JOINT VENTURE CONTRACTOR

A. In the event the Contractor is a joint venture of two or more partners, the grants, covenants, provisos and claims, rights, power, privileges, and liabilities of the Contract shall be construed

and held to be several as well as joint. Any notice, order, direction, request, or any communication given by Sound Transit to the Contractor under this Contract shall be well and sufficiently given to all persons being the Contractor if given to any one or more of such joint venture partners. Any notice, request or other communication given by any one of such joint venture partners to Sound Transit under this Contract shall be deemed to have been given by and shall bind all joint venture partners being the Contractor.

B. In the event of the dissolution of the joint venture Contractor, Sound Transit shall have the unqualified right to select which joint venture partner(s), if any, shall continue with the Work under this Contract. Such selected partner(s) shall assume all liabilities, obligations, rights, and benefits of the Contractor under this Contract. Dissolution of the joint venture shall not be effected without prior consultation with Sound Transit. In the event of failure or inability of any joint venture partner(s) to continue performance under this Contract, the remaining joint venture partner(s) shall perform all services and Work and assume all liabilities, obligations, rights, and benefits to the Contractor under this Contract. Nothing in this Article shall be construed or interpreted to limit Sound Transit's rights under this Contract or by law to determine whether the Contractor or any joint venture partner thereof has performed within the terms of this Contract.

CONFLICT OF INTEREST

By submission of its Proposal, the Contractor covenants that it has no direct or indirect pecuniary or proprietary interest, and that it shall not acquire any interest that conflicts in any manner or degree with the Work, materials to be provided or services required to be performed under this Contract. Furthermore, the Contractor shall not employ any person or agent having any such conflict of interest. In the event that the Contractor or its agents, employees or representatives hereafter acquires such a conflict of interest, it shall immediately disclose in writing such interest to Sound Transit and take action immediately to eliminate the conflict or to withdraw from this Contract, as Sound Transit requests. The Contractor shall not employ any consultant who is concurrently employed by Sound Transit or by Sound Transit's consultants (including, but not limited to, surveyors, engineers, architects, and testing laboratories), ***without first obtaining Sound Transit's approval in writing***.

PERMITS, FEES, AND NOTICES

A. Except as otherwise indicated, the Contractor shall procure all necessary permits and licenses, pay all charges and fees, comply with all permit conditions and give all notices necessary and incident to the due and lawful prosecution of the Work. Failure of the Contractor to perform any of the requirements specified herein shall result in the Contractor's liability as set forth herein. Upon written request the Contractor shall furnish Sound Transit with satisfactory documentation evidencing compliance with the applicable requirements. Contractor shall sign as co-permitee on any stormwater permits issued for the Work regardless of whether Sound Transit obtains such permit(s) prior to or after execution of this Contract.

B. The Contractor shall be fully liable to Sound Transit and any permit issuing authority for any costs and damages arising out of or relating to Contractor's failure to obtain a permit or for any failure to comply with the terms of any permit, including (1) costs associated with completing the Work authorized and/or required by any government permit within the time or times, if any, stipulated in such permit and any fees or penalties assessed by the permit issuing authority, (2) any damages or costs assessed under Article 7.14, and (3) delays to the Work caused by failure

to timely complete Work, or any separate part thereof. As used herein, the term “permit issuing authority" includes any authority whose permit or license is necessary and incident to the due and lawful prosecution of the Work.

C. The Contractor shall be responsible for identifying, securing, and paying for all necessary licenses, fees, inspections, waivers, utility connection fees, building and other permits, and similar authorizations from governmental and utility authorities required to fulfill the Contract requirements and the Contractor's obligations except for those identified in the Contract as being furnished or paid for by Sound Transit.

D. The Contractor shall maintain at the Work Site copies of all permits, licenses, certificates, or other documentation demonstrating compliance with any applicable statute, regulation, ordinance, or rule or other requirements of this Contract. The Contractor shall provide copies of such documentation to Sound Transit promptly upon request.

E. The Contractor shall be liable for and shall pay all fines, assessments, and other costs resulting from the Contractor's violation of any applicable federal, state, or local statute, regulation, ordinance, or other restriction.

F. The Contractor shall not be entitled to any additional compensation or extension of time as a result of the Contractor's violation of applicable regulatory requirements. If a delay results from such a violation, the Contractor shall be responsible for all costs including, but not limited to, overtime premium associated with regaining the time lost as a result of such delay, and any damages, including liquidated damages, which may result from Contractor's failure to comply with the project schedule as a result of such delay.

PUBLICITY AND ADVERTISING

The Contractor, its Subcontractors, and Suppliers shall not publish nor cause to be published any advertisement or other material, including news releases and technical papers, regarding the subject matter of this Contract at any time without the prior written authorization of Sound Transit. The Contractor shall not display any signs, posters, or any other advertising matter in or on the Work or on or around the site other than those prescribed by the Contract or by law without the prior written authorization of Sound Transit. In addition, advertising or other copy mentioning Sound Transit or quoting the opinions of any of its employees shall not be released before such copy is approved in writing by Sound Transit. Any material proposed for publication shall be factual and shall not state or imply endorsement by Sound Transit of any firm, service or product.

LIABILITY AND INDEMNIFICATION

A. The Contractor shall comply, and require its subcontractors to comply, with all Sound Transit resolutions, motions and federal, state, and local laws, regulations, and ordinances applicable to the work and services to be performed under this Agreement.

B. Insurance Coverage, whether owner-provided, contractor-provided, or otherwise, shall not relieve the Contractor, Subcontractors or Suppliers of their responsibility for liability or damages to Sound Transit under the Contract Documents.

C. The Contractor shall be solely responsible for any claims for wages or compensation by the Contractor employees, agents, and representatives, including subcontractors, and save and hold Sound Transit harmless therefrom.

D. The Contractor shall indemnify, defend and hold Sound Transit harmless for any costs and pay any damages or judgments related to any claim brought by any person employed in any capacity by the Contractor, Subcontractors, or any agent of Contractore~~y~~ on the Work, with respect to the payment of wages, salaries, or other compensation or benefits, including but not limited to benefits such as medical, health, retirement, vacation, sick leave, etc.

Commented [Legal44]: Language is added to clarify that it is an agent of the Contractor who it is referred to.

E. To the maximum extent permitted by law, the Contractor agrees to defend, release, indemnify and save harmless Sound Transit, its successors and assigns, and its and their shareholders, officers, officials, directors, contractors, and employees, and the ORCA partner agencies (collectively "the Indemnified Parties") from and against any liability including any and all suits, claims, actions, losses, costs, penalties, response costs, and damages of whatsoever kind or nature to the extent arising out of, in connection with, or incident to the Contractor's negligent performance or negligent failure to perform this Contract or the Work; provided, however, that if the provisions of RCW 4.24.115 apply to the Work and any injuries to persons or property arising out of performance of this Agreement are caused by or result from the concurrent negligence of the Contractor or its Subcontractors, agents or employees, and an Indemnified Party, the indemnification applies only to the extent of the negligence of the Contractor, its Subcontractors, agents or employees.

Commented [Legal45]: The terms are added to clarify that it is a negligent standard applied to this paragraph. Contractor is not an insurer of every contingency regardless of fault.

THE CONTRACTOR SPECIFICALLY ASSUMES POTENTIAL LIABILITY FOR ACTIONS BROUGHT BY THE CONTRACTOR'S OWN EMPLOYEES OR FORMER EMPLOYEES AGAINST ANY INDEMNIFIED PARTY, AND FOR THAT PURPOSE THE CONTRACTOR SPECIFICALLY WAIVES ALL IMMUNITY AND LIMITATIONS ON LIABILITY UNDER THE WORKERS COMPENSATION ACT, RCW TITLE 51, OR ANY INDUSTRIAL INSURANCE ACT, DISABILITY BENEFIT ACT OR OTHER EMPLOYEE BENEFIT ACT OF ANY JURISDICTION THAT WOULD OTHERWISE BE APPLICABLE IN THE CASE OF SUCH CLAIM. THIS INDEMNITY OBLIGATION SHALL NOT BE LIMITED BY ANY LIMITATION ON THE AMOUNT OR TYPE OF DAMAGES, COMPENSATION OR BENEFITS PAYABLE BY OR FOR CONTRACTOR OR A SUBCONTRACTOR UNDER WORKERS' COMPENSATION, DISABILITY BENEFIT OR OTHER EMPLOYEE BENEFITS LAWS. THE CONTRACTOR RECOGNIZES THAT THIS WAIVER WAS SPECIFICALLY ENTERED INTO AND WAS THE SUBJECT OF MUTUAL NEGOTIATION. PROVIDED, HOWEVER, THE CONTRACTOR'S WAIVER OF IMMUNITY BY THE PROVISIONS OF THIS PARAGRAPH EXTENDS ONLY TO CLAIMS AGAINST THE CONTRACTOR BY SOUND TRANSIT, AND DOES NOT INCLUDE, OR EXTEND TO, ANY CLAIMS BY THE CONTRACTOR'S EMPLOYEE DIRECTLY AGAINST THE CONTRACTOR.

F. The Contractor further agrees to assume the defense of the Indemnified Parties with legal counsel acceptable to Sound Transit, whose acceptance shall not be unreasonably withheld or delayed, in all legal or claim proceedings arising out of, in connection with, or incidental to the performance of this Agreement or the Work. The Contractor shall pay all defense expenses, including attorneys' fees, expert fees, and costs (collectively "defense costs") incurred directly or indirectly on account of such litigation or claims, and the Contractor shall satisfy any judgment rendered in connection therewith. In the event that any lien is placed upon the property of any of the Indemnified Parties as a result of such suits or legal proceedings, the Contractor agrees to immediately cause the same to be dissolved and discharged by giving bond or otherwise. The

Contractor may settle any suit, claim, action, loss, cost, penalty, or damages, subject to the approval of Sound Transit, whose approval shall not be unreasonably withheld, if such settlement completely and forever extinguishes any and all liability of the Indemnified Parties. In the event of litigation between the parties to enforce the rights under this Article, reasonable attorney fees shall be allowed to the prevailing party.

G. The Contractor further agrees that any review and/or approval by Sound Transit and/or others hereunder shall not relieve the Contractor of any of its obligations to perform to generally accepted professional standards applicable to the types of services and work provided hereunder or in any way diminish its liability for the performance of such obligations or its obligations to provide the indemnities hereunder.

H. The foregoing indemnities and duties to defend shall survive the termination of this Agreement and final payment hereunder, and are in addition to any other rights or remedies which Sound Transit and/or any of the Indemnified Parties may have by law or under this Agreement. In the event of any claim or demand made against any Indemnified Party hereunder, Sound Transit may, in its sole discretion, reserve, retain or apply any monies due to the Contractor under the Agreement for the purpose of resolving such claims; provided, however, that Sound Transit may release such funds if the Contractor provides Sound Transit with adequate assurance of the protection of Sound Transit's and the other Indemnified Parties' interests.

I. The Contractor shall not assign any interest, obligation, or benefit in this Agreement or transfer any interest in the same, whether by assignment or novation, without prior written consent by Sound Transit; provided, however, that claims for money due or to become due to the Contractor from Sound Transit under this Agreement may be assigned to a bank, trust company, or other financial institution without such approval. Notice of any such claim assignment shall be furnished promptly to Sound Transit.

J. Sound Transit's rights and remedies in this Agreement are in addition to any other rights and remedies provided by law.

OWNERSHIP OF WORK PRODUCT

All information, including drawings, specifications and other data, prepared or developed by the Contractor uniquely and specifically for Sound Transit in performance of the Work, whether or not required to be furnished to Sound Transit, shall be the property of Sound Transit and may be used by Sound Transit without restriction. The Contractor hereby assigns and transfers to Sound Transit any and all copyrights for such materials. Prior to the completion of the Work, the Contractor shall provide Sound Transit with a list of all such information which has not previously been furnished to Sound Transit. Sound Transit will then have thirty (30) days to advise the Contractor which information shall constitute Sound Transit property. Before requesting Acceptance, the Contractor shall deliver to Sound Transit the information that has been identified to constitute Sound Transit property.

Commented [Legal46]: The addition made is for clarification of the paragraph to reflect that the work product is specifically made for Sound Transit. Moreover, such change is consistent with other changes/clarifications made in the Contract as it relates to intellectual property.

RIGHTS IN ~~TECHNICAL DATA~~ INTELLECTUAL PROPERTY OF CONTRACTOR

A. The Contractor shall assume all risks arising from the use of patented or copyrighted materials, equipment, devices or processes not furnished by Sound Transit or any other ORCA partner agency, used on or incorporated in the Work, and shall indemnify, defend and hold harmless Sound Transit and any other ORCA partner agency, and all of its directors, officers, employees and agents to the maximum extent permitted by law from and against any and all claims,

liabilities, losses, damages or expenses (including attorney's fees and related costs), whether direct or indirect, arising out of or relating to the ownership, possession or use of any patented materials, equipment, devices or processes. In case such material, equipment, devices or processes are held to constitute an infringement and their use enjoined, the Contractor at the Contractor's expense shall:

1. Secure for Sound Transit the right to continue using said materials, equipment, devices or processes by suspension of the injunction or by procuring a license, or licenses, or;

2. Replace such materials, equipment, devices or processes, or

3. Modify them so that they become non-infringing or

4. Remove the enjoined materials, equipment, devices or processes and refund the sums paid therefore without prejudice to any other rights of Sound Transit or the Regional Program Manager.

B. The preceding Paragraph A shall not apply to and Contractor shall have no obligation or liability with respect to any patent infringement claim based upon: (a) any product that is manufactured to Sound Transit's or those for whom it is responsible, design; (b) the combination, operation, or use of any product furnished hereunder in conjunction with any other apparatus or material; or (c) any products that have been altered, modified, or revised by any party other than Contractor or Contractor's agent. As to any product or use described in the preceding sentence, Contractor assumes no liability whatsoever for patent infringement or the unauthorized use of Products, including, without limitation, a breach of the provisions of the Contract and the failure of Sound Transit to implement any update provided by Contractor that would have prevented the claim. Notwithstanding the foregoing, with respect to any products, or portions thereof, which are not manufactured or developed by Contractor and are not manufactured to Contractor's design specifications, only the indemnity of the manufacturer/developer, if any, shall apply.

~~to any materials or processes specified by Sound Transit or its Contractors, or manufactured to the design of Sound Transit or its Contractor in accordance with the details contained in the Contract Documents, if authorized by Sound Transit; and for such materials and processes the Contractor assumes no liability whatsoever for infringement, except to the extent that the Contractor knew, or should have known of the infringement and failed to promptly notify Sound Transit thereof.~~

~~B.~~C. In respect only of Work performed prepared or developed by the Contractor uniquely and specifically for Sound Transit in performance of the Work ~~I~~if any invention, improvement, or discovery of the Contractor is conceived or first reduced to practice in the course of Work or under this Contract, and such invention, improvement, or discovery may be patented under the laws of the United States of America or any foreign country, the Contractor shall immediately notify Sound Transit and provide a detailed report. The rights and responsibilities of Sound Transit, the Contractor, and the federal government with respect to such invention, improvement, or discovery will be determined in accordance with applicable federal laws, regulations, policies and any grant agreements. Except for Contractor's use in conjunction with the Work required by this Contract, the Contractor may not publish or reproduce such data in whole or in part, or in any manner or form, nor may the Contractor authorize others to do so, without the written consent of Sound Transit.

~~C.~~D. This Article shall survive any expiration or termination of this Contract.

Commented [Legal47]: The added language is to clarify that there in general is no liability for Contractor and/or Contractor's agents in the event of any patent infringement claim, if Contractor was not responsible for design and or production, or if Sound Transit failed to implement any updates provided.

Commented [Legal48]: Paragraph is deleted since there is no Material licensed. Material is purchased.

Commented [Legal49]: The language added is to clarify that Sound Transit only will have these rights in Work prepared or developed uniquely and specifically for Sound Transit under the Contract.

SEVERABILITY

If a provision of this Contract is found by a court of competent jurisdiction to be unenforceable, the validity and enforceability of the remaining provisions shall remain unaffected, and the parties shall negotiate an equitable adjustment of this Contract so that the purposes of this Contract are effected.

COMPLIANCE WITH LAWS AND REGULATIONS

A. The Contractor shall keep fully informed concerning all governmental requirements, including but not limited to all State, federal, county and municipal laws, ordinances and regulations which in any manner affect the performance of the Work, or the materials and equipment used in the Work, or which in any way affect those engaged or employed to work in connection with the Work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same including the specific legal requirements referenced in the Contract

Documents. The Contractor shall at all times comply with, and shall cause all the Contractor's agents, employees and Subcontractors to comply with all such governmental requirements, and shall indemnify, defend and hold harmless Sound Transit and all of its directors, officers, agents, and employees, and the ORCA partner agencies against all claims, liabilities, losses, damages and expenses (including attorney's fees and related costs) arising from or based on the violation of any such governmental requirement whether by the Contractor or contractor's agents, employees or Subcontractors. If any discrepancy or inconsistency is discovered in the Contract Documents for the work in relation to any such governmental requirements, the Contractor shall immediately report the same to the Regional Program Manager in writing.

B. The Contractor shall comply and, to the best of its ability, shall require its subcontractors to comply with all Sound Transit policies applicable to the Work to be performed under this Agreement (for example Sound Transit's policy on equal employment opportunity, harassment, and ADA compliance). Copies of Sound Transit policies shall be supplied to Contractor~~are available upon request~~ as a condition of the enforcement of this section.

Commented [Legal50]: Language is added. Based on the obligation put on the Contractor in this paragraph, it is only reasonable that these policies are provided to Contractor.

C. The Contractor shall exercise reasonable efforts to stay apprised of changes to said governmental requirements. The Contractor shall bring any such changes to the attention of the Regional Program Manager and identify with particularity the effect of such changes on the Work. Impacts of time or cost from such change will be investigated and managed through the Change Order process. Any such changed law, ordinance, resolution, or regulation supersedes any conflicting provisions of this Contract.

D. Suspected Violation of Governmental Requirements - If the Contractor knows or has reason to know of any suspected violation of Governmental Requirement by itself or any Subcontractor under the Contract, the Contractor must promptly and fully investigate and immediately report the existence of such investigation to Sound Transit. The Contractor shall fully report, in writing, to Sound Transit the facts and information ascertained in the investigation and shall allow Sound Transit to examine all of Contractor's documentation related to the investigation. If Sound Transit reasonably believes access to any individual worker is necessary for a Sound Transit investigation, whether such worker is an employee of Contractor or a Subcontractor of any tier, Contractor must make available, within ~~15~~ days of a written request, such worker for interview by Sound Transit's representative who has been designated in the written request. The Contractor may withhold communications properly considered attorney-client privileged.

Commented [Legal51]: Language is added. Based on the obligation put on the Contractor in this paragraph, it is only reasonable that these policies are provided to Contractor.

E. The Contractor is liable for all actual costs reasonably incurred by Sound Transit directly related to Sound Transit's response to or necessary actions required for the violation of any Governmental Requirement or a settlement by Contractor associated with such alleged violation, including the total personnel costs of Sound Transit employees and other Sound Transit costs, outside attorneys' fees and costs, and outside consultants' fees and costs. Sound Transit may withhold such amounts from sums otherwise payable to Contractor under the Contract. For purposes of this Article 7.14:

1. Environmental Violation occurs when any federal, state, or local governmental entity or other applicable environmental permitting authority has found any portion of the Work or Contractor's performance thereof to be in violation of any environmental permit or other applicable federal, state, or local environmental law, regulation, or requirement.

2. Safety Violation occurs when any federal, state, or local governmental entity or other applicable authority has found any portion of the Work or Contractor's performance

thereof to be in violation of any applicable federal, state, or local safety law, regulation, or requirement.

3. Violations of Title VI occur (a) when any federal, state, or local governmental entity or other applicable authority has found the Contractor or any subcontractor to have been in violation of Title VI or any other anti-discrimination or equal opportunity law, or (b) when Sound Transit has hired an independent investigator who determines that sufficient facts exist to support a *prima facie* violation of Title VI or any other anti-discrimination or equal opportunity law.

[INTENTIONALLY OMITTED]

[INTENTIONALLY OMITTED]

[INTENTIONALLY OMITTED]

ENVIRONMENTAL COMPLIANCE AND SUSTAINABILITY

Sound Transit has an established environmental policy, a sustainability initiative, and an environmental management system certified under the International Standards Organization (ISO) 14000. Sound Transit is committed to protecting the environment for present and future generations. The purposes of these policies are to:

A. Implement environmental stewardship and sustainable development

B. Reduce environmental risks and liabilities

C. Enhance image with public, regulators, agencies and stakeholders

D. Ensure regulatory compliance

E. Improve environmental performance

F. Simplify environmental communication

Sound Transit is committed to meeting or exceeding all environmental commitments during all phases of the project. The purpose is to prevent environmental degradation, reduce work delays and cost increases, minimize negative publicity, and reduce the number of upset citizens, landowners, and regulating agencies.

Within thirty (30) days of effective date of the Notice to Proceed, Sound Transit shall provide to the Contractor a copy of Sound Transit's environmental policy, its sustainability initiative, and its environmental management system.

TAXES

A. Retail Sales Taxes

1. Sound Transit has determined that the work to be performed under this Contract is exempt from the retail sales tax pursuant to RCW 82.04.050(7) and WAC 458-20-171 ("Rule 171"). Consequently, the Contract Price is not subject to Washington State retail

sales tax and no retail sales tax shall be invoiced to or collected from Sound Transit with respect to the Contract Price.

2. The Contractor is advised that it will be considered the consumer of all materials, equipment and supplies, including prefabricated and precast items that are purchased, used or consumed by them in performing the work and all sales taxable services, and must pay the applicable sales/use tax on all taxable items.

3. In the event that the Washington State Department of Revenue should determine, on audit or otherwise, that all or any portion of the work does not qualify for exemption under Rule 171, or that Sound Transit is otherwise obligated to pay sales/use tax on the Contract, the Contract and any subsequent invoices will be amended to add and separately state any applicable retail sales tax to the Contract Price. In this event, the Contract Price will be adjusted to eliminate any duplication of retail sales tax for retail sales tax amounts already included in the Contractor's proposal. Sound Transit shall be liable for and hold Contractor harmless from and all penalties, costs and expenses of whatever nature suffered by Contractor or its subcontractors arising out of or related to the failure of Sound Transit to pay sales/use tax related to the Work.

4. If a Contractor has questions regarding the application of Rule 171, the Contractor should contact the Washington State Department of Revenue

B. Federal Excise Taxes - Sound Transit is exempt from Federal Excise Taxes and an exemption certification will be furnished upon request.

C. Other Taxes - The Contract Price includes all other taxes applicable to the Contractor's completion of the Work, including without limitation, B&O taxes applicable to all tiers performing the Work.

D. No increase will be made to the amount to be paid by Sound Transit under this Contract because of any misunderstanding by or lack of knowledge of the Contractor as to liability for, or the amount of, any taxes for which the Contractor is liable or responsible by law or under this Contract.

Commented [Legal52]: Sound Transit should pay for any penalties caused by Contractor being penalized for Sound Transit's failure to pay these taxes.

LIENS PROHIBITED

~~The~~ Other than liens for monies due and owing to Contractor, Contractor shall not permit any lien or claim to be filed or prosecuted against Sound Transit, its property or its right-of-way on account of any labor or material furnished or any other reason for work arising out of this Contract. If any lien shall be filed, the Contractor shall satisfy, discharge and extinguish or cause such lien to be satisfied, discharged and extinguished immediately, including at Sound Transit's option obtaining a court order extinguishing the lien, as a condition precedent to release of retainage and/or final payment

Commented [Legal53]: The added language clarifies that the prohibition of liens is not with regards to monies owed Contractor under the Contract.

[INTENTIONALLY OMITTED]

[INTENTIONALLY OMITTED]

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[INTENTIONALLY OMITTED]

[INTENTIONALLY OMITTED]

CONTRACTOR ACQUISITION AND / OR MERGER

If the Contractor executing this Agreement ceases to exist as an independent business entity by means of acquisition by and / or merger with a successor or otherwise, the Contractor shall notify Sound Transit in writing not less than thirty (30) days prior to the effective date of the circumstance causing the cessation of the independent business status. Sound Transit reserves the right to take steps to ensure it has contractual privity with the successor. The Contractor shall cooperate with this effort by agreeing to an assignment, a novation, or other document required to transfer the rights and responsibilities of the Contractor to the successor.

APPLICABLE LAWS AND JURISDICTION

This Agreement and all provisions hereof shall be interpreted in accordance with the laws of the State of Washington and, to the extent incorporated into (or made applicable to the Work by) the Contract Documents, the laws of the United States of America. Subject to the provisions herein regarding exhaustion of administrative remedies, the Superior Court of King County, Washington, shall have exclusive jurisdiction and venue over any legal action arising under this Agreement.

INTELLECTUAL PROPERTY PROVISIONS

A. Software System

Contractor grants to Sound Transit a perpetual, ~~unlimited~~ site specific, royalty-free, non-exclusive and irrevocable license for Sound Transit (including without limitation its officers, directors, employees, and agents) to install, use, copy, modify, and maintain the Software system (and each and every part of the system) in accordance with the terms and conditions of its End User License.~~, with no limitation on the number of sites or users. For further clarity, and without limitation to the generality of the foregoing, this grant of license includes without limitation:~~

~~1. rights to practice any inventions owned, controlled, or licensed by Contractor (or any of its permitted subcontractors) (or any of its or their parent, subsidiary, sister or otherwise affiliated or related companies) as reasonably desirable or necessary to operate or maintain the Software System (and each and every part of the system);~~

~~2. rights to use any know-how disclosed or otherwise provided by Contractor (or any of its permitted subcontractors) (or any of its or their parent, subsidiary, sister or otherwise affiliated or related companies) as reasonably desirable or necessary to operate or maintain the Software System (and each and every part of the system); and~~

Commented [Legal54]: The first change clarifies that the license refers to a program site for which Contractor was engaged. The second change reflects that the software system's use is regulated by the End User License agreement between the parties.

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~~3. rights to use, copy and modify (and create derivative works from) Contractor software, with no limitation on the number of sites or users, as reasonably desirable or necessary to operate or maintain the Software System (and each and every part of the system)~~

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~~B. Materials~~

~~Contractor further grants to Sound Transit a perpetual, unlimited, royalty free, non-exclusive and irrevocable license for Sound Transit (including without limitation its officers, directors, employees and agents) to use, copy, distribute, display publicly, perform, and modify (and create derivative works from) all Materials.~~

Commented [Legal55]: The subparagraphs are deleted because the End User License agreement covers these situations. In case of Materials, there is no applicable license since Materials are purchased.

~~C.~~B. Third Party Software

In providing the Software System, Contractor will use only that Third Party Software that has been expressly approved in writing by Sound Transit. Contractor will procure, maintain, and otherwise be responsible for all licenses for Sound Transit, in Sound Transit's name, for any such Third Party Software reasonably necessary to operate or maintain the Software System. Sound Transit retains sole, ultimate authority on executing and entering into any such licenses. Contractor shall provide to Sound Transit copies of such licenses, along with any related software or license documentation. To the extent that any other licenses or permissions are reasonably desirable or necessary for Sound Transit to operate or maintain the Software System, Contractor hereby grants to Sound Transit to the maximum extent within its rights – or will procure for Sound Transit, in Sound Transit's name, to the maximum extent reasonably negotiable and at Sound Transit's expense – any such licenses and permissions.

~~D.~~C. Right to Sublicense

Commented [Legal56]: The subparagraph is changed from C to B. There is added language to reflect that any cost involved with the obligation referenced will be an expense of Sound Transit.

Commented [Legal57]: D is changed to C.

1. Sound Transit may, in its sole discretion and without incurring any further or additional charges, sublicense any of its rights under this Agreement as reasonably necessary to operate or maintain the Software System, including without limitation: to third-party vendors, contractors, or consultants whom Sound Transit may retain to assist in operation or maintenance of the Software System; and to other transportation entities as reasonably desirable or necessary to implement back-up systems or disaster planning.

2. Licenses Under Bankruptcy Code: All rights and licenses granted under or pursuant to this Agreement are and shall be deemed to be, for purposes of Section 365(n) of the U.S. Bankruptcy Code, licenses of rights to "intellectual property," as defined under Section 101 of the U.S. Bankruptcy Code. The parties agree that Sound Transit, as a licensee of such rights under this Agreement, shall retain and may fully exercise all of its rights and elections under the U.S. Bankruptcy Code; however, nothing herein shall be deemed to constitute a present exercise of such rights and elections.

~~E.~~D. Source Code Escrow

Contractor agrees that as a condition of Final Acceptance it will deposit the source code for any Contractor Software into escrow (including all updates, versions, releases, and upgrades licensed under this Agreement, with a source code agent, nationally recognized, selected by Contractor capable of providing Level 2 certification/~~verification.~~verification. Sound Transit shall become a party to and be governed by the terms of the escrow agreement. Deposit shall be at

reasonable periodic intervals based generally on the pace at which the software is being developed or changed – and shall include any and all

subsequent updates, versions, releases, and upgrades licensed under this Agreement. The source code escrow agreement shall remain in place, and source code deposits shall be updated and maintained, for as long as Sound Transit and Contractor have entered into a software maintenance or support agreement. The applicable source code will be released to Sound Transit (or any Contractor acting on its behalf) in the event of nonperformance or the inability of Contractor to execute or maintain the portion of the Software System controlled by or through its applicable software. Contractor agrees that Sound Transit (or any Contractor acting on its behalf) may use the source code to maintain, fix, or modify Contractor Software as reasonably necessary to operate or maintain any portions of the Software System. Contractor and Sound Transit will separately execute an escrow agreement concurrently with this Agreement. Contractor shall be solely responsible for any costs related to the source code escrow during the warranty period. Thereafter all costs and expenses related to the source code escrow shall be for account of Sound Transit.

Commented [Legal58]: The first change is to the subparagraph reference (E is changed to D.) The other changes relate to input as to the escrow material agent to be selected, and that Contractor needs to be a party to any such agreement. In addition, it needs to be clarified that Contractor is only responsibly for costs relating to source code escrow during the warranty period.

ARTICLE 8 INSURANCE

See Section 03 for insurance requirements.

ARTICLE 9 PAYMENT

COMPLIANCE PREREQUISITE TO PAYMENT

A. Sound Transit shall pay the Contractor Partial Payments for completed Work in accordance with the Partial Payment Schedule as described in Section 9.02, Partial Payment Schedule. Payment to the Contractor shall be based upon Work performed in conformance with the Contract as approved by Sound Transit's review of the payment request. Sound Transit will not approve payments for portions of the Work not performed in full compliance with provisions of the Contract, and applicable laws, ordinances, resolutions, regulations, permits and/or easements, and may withhold such payments to the Contractor in accordance with Section 9.06, Withholding Payments.

B. The Contractor shall be responsible, and have no claim whatsoever against Sound Transit, for all costs and effects of delays resulting or arising from suspension and/or Stop Work orders issued by Sound Transit and/or any governmental authority as a result of incidents of non-compliance with the Contract or any laws, ordinances, or regulations by the Contractor and/or its Subcontractors and Suppliers. This paragraph shall be void and of no effect in the event that Sound Transit and or any other governmental authority is found to have unreasonably and/or wrongfully issue a suspension or Stop Work order to Contractor.

Commented [Legal59]: The added language is to protect Contractor against any unreasonable and/or wrongfully suspension or Stop Work order.

PARTIAL PAYMENT SCHEDULE

The Contractor shall submit a Partial Payment Schedule for the Contract Price which is acceptable to Sound Transit. The initial submittal shall be made within thirty (30) days after issuance of the Notice to Proceed. The Partial Payment Schedule is prepared in accordance with the requirements of the Contract Documents. The Contractor warrants that such values are accurate representations and allocations of the value of the work in each delivery or performance increment on which Sound Transit may rely. Failure to submit a Partial Payment Schedule that is acceptable to Sound Transit will delay the processing of Partial Payments.

PARTIAL PAYMENTS

A. The Contractor shall submit no more than one invoice a month, and each invoice may include any number and combination of delivery or performance increments that are completed that

month. Invoices need not be based on sequential delivery or performance increments. Each invoice shall be submitted upon forms provided by Sound Transit, and shall include:

1. Contract number and Purchase Order number;
2. Applicable delivery or performance increment (s) and vehicle(s);
3. Unit and total prices by delivery or performance increment;
4. Total invoice amount;
5. The Contractor's statement regarding payment of prevailing wages as specified in the Labor Compliance Manual;
6. The Contractor's current progress schedules, cash flow projections and reports if specified in the Specifications;
7. A completed Affidavit of Amounts Paid to all businesses participating on the Contract, and additional information related to the Contractor's commitment to Small Business and DBEs, if applicable to this Contract;
8. A Pre-Apprentice Training Program Fund Contribution Report, if applicable to this Contract,
9. A Monthly EEO/Apprentice Utilization Report, if applicable to this contract; and
10. Certification Regarding Alleged Civil Rights Violations.

If requested by Sound Transit, the Contractor shall provide such additional data as may be reasonably required to support the payment for materials and labor, including payments to Subcontractors and Suppliers. The term "materials", as used herein, shall be considered to include those items which are fabricated and manufactured material and equipment. Only those materials for which the Contractor can transfer clear title to Sound Transit will be qualified for Partial Payment, except as specifically provided below.

B. Partial Payment for Materials Purchased and Delivered but not Installed – To receive Partial Payment for materials purchased and delivered but not yet incorporated into the Work, the Contractor shall submit a list with certified invoices of such materials to Sound Transit for approval together with the Contractor's partial payment request. The required documents to support the Contractor's partial payment request for materials purchased and delivered but not installed will be determined by the storage location of the delivered materials: (1) materials delivered to and stored on the Site (aka Project Site) and (2) materials delivered to and stored in a location not on the Site.

1. For materials delivered to and stored on the site, the Contractor's claimed purchase price shall be supported by (i) certified invoices of Subcontractors or Suppliers (ii) together with proof of payment of such invoices (in the form of cancelled checks or acknowledgment by such Subcontractors or Suppliers of receipt of payment in full for such invoices).
2. For materials delivered to and stored in a location other than the site, For materials delivered to and stored in a location other than the Site, the Contractor's claimed

purchase shall be supported by (i) certified invoices of Subcontractors or Suppliers (ii) together with proof of payment of such invoices (in the form of cancelled checks or acknowledgment by such Subcontractors or Suppliers of receipt of payment in full for such invoices), (iii) together with proof that the materials have been delivered to and accepted by the Contractor and are in its possession and control.

As a condition precedent to making Partial Payment for materials delivered and stored in a location other than the site, Sound Transit shall require that the Contractor, at its expense:

a. Furnish Sound Transit with an irrevocable letter of credit with terms acceptable to Sound Transit or other security acceptable to Sound Transit. The issuer of the Letter of Credit, if provided, shall be a national bank acceptable to Sound Transit. The amount of the Letter of Credit shall be equal to the amount of the Partial Payment requested for the materials delivered to and stored in a location other than the Site. Sound Transit shall be entitled to draw on the Letter of Credit in one or more draws in any of the following circumstances: (a) the Contractor fails to deliver the materials to the Project Site when required; (b) the Contractor, Subcontractor, Supplier or Fabricator, at whose location the material is stored, becomes insolvent, or becomes the subject of a voluntary petition for relief in bankruptcy or other insolvency proceeding (or an involuntary bankruptcy or insolvency proceeding is commenced against the Contractor and not dismissed within thirty (30) days; or (c) Sound Transit receives notice from the issuer that the Letter of Credit will not be automatically renewed or extended; or

b. Subject to Sound Transit's consent, provide Sound Transit with a first and only priority perfected security interest ("Security Interest") in the materials covered by the payment request, pursuant to a written security agreement in form and substance acceptable to Sound Transit. Such security agreement shall be supported by Uniform Commercial Code ("UCC") financing statements describing the subject materials, UCC searches and other terms and conditions acceptable to Sound Transit in its discretion. Sound Transit may require the Contractor to physically segregate materials from other inventory of the Contractor. The Contractor shall plainly, distinctly, and conspicuously place or cause to be placed upon such other places as may reasonably be designated by Sound Transit from time to time a mark, label, or other identification bearing words that indicate Sound Transit's interest in the material.

Contractor's progress of Work shall not include materials delivered and not installed. Progress shall be determined solely on an estimate of the Work completed. Payment for materials purchased and delivered but not installed shall be at the sole discretion of Sound Transit.

C. Partial Payment for Subcontracted Work - In its payment requests, the Contractor shall include payments for Subcontractors whose work was satisfactorily performed and part of the completed Work covered by the payment request. The Contractor shall not request payment from Sound Transit of amounts for Subcontractors until the Contractor has determined that the Subcontractors are entitled to the payment of such amounts for Work satisfactorily completed.

D. Review of Payment Request - Within ten (10) days after receipt of the partial payment request and the required documentation, Sound Transit will review the request and either indicate approval in writing or indicate in writing to the Contractor specific reasons why part or all of the payment is being withheld and what remedial actions the Contractor must take to receive the withheld amount. Any amounts approved by Sound Transit for payment will, within thirty (30) days of acceptance of the Contractor's properly completed invoice or receipt of the goods or services, whichever is later, pay the Contractor a Partial Payment on the basis of the approved partial payment request. The payments will take into account the retention provisions provided for herein.

E. In the event Sound Transit does not concur with the request, the Contractor may make the changes necessary to obtain Sound Transit's concurrence and resubmit the partial payment request. Sound Transit will, within thirty (30) days of acceptance of the Contractor's properly completed payment request, or receipt of the goods or services, whichever is later, and after the Contractor satisfactorily completes the remedial actions identified in Sound Transit's rejection of the payment request, pay the Contractor a partial payment on the basis of the approved partial payment request.

F. The Contractor shall receive a payment from Sound Transit no more than once per calendar month unless otherwise approved by Sound Transit, at its sole discretion.

G. Notwithstanding the payment provisions of this Contract, Sound Transit may make partial payment against any delivery or performance increment when Sound Transit deems such payment to be appropriate and in the best interest of Sound Transit to the extent of work has been satisfactorily completed.

H. No approval for payment, nor any payment by Sound Transit, shall constitute an acceptance of Contract deliverables that are not in accordance with the Contract.

RETAINAGE (WHEN APPLICABLE)

A. Pursuant to RCW 60.28.011, Sound Transit will retain 5 percent of all Partial Payments as a trust fund for the protection and payment of any person or persons, mechanic, Subcontractor, or material provider who performs labor upon the contract or Work hereunder, and all persons who shall supply such person or persons or Subcontractors with provisions and supplies for carrying on such Work, and the State with respect to taxes imposed pursuant to Title 82 RCW which may be due from the Contractor. Such funds shall be deemed as public funds under RCW 39.58. In the event that during the performance of the Contract and prior to the expiration of the claim period as provided in RCW 60.28.011, the amount retained is reduced to an amount below 5 percent, then Sound Transit may retain additional sums from monies earned by the Contractor so as to maintain at all times a 5 percent retained trust fund, unless otherwise reduced or excused by provisions of Chapter 60.28 RCW.

B. Monies reserved under provisions of Chapter 60.28 RCW shall, at the option of the Contractor, be:

1. Retained in a fund by Sound Transit with no interest paid thereon to the Contractor; or

2. Deposited by Sound Transit in an interest-bearing account in a bank, mutual savings bank, or savings and loan association, not subject to withdrawal until after Final Acceptance of all Work, or a portion thereof, as may be approved by Sound Transit; or

3. Placed in escrow in a bank or trust company by Sound Transit. When the monies reserved are to be placed in escrow, Sound Transit will issue a check representing the sum of the monies reserved payable to the bank or trust company and the Contractor jointly. Such check shall be converted into bonds and securities chosen by the Contractor and approved by Sound Transit, and the bonds and securities held in escrow; or

4. Released to the Contractor after the Contractor has provided a ~~R~~retainage ~~B~~bond for the Contract retainage.

Under options 2 and 3 above, interest will be paid to the Contractor as the interest accrues.

C. The Contractor shall designate the option desired on a form as may be provided by Sound Transit. The Contractor in choosing option 2 or 3 agrees to assume full responsibility to pay all costs which may accrue from escrow services, brokerage charges, or both, and further agrees to assume all risks in connection with the investment of the retained monies.

D. In accordance with RCW 60.28.011(5), the Contractor may withhold payment of not more than 5 percent from the monies earned by any Subcontractor or Supplier contracted with by the Contractor to provide labor, materials, or equipment to the Project. The Contractor shall pay interest to the Subcontractors, and Suppliers as required in RCW 60.28.011(5). The Contractor shall inform Subcontractors and Suppliers of their right to receive these interest payments.

E. If the Contractor provides a retainage bond, the Contractor shall comply with the requirements of RCW 60.28.011 with respect to retained funds of subcontractors and suppliers.

F. Sound Transit makes no warranties as to the amount of interest to be paid on any investments. Upon final payment, the Contractor shall be entitled to all retention and accumulated interest, less monies due to Sound Transit.

RELEASE OF RETENTION (WHEN APPLICABLE)

A. The retention will be held and applied by Sound Transit as a trust fund as required by Chapter 60.28 RCW. Except as provided in Paragraph 9.05C below, payment or release of retention will be made in the ordinary course of business no earlier than forty-five (45) days following Final Acceptance of the Work provided the following conditions are met:

1. If the Contract Price hereunder exceeds $35,000, Certificates approved by the Washington State Department of Revenue, the Washington State Department of Labor and Industries, Washington State Employment Security Department, and other departments and agencies having jurisdiction over the activities of the Contractor have been provided to Sound Transit ~~have been provided to Sound Transit~~.

2. "Affidavits of Wages Paid" for the Contractor and each Subcontractor approved by the Industrial Statistician of the Washington State Department of Labor and Industries have been provided to Sound Transit.

Commented [Legal60]: Sentence deleted. Duplicate.

3. No claims or notices of lien, as provided by law, have been filed against the retention and/or that any such asserted liens have been satisfied, discharged and extinguished as required by the Contract.

4. Contractor signs and returns the Release of Retainage and Indemnity form for this Contract.

5. Sound Transit has no outstanding claims under this Contract.

B. If any taxes have not been discharged or any claims, expenses, and fees have not been paid, Sound Transit shall either retain in its fund, or in an interest bearing account, or retain in escrow, at the option of the Contractor, an amount equal to such unpaid taxes and unpaid claims together with a sum sufficient to defray the costs and attorney fees incurred in foreclosing the lien of such claims, and shall pay, or release from escrow, the remainder to the Contractor.

C. If, under Article 9.07, the Contractor released and paid withheld monies to a Subcontractor, the following provisions shall apply.

1. Sound Transit may in its discretion, in furtherance of 49 CFR § 26.29 or otherwise, decline to withhold retainage from the Contractor and prohibit Contractor from withholding retainage from Subcontractors and/or require a contract clause obligating the Contractor to make prompt and full payment of any retainage paid by Sound Transit to Contractor to the Subcontractor within 30 days after the Subcontractor's work is Accepted. The Contractor may request release of a portion of the retainage withheld by Sound Transit under Chapter 60.28 RCW equal to the amount the Contractor released and paid to the Subcontractor under Article 9.07. Sound Transit will release a portion of such retainage following submittal to the Regional Program Manager of the Subcontractor's Affidavit of Wages Paid approved by the Industrial Statistician of the Washington State Department of Labor and Industries, and submittal of a proper and complete Declaration of Completion of Subcontractor's Work and Release of Withheld Amount (including the acknowledgement by the Subcontractor of the declaration form, to be provided by Sound Transit).

2. Upon receipt of a proper and complete Affidavit of Wages Paid and a Declaration of Completion of Subcontractor's Work and Release of Withheld Amount (Declaration), the Regional Program Manager will review the affidavit and any accompanying documentation and may review the work completed by the Subcontractor identified on the Declaration. Review of the Subcontractor's work by Sound Transit shall not relieve the Contractor of its responsibility and liability to ensure all Work under the Contract is performed in accordance with the requirements set forth in the Contract and will not commence warranties of Article 3.12, Warranty of Work.

3. If the Regional Program Manager does not concur with the assurances contained in the Declaration, the Regional Program Manager shall notify the Contractor in writing of that conclusion, provide the reasons for that conclusion and identify the remedial actions that the Contractor must take to gain the concurrence of the Regional Program Manager. Sound Transit shall not release any portion of the retainage withheld under

Chapter 60.28 RCW until the Regional Program Manager gives his or her concurrence with the assurances contained in the Declaration.

4. If the Regional Program Manager concurs with the assurance contained in the Declaration, the Regional Program Manager shall notify the Contractor in writing of that conclusion and prepare and submit documentation for Sound Transit to release the applicable portion of the retainage withheld under Chapter 60.28 RCW. Sound Transit will release such portion of the retainage within thirty (30) days from the date of the written notice from the Regional Program Manager to the Contractor.

5. Release to the Contractor of any portion of the retainage withheld by Sound Transit under Chapter 60.28 RCW shall not relieve the Contractor of its responsibilities and liabilities for liens and claims duly filed and prosecuted under applicable Washington State law. In consideration of Sound Transit releasing any portion of the retainage withheld by Sound Transit under Chapter 60.28 RCW on account of satisfactorily completion of work by one or more Subcontractors, the Contractor shall defend, indemnify and hold harmless Sound Transit from all responsibilities and liabilities related to such liens and claims. The Contractor acknowledges that failure to make timely payment to the Subcontractor may result in sanctions pursuant to Sound Transit's Diversity Program Provisions, and other legal consequences.

WITHHOLDING PAYMENTS

A. The Contractor shall only be paid monies earned by fulfilling its responsibilities under this Contract less the 5 percent retention required by 60.28.011 RCW. Monies shall not be considered earned if any of the following conditions applies:

1. The Work for which the Contractor is claiming payment was not performed in accordance with the Contract;

2. The Contractor's pay request does not contain all the required documentation or is otherwise not in conformance with the requirements of this Contract;

3. There is a good faith dispute over all or a portion of the amount due, as detailed in Article 9.07;

4. Failure of the Contractor to make payments owed to Subcontractors, or for labor, materials, or equipment;

5. Failure of Contractor to submit Project Schedule, or updated Project Schedules that are acceptable to Sound Transit and timely in accordance with the Contract;

6. Failure to maintain progress of the Work in accordance with the accepted Project Schedule unless such failure is ~~solely~~ caused by Sound Transit or by Unavoidable Delays, or failure to take necessary steps to regain time or deliver the Work in the prescribed Contract Time;

Commented [Legal61]: Term deleted. Payment is not withheld if the delay it is caused by Sound Transit in which case such withholding shall be proportional of the fault of Sound Transit.

7. Failure to comply with Contract safety requirements;

8. Imposition of any liquidated damages under the Contract;

9. Defective or Non-Conforming Work;

10. Failure to comply with Governmental Requirements; and/or

11. Third party claims filed or reasonable evidence that third party claims will be filed.

B. In the event Sound Transit withholds all or a part of a payment for deficiencies in either performance, or in a payment request, Sound Transit will notify the Contractor in accordance with RCW 39.76. The Contractor shall have the right to correct all deficiencies that are the basis for the withholding and resubmit the pay request at any time for reconsideration.

C. In the event Sound Transit withholds all or part of a payment because of a dispute, the Contractor may receive the payment by resolving the dispute, or by agreeing to accept the payment tendered by Sound Transit as full and final resolution as between Sound Transit and the Contractor to all claims arising from the dispute.

PROMPT PAYMENT TO SUPPLIERS AND RELEASE OF AMOUNTS WITHHELD FROM SUBCONTRACTORS

A. When the Contractor receives a payment under this Contract, the Contractor shall comply with the following provisions:

1. The Contractor shall pay to each Subcontractor not later than five (5) business days after the receipt of the payment, amounts paid to the Contractor on account of the work performed by the Subcontractor.

   a. In the event of a good faith dispute over all or any portion of the amount due on a payment from Sound Transit to the Contractor, or from the Contractor or subcontractor to a subcontractor, Sound Transit, or the Contractor or subcontractor, may withhold no more than one hundred fifty percent of the disputed amount. Those not a party to a dispute are entitled to full and prompt payment,

2. If the Contractor fails or neglects to make such payment within five (5) business days, the Contractor shall pay to the Subcontractor interest computed at one percent per month on amounts due for the period beginning on the day after the required payment date and ending on the day on which payment of the amount due is made.

3. The Contractor shall include in each of its Subcontracts a provision setting forth the payment and interest penalty clause set forth in this Article 9.07. In addition, the Contractor shall require its Subcontractors to include such a payment and interest clause in each of their Subcontracts and to require each of their Subcontractors to include such clauses in their Subcontracts with each lower tier Subcontractor or Supplier. The time limit for payment under all Subcontracts below the first tier shall be five (5) business days.

4. The payment and interest clauses in this Article 9.07 shall not be construed to impair the right of the Contractor or a Subcontractor at any tier to negotiate and include in their Subcontracts provisions related to retention of a specified percentage or withholding of part or all of Partial Payments without incurring any obligation to pay a late payment interest penalty thereon in accordance with the Subcontract agreement.

B. If the Contractor withholds any portion of payments to a Subcontractor during performance of the Subcontractor's work, whether under Washington State law or otherwise, the Contractor shall comply with the provisions in this Paragraph 9.07B to release such withhold monies following satisfactory completion of the Subcontractor's work.

1. The Contractor shall monitor the work of each Subcontractor to ensure such work is consistent with the terms of the subcontract between the Contractor and Subcontractor.

2. The Contractor shall determine that a Subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required in the subcontract and the Contract between Sound Transit and the Contractor. Upon making such determination, the Contractor shall provide a written notice of such determination to the Subcontractor and submit a copy of the notice to the Regional Program Manager.

3. As required by 49 CFR § 26.29, Contractor shall implement regular and incremental acceptances of portions of the Work as completed by Subcontractors covered by said regulation and shall, within thirty (30) days from and after the date of its determination that a Subcontractor's work is satisfactorily completed in whole or part, the Contractor shall release and make full payment of all monies withheld from Partial Payments to the Subcontractor during performance of all or any incremental part of the Subcontractors work.

FINAL PAYMENT

A. Sound Transit will make Final Payment, excluding held retention, to the Contractor following Final Acceptance of Work, and submittal of a final Affidavit of Amounts Paid to all businesses participating under the Contract. Final Payment shall include the entire sum found to be due hereunder after deducting therefrom such amounts as the terms of this Contract permit. Prior estimates and payments, including those relating to extra work or work omitted, shall be subject to correction by the Final Payment. Final Payment will be made only for materials actually incorporated in the Work; and, all materials remaining for which Partial Payments have been made shall revert to the Contractor, unless otherwise agreed, and Partial Payments made for these items shall be deducted from the Final Payment for the Work.

B. By accepting Final Payment, the Contractor shall be deemed thereby to have released Sound Transit from all claims of Contractor and all liability to the Contractor for things done or furnished in connection with the Work and for every act and neglect of Sound Transit and others relating to or arising out of the Work. Payment by Sound Transit shall not release the Contractor or its surety from any obligation under the Contract or under the Performance and Payment Bonds, which obligations shall continue through the Contract Warranty period.

PAYMENT ON TIME AND MATERIAL BASIS

A. Direct Labor

1. For all labor, foreman and below, engaged in the extra work subject to this Article, the Contractor shall receive:

a. The applicable wage and fringe benefits on the Contract for each hour that labor is actually engaged in changed work.

b. The cost of the payroll taxes and unemployment compensation premiums.

c. The cost of any health, welfare, pension, or collective bargaining agreement benefits paid, including Worker's Compensation.

2. No overtime will be allowed, unless written authorization has been given by Sound Transit.

B. Materials

For all materials and prices approved by Sound Transit used in the extra work subject to this Article, the Contractor shall receive the cost of material, including freight charges and Washington State Sales Tax (if applicable), as shown by the receipted bills for materials and freight.

C. Equipment

1. For all work and automotive equipment required in the performance of the extra work subject to this Article, payment for the use and operation of equipment (owned, leased or rented on a monthly basis by the Contractor) shall be made by Sound Transit under the provisions of this Article. Such charge shall not include any item of equipment or tool with a new cost of less than $500.

2. For Work being performed pursuant to these time and material provisions, reimbursement shall fall into one of two types of equipment ownership (Owned or Rental) and two categories of usage: operated equipment, and standby equipment.

a. Owned Equipment is defined to include that equipment, owned by or under a lease/purchase or lease/option to purchase agreement with the Contractor, a constituent member of the Contractor, or an entity owned and/or controlled by the Contractor or one of its constituent members.

b. Rented Equipment is defined to include equipment that is on a short-term rental, long term rental, or lease. Equipment that is on a lease/purchase or lease/option to purchase agreement will be considered as Owned Equipment. If Owned Equipment is not available and Rented Equipment necessary to perform the changed Work is obtained from an outside source, payment for the "ownership" aspect of the cost will be made as stipulated below. In addition, if the rental rate does not include an "operation" component, the Contractor shall be reimbursed for the estimated hourly operating costs as provided below. The Contractor shall be responsible for monitoring the use of such rental equipment to obtain the overall best rates for its utilization. The Contractor shall use its best efforts to minimize the overall cost of such rentals to Sound Transit.

c. Tunnel Equipment is defined to include the Tunnel-Boring Machines and accessories; tunnel and shaft backup equipment; conveyors (horizontal, vertical, or inclined, either in the tunnel, in the shaft, or on the surface), hoppers or bins; locomotives; all rolling stock; air compressors; shotcrete and grouting equipment; concrete equipment; pumps: water, dewatering, etc.; batch

facilitiess: shotcrete, concrete, grout, etc.; concrete form, travelers, work jumbos; hoists, man or equipment; discharge water treatment facilitiess and linear facilities; all track and necessary accessories; switches; car dumpers; pipes with valves, couplings, etc.; ventilation line (soft or hard) and fans; electrical (transformers, switch gear, substations, power cable, light lines, etc.); communications equipment and lines; and other fixed or mobile facilities and equipment associated with the tunneling operations.

Commented [Legal62]: Term misspelled.

3. Cost Computations for Owned Equipment:

   a. The basis for cost computations for operated Owned Equipment in the performance of the extra work subject to this Article, shall be as stated in the Cost Reference Guide for Construction Equipment (CRG) by Primedia Information, Inc. or its successor. The CRG version that shall be used will be that which is in effect at the time of performance of the Work. The equipment costs shall be calculated as follows:

      1) Charges to Sound Transit for the "ownership" component of the equipment shall be computed and charged to yield the hourly rate based on the sum of depreciation, cost of facilities capital, and overhead components of the CRG for said equipment.

      2) After eight (8) hours of equipment use in a twenty-four (24) hour period, and after forty (40) hours of equipment use in a week, the equipment "ownership" rate shall be 50 percent of the rate established in Sub-paragraph (1) above.

      3) The costs of fuel, lubricants, tires and other expendables, repairs, parts, service, maintenance, and overhaul (the operating cost) shall be charged at the sum of the Total Operating Cost/Hour plus the Overhaul Costs/Hour (which shall collectively be referred to hereafter as the "Operating Cost/Hour") set forth in the CRG. This rate shall be paid only for hours that the equipment is operated in performance of the changed Work that is subject to these time-and-materials provisions. If the item of equipment is electrically powered with the electricity being supplied by a public utility and if the CRG does not have an electrical fuel cost per hour component in the Operating Cost/Hour, the cost of electricity to operate the equipment will be calculated and submitted to Sound Transit for approval. The approved rate shall be added to and become a part of the "Operating Cost/Hour."

      4) The application of any adjustment factors is hereby excluded.

      5) Normal working conditions will be assumed and used as the basis for the rate calculation.

      6) Equipment Operators will be paid for as direct labor under Paragraph 9.09A, Direct Labor, above and are not part of the calculated rate for equipment. Compensation for equipment mechanics, oilers (not assigned to a specific item of equipment on a full time basis), and other

indirect support (labor or equipment) for the equipment fleet is included within the equipment rates otherwise established herein.

7) Transportation costs to and from the work Site for equipment mobilized to the Site specifically to perform the changed Work, if approved in advance by Sound Transit, will be paid as an item to be billed to Sound Transit. This cost will be treated as a Service when performing the markup calculations. No separate payment for transportation costs will be made if the equipment is brought to the Site for other than changed Work.

8) If a rate is not provided in the CRG, and the Contractor and Sound Transit cannot otherwise arrive at a mutually agreeable rate for its use, the Contractor shall furnish appropriate equipment and cost information to Sound Transit. Sound Transit will calculate an appropriate rate following the principles established in the CRG.

9) If practicable under the circumstances, all equipment rates shall be established in writing before commencing any changed Work. If it is necessary to employ such equipment in performance of the changed Work before it is practicable to provide rates to Sound Transit, the Contractor shall provide rates at the earliest opportunity available to it without hindering the prosecution of the Work.

b. For Owned Equipment on standby in the performance of the extra work subject to this Article, if approved by Sound Transit, the standby rate will be only the ownership portion of the applicable rate. The total standby cost per day will be based on the number of hours that the equipment is on standby in the performance of the changed Work. The standby hours will be calculated as follows:

1) The total standby hours per day will be a maximum of eight (8) hours less the operating hours paid as a result of the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

2) The total standby hours per week will be a maximum of forty (40) less the operating hours paid for the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

4. Cost Computation for Rental Equipment

a. For Rented Equipment that is operated in the performance of the extra work subject to this Article, the cost shall be calculated as follows:

1) The ownership rate per hour shall be calculated by dividing the invoiced amount by the normal hours covered by the invoice. If the normal rental period would be by the month, then Sound Transit shall not approve rental invoices submitted on a weekly, daily or hourly rate basis or allow ownership rates to be calculated on any rate other than a monthly rate. The same logic shall apply for a normal rental period of a week or a day.

2) If the invoice is based on a single shift of operation, then after eight (8) hours of equipment use in a twenty four (24) hour period, and after forty (40) hours of equipment use in a week, the equipment "ownership" rate shall be 50 percent of the rate established in Sub-paragraph (1) above.

3) The costs of fuel, lubricants, tires and other expendables, repairs, parts, service, and maintenance (the "operating" cost) shall be charged at the Total Operating Cost/Hour set forth in the CRG unless the rental invoice is for equipment which is "operated and maintained", in which case there will be no additional payment for operating costs. This rate shall be paid only for hours that the equipment is operated in performance of the changed Work that is subject to these time-and-materials provisions. If the item of equipment is electrically powered with the electricity being supplied by a public utility, the cost of electricity to operate the equipment will be calculated and submitted to Sound Transit for approval. The approved electrical cost per hour shall be added to and become a part of the "Total Operating Cost/Hour.

4) The application of any adjustment factors is hereby excluded.

5) Normal working conditions will be assumed and used as the basis for the rate calculation.

6) Equipment Operators will be paid for as direct labor under Paragraph 9.09A, Direct Labor, and are not part of the rate calculated for rented equipment unless the rental invoice is for equipment which is "operated and maintained", in which case there will be no additional payment for equipment operators and/or oilers. Compensation for equipment mechanics, oilers (not assigned to a specific item of equipment on a full time basis), and other indirect support (labor or equipment) for the equipment fleet is included within the equipment rates otherwise established herein.

7) Transportation costs to and from the work Site for equipment mobilized to the Site specifically to perform the changed Work, if approved in advance by Sound Transit, will be paid as a discrete item to be billed to Sound Transit. This cost will be treated as a Service when performing the markup calculations. No separate payment for transportation costs will be made if the equipment is brought to the Site for changed Work and is also used on Contract Work items.

8) If a rate is not provided in the CRG and the Contractor and Sound Transit cannot otherwise arrive at a mutually agreeable rate for its use, the Contractor shall furnish appropriate cost information to Sound Transit. Sound Transit will calculate an appropriate rate following the principles established in the CRG.

9) If practicable under the circumstances, all equipment rates shall be established in writing before commencing any changed Work. If it is necessary to employ such equipment in performance of the changed Work before it is practicable to provide rates to Sound Transit, the Contractor shall provide rates at the earliest opportunity available to it without hindering the prosecution of the Work.

b. For Rented Equipment on standby in the performance of the extra work subject to this Article, if approved by Sound Transit, the rate per hour to be paid will be only the ownership portion of the applicable rental rate as calculated above. The total standby cost per day will be based on the number of hours that the equipment is on standby in the performance of the changed Work. The standby hours will be calculated as follows:

1) The total standby hours per day will be a maximum of eight (8) hours less the operating hours paid as a result of the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

2) The total standby hours per week will be a maximum of forty (40) hours less the operating hours paid for the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

D. Markups-Percentage Allowances

The Contractor will be permitted to apply overhead and profit markups, not exceeding the percentage stated herein, to its increased cost resulting from any change in the Work ordered by Sound Transit for which payment is to be made under the time-and-material provisions of this Contract. These overhead and profit markups are maximum allowable percentages subject to reduction by audit.

Markup allowable at the tier for the entity performing the extra work with its own forces, whether the Contractor or a Subcontractor at any tier, shall not exceed 15% of total direct costs of the changed Work. The Contractor's markup allowable to cover the overhead and profit for Work performed by a Subcontractor shall not exceed 6% of the Subcontractor's cost. In no event shall the combined overhead and profit markup paid to Contractor and first tier Subcontractors exceed 21%, unless the work is performed by Subcontractors at the second-tier or lower, in which case an additional 6% markup is allowed at each tier. The markup allowance made shall

constitute compensation for all management and supervision above the foreman level, engineering and surveying, safety, administration; use of equipment and tools costing $500 or less; all administrative and overhead expense; insurance premiums not paid herein; profit; other indirect expense; losses of all kinds; home office overhead expense; and all other items of cost not specifically designated herein as items for which specific payment is to be made. No other reimbursement, compensation, or payment will be made for any such services, costs, or other items.

E. Time and Material Records and Invoices

1. All charges related to Time and Material Work authorized by the Regional Program Manager shall be tracked on a daily basis. The Contractor shall complete a comprehensive Time and Material work report form, furnished by Sound Transit or alternate approved by Sound Transit, which details all the labor, services, material and equipment utilized in the course of completing the Time and Material Work. The report shall itemize the materials used, and shall cover the direct cost of labor and materials, and the charges for equipment rental and operation, whether furnished by the Contractor, Subcontractor or other force. The daily report sheets shall provide names or identifications and classifications of workers, the hourly rate of pay and hours worked; quantity, type and cost of materials used; and also the size, type, and identification number of equipment; the hours operated, and the hours of Sound Transit authorized standby.

2. All charges related to Time and Material Work shall be verified in the field by Sound Transit at the end of each Work shift. The Contractor shall complete a field report at the end of each shift that itemizes and summarizes all the charges. The report shall be signed by the Contractor's Representative and, upon verification by Sound Transit, copies of the signed report shall be provided immediately to Sound Transit's representative. The signature of Sound Transit's Inspector shall not be construed as acceptance of the Work or approval of the value invoiced by the Contractor. The Regional Program Manager shall have the authority to review the charges related to Time and Material Work for reasonableness and efficiency, and to determine if the work for which the Time and Material reports have been submitted is in fact extra work. In the event that certain charges are deemed unreasonable or unnecessary for the Time and Material Work being performed by the Contractor, the Regional Program Manager shall direct the Contractor to delete such charges from the Time and Material Work Records. Evidence of Sound Transit's verification of all field reports shall be submitted by the Contractor with its draft invoice.

3. Invoices for Time and Material Work shall show, in payroll form, the dates, names, hours worked each day, rates of pay, and amounts paid for each individual employed on such Work and shall give in detail the nature of the Work performed by each employee.

4. Invoices for materials and services shall be fully itemized showing dates of delivery, quantities, unit prices, amounts, and discounts, and shall be accompanied by photocopies of vendor invoices covering each item. Such invoices shall be submitted with the daily report sheets. If invoices are not available, they shall be submitted with subsequent daily report sheets; however, except as provided by law, no payment shall be made for material charges until valid copies of vendor's invoices are submitted.

Should said vendor's invoices not be submitted within sixty (60) days after the date of delivery of the material or fifteen (15) days after completion and acceptance of the Work, whichever comes first, the Regional Program Manager reserves the right to establish the cost of such materials at the lowest current wholesale prices at which such materials are available in the quantities concerned delivered to the location of the Work, less any discounts provided in these General Conditions.

5. Invoices for Owned or Rented Equipment charges shall be fully itemized showing a complete description including size and capacity of equipment, number of hours operated and/or number of hours at Sound Transit ordered standby for each day, the hourly rates being charged to Sound Transit for both ownership and operating elements, and the total amount charged, for each individual piece of equipment used. If rates were not pre-approved by Sound Transit as specified herein, the Contractor shall also include the rate computation and appropriate back-up materials as described herein.

6. Invoices for Time and Material Work shall be prepared and submitted in accordance with the payment procedures outlined in this Contract. All invoices, payrolls, and other documents which support the invoice for the Time and Material work shall be submitted with the partial payment request, shall state the Contract number, and Contract Item under which the Work was performed.

7. Failure to present complete Time and Material records and invoicing in proper form after the close of the month in which the time and materials Work was performed shall constitute a waiver by the Contractor of its right to present such a billing or invoice thereafter or to receive payment therefore, unless the Contractor promptly corrects and resubmits the Time and Material Records and Sound Transit approves the re-submittal.

F. The Regional Program Manager will compare the Regional Program Manager's records with the daily report sheets furnished by the Contractor, make any necessary adjustment, and adjust the costs of work paid for on a Time and Material basis on the Time and Material Work forms. When these daily reports are agreed upon and signed by both parties, they shall become the basis of payment for the work performed, but shall not preclude subsequent adjustment based on a later audit.

G. Payment as provided in this Article shall constitute full compensation to the Contractor for performance of work paid for on a Time and Material basis and no additional compensation will be allowed therefore.

H. The Contractor shall maintain its records in such a manner as to provide a clear distinction between the direct costs of Work paid for or required to be paid for on a Time and Material basis and the costs of other operations.

PROVISIONAL SUM WORK

A. No Provisional Sum Work will be performed, or paid for, without prior issuance of a Provisional Sum Authorization (PSA).

B. Sound Transit may, without request from the Contractor, issue a PSA for work to be performed under a Provisional Sum Contract Pay Item.

C. If the Contractor believes that a PSA is required, the Contractor shall notify Sound Transit. Sound Transit will:

1. Issue a PSA; or

2. Request additional information; or

3. Make a written determination that the event or condition does not justify a PSA.

D. The Contractor shall maintain records and invoices for all costs associated with the Provisional Sum Work in accordance with the requirements specified in Section 9.09 Payment on Time and Material Basis.

E. Any potential time impacts arising from Provisional Sum Work shall be resolved in accordance with Article 4, Changes and Change Order Process, and Article 10, Delays and Claims.

ARTICLE 10 DELAYS AND CLAIMS

CLAIMS

A. Notice of Intent to Claim

1. In order to receive any recovery or relief in connection with the Contract, the Contractor must submit a written Notice of Intent to Claim to Sound Transit through the Regional Program Manager in accordance with the provisions of this Article. Written Notice as provided herein shall be a condition precedent to the Contractor's right to recover on a claim, and failure to comply with these requirements shall constitute a waiver by the Contractor on any right, equitable or otherwise, to bring any such claim against Sound Transit.

2. The written Notice of Intent to Claim shall set forth:

   a. Detailed description of the facts and/or conditions giving rise to the Contractor's demand for additional compensation ;

   b. nature of the costs involved;

   c. the Contractor's plan for mitigating such costs; and

   d. the Contractor's best estimate of the amount of the potential claim, and

   e. the Contractor's best estimate of Critical Path(s) impacts.

3. The Notice shall be submitted within ten (10) days after Contractor discovers or becomes aware of the event or occurrence giving rise to the potential claim, or the denial of a Request for Change or the issuance of a Unilateral Change Order by Sound Transit. However, if the event or occurrence is claimed to be an act or omission of Sound Transit, a Notice of Intent to Claim shall be given by the Contractor within ten (10) days after the Contractor discovers or becomes aware of the act or omission ~~and prior to the time for performance of that portion of the Work~~ to which such alleged act or omission relates.

Commented [Legal63]: Language is added to clarify that the clock does not start to run until the Contractor becomes aware of, and/or discovers any potential claims. The other changes are made to reflect the added language in the first sentence and to clarify the overall meaning of the paragraph.

4. The notice requirements of this Article are in addition to any other notice requirements set forth in the Contract.

B. Claims

1. General

a. The Contractor shall file all claims within sixty (60) days of the submission of the Notice of Intent to Claim, with a reasonably detailed factual statement of the Claim providing at minimum (i) all necessary details, locations and items of Work affected, (ii) the specific causes(s) of the Claim or alleged damages sustained,
(iii) an explanation as to how Contractor ~~diligently~~ attempted to mitigate its damages for the Claim, (iv) copies of documents Contractor believes support the Claim, (v) all cost records meeting the requirements of Article 3.03, and (vi) if the claim seeks an extension of the Contract Time, the specific days and dates sought and Contractor's analysis of the Contract Schedule demonstrating entitlement to the time extension. When requested by Sound Transit, the Contractor shall submit such further information and details as may be required to determine the facts and contentions involved in said claim. The Contractor shall give Sound Transit access to its books, records, and other materials relating to the ~~Work~~ claim, and shall cause its Subcontractors to do the same, so that Sound Transit can investigate said claim~~s~~. The Contractor shall provide Sound Transit at its cost, on request, with copies of the portions of all such books, records, and other material determined to be pertinent to the claim.

b. Failure to submit the reasonably detailed factual statement described above ~~will~~ may result in rejection of the Claim.

c. Each claim the Contractor submits for an adjustment that is related to a delay for any cause shall be accompanied by:

1) a revised project schedule reflecting the effects of the delay; and

2) proposals to minimize these effects.

d. If the Contractor fails to submit any Claim in writing in the time and manner specified herein, it shall waive any relief that might otherwise be due with respect to such claim. Depending upon the grounds for the relief and the nature of the relief sought, additional information and/or conditions of submittal may be specified elsewhere in this Contract.

e. At all times during the course of claim evaluation or dispute resolution, the Contractor agrees to continue to perform the Work with due diligence and in accordance with the Contract, unless a Stop Work Order has been issued by Sound Transit. In the event the disputed matter impedes continuing performance, the Contractor shall inform Sound Transit in writing of the impediment and seek direction as to how to proceed. If the Contractor fails to provide such notice to Sound Transit, it shall be assumed that the Contractor is proceeding with performance of the Contract.

Commented [Legal64]: Language has been added to make it clear that the Contractor's responsibilities are to provide sufficient information to make Sound Transit aware of the basis of the claim and not to provide every fact and detail.

Commented [Legal65]: Language has been added and changed to clarify the paragraph and to make it optional to reject the Claim.

f. Compliance with the cost record requirements related to the Claim is a condition precedent to making of any Claim for recovery of any costs or damages related to or arising from performance of the Contract or the Work. In the event Contractor or any Subcontractor or Supplier seeks to make a Claim without complying with such requirements (inclusive of Article 3.03), such Claim is deemed waived and no adjustment shall be made to the Contract Price or Contract Time with respect to such Claim.

Commented [Legal66]: Language has been added to clarify the paragraph.

g. Both parties have a duty to take all reasonable steps necessary to mitigate losses resulting from the dispute whether those losses are their own or another party's losses.

h. All claims filed by Contractor or counterclaims filed by Sound Transit shall be verified under penalty of perjury by an officer or principal authorized to act for Contractor or in the case of a counterclaim for Sound Transit (or, in the case of claims made by or for the benefit of any Subcontractors, by an authorized officer or principal of both Contractor and Subcontractor) containing a sworn certification that the Claim is made in good faith after the exercise of reasonable diligence and investigation, that the supporting cost and pricing data are true and accurate based upon reasonable investigation, that the Claim is fully supported by accompanying data and accurately reflects the adjustment in the Contract Price and/or Contract Time for which Contractor believes Sound Transit is liable, and that in the event the Claim proceeds to alternate dispute resolution or litigation that the Claim amount will not exceed the amount set forth in the Claim plus any increased costs or expenses of any nature increased as a result of alternate dispute resolution and/or litigation.

Commented [LC67]: Applies when Sound Transit files a counterclaim

Commented [Legal68]: Additional language was added to take into account that the Contract provides for Sound Transit to make a counterclaim and to give Contractor the opportunity to recovery additional legal costs arising from proceeding taking place after the claim was submitted.

2. Claims Processing

a. The Contractor shall submit its claim in writing to the Regional Program Manager for evaluation and resolution. Sound Transit shall respond within sixty (60) days after receipt of the claim. ~~Sound Transit~~ Either party may request in writing, within thirty (30) days of receipt of the claim by Sound Transit, that the ~~Contractor~~ other party provide any additional documentation that may be required to support the Contractor's claim or documentation that may relate to defenses or claims Sound Transit may have against the Contractor. Sound Transit shall respond in writing to the Contractor's claim including any additional documentation as requested by Sound Transit, within either thirty (30) days of receipt of said additional documentation, if the Contractor responds during the initial sixty (60) day period, or within a period no longer than that taken by the Contractor in producing the additional documentation, whichever is greater. In no event shall the extension of the response time resulting from Sound Transit's request for additional documentation and the Contractor's response time be deemed to waive any statutory limits or rights to Sound Transit.

Commented [Legal69]: Language has been added/changed to clarify the paragraph and the claims process.

b. The Regional Program Manager shall issue a reasoned written decision regarding the claim and deliver such decision promptly to Contractor. If the claim is found to have merit by the Regional Program Manager, the settlement will be negotiated in compliance with Article 4, Changes and Change Order

Process.

Commented [Legal70]: The language is added to clarify the claims process, and to assist and facilitate a settlement.

3. Claims Two Hundred Fifty-Thousand Dollars ($250,000) and Less

If Sound Transit finds the claim not to have merit, the Contractor may, within ten (10) calendar days of receipt *of* the finding, submit written appeal to Sound Transit's Director of Construction Management. The finding on the appeal will be provided in writing within sixty (60) calendar days unless a longer review period is deemed necessary, in which case the Contractor will be notified of the response period within the initial 60 days after the appeal.

4. Claims Over Two Hundred Fifty-Thousand Dollars ($250,000)

If Sound Transit finds the claim not to have merit the Contractor may, within ten (10) calendar days of receipt of the finding, submit the claim for dispute resolution in accordance with Article 11, Dispute Resolution.

~~If the Dispute Resolution process finds the claim to have merit and if both parties accept the finding, Sound Transit and the Contractor will negotiate the terms and value of a Change Order in accordance with Article 4, Changes and Change Order Process.~~

Commented [Legal71]: Second Paragraph deleted since the amount to be awarded must be determined by the trier of fact and not through negotiations.

5. In no event shall any claims be made, except for claims for Work conducted after Final Acceptance, after Final Acceptance is issued. Failure by the Contractor to submit claims in a timely manner shall result in a waiver by the Contractor as to such claims.

Commented [Legal72]: The language is added to clarify the paragraph.

6. Failure to comply strictly with the notice and other procedures set forth in the Contract Documents shall bar the Contractor from asserting any claim or right to compensation, damages, schedule extension, or any other relief.

DELAYS

A. Liquidated Damages [to be negotiated]

1. For each and every day that Contractor fails to achieve a designated Contract Milestone, as specified in the Special Conditions, damage will be sustained by Sound Transit. These damages may include, but are not necessarily limited to the following:

   a. Delays in completion and operation of the system;

   b. Increased costs of Contract administration, inspection, and other ORCA agency functions related to the design and execution of the Project;

   c. Costs resulting from delays to interfacing Contractors;

2. Because of the difficulty in computing the actual material loss and damages to Sound Transit, it is determined in advance and agreed by the parties hereto that the Contractor will pay Sound Transit the amount(s) set forth in Section 04 Liquidated Damages Amounts for each day of delay as representing a reasonable forecast of the actual damages that Sound Transit will suffer by the failure of the Contractor to complete such Work, or portion thereof, within said time(s). The execution of this Contract shall constitute acknowledgement by the Contractor that it has ascertained and agreed that Sound Transit will actually suffer damages in the amount herein fixed for each and every

day during which the completion of the Work or portions thereof is avoidably delayed beyond the specified time(s).

3. Sound Transit may deduct assessed liquidated damages from any monies due or that may become due to the Contractor under the Contract. If such deducted monies are insufficient to recover the liquidated damages owing, the Contractor or the Contractor's surety or sureties shall pay to Sound Transit any deficiency within thirty (30) days after completion of the Work.

4. Where liquidated damages for contractor-caused delays are applicable, Sound Transit shall not seek actual damages for delay; however, to the extent liquidated damages are not applicable, Sound Transit reserves all other rights and remedies provided by law or under this Contract.

B. Extension of Time for Certain Delays

1. Notice of Delay or Potential Delay. Immediately, but in any event no more than five (5) days, after the Contractor foresees or should foresee a delay or a potential delay in the prosecution of the Work or upon the occurrence of a delay or potential delay that the Contractor regards as Unavoidable or compensable, the Contractor shall provide notice to Sound Transit of such delay or potential delay. Within five (5) days of such notice the Contractor shall provide in writing the extent of the delay, the specific impacts and effects of the delay on critical path activities and the Project Schedule, and its cause. The notice requirement in this Paragraph 10.02B.1 is in addition to notice required by other parts of this Contract, inclusive of Article 4.02. At a minimum the written notice under this Paragraph shall include:

   a. The facts underlying the potential delay;

   b. The nature of any additional costs which may be caused by the potential delay;

   c. The nature of any additional time which may be needed;

   d. The Contractor's plan for mitigating such costs and delay; and

   e. An estimate of the cost impacts due to the delay or the potential delay and an estimate of the time extension required for mitigation, along with all substantiating facts and supporting data.

2. The Contractor shall take immediate steps to prevent, if possible, the occurrence or continuance of the delay. If this cannot be done, the Contractor and Sound Transit will determine how long the delay will continue and to what extent the prosecution and completion of the Work are being or will be delayed thereby. Sound Transit will also determine whether the delay is to be considered Avoidable or Unavoidable and notify the Contractor of Sound Transit's determination.

3. Compliance with the notice requirements of this Article shall be a condition precedent to the Contractor’s claim for delay. The Contractor agrees that no claim shall be made for delays for which timely written notice, as specified above, is not made to Sound Transit.

C. Avoidable Delays

1. Avoidable Delays in the prosecution of the Work shall include delays to the critical path of the Work that could have been avoided by the exercise of due care, prudence, coordination, foresight and diligence on the part of the Contractor, its Subcontractors, or its Suppliers at any tier. Examples of Avoidable Delays include, but are not limited to:

    a. Delays that may in themselves be unavoidable but do not necessarily prevent or delay the prosecution of parts of the Work or the completion of the Work within the Contract Time (e.g., fit within the Float time shown on the Project Schedule(s).)

    b. Time associated with the reasonable activities of Sound Transit, third party stakeholders or other contractors employed by Sound Transit that do not necessarily prevent the completion of the Contract within the Contract Time.

    c. Individualized labor actions or strikes within Contractor's control, normal weather conditions, mechanical breakdown, equipment failure, and acts of negligence by the Contractor's forces, including Subcontractors and Suppliers.

    d. Delays in the prosecution of the Work due to:

        1) The Contractor's failure to provide sufficient resources, including, but not limited to: personnel, equipment, material, or facilities;

        2) The Contractor's failure to submit required work products in a timely manner;

        3) The Contractor's failure to procure and/or deliver materials and/or equipment in a timely manner.

2. Contractor shall not be entitled to any time extension or additional compensation for any Avoidable Delay. However, Sound Transit may in its sole discretion grant an extension of time for Avoidable Delay, if Sound Transit determines that an extension is in Sound Transit's best interest. Any such discretionary time extension shall be issued through a Change Order.

D. Unavoidable Delay

1. An Unavoidable Delay means a delay to the critical path of the prosecution of the Work that results from causes beyond the control of the Contractor and that could not have been avoided by the exercise of care, prudence, coordination, foresight, and diligence on the part of the Contractor, its Subcontractors or its Suppliers at any tier, and for which no provision is specifically provided in the Contract Documents for managing or mitigating such delay.

2. Examples of Unavoidable Delays include, but are not limited to:

    a. Acts of God.

    b. Fire or other casualty for which Contractor is not responsible.

c. War.

d. Riot.

e. Unusually Severe Weather. Unusually severe weather conditions shall not be deemed unusually severe if they fall within two (2) standard deviations from the mean of data recorded by the U.S. Weather bureau for the Seattle and Tacoma metropolitan area over the past twenty (20) years. Impacts of on-going weather conditions shall be updated weekly by the Contractor and provided to Sound Transit. To preclude the difficulties of actual measurement the parties hereto agree that weather data at the Site shall be expressly deemed to be the same as that measured at the Seattle-Tacoma International Airport by the Environmental Data and Information Service of the National Oceanic and Atmospheric Administration ("NOAA") of the U.S. Department of Commerce.

f. Epidemic.

g. Earthquake.

h. Terrorism.

i. General industry strikes or labor disputes beyond the reasonable control of the Contractor.

3. Extension of Time - For delays that the Contractor has given notice as required by the Contract, and considers to be Unavoidable Delay, the Contractor shall submit to Sound Transit complete written information demonstrating the effect of the delay on the critical path on the accepted Project Schedule. The submission shall be made within ten (10) days after the end of the occurrence that is claimed to be responsible for the Unavoidable Delay. Sound Transit will review the Contractor's submission and determine the number of days of Unavoidable Delay and the effect of such Unavoidable Delay on such critical path. Sound Transit may grant an extension of time to the extent that Unavoidable Delays necessarily affect the critical path(s) in the Project Schedule. During such extension of time, liquidated damages will not be charged to the Contractor. It is understood and agreed by the Contractor and Sound Transit that time extensions due to Unavoidable Delays necessarily involve critical path operations that would prevent completion of the Work, or portion thereof, within the Contract Time. Time extensions shall be issued via a Change Order. Contractor shall not be entitled to any additional compensation or Equitable Adjustment for any Unavoidable Delay.

E. Concurrent Delay

If Sound Transit determines that there are delays to the project as a result of concurrent delays, Sound Transit may grant a time extension. However, no compensation will be due to the Contractor for this time extension due to the concurrent nature of delays. Concurrent delay means a situation where both Contractor and Sound Transit are responsible for delays affecting the critical path where none of the delay events are utilizing available project float. If a delay for which Contractor seeks compensation under Article 10.02F is caused concurrently with either Avoidable Delay or Unavoidable Delay, then Sound Transit is only responsible for that portion of

any compensable delay which it caused in excess of such Avoidable Delay or Unavoidable Delay, provided Contractor is able to prove such apportionment.

F. Compensation for Certain Delays

To the extent that the Contractor ~~proves~~ demonstrates (a) that the Contractor has been delayed in completion of the Work by reason of changes made by Sound Transit under these General Conditions, or a Stop Work Order, or a failure by Sound Transit to comply with its obligations under the Contract;
(b) that the Contractor was not concurrently responsible for the delay; (c) that the Contractor has suffered actual losses as a result of the delay; (d) ~~that but for Sound Transit's actions, the Contractor could not have suffered such actual losses~~; (e) that the Contractor could not have mitigated such actual losses despite taking all precautionary and remedial actions; and (f) ~~that the delay was not within the contemplation of the Contract;~~ then Sound Transit shall pay to the Contractor as full compensation for any such delay, and for any actual and real disruption which may have been associated with any such delay which the Contractor can clearly quantify and calculate, the amount of the actual loss as computed in accordance with the Contract Documents, provided that the Contractor shall strictly comply with the notice and other claims procedures set forth in Article 10.01, Claims. Unless the Contractor satisfies the provisions of this Article, the Contractor's sole remedy for Sound Transit-caused delay shall be an extension of time under Paragraph 10.02B, Extension of Time for Certain Delays.

Commented [Legal73]: Language has been deleted and added to clarify the paragraph.

In no event may Contractor or any of its Subcontractors at any tier recover compensation for unabsorbed home office overhead unless (1) Sound Transit directs a suspension of indefinite duration due to Sound-Transit-caused circumstances and (2) Contractor and/or its Subcontractors were unable, in the exercise of reasonable care, to reallocate resources so as to mitigate losses or damages.

ARTICLE 11 DISPUTE RESOLUTION

PURPOSE OF DISPUTE RESOLUTION

The purpose of this Dispute Resolution Article is to provide a structured approach for the parties to resolve disputes fairly at the lowest level possible without incurring significant administrative costs. It is agreed by the parties that the parties shall enter into the dispute resolution process in good faith and that use of the dispute resolution processes for purposes other than resolving a legitimate dispute (e.g. as a delay tactic) shall be evidence of bad faith in the performance of this Contract.

CONTINUATION OF WORK WHILE DISPUTE RESOLVED

At all times during the course of the Claim, conflict or dispute resolution, the Contractor agrees to continue to perform the Work with due diligence, unless a Stop Work Order under Article 12.01 has been issued by Sound Transit.

DUTY TO MITIGATE

Both parties have a duty to take all reasonable steps necessary to mitigate losses resulting from the Claim or dispute whether those losses are their own or another party's losses

PARTNERING

A. Preventing Conflict

1. The parties agree to use the principles of Project Partnering: collaboration and cooperation to identify and engage in measures to prevent and resolve potential sources of conflict before they escalate into disputes, claims, or legal actions. Such measures should extend to all levels of the Work, including lower-tiered Subcontractors, and may include the following:

   a. Conducting a one-day workshop to "kick-off" the performance of the Work by introducing the concepts of Project Partnering and holding follow-up workshops at least annually.

   b. Developing and implementing a Partnering Action Plan devoted to developing and maintaining a collaborative atmosphere on the project at all levels.

   c. Developing and implementing a Dispute Escalation Process.

   d. Conducting facilitated, Executive Partnering Sessions among the senior managers of each party to discuss issues related to potential conflicts and to engage in collaborative problem solving.

   e. Conducting training for all parties in teambuilding, collaborative problem solving and conflict resolution skills.

   f. Conducting evaluations of the Project's partnering efforts.

   g. Including language from this Article in contracts for Subcontractors who become involved in the performance of the Work.

2. Sound Transit will provide the Partnering Facilitator and Facilities. All other costs associated with the Contractor's participation in the partnering program shall be included in the Contract Price.

Commented [Legal74]: Term is capitalized but has not been defined in Article 1, "Definitions," nor in the paragraph where the term is used. Term should to be defined by Sound Transit.

B. Resolving Conflicts

1. Sound Transit and the Contractor agree to use their best efforts to resolve disputes arising out of or related to this Contract using good faith negotiations and the principles of Project Partnering by developing and implementing a Dispute Escalation Process that provides for the timely resolution of disputes as close to the their point of origin as possible. It is agreed that the foregoing will not negate any of the Contract requirements for providing timely notice and the timely submission of documents that are required elsewhere in the Contract Documents.

2. In the event the parties are unable to resolve their dispute using the Dispute Escalation Process, if a Dispute Review Board (DRB) has been established for this Contract and if the claim is over $250,000, the dispute shall be referred to a DRB as a condition precedent to mediation. If the claim is $250,000 or less or, if no DRB has been established for this Contract or, if the dispute remains unresolved after a hearing by and recommendation from the DRB, the dispute shall be referred to mediation as a condition precedent to the commencement of a civil action. For mediation, a mediator shall be chosen that is agreeable to all parties involved in the dispute and such agreement shall not be unreasonably withheld. All statements made by parties involved in the dispute to the mediator shall remain confidential and shall not be disclosed by the

mediator in any litigation or other claim proceedings. All parties hereby agree to such terms and signature of the Contract provides written confirmation of these terms.

DISPUTES REVIEW BOARD

A. A Disputes Review Board (DRB) may be established to assist in resolving claims arising out of this Contract. Disputed claims may be heard by the DRB only after the claims process detailed in Article 10.01, Claims, has been exhausted.

B. The provisions for establishing a DRB, if a DRB is to be utilized in this Contract, will be provided in the Special Conditions in the Article entitled Disputes Review Board Procedures. The form of the Three Party Agreement to be used in establishing a DRB will also be provided in that section.

C. Where no approved DRB is currently established or currently operating, the parties will utilize their best efforts to negotiate resolution of claims in good faith.

EXHAUSTION OF ADMINISTRATIVE REMEDIES/TIME LIMITATION FOR SUIT

It is the intention of this Article that differences between the parties arising under and by virtue of the Contract shall be brought to the attention of Sound Transit at the earliest possible time in order that such matters may be settled without a claim being filed, if possible, or other appropriate action promptly taken. The Contractor agrees to defer, in the absence of special written notice given by Sound Transit, the commencement of any legal action against Sound Transit on a matter required to be covered by written Notice of Intent to Claim pursuant to Paragraph 10.01A, Notice of Intent to Claim, until all of the administrative and dispute resolution processes have been exhausted. ~~Contractor may not sue, cross-claim or bring any action of any kind whatsoever against Sound Transit after the expiration of one hundred eighty (180) days from overall Acceptance, provided, however, that the proper pendency of contract required dispute resolution procedures shall toll this deadline until thirty (30) days after such contract required dispute resolution procedure is concluded.~~

Commented [Legal75]: Language has been deleted to ensure that delay in the preliminary dispute resolution process does not operate as a bar to bringing a court action.

ARTICLE 12 SUSPENSION AND TERMINATION

STOP WORK ORDER

A. Sound Transit may at any time and for any reason ~~within its sole discretion~~ issue a written order to the Contractor thereby suspending, delaying, or interrupting all or any part of the Work for a specified period of time ("Stop Work Order"). A Stop Work Order must be in the form of an explicit written Notice and will not be inferred from any oral statement, course of conduct or informal field communication, except in the case of an emergency or exigent safety concern.

Commented [Legal76]: Language deleted since the wording is redundant.

B. In the event that it becomes necessary for Sound Transit to suspend all, or a part, of the Work, Sound Transit will deliver a written Stop Work Order to the Contractor, which shall describe the following:

1. Identification of the work to be suspended;
2. The date and time upon which the Stop Work Order shall be effective;
3. The period of time during which Work will be suspended, if known;
4. Directions to be taken regarding subcontracts; and

5. Other instructions required to safeguard the Work and to prevent property damage and personal injury.

C. The Contractor shall comply immediately with any written order it receives from Sound Transit suspending the Work and take all reasonable steps to minimize costs allocable to the Work covered by the suspension during the period of Work stoppage. The Contractor shall resume performance of the suspended Work upon expiration of the notice of suspension, or upon direction of Sound Transit.

D. Within the period specified by the Stop Work Order, or within any extension of that period, Sound Transit may:

1. Terminate the work covered by the Stop Work Order;

2. Cancel the Stop Work Order; or

3. Allow the period of the Stop Work Order to expire.

E. Costs Associated with a Stop Work Order

1. If a Stop Work Order is canceled or the period of the Stop Work Order expires, the Contractor shall resume work.

2. The Contractor may be allowed an increase in the Total Contract Price or an extension of time, or both, directly attributable to any suspension, provided that:

a. The Contractor submits a Request for Change in accordance with the requirements of the Contract Documents;

b. The Stop Work Order results in an increase in the time required for, or in Contractor's cost properly allocable to, the performance of any part of this Contract; and

c. The Stop Work Order was not caused by Contractor's default or other act or omission within the control or responsibility of Contractor.

3. No adjustment shall be made under this Paragraph for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an equitable adjustment or extension of time is provided or excluded under any other term or condition of this Contract.

4. The provisions of this Paragraph shall only apply if a written Stop Work Order is issued by Sound Transit.

F. During a suspension of work, Contractor shall take appropriate action to prevent damage to or deterioration of the Work. Contractor shall repair or replace, at no additional cost to Sound Transit Work that is damaged or deteriorated during a Work stoppage due to Contractor's failure to comply with this Paragraph. If Sound Transit finds that the Contractor is not taking appropriate action and the Contractor fails to take the appropriate action within the time frame specified by Sound Transit in written notice to the Contractor, Sound Transit may take appropriate action and recover from the Contractor the reasonable costs of such action.

G. In the event that a suspension of the work is ordered, the Contractor shall do all the work necessary to provide any safe, smooth, and unobstructed passageway through the work as deemed necessary by the Regional Program Manager for use by Sound Transit, other Sound Transit contractors, public agencies or their contractors, and/or public traffic during the period of such suspension as specified in the Contract Documents. In the event that the Contractor fails to perform the work above specified, Sound Transit will perform such work and the cost thereof shall be deducted from payments due the Contractor. If the suspension is due to some failure on the part of the Contractor, all costs and delays shall be at no additional expense to Sound Transit.

H. In the event of a suspension of the Work, the Contractor shall not be relieved of the Contractor's responsibilities as set forth in Article 7, Legal Requirements.

TERMINATION FOR DEFAULT

A. Sound Transit will have the right to terminate the Contract in whole or in part, for default, under any of the following circumstances:

1. If the Contractor refuses or fails to prosecute the Work with such diligence as will ensure its completion within the Contract Time and any extension thereof;

2. Material failure of the Contractor to perform any obligation required under the Contract or violation of any duty required of the Contractor, including but not limited to the following:

   a. Violation of a~~n~~ legal authorized order or requirement of Sound Transit by the Contractor;

   b. Abandonment of the Contract;

   c. Failure of the Contractor to pay its undisputed debts owing to any parties performing Work on the Contract, provided that such failure continues for a period of fourteen (14) days after written notice to the Contractor by Sound Transit;

   d. Failure to comply with any law, ordinance, rule, regulation, or order of a legal authority applicable to the Contractor, the Work, the Contract, or the Project;

   e. Failure to indemnify any party that the Contractor is obligated to indemnify under the General Conditions and other provisions of the Contract;

   f. Failure to replace rejected Work or correct rejected workmanship when directed by Sound Transit;

   g. Failure to provide required insurance and/or bonds, or proceeds thereof;

   h. Submittal of false or misleading information or Claims to Sound Transit; or

   i. Disregard of applicable laws, ordinances, rules, codes, regulations, orders, or similar requirements of any public entity having jurisdiction.

3. If the Contractor is adjudged bankrupt or insolvent, or makes a general assignment for the benefit of creditors, or if the Contractor or a third party files a petition to take

Commented [Legal77]: Term added to clarify that the order must apply with applicable law.

Commented [Legal78]: Change made to clarify the intent of the paragraph.

Commented [Legal79]: Change made to clarify the paragraph.

advantage of any debtor's act or to reorganize under the bankruptcy or similar laws concerning the Contractor, or if a trustee or receiver is appointed for the Contractor or for any of the Contractor's property on account of the Contractor's insolvency, and the Contractor or its successor in interest does not provide adequate assurance of future performance in accordance with the Contract within fifteen (15) days of receipt of a request for assurance from Sound Transit.

B. If, in the opinion of Sound Transit, the Contractor is in default of the Contract, Sound Transit will issue a written Notice of Default to the Contractor and its Surety. If the Contractor, within fourteen (14) days after receipt of such notice, fails to remedy or provide assurance acceptable to Sound Transit of its specific plan and timetable to remedy the default ~~within fourteen (14) days after receipt of such notice~~, Sound Transit may terminate the Contractor's right to proceed under all or such part of the Contract as Sound Transit deems to be in its best interest. Sound Transit shall furnish written Notice of Termination for Default to the Contractor, upon which date the Termination for Default shall be effective. The Contractor and its Surety shall be liable for any damage to Sound Transit resulting from the Contractor's refusal or failure to complete the Work in the specified time.

Commented [Legal80]: Changes made to clarify the paragraph and to provide that the Notice to Contractor should be in writing.

C. Upon receipt of a Notice of Termination for Default from Sound Transit, the Contractor shall, except as otherwise directed by Sound Transit:

1. Stop all Work under the Contract on the date and to the extent specified in the Notice of Termination for Default.

2. Place no further orders or Subcontracts for materials, equipment, or services except as may be necessary for completion of such portions of the Work expressly excluded from the Notice of Termination.

3. Communicate any Notice of Termination to the affected Subcontractors and Suppliers, and any other parties at any tier, and take reasonable steps to minimize cancellation charges and other costs arising from termination.

4. Terminate all orders and Subcontracts to the extent that they relate to the performance of Work covered by the Notice of Termination or, at the option of Sound Transit, assign to the Surety or any replacement contractor all such Subcontracts and purchase orders.

5. Comply with all other reasonable and legal requirements of Sound Transit as may be specified in the Notice of Termination.

Commented [Legal81]: Language added to clarify paragraph.

D. Upon Sound Transit's termination of the Contractor's right to proceed with the Work because of the Contractor's default under the Contract, Sound Transit shall have the right to complete the Work by whatever means and methods it deems advisable, including transfer of performance of the work from the Contractor to the Surety. Sound Transit shall have the right to take possession of and use any or all the Contractor's design, goods, facilities, tools, equipment, and property of any kind, at the Project, or related thereto, provided by or on behalf of the Contractor to complete the Work or any portion thereof, without being responsible to the Contractor for fair wear and tear. The Contractor shall have no rights in such property during its use by Sound Transit. Sound Transit may complete the Work by obtaining the services of another Contractor, or by any other reasonable and legal means that Sound Transit deems in its best interest. Sound Transit shall have the right to exercise its sole discretion as to the manner,

Commented [Legal82]: Language added to clarify paragraph.

method and reasonableness of the costs of completing the work subject to a reasonable duty to mitigate

costs. Materials and equipment for which Sound Transit has paid any amount to the Contractor may be incorporated in the Work regardless of whether they are stored at the site or elsewhere.

E. The expense of completing the Work together with a reasonable charge for engineering, managerial, and administrative services arising from the default shall be charged to the Contractor. Sound Transit shall deduct said amount out of any monies that may be due or may at any time thereafter become due the Contractor. In case such expense is in excess of the sum that would otherwise have been payable to the Contractor under the Contract, the Contractor or its Surety shall promptly pay the amount of said excess to Sound Transit upon notice thereof. Sound Transit may, at its sole discretion, withhold all or any part of any Partial Payments or other monies otherwise due the Contractor until completion and final settlement of the Work covered by the Notice of Termination for Default.

F. If Sound Transit terminates the Contractor for default, the resulting damage shall include, but not be limited to, actual and liquidated damages, any increased costs incurred by Sound Transit in completing the Work, and amounts paid to third parties by Sound Transit on account of any claims made against Sound Transit relating to the Work.

G. If the Contract is terminated for default, Sound Transit may require that the Contractor transfer title to and deliver the following items to Sound Transit as directed: any goods, work in progress, tools, dies, jigs, fixtures, plans, drawings, information, contract rights, and other items that the Contractor has specifically produced or acquired for the terminated portion of the Contract and that would have been required to be furnished to Sound Transit if the Contract had been completed. The Contractor shall also protect and preserve property in its possession at its sole expense in which Sound Transit has an interest.

H. If, after Notice of Termination for Default, it is determined for any reason that the Contractor was not in default under the provisions of the Contract, or that the Contractor was properly entitled to an extension of time under the provisions of the Contract, the rights, obligations, and remedies of the parties shall be the same as if the Notice of Termination for Default had been issued pursuant to the Article entitled Termination for Convenience.

TERMINATION FOR CONVENIENCE

A. Upon written notice to Contractor Sound Transit may terminate the Work under this Contract, in whole or in part, at any time, for the convenience of Sound Transit.

B. After receipt of a Notice of Termination for Convenience, and unless directed otherwise by Sound Transit, the Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due under this clause:

1. Stop performance of Work and meet with Sound Transit to develop a Termination Work Plan, including a scope, schedule and budget to safely terminate the Contractor's progress of Work.

2. Place no further subcontracts or orders (referred to as subcontracts in this clause) for materials, services, or facilities, except as necessary to complete the continued portion of the Contract.

3. Terminate all Subcontracts or orders to the extent they relate to the work terminated or, at the option of Sound Transit, assign to the Surety or any replacement contractor all such Subcontracts and purchase orders. Assign to Sound Transit, as directed by Sound Transit, all right, title, and interest of the Contractor under the Subcontract(s) terminated, in which case Sound Transit shall have the right to settle or to pay any termination settlements proposal arising out of those terminations.

4. With approval or ratification to the extent required by Sound Transit, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontract; the approval or ratification will be final for purposes of this clause.

5. As directed by Sound Transit, transfer title and deliver to Sound Transit (1) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced or acquired for the work terminated, and (2) the completed or partially completed plans, drawings, information and other property that, if the Contract had been completed, would be required to be furnished to Sound Transit.

6. Complete performance of any Work not terminated.

7. Take any action that may be necessary, or that Sound Transit may direct, for the protection and preservation of the property related to this Contract that is in possession of the Contractor and in which Sound Transit has or may acquire an interest.

8. Use its best efforts to sell, as directed or authorized by Sound Transit, any property of the types referred to in Sub-paragraph 12.03B.5 above; provided, however, that the Contractor (1) is not required to extend credit to any purchaser and (2) may acquire the property under the conditions prescribed by, and at prices approved by, Sound Transit. The proceeds of any transfer or disposition will be applied to reduce any payments to be made by Sound Transit under this Contract, credited to the price or cost of the work, or paid in any other manner directed by Sound Transit.

C. Payment

In the event of a Termination for Convenience, if such termination occurs after the effective date of the Notice to Proceed, Sound Transit will pay the reasonable, verifiable ~~direct~~ costs incurred by the Contractor toward any incomplete item on the Partial Payment Schedule before the termination. Reimbursable costs incurred by the Contractor will be determined by taking into consideration the following facts, circumstances and limitations:

Commented [Legal83]: Term deleted. If costs are found reasonable they should be recovered by Contractor.

1. ~~The budget established for the Termination Work Plan,~~Penalties charged to Contractor by suppliers for cancellation of hardware and /or software custom designed and to be produced specifically for the Project.

Commented [Legal84]: Language deleted. Costs are found reasonable and justifiable since the Termination is for the convenience of Sound Transit.

2. The physical progress of the Work satisfactorily completed to the effective date of the termination, evaluated against the approved Partial Payment Schedule,

3. Costs of removing equipment and materials and otherwise demobilizing,

4. Costs reasonably incurred in anticipation of performing the Work; provided, said amounts are reasonable, verifiable and ~~directly~~ attributed to the Contractor's

performance of the Work,

Commented [Legal85]: Language is deleted to clarify paragraph. If it is reasonable and justifiable, the Contractor should be entitled to recover.

5. Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of the termination inventory,

6. Termination for Convenience notwithstanding anything to the contrary set forth herein, the Contractor shall not be entitled to, and Sound Transit shall not be liable for, any consequential losses or damages incurred by the Contractor including, but not limited to: loss of profits, business opportunity, reputation or financing. Amounts retained and accumulated under RCW 60.28.011 will be held as provided therein for a period of not less than forty-five (45) days following termination.

SOUND TRANSIT'S RIGHTS AND OBLIGATIONS UPON TERMINATION

A. Upon any termination contemplated herein, Sound Transit may take over the Work and prosecute the same to completion by agreement with another party or otherwise complete the Work.

B. Upon any termination contemplated herein, amounts retained and accumulated under RCW 60.28.011 will be held as provided therein for a period of not less than sixty (60) days following termination and consistent with state law.

CONTRACTOR'S OBLIGATIONS UPON TERMINATION

Upon receipt of Notice of Termination, the Contractor shall immediately discontinue Work, but shall do such Extra Work as may be ordered by Sound Transit to safeguard the Work then completed, to safeguard the materials and equipment then delivered to the site and to leave the Work in a safe and useful condition. The Contractor shall promptly deliver, or otherwise make available to Sound Transit, all Contract Records reasonably necessary for Sound Transit to complete the Work with its own forces, including but not limited to software, data, drawings, specifications, as-built drawings, calculations, reports, estimates, summaries, and other such information as the Contractor or Subcontractors may have accumulated in performing this Contract, whether completed or in progress, and all materials and equipment purchased specifically for the Contract where Sound Transit has reimbursed the Contractor for such costs. The Contractor shall also take all reasonable steps with its Suppliers and Subcontractors to minimize cancellation charges and other costs.

OWNERSHIP OF EQUIPMENT, MATERIALS AND SUPPLIES UPON TERMINATION

As of the date of termination, all the Contractor's right, title and interest in and to equipment, materials, and supplies ordered by the Contractor prior to the termination (including placement or priority in production runs of materials, equipment, or supplies), whether or not they have been delivered to the site, shall be vested in Sound Transit and the Contractor shall, upon demand of Sound Transit, execute and deliver to Sound Transit all requisite bills of sale, assignments, and other documents of transfer that may be necessary to give effect to the intention of the termination procedures set forth in this Article.

END OF SYSTEMS GENERAL CONDITIONS

SECTION 02 – FEDERAL PROVISIONS

INCORPORATION OF FTA PROVISIONS

APPLICABILITY OF FEDERAL GRANT CONTRACT

A. This procurement may be subject to one or more financial assistance contracts between Sound Transit and the U.S. Department of Transportation (DOT), which incorporate the current FTA Master Agreement and Circular 4220.1 as amended.

B. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1, as amended, and the Master Grant Agreement, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Contract. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any Sound Transit request that would cause Sound Transit to be in violation of the FTA terms and conditions.

C. The FTA Master Agreement obligates Sound Transit to incorporate certain provisions into this Contract and any lower tier subcontracts at any level and to take appropriate measures to ensure that Contractor and its lower tier Subcontractors at any level comply with certain applicable requirements set forth in the Master Agreement. The following provisions of the FTA Master Agreement are hereby incorporated by reference into this Contract, and the Contractor shall comply with all such requirements.

D. Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement between Sound Transit and FTA, as they may be amended or promulgated from time to time during the term of this contract. Contractor's failure to so comply shall constitute a material breach of this contract.

E. Copies of the FTA Circular 4220.1, as amended, and the Master Grant Agreement are available from Sound Transit.

FEDERAL FUNDING LIMITATION

The Contractor understands that a portion of the funds to pay for the Contractor's performance under this Contract are anticipated to be made available from the United States Department of Transportation through the Federal Transit Administration (FTA). All such funds must be approved and administered by FTA. Sound Transit's obligation hereunder is, in part, payable from funds that are appropriated and allocated by FTA for the performance of this Contract. If such funds are not allocated, or ultimately are disapproved by FTA, Sound Transit may be required to terminate or suspend the Contractor's services. In such event, the Contract may at Sound Transit's option be terminated for convenience in accordance with these General Conditions.

NO OBLIGATION BY THE FEDERAL GOVERNMENT

A. Notwithstanding that the Federal Government may have concurred in or approved the solicitation for this Contract, the Federal Government is not a party to this Contract and has no obligations or liabilities to any entity other than Sound Transit, including the Contractor and its Subcontractors and Suppliers at any tier.

B. The Contractor agrees to include the above clause in each Subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clause shall not be modified, except to identify the Subcontractor who will be subject to its provision.

CERTIFICATION REGARDING DEBARMENT, SUSPENSION AND OTHER RESPONSIBILITY MATTERS

A. This contract is a covered transaction for purposes of 49 CFR Part 29. As such, the Contractor is required to verify that the Contractor, its principals, as defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945.

B. The Contractor is required to comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CFR 29, Subpart C in any lower tier covered transaction it enters into.

C. By signing and submitting its Bid, the Bidder certifies as follows:

> The certification in this clause is a material representation of fact relied upon by Sound Transit. If it is later determined that the Bidder knowingly rendered an erroneous certification, in addition to remedies available to Sound Transit, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The Bidder agrees to comply with the requirements of 49 CFR 29, Subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The Bidder further agrees to include a provision requiring such compliance in its lower tier covered transactions.

FEDERAL LOBBYING RESTRICTIONS

A. This Contract is subject to Section 319, Public Law 101-121 (31 U.S.C. §1352) and U.S. DOT regulations "New Restrictions on Lobbying," 49 CFR Part 20, which prohibits Federal funds from being expended to influence or to attempt to influence an officer or employee of any agency, members of Congress, an office or employee of Congress or an employee of a Member of Congress in connection with the awarding of any federally funded contract, the making of any Federal grant or loan, or entering into any cooperative agreement and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

B. Contractors and Subcontractors at any time who apply or bid for an award of $100,000 or more shall file the certification required by 49 CFR Part 20, "New Restrictions on Lobbying." Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or any employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier shall also disclose the name of any registrant under the Lobbying Disclosure Act of 1995 who has made lobbying contacts on its behalf with non-Federal funds with respect to that Federal contract, grant or award covered by 31 U.S.C. 1352. Such disclosures are forwarded from tier to tier up to the recipient.

C. The Contractor shall submit the "Certification Regarding Lobbying," included in the Bid documents. The Contractor's signature on this certification shall certify that: a) it has not engaged in the prohibited activity and b) the language of the certification shall be included in all lower tier subcontracts, which exceed $100,000, and that all such Subcontractors shall certify and disclose accordingly. Sound Transit is responsible for keeping the certification form of the Contractor, who

is in turn responsible for keeping the certification forms of Subcontractors. Further, by executing the Contract, the Contractor agrees to comply with these laws and regulations.

D. If the Contractor has engaged in any lobbying activities to influence or attempt to influence the awarding of this Contract, the Contractor must disclose these activities. In such a case, the Contractor shall complete Standard Form SF-LLL, "Disclosure of Lobbying Activities." Sound Transit must also receive all disclosure forms.

E. The Contractor and any Subcontractors shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of a previously filed disclosure form. An event that materially affects the accuracy of the information reported includes:

1. A cumulative increase of $25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence this federally funded Contract; or
2. A change in the person(s) influencing or attempting to influence this federally funded Contract; or
3. A change in the officer(s), employee(s) or member contracted to influence or attempt to influence this federally funded Contract.

PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS

A. The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § § 3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to this Contract. Upon execution of the underlying contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract or the FTA-assisted project for which this contract work is being performed. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.

B. The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. § 5307, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Contractor, to the extent the Federal Government deems appropriate.

C. The Contractor agrees to include the above two clauses in each Subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the Subcontractor who will be subject to the provisions.

ANTI-KICKBACK

A. Sound Transit and contractors are required to comply with the Copeland "Anti-Kickback" Act, 18 USC § 874 and 40 USC § 276(c), as supplemented in U.S. Department of Labor regulations, 29 CFR Part 3. Under state and federal law, it is a violation for Sound Transit employees, proposers, bidders, contractors or subcontractors to accept or offer any money or benefit as a reward for

favorable treatment in connection with the award of a contract or the purchase of goods or services.

B. "Kick-Back" as defined by Federal Acquisition Regulations (FAR), means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind that is provided directly or indirectly to any prime contractor, prime contractor employee, subcontractor or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contractor in connection with a subcontract relating to a prime contract.

CIVIL RIGHTS

In addition to the provisions in Section 00 73 39 00, Diversity Program Provisions, the following requirements pertaining to nondiscrimination and civil rights apply to the underlying contract:

A. Nondiscrimination

In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, Executive Order 11246 as amended, and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, gender identity, status as a parent, marital status, age, or disability. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

B. Equal Employment Opportunity

The following equal employment opportunity requirements apply to the underlying contract:

1. Race, Color, Creed, National Origin, Sex

In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulation, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 et seq., (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Project. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

As required by 41 CFR 60-1.4, during the performance of this Contract, the Contractor agrees as follows:

a. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, marital status, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, gender identity, status as a parent, marital status, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment

advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

b. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, marital status or national origin.

c. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this Section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

d. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, as amended, and of the rules, regulations, and relevant orders of the Secretary of Labor.

e. The Contractor will furnish all information and reports required by Executive Order 11246, as amended, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his or her books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

f. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246, as amended, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246, amended, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

g. The Contractor will include the portion of the sentence immediately preceding paragraph 1.a and the provisions of paragraphs 1.a through 1.f in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246, as amended, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance, provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

a. The Contractor and its Subcontractors shall include the equal employment opportunity clause set forth in paragraph 1.a above in each of their non-exempt Subcontracts.

2. Age

In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. §§ 623 and federal transit law at 49 U.S.C. § 5332, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

3. Disabilities

In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the "Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

4. Federal Equal Employment Opportunity Requirements

As required by 41 CFR 60-4.2, the Contractor shall take into account the following provisions in performing the Work:

a. The Contractor shall comply with the Federal Equal Employment Opportunity (EEO) Requirements.

b. The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows (unless modified by the federal government):

- Minority participation in each trade (King County) – 7.2%
- Minority participation in each trade (Snohomish County) – 7.2%
- Minority participation in each trade (Pierce County) – 6.2%
- Female participation in each trade (Nationwide) – 6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout

the length of the Contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the Contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

c. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) Business Days of award of any construction Subcontract in excess of $10,000 at any tier for construction work under this Contract. The notification shall list the name, address and telephone number of the Subcontractor; employer identification number of the Subcontractor; estimated dollar amount of the Subcontract; estimated starting and completion dates of the Subcontract; and the geographical area in which the Subcontract is to be performed.

d. As used in this Notice, and in this Contract, the "covered area" is Snohomish, King and Pierce Counties of the State of Washington.

5. EEO Construction Contract Specifications

As required by 41 CFR 60-4.3, the Contractor shall comply with the following:

Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246)

a. As used in these specifications:

(1) "Covered area" is Snohomish, King and Pierce Counties of the State of Washington.

(2) "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

(3) "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

(4) "Minorities" includes:

(a) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(b) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(c) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(d) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification.

b. Whenever the Contractor, or any Subcontractor at any tier subcontracts a portion of the Work involving any construction trade, it shall physically include in each Subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which are set forth in this Contract.

c. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

d. The Contractor shall implement the specific affirmative action standards provided in paragraphs g(1) through g(16) below. The goals set forth in this Contract are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

e. Neither the provisions of any collective bargaining agreement, nor the failure by a union with which the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

f. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their

training, subject to availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

g. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

(1) Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

(2) Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

(3) Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

(4) Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor minority persons or women sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

(5) Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and training programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under g(2) above.

(6) Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in

assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

(7) Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

(8) Disseminate the Contractor's EEO policy externally by including it in any advertising in the new media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipate doing business.

(9) Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

(10) Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

(11) Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

(12) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

(13) Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities

to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

(14) Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

(15) Document and maintain a record of all solicitations of offers for subcontract from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

(16) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

h. The Contractor is encouraged to participate in voluntary associations which assist in fulfilling one or more of its affirmative action obligations (paragraphs g(1) through g(16) above). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under g(1) through g(16) of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

i. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

j. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.

k. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

l. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension,

termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

m. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph g of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

n. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

o. Nothing herein provided shall be construed as limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

6. The Contractor also agrees to include these requirements in each Subcontract financed in whole or in part with Federal assistance provided by FTA, modified only if necessary to identify the affected parties.

C. Flow Down

The Civil Rights requirements flow down to the Contractor and its subcontractors at every tier.

BUY AMERICA REQUIREMENTS

A. The Contractor agrees to comply with the requirements of section 165(a) of the Surface Transportation Assistance Act of 1982, as amended, and the applicable regulations in 49 CFR Part 661, which provide that federal funds may not be obligated unless steel, iron and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by the FTA or the product is subject to a general waiver. General Waivers are listed in 49 CFR 661.7. Separate requirements for rolling stock are set out in section 165(b)(3), of the Surface Transportation Assistance Act of 1982 and 49 CFR 661.11. Rolling stock must be assembled in the United States and have a 60 percent domestic content.

B. A bidder or offeror must submit to Sound Transit the appropriate Buy America certification, attached herein, with all bids or offers on FTA-funded contracts, except those subject to a general waiver. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive. This requirement does not apply to lower tier subcontractors

C. Whether or not a Bidder certifies that it will comply with the applicable requirement, Bidder will be bound by its original certification and is not permitted to change its certification after the time that the Bid is submitted, except for clerical error. A Bidder that certifies that it will comply with the applicable Buy America requirements may not change its certification at any point, and is not eligible for waiver of those requirements. (Buy America Regulations, 49 CFR Part 661.13(c))

D. If the Bidder is unable to certify compliance, but believes that it may qualify for an exception to the requirement consistent with section 165(a) of the Surface Transportation Assistance Act of 1982, as amended, Sound Transit, on behalf of the Bidder, will tender the request for exception(s) to FTA for review and approval. Sound Transit does not warrant that any such request will be acted upon in accordance with the Bidder's time frame. Failure to achieve an exception will not relieve the Bidder of its responsibilities under this Section.

CARGO PREFERENCE

Pursuant to 46 CFR Part 381, the Contractor agrees:

A. To utilize privately owned United States flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, materials, or commodities pursuant to this Contract, to the extent such vessels are available at fair and reasonable rates for United States flag commercial vessels.

B. To furnish within twenty (20) Days following the date of loading for shipments originating within the United States, or within thirty (30) Business Days following the date of loading for shipment originating outside the United States, a legible copy of a rated, commercial ocean bill of lading in English for each shipment of cargo described in paragraph A above to Sound Transit (through the prime Contractor in the case of Subcontractor bills of lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, 400 Seventh Street, SW, Washington, D.C., 20590, marked with appropriate identification of the Project.

C. To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this Contract.

FLY AMERICA REQUIREMENTS

The Contractor agrees to comply with 49 U.S.C. § 40018 (the "Fly America" Act) in accordance with the General Services Administration's regulations at 41 CFR Part 301-10, which provide that recipients and subrecipients of Federal funds and their contractors are required to use U.S. Flag air carriers for U.S. Government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. The Contractor shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a U.S. flag carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance

with the Fly America requirements. The Contractor agrees to include the requirements of this Section in all subcontracts that may involve international air transportation.

RECOVERED MATERIALS

A. The Contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in subpart B of 40 CFR Part 247.

B. These requirements flow down to all Contractor and Subcontractor tiers.

ENERGY CONSERVATION

A. The Contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

B. These requirements extend to all third party contractors and their contracts at every tier and subrecipients and their subagreements at every tier.

CLEAN WATER

A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. The Contractor agrees to report each violation to Sound Transit and understands and agrees that Sound Transit will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

B. The Contractor also agrees to include these requirements in each Subcontract exceeding $100,000 financed in whole or in part with Federal assistance provided by FTA.

CLEAN AIR

A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §.§ 7401 et seq. The Contractor agrees to report each violation to Sound Transit and understands and agrees that Sound Transit will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

B. The Contractor also agrees to include these requirements in each Subcontract exceeding $100,000 financed in whole or in part with Federal assistance provided by FTA.

MIGRATORY BIRD TREATY ACT

The Contractor shall comply with the Migratory Bird Treaty Act (MBTA), 16 U.S.C. Sections 703-712, 50 C.F.R. Section 10.13 and all amendments, which makes it illegal for anyone to take, possess, import, export, transport, sell, or offer for sale, purchase, or barter, any migratory bird, or other parts, nests, or eggs of such a bird except unless and except as permitted by regulations or under the terms of a valid permit issued by the Secretary of the Interior.

SEISMIC SAFETY

The Contractor agrees that any new building or addition to an existing building will be constructed in

accordance with the standards for Seismic Safety required in Department of Transportation Seismic Safety Regulations 49 CFR Part 41 and will certify to compliance to the extent required by the regulation. The

Contractor also agrees to ensure that all work performed under this contract including work performed by a Subcontractor is in compliance with the standards required by the Seismic Safety Regulations and the certification of compliance issued on the project.

ELECTRONIC AND INFORMATION TECHNOLOGY

When providing reports or other information to Sound Transit, or to the Federal Transit Administration (FTA), among others, on behalf of Sound Transit, the Contractor agrees to prepare such reports or information using electronic or information technology capable of assuring that the reports or information delivered will meet the applicable accessibility standards of Section 508 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794d, and U.S. ATBCB regulations, "Electronic and Information Technology Accessibility Standards," 36 C.F.R. Part 1194.

DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

In addition to the Disadvantaged Business Enterprise Program provisions set forth in Section 00 733 39, the Contractor shall comply with the following requirements:

A. As a recipient of financial assistance from the federal Department of Transportation (DOT), through the Federal Transit Administration (FTA), Sound Transit developed and administers a Disadvantaged Business Enterprise (DBE) Program in accordance with 49 Code of Federal Regulations (CFR) Part 26. The Contractor shall review and comply with applicable provisions in 49 CFR Part 26 and Section 00 73 39 of this Contract.

B. The Contractor shall comply with the following assurance:

The Contractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or such other remedy as Sound Transit deems appropriate.

C. The Contractor shall include in each Subcontract it awards pursuant to this Contract the following assurance:

"The subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this subcontract. The subcontractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the subcontractor to carry out these requirements is a material breach of this subcontract, which may result in the termination of this subcontract or such other remedy as the Contractor or Sound Transit deems appropriate."

NO TEXTING WHILE DRIVING

A. Contractor shall comply with Executive Order No. 13513, Federal Leadership on Reducing Text Messaging While Driving, October 1, 2009, 23 U.S.C.A. § 402 note, and DOT Order 3902.10, Text Messaging While December 30, 2009. Contractor shall:

1. Adopt and enforce workplace safety policies to decrease crashes caused by distracted drivers including policies to ban text messaging while driving;
2. Contractor-owned or Contractor-rented vehicles or Government-owned, leased or rented vehicles;

3. Privately-owned vehicles when on official Project related business or when performing any work for or on behalf of the Project; or
4. Any vehicle, on or off duty, and using an employer supplied electronic device.
5. Conduct workplace safety initiatives in a manner commensurate with the Contractor's size, such as:
    a. Establishment of new rules and programs or re-evaluation of existing programs to prohibit text messaging while driving; and
    b. Education, awareness, and other outreach to employees about the safety risks associated with texting while driving.

B. "Driving" is defined as operating a motor vehicle on a roadway, including while temporarily stationary because of traffic, a traffic light, stop sign, or otherwise. "Driving" does not include being in your vehicle (with or without the motor running) in a location off the roadway where it is safe and legal to remain stationary.

C. "Text Messaging" is defined as reading from or entering data into any handheld or other electronic device, including for the purpose of short message service texting, e-mailing, instant messaging, obtaining navigational information, or engaging in any other form of electronic data retrieval or electronic data communication. The term does not include the use of a cell phone or other electronic device for the limited purpose of entering a telephone number to make an outgoing call or answer an incoming call, unless the practice is prohibited by State or local law.

D. Contractor shall include this provision in all subcontracts at all tiers.

1.1 SECTION 03 - INSURANCE REQUIREMENTS

ARTICLE 1 INSURANCE REQUIREMENTS

Description

A. Except as otherwise specified, the Consultant, shall at its sole cost and expense, obtain and maintain during the entire term of this Agreement the minimum insurance set below.

B. In the event the Consultant is a Joint Venture, these insurance requirements shall apply to each Joint Venture member separately.

C. By requiring such minimum insurance, Sound Transit shall not be deemed or construed to have assessed the risks that may be applicable to the Consultant under this Agreement. The Consultant shall assess its own risks and, if it deems appropriate and/or prudent, maintain greater limits and/or broader coverage.

D. The fact that insurance is obtained by Consultant shall not be deemed to release or diminish the liability of the Consultant, including without limitation, liability under the indemnity provisions of this Agreement. Damages recoverable by Sound Transit shall not be limited to the amount of the required insurance coverage.

Insurance Coverages

E. **Commercial General Liability**: Commercial General Liability for bodily injury including death, personal injury, and property damage, with contractual and completed operations liability endorsements, and Employer's Liability coverage, utilizing insurers and coverage forms acceptable to Sound Transit, with limits of at least $5,000,000 per occurrence and $5,000,000 general aggregate, with $5,000,000 products and completed operations coverage.

F. ***Commercial Automobile Liability:*** Commercial Auto Liability coverage for bodily injury and property damage utilizing insurers and coverage forms acceptable to Sound Transit, with a limit of at least $1,000,000 combined single limit.

Such liability insurance, identified in 2.a and 2.b above, shall name Sound Transit, its officers, directors, agents, and employees and Community Transit, King County, Kitsap Transit, Pierce Transit, Everett Transit and Washington State Ferriesas additional insured with respect to the work, including completed operations, under this Agreement.

G. ***Workers Compensation***: The Consultant will secure its liability for industrial injury to its employees in accordance with the provisions of Title 51 of the Revised Code of Washington. The Consultant will be responsible for Workers Compensation insurance for any subconsultant who provides work under subcontract.

If the Consultant is qualified as a self-insurer under Chapter 51.14 of the Revised Code of Washington, it will so certify to Sound Transit by submitting a letter

signed by a corporate officer, indicating that it is a qualified self-insurer, and setting forth the limits of any policy of excess insurance covering its employees.

The protection provided by the Workers Compensation Policy Part 2 (Employers Liability), or in states with monopolistic state funds, the protection provided by the Stop Gap endorsement to the General Liability must have a minimum required limit of $1,000,000.

H. **Professional Liability:** This Agreement includes "professional services". The Consultant shall maintain the appropriate Professional Liability insurance, with limits of liability of at least $5,000,000 per claim, for damages sustained by reason of or in the course of operations under this Agreement, whether occurring by reason of acts failing to meet the standard of care required by this Agreement, negligent acts, errors, or omissions of the Consultant.

I. ***Commercial Crime and Employee Dishonesty: A policy with minimum required limits of $2,500,000 per occurrence for losses of money and property as a result of theft, burglary, forgery, alteration, disappearance and destruction and for losses due to the dishonest acts of employees.***

J. **Railroad Protective Liability**: During any construction or demolition work within 50 feet on either side of railroad or light rail tracks, Contractor shall provide Railroad Protective Liability coverage either by (1) endorsing the General Liability policy with an ISO form CG 24 27 10 01 – Contractual Liability – Railroads endorsement, or equivalent, or (2) obtaining a separate Railroad Protective Liability policy. This insurance shall name Central Puget Sound Regional Transit Authority, dba Sound Transit, its officers, directors, agents and employees as additional insured with coverage of at least $2,000,000 per occurrence and $6,000,000 in the aggregate. The coverage shall be effective for the entire duration of the work to be performed. The policy shall be issued on a standard ISO form CG 00 35 10 93, or equivalent.

K. **Builders Risk Insurance:** Prior to any new construction, the Contractor shall purchase and maintain in force throughout the course of construction "All-Risk" Builders Risk Insurance on the Work provided under this Agreement until Acceptance of the Work by Sound Transit and when the project has been put to its intended use. Such insurance shall be written on a completed value in an amount equal to the initial Contract Price, subject to subsequent modifications of the Contract Price. The insurance coverage shall apply on a replacement cost basis. The insurance policy shall name Sound Transit as an additional insured and loss payee, as its interest may appear. The insurance shall cover the entire Work at the Site. Insured property shall also include portions of the Work located away from the Site but intended for use at the Site, and shall also cover portions of the Work in transit. The insurance policy shall cover the cost of removing debris, including demolition of the undamaged portion of property insured, as may be made legally necessary by the operation of any law, ordinance, or regulation which is in force at the time of any physical loss, damage or destruction to insured property by a peril insured by the insurance policy. Deductibles or Self-Insured Retentions (SIRs) in excess of $10,000 each

loss must be disclosed and are subject to Sound Transit's approval. The Contractor shall be responsible for and pay any deductible or SIR. The insurance policy, and all endorsements, is subject to Sound Transit approval as to form.

L. **Network Privacy & Security Insurance / Cyber Liability:** Contractor agrees to purchase and maintain throughout the term of this Agreement, Privacy & Security liability insurance (or its equivalent "cyber/network security" insurance) covering liabilities resulting or arising from acts, errors, or omissions, in connection with the services provided under this Agreement, which are associated with any breach or loss of any personally identifiable information. Such insurance shall provide coverage for up to $5,000,000.00 per claim. Costs and damages to be covered by this insurance policy shall include without limitation: (a) costs to notify individuals whose personally identifiable information was lost or compromised; (b) costs to provide credit monitoring and credit restoration services to individuals whose personally identifiable information was lost or compromised; (c) costs and damages associated with third-party claims arising from the breach or loss of personally identifiable information, including litigation costs and settlement costs; and (d) any investigation and enforcement costs. The policy must be kept in force during the life of the Agreement and for three (3) years (either as a policy in force or extended reporting period) after Agreement termination. Contractor shall also ensure that any Subcontractors that create, receive, maintain, or transmit protected health information or personally identifiable information on behalf of the Contractor agree to the same insurance requirements that apply to the Contractor.

M. ***Other Insurance:*** Other insurance as may be deemed appropriate to cover the specified risk and exposure of the scope of work or changes to the scope of work evaluated by Sound Transit. The costs of which shall be borne by contracting parties as mutually agreed.

General Provisions

A. **Certificates and Policies**: Prior to commencement of Work for this Agreement, the Consultant shall provide Sound Transit with certificates of insurance showing insurance coverage in compliance with the foregoing paragraphs. All insurance coverage outlined above shall be written by insurance companies meeting Sound Transit's financial security requirements, (A.M. Best's Key Rating A-; VII or higher). **Such certificates shall reference Sound Transit's contract number, RTA/RP 0119-17 and title, next generation ORCA Systems Integrator.** The Consultant will provide 30 calendar days' advance written notice to Sound Transit in the event the Consultant's insurance policies are cancelled, not renewed, or materially reduced in coverage. Should the Consultant neglect to obtain and maintain in force any of the insurance required in this Section, Sound Transit may suspend or terminate this Agreement. Suspension or termination of this Agreement shall not relieve the Consultant from insurance obligations hereunder.

B. Taking into account the scope of work and services to be performed by a subcontractor and/or subconsultant, the Consultant shall prudently determine whether, and in what amounts, each subcontractor and/or subconsultant shall obtain and maintain commercial general liability and any other insurance coverage. Any insurance required of subcontractors and/or subconsultants shall, where appropriate and/or applicable, name Sound Transit as an additional insured.

C. Consultant's insurance for General Liability, Automobile Liability and Railroad Protective Liability (if applicable) shall be primary as respects Sound Transit, and any other insurance maintained by Sound Transit shall be excess and not contributing insurance with the Consultant's insurance.

D. The Consultant and its insurers shall require that the applicable insurance policy(ies) be endorsed to waive their right of subrogation against Sound Transit. The Consultant and its insurers also waive their right of subrogation against Sound Transit for loss of their owned or leased property or property under their care, custody and control.

E. The Consultant shall provide Sound Transit with complete copies of all insurance policies to comply with the insurance requirements in this Agreement, including, but not limited to, the Additional Insured Endorsement(s) required in 2.a and 2.b above, the Waiver of Subrogation Endorsements, Primary and Non-Contributory Endorsements, Products and Completed Operations Endorsement and any other endorsements.

F. No provision in this Section shall be construed to limit the liability of the Consultant for work not done in accordance with the Agreement, or express or implied warranties. The Consultant's liability for the work shall extend as far as the appropriate periods of limitation provided by law and up to any legal limits.

G. The Consultant may obtain any combination of coverage or limits that effectively provides the same or better amounts and types of coverage as stipulated above, subject to review and approval by Sound Transit.

H. The Consultant warrants that this Agreement has been thoroughly reviewed by the Consultant's insurance agent/broker, who have been instructed by the Consultant to procure the insurance coverage required by this Agreement.

Claims Management

The Contractor agrees to the following claims management terms and conditions. The Contractor further agrees to include the following terms and conditions in its contract with its Subcontractors and require its Contractor to comply with the following provisions.

I. The Contractor, after award of a Sound Transit contract, shall provide the names, titles, addresses, telephone numbers, and email addresses of the individual(s) employed by Contractor who handles insurance matters and notifies insurance companies of claims. This individual(s) will be the primary

contact for communications between Sound Transit Risk Management Division and the Contractor and its Subcontractors. If the individual(s) change, Contractor shall notify Sound Transit Risk Management Division of the replacement.

J. Contractor shall provide written notice of any incident involving bodily injury and/or property damage to Sound Transit. An "incident" is defined as any event or occurrence involving bodily injury or property damage that may give rise to an insurance claim. Incidents include those involving serious bodily injury, hospitalization, death, or property damage.

K. Contractor's written notice to Sound Transit of any incident or claim shall include the following information:

1) A description of the incident, including any bodily injuries or property damage,

2) The names of anyone injured and/or whose property was damaged,

3) The names and contact information of any insurance company(ies) who may provide insurance coverage related to any aspect of the incident,

4) Policy number(s), claim numbers(s), and policy(ies) effective dates, and

5) A copy of any written Acknowledgement of Claim Receipt issued by any applicable insurance company(ies).

If some information requested above is not available at the time of the initial report, the Contractor shall provide the missing information to Sound Transit as soon as it is available.

L. If Sound Transit receives a claim from a Third Party related to the project, Sound Transit will tender such claim to the Contractor through the established claim management process for handling and resolution. Upon receipt of a Third Party claim from Sound Transit, the Contractor shall acknowledge in writing to Sound Transit that:

1) The Contractor received and accepts Sound Transit's claim tender,

2) The Contractor shall notify its Commercial General Liability insurance company and any other applicable insurance company (ies) of the claim as per Sound Transit insurance requirements that Sound Transit is named as Additional Insured, under the Commercial General Liability policy and as stipulated in the contract between Sound Transit and the contractor.

3) The Contractor shall provide Sound Transit with copies of any/all Acknowledgements of Claim Receipts issued by its Commercial General Liability or other applicable insurance company(ies),

4) The Contractor and its insurance company(ies) shall indemnify and defend Sound Transit, as an Additional Insured, against any/all claims related to the project.

5) The Contractor's General Liability and other applicable insurance company(ies) will investigate and process the claim, provide a coverage determination, an objective disposition and claim resolution for either denial or settlement.

6) The Contractor shall provide copies of any/all documentation related to a claim's disposition and resolution, such as, but not limited to, acknowledgements, settlement agreements, releases, claim denial letters, judgments, payments, and satisfaction of judgments.

M. Contractor shall provide to Sound Transit quarterly status reports on all open and closed claims related to the project that implicates Sound Transit. The report shall include the assigned adjusters, policy numbers, claim numbers and at least the following:

1) A description of the claim handling activities during the quarter,

2) Any changes to the assigned and/or investigating adjuster, and, if so, the name and contact information of the newly assigned adjuster(s),

3) A description of the next steps in the claims adjusting process,

4) A description of the disposition and resolution of any claim, and

5) Copies of any pertinent documents, including, but not limited to, expert reports, reports on investigations, photographs, settlement agreements, releases, claim denial letters, judgments, payments, and satisfaction of judgments.

Contractor shall notify Sound Transit of their final resolution, or the applicable insurance company's(ies') final resolution, any/all claims related to the project, which Sound Transit Risk Management can review and document as a formal notification from the contractor, or its insurance company(ies) that the claims has been fully dispositioned and closed.

2.1 SECTION 04 – LIQUIDATED DAMAGES

[To be negotiated]

INIT respectfully requests to continue discussions on the Liquidated Damages as the schedule is fine-tuned before contract award. As part of the continued negotiations, discussion must include the amount of each damage and a cap for damages and corresponding incentives for milestones achieved on time. Additionally, should the opening of a station or BRT platform change (even to a later date), that may impact INIT's ability to perform.

Key Milestones and Dates (as provided by Sound Transit)

Milestone	Date	Comment
Factory Acceptance Testing	September 22, 2021	
Stations and Fleet Expansions:		
a. Northgate Link Extension	December 1, 2020	Occurs prior to scheduled Pilot Test
b. Tacoma Link Extension	July 1, 2021	Occurs prior to scheduled Pilot Test
c. BRT Stations I	July 1, 2021	Occurs prior to scheduled Pilot Test
d. BRT Stations II and Fleet Expansion I	January 1, 2022	Shall be part of the pilot
e. East Link Extension	January 1, 2022	Shall be part of the pilot
f. BRT Stations III and Fleet Expansion II	January 1, 2023	
g. Lynwood Link Extension	June 1, 2023	
h. Federal Way Link Extension and Redmond Link Extension	December 1, 2023	
i. BRT Stations IV and Fleet Expansion III	January 1, 2024	
3. **Final System Acceptance**:	December 31, 2022	Remove this milestone
3. Decommissioning of legacy ORCA system	December 31, 2022	Replacement for above

The liquidated damages listed herein are based upon deadlines that will be either tied to contract milestones or bilaterally agreed to project schedule dates. Days are considered calendar days.

It is understood that Sound Transit's primary goal is to maintain the ability to collect revenue during the transition from the existing ORCA fare collection system to the Next Generation ORCA system. Contractor may employ alternatives temporary measures, at its expense, in order to maintain the ability to collect revenue. For example, an alternative means to collect revenue for the first three system expansions is described in *Section 2.7.4 Accommodating the Early System Expansions* of *Tab 2 Methodology & Approach to Implementation and Operations & Maintenance*. As another alternative, Contractor could employ staff with handheld validators if stations open before equipment is installed.

Factory Acceptance Testing (FAT) – Contractor's failure to receive Notice of Acceptance from the Regional Program Manager for all Factory Acceptance Testing (FAT) in the scope of work:

- $2,500 per day for each day beyond the agreed upon deadline.

Stations and Fleet Expansions:

a. **Northgate Link Extension** – Not Applicable because occurs before Pilot Test is complete

b. **Tacoma Link Extension** – Not Applicable because occurs before Pilot Test is complete

c. **BRT Stations I** – Not Applicable because occurs before Pilot Test is complete

d. **BRT Stations II and Fleet Expansion I**– Contractor's failure to enable revenue collection at the second 40 BRT Stations and the first 75 buses in the multi-agency bus fleet expansion:

- $5,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.

e. **East Link Extension** – Contractor's failure to receive to enable revenue collection at East Link Extension:

- $5,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.

f. **BRT Stations III and Fleet Expansion II** – Contractor's failure to enable revenue collection at the next 100 BRT Stations and the next 15 buses in the multi-agency bus fleet expansion:

- $5,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.

g. **Lynnwood Link Extension** – Contractor's failure to enable revenue collection at the Lynnwood Link Extension:

- $5,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.

h. **Federal Way Link Extension and Redmond Link Extension** – Contractor's failure to enable revenue collection at the Federal Way Link Extension and Redmond Link Extension:

- $5,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.

i. **BRT Stations IV and Fleet Expansion III** – Contractor's failure to enable revenue collection at the next 90 BRT stations and next 65 buses in the multi-agency bus fleet expansion:

- $5,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.

*3. **Final System Acceptance (FSA)** – removed and replaced with milestone below*

3. **Decommissioning of Legacy ORCA system** – Contractor's failure to have ngORCA ready for revenue service to allow for decommission the existing legacy ORCA system

- damages equal to the actual amount to maintain the legacy ORCA system will be assessed until decommissioning is complete.

This liquidated damage provision shall not preclude Sound Transit from declaring a material breach and seeking all available remedies by law or by Contract.

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SOUNDTRANSIT

3.1 SECTION 05 – LABOR COMPLIANCE MANUAL

PART 1 GENERAL

INSERTION OF PROVISIONS INTO SUBCONTRACTS

Contractor shall insert the provisions set forth in this Labor Compliance Manual ("Manual") in all construction subcontracts of any tier.

DRUG FREE WORKPLACE

Contractor shall comply with applicable Drug Free Workplace requirements as set forth in 49 CFR Part 29, Subpart F, as modified by 41 U.S.C. 702, 49 U.S.C. 5331 and other applicable requirements.

In addition to other remedies available to Sound Transit, the Contractor's failure to comply with the requirements of this Section may render the Contractor subject to suspension of contract payment or termination for default pursuant to the General Conditions.

DISPUTES CONCERNING LABOR STANDARDS

Disputes arising out of terms and provisions of this Manual shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7, the Washington State Department of Labor and Industries, or other applicable procedures. Disputes within the meaning of this clause include disputes between the Contractor (or any of its Subcontractors) and Sound Transit, the U.S. Department of Labor, the Washington State Department of Labor and Industries, or the employees or their representatives.

PART 2 WAGES OF EMPLOYEES.

GENERAL

This Contract is subject to Washington Department of Labor & Industries ("L&I") prevailing wage requirements and may be subject to the federal Department of Labor ("DOL") prevailing wage requirements. In the event that both state and federal prevailing wages apply, the higher of the two prevailing wage rates will prevail. If a state prevailing rate for a particular classification is available but a federal rate is not available, the procedure outlined below for determination of a federal rate shall be followed. In the event that a federal prevailing rate for a particular classification is available but a state

prevailing rate is not available, the procedure outlined below for determination of a state prevailing rate shall be followed. The Contractor shall comply with the requirements of both the state L&I and the federal DOL, for posting notices of applicable wages, submission of certified payrolls, record keeping and other applicable administrative requirements.

Overtime shall be paid in accordance with the highest wage amount determined under the Washington Department of Labor & Industries ("L&I") prevailing wage requirements or the federal Department of Labor ("DOL") prevailing wage requirements.

STATE PREVAILING WAGES.

All determinations of the state prevailing rate of wage shall be made by the Industrial Statistician of the Department of Labor and Industries of the State of Washington. The state schedule of prevailing wage rates applicable to this Contract are set forth in Section 06. If employing labor in a class not listed in such schedule, the Contractor shall require the industrial statistician to determine the correct wage rate for that class and locality.

A. Disputes. In case any dispute arises as to what are the state prevailing rates of wages for work of a similar nature and such dispute cannot be adjusted by the parties in interest, including labor and management representatives, the matter shall be referred for arbitration to the Director of the Department of Labor and Industries of the state of Washington and said Director's decision therein shall be final and conclusive and binding on all parties involved in the dispute. In the event of a dispute as to what the federal rates of wages are, the dispute shall be referred to the Administrator of the Wage and Hour Division, Employment Standards Administration whose decision shall be final and conclusive and binding on all parties involved in the dispute.

B. Posting Notices. Except as provided otherwise in Chapter 39.12 RCW, the Contractor, each Subcontractor and other persons required to pay the prevailing rate of wage shall post in a location(s) readily visible to workers at the site: (1) a copy of the Statement Of Intent To Pay Prevailing Wages approved by the industrial statistician of the Department of Labor and Industries under RCW 39.12.040; and (2) the address and telephone number of the industrial statistician of the Department of Labor and Industries where a complaint or inquiry concerning prevailing wages may be made.

C. Apprentices. Apprentice workers employed hereunder for whom an apprenticeship agreement has been registered and approved with the state apprenticeship council pursuant to Chapter 49.04 RCW shall be paid at least the prevailing hourly rate for an apprentice for that trade. Any worker for whom an apprenticeship agreement has not been registered and approved by the state apprenticeship council shall be considered to be a fully qualified journey worker, and, therefore, shall be paid at the prevailing hourly rate for journey workers.

D. Required Documents. Pursuant to Chapter 39.12 RCW, the Contractor and each Subcontractor shall submit the following documents to Sound Transit:

1. Before payment is made by Sound Transit, the Contractor and each Subcontractor shall submit a "Statement of Intent to Pay Prevailing Wages" that has been approved by the industrial statistician of the Department of Labor and Industries.
2. With each request for payment, the Contractor shall submit a statement that prevailing wages have been paid in accordance with the "Statement of Intent to Pay Prevailing Wages" filed with Sound Transit.

3. Following Final Acceptance of the Work and before funds retained according to RCW 60.28.010 are released to the Contractor, the Contractor and each Subcontractor shall submit an "Affidavit of Wages Paid" that has been approved by the industrial statistician of the Department of Labor and Industries.

4. Any fees charged by the Department of Labor and Industries for filing the "Statement of Intent to Pay Prevailing Wages" and the "Affidavit of Wages Paid" shall be paid by the Contractor and each Subcontractor, as applicable; if Sound Transit pays such fees for any reason, then the Contractor shall be charged the amounts thereof, and shall remit the same to Sound Transit.

E. Worker's Benefits. Contractor shall make all payments required for unemployment compensation under Title 50 RCW and for industrial insurance and medical aid required under Title 51 RCW. The Contractor shall also obey all federal, state and local laws, ordinances, and regulations that establish safety standards for the protection of employees. If any payment required by Title 50 or 51 is not made when due, Sound Transit may retain such payments from any money due the Contractor and apply the same into the appropriate fund. The Department of Labor and Industries will provide the Contractor with applicable industrial insurance and medical aid classification and premium rates. Sound Transit may withhold payment of any amounts needed to pay Industrial Insurance premiums until the Contractor has satisfied to Sound Transit that the Contractor has paid all applicable premiums it owes on the work performed.

FEDERAL PREVAILING WAGES

If this Contract is also subject to federal prevailing wages, Section 06 contains the wage determination decision of the Secretary of Labor.

A. Minimum wages -- All laborers and mechanics employed or working upon the Site will be paid unconditionally and not less than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor, Section 06, and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of this Section. Also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage

rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its Subcontractors at the Site of the Work in a prominent and accessible place where it can be easily seen by the workers.

B. The Resident Engineer will require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the Contract shall be classified in conformance with a wage determination. The Resident Engineer shall approve an additional classification and wage rate and fringe benefits only when the following criteria have been met:

1. Except with respect to helpers as defined as 29 CFR 5.2(n)(4), the work to be performed by the classification requested is not performed by a classification in the wage determination; and
2. The classification is utilized in the area by the construction industry; and
3. The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and
4. With respect to helpers as defined in 29 CFR 5.2(n)(4), such a classification prevails in the area in which the work is performed.

C. If Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and Sound Transit agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by Sound Transit to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within thirty (30) Days of receipt and so advise Sound Transit or will notify Sound Transit within the thirty (30) Day period that additional time is necessary.

D. In the event Contractor, the laborers or mechanics to be employed in the classification or their representatives, and Sound Transit do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), Sound Transit shall refer the questions, including the views of all interested parties and the recommendation of Sound Transit, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within thirty (30) Days of receipt and so advise Sound

Transit or will notify Sound Transit within the thirty (30) Day period that additional time is necessary.

E. The wage rate (including fringe benefits where appropriate) determined pursuant to these provisions, shall be paid to all workers performing work in the classification under this Contract from the first day on which work is performed in the classification.

1. Whenever the minimum wage rate prescribed in the Contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

2. If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

WITHHOLDING

Sound Transit shall, upon its own action or upon written request of an authorized representative of the federal Department of Labor or state Department of Labor and Industries, withhold or cause to be withheld from Contractor under this Contract or any other federal contract with the same prime Contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any Subcontractor the full amount of wages required by the Contract. In the event of failure to pay any laborer or mechanic, including any apprentice trainee, or helper, employed or working on the site of the work all or part of the wages required by the Contract, Sound Transit may, after written notice to Contractor, sponsor, applicant, or owner take such action as may be necessary to cause the suspension of any further payment, advance or guarantee of funds until such violations have ceased.

PAYROLLS AND BASIC RECORDS

A. Payrolls and basic records relating thereto shall be maintained by Contractor during the course of the Work and preserved for a period of three (3) years thereafter for all laborers and mechanics working at the Site of the Work.

1. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits, daily and weekly number

of hours worked, deductions made, and actual wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid.

2. For Contracts that include federal prevailing wage requirements, whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

3. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

B. Certified Payrolls.

1. If this Contract includes federal prevailing wage requirements, Contractor shall submit weekly, for each week in which any Contract Work is performed a copy of all certified payrolls to the Resident Engineer or his designee. In addition, Contractor shall submit monthly reports in electronic format (MS Excel software) summarizing wages and bona fide fringe benefits paid to all laborers and mechanics employed or working upon the Site. Report data, report format and due date to be determined by Sound Transit. The certified payrolls submitted shall set out accurately and completely all of the information required to be maintained under Section 5.5(a)(3)(i) of Regulations, 29 CFR Part 5. This information may be submitted in any form to be approved by Sound Transit. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, DC 20402. Contractor is responsible for the submission of copies of payrolls by all subcontractors.

   a. Each certified payroll shall be accompanied by a "Statement of Compliance", signed by Contractor or Subcontractor, or his or her agent, who pays or supervises the payment of the persons employed under the Contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under Section 5.5(a)(3)(i) of Regulations, 29 CFR Part 5 and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the Contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR Part 3; and

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the Contract.

b. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance".

c. The falsification of any of the above certifications may subject Contractor or Subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

d. Contractor or Subcontractor shall make the records required under this Paragraph available for inspection, copying, or transcription by authorized representatives of Sound Transit, the U.S. Department of Transportation, the U.S. Department of Labor, or the Washington State Department of Labor and Industries and shall permit such representatives to interview employees during working hours on the job. If the Contractor or Subcontractor fails to submit the required records upon request or to make such records available, the FTA may, after written notice to the Contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

APPRENTICE AND TRAINEES

A. Apprentices

Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to an individually registered in a bona fide apprenticeship program registered with a State Apprenticeship Agency recognized by the U. S.

Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or if a person is employed in his or her first ninety (90) days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by a State Apprenticeship Agency to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or Subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division of the U.S. Department of Labor determines that a different practice prevails for the applicable apprentice classification, fringe benefits shall be paid in accordance with the determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

B. Trainees

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with

the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

C. Equal Employment Opportunity

The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

D. Compliance with Copeland Act Requirements

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this Contract.

E. Subcontracts

The Contractor or Subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the Federal Transit Administration (FTA) may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The Contractor shall be responsible for the compliance by any Subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

F. Contract Termination: Debarment

A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the Contract, and for debarment as a Contractor and a Subcontractor as provided in 29 CFR 5.12.

G. Compliance with Davis-Bacon and Related Act Requirements

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CRF parts 1, 3, and 5 are herein incorporated by reference in this Contract.

H. Certification of Eligibility

5. By entering into this Contract, Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in Contractor's firm is a person or firm ineligible to be

awarded Government contracts by virtue of Section 3(a) of the Davis Bacon Act or 29 CFR 5.12(a)(1).

6. No part of this Contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

7. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 USC 1001.

I. Contract Work Hours and Safety Standards Act

1. Overtime Requirements. Neither the Contractor nor any Subcontractor shall require or permit any laborer or mechanic in any workweek in which he or she is employed on such Work to work in excess of forty (40) hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half (1 ½) times the basic rate of pay for all hours worked in excess of forty (40) hours in such workweek.

2. Violation; Liability For Unpaid Wages; Liquidated Damages. In the event of any violation of the clause set forth above, the Contractor and Subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth above, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard work week of forty (40) hours without payment of the overtime wages required by the clause set forth above.

3. Withholding For Unpaid Wages And Liquidated Damages. Sound Transit shall upon its own action, or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from any moneys payable on account of work performed by the Contractor or Subcontractor under any such contract or any other federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or Subcontractor for unpaid wages and liquidated damages as provided in the clause set forth above.

4. Subcontracts. The Contractor shall insert in any subcontracts the clauses set forth in this section and also a clause requiring the Subcontractors to include these clauses in any lower tier subcontracts. The Contractor shall be responsible for compliance by any Subcontractor or lower tier subcontractor with the clauses set forth in this section.

J. Material Suppliers

The requirements of this section do not apply to contracts or subcontracts for the purchase of supplies or materials or articles normally available on the open market.

PART 3 APPRENTICE UTILIZATION GOALS

For Contracts where the Engineer's estimate or the Bidder's Total Bid Price is $1,000,000 or more, the Apprentice Utilization Goal applies and is set forth in Section 00 73 39 Diversity Program in this IFB. The Bidder, by submitting a Bid is thereby certifying that, if awarded the Contract, it shall make good faith efforts to locate, qualify and increase the skills of the region's labor force by using apprentices on the Contract and to comply with the apprenticeship provisions contained in Section 05 Labor Compliance Manual. During Bid evaluation, the apparent low Bidder shall verify its intent to utilize good faith efforts to comply with these provisions by executing the Certification of Intent Regarding Apprentice Utilization, contained in Section 00 45 00 Representations and Certifications in this IFB.

A. Contractor Shall Develop and Implement Apprentice Utilization Plan Subject to Sound Transit Approval

The Contractor shall use good faith efforts to utilize apprentices registered with the Washington State Apprenticeship and Training Council ("SAC") for a portion of the total Contract labor hours utilized on the Project. Prior to Notice of Award, the apparent low Bidder shall submit for Sound Transit approval an Apprentice Utilization Plan, if the Engineer's Estimate or if the Bidder's Total Bid Price is $1,000,000 or more. The Plan shall outline how the apprenticeship goals will be met on the total contract labor hours. The Plan, on a form provided by Sound Transit in Section 00 45 00 Representations and Certifications, shall include the following information:

1. Total Contract labor hours include additional hours worked as a result of change orders.
2. Total Contract labor hours exclude hours worked by foremen, superintendents, supervisors, owners, and workers who are not subject to prevailing wage requirements. However, total Contract labor hours shall include the hours worked by supervisors, foremen, and superintendents if it is determined that they are subject to prevailing wage requirements pursuant to WAC 296-127-015.
3. The Contractor shall include the apprentice utilization requirements of this Section in all subcontracts executed for the Project, and ensure that all subcontractors working on the Project are notified of the apprentice utilization requirements. The Contractor is responsible for using good faith efforts to meet the apprentice utilization requirements of the Contract, including overall compliance on all Contract labor hours worked by subcontractors.

B. The Contractor shall make good faith efforts to:

1. Equally distribute the apprentice hours worked among each trade/craft and consistent with the apprentice utilization percentage requirement set forth herein.
2. Use reasonable and practicable means to recruit and hire apprentices to achieve the apprentice utilization goal accepted by Sound Transit.
3. Use reasonable and practicable means to recruit and hire minority and women apprentices for the Project so that of the apprentice utilization requirement percentage in this Section, the Contractor shall use women and people of color to perform at least fifty percent (50%) of all first-year apprentice hours in all trades and to perform at least thirty-three percent (33%) of all apprentice hours worked.
4. Comply with the apprenticeship training standards for each trade/craft classification used on the Project, as set forth by the Washington State Department of Labor and Industries.
5. It is expected that an apprentice will normally begin training on the Project as soon as feasible after start of work, utilizing the skill involved and remain on the Project as long as training opportunities exist in the work classification or until the completion of the training program. It is not required that all apprentices be retained for the entire length of the Contract.

C. Changes to the Apprentice Utilization Requirement

1. If, during the term of the Contract, the Contractor determines that it will be unable to meet the apprentice utilization identified in the Apprentice Utilization Plan as accepted by Sound Transit, the Contractor may make a written request to Sound Transit, to modify the Plan. The request shall include documentation of the Contractor's affirmative efforts to use apprentices registered with the Washington State Apprenticeship and Training Council ("SAC"), including copies of correspondence between the Contractor and the SAC-approved apprentice programs, union locals, community stakeholders, and others. The documents must demonstrate that an adequate number of apprentices are not available to meet the apprentice utilization percentage.
2. Sound Transit shall evaluate the request, and if appropriate, shall authorize modification of the Apprentice Utilization Plan. If Sound Transit determines that a modification is not justified, Sound Transit shall communicate the decision in writing to the Contractor.

D. Apprentice Utilization Monitoring and Enforcement

1. Sound Transit or its designee shall verify the registration of each apprentice used on the Contract with the Washington State Apprenticeship and Training Council.
2. Sound Transit or its designee shall monitor the apprentice utilization data provided by the Contractor. In the event that the Contractor is deficient in the

use of apprentices, Sound Transit or its designee will meet with the Contractor to discuss the reasons for the deficiency and help the Contractor develop a written plan for meeting the goals.

3. Sound Transit may make routine visits to the Site for the purpose of confirming the use of apprentices. The Contractor acknowledges that parties designated by Sound Transit may make visits to the Site for the purpose of confirming the use of apprentices. Said third party visitors will be required to abide by the Contractor's and Sound Transit's work rules and safety plan.

PART 4 NON-DISCRIMINATION, EEO, APPRENTICE AND CURRENT EMPLOYEE REPORTING REQUIREMENTS

A. With each Request for Progress Payment, the Contractor shall submit to Sound Transit a Monthly EEO in electronic format to be provided by Sound Transit, for the Contractor and all Subcontractors. The monthly reports shall be completed by the Contractor and all Subcontractors performing work on the Contract during the reporting period. The reports shall accompany the Contractor's Request for Progress Payment. A Request for Progress Payment that is not accompanied by the monthly reports will not be processed for payment until said monthly reports are received and approved by Sound Transit.

B. With each Request for Progress Payment, the Contractor will also submit to Sound Transit a certification, in the form provided by Sound Transit, stating that they have no knowledge of allegations (whether as a written or oral statement from a worker or in the form of formal EEOC complaints, union grievances, or other complaints in any other administrative or legal form) regarding the violation of applicable Civil Rights and non-discrimination laws or policies against the Contractor or subcontractors performing work on the contract. If the Contractor has such knowledge, the Contractor shall provide a brief explanation of the alleged violation(s), and a description of any actions that have been or will be taken to address or remedy the alleged violation(s). The Contractor will provide Sound Transit access to all records pertaining to the alleged violation (s) and reasonable access to interview employees or workers that may have information related thereto.

C. Within five (5) working days of receiving notice of any complaint that has been filed against the Contractor regarding allegations of discrimination on this contract by any federal, state or local civil rights enforcement agency, the Contractor shall provide a copy of the complaint to Sound Transit. The Contractor will provide to Sound Transit access to all records pertaining to the complaint.

D. The Contractor shall be responsible for reporting EEO data required by Sound Transit beginning with the first day of work for each apprentice. The Contractor's first submittals are due at the end of the first month after the Contract start date specified in the Notice to Proceed, and at monthly intervals thereafter as specified above. Subcontractor submittals are due at the end of the month after commencement of their work and monthly thereafter, as specified above.

E. The Contractor shall report the following information on journey level employees:

1. Labor hours for reporting period by ethnicity/gender, for each trade/craft.
2. Total journey level labor hours by ethnicity/gender, for each trade/craft.
3. Total labor hours and number of journey level employees for reporting period by ethnicity/gender.
4. Total journey level labor hours and number of employees to-date.
5. Summary information as noted on the reporting form.

F. On a weekly basis, the Contractor shall submit to Sound Transit a Current Employee Report which shall be completed by the Contractor and all Subcontractors of all employees performing work on the Contract for the previous week. In addition, the Contractor will be required to maintain and provide on the report racial and gender data regarding the hiring and termination of craft workers, including the number of hours worked before termination, and upon request, provide to Sound Transit the documentation supporting the reason the worker was terminated. If the work is performed in shifts, the Contractor will also report racial and gender data regarding the staffing of each shift. A sample of this form is included in Section 00500 of this IFB and may be provided in an electronic format by Sound Transit.

G. The Contractor shall submit such other information as may be requested by Sound Transit to verify compliance with the EEO requirements of the Contract. Sound Transit reserves the right to add, delete, or change as necessary the information required by the Contractor on the Monthly EEO and Apprentice Utilization Report form.

PART 5 SUBSTANCE ABUSE PREVENTION PROGRAM

A. Unauthorized use, possession or sale of controlled substances or alcohol on the Project is prohibited. Persons who violate this rule or who are convicted for selling, using, or possessing controlled substances off the job will not be permitted to work on the Project.

B. Applicants for Project employment will be subject to pre-employment controlled substance, alcohol and adulterant testing. Thereafter, employees will be subject to reasonable cause, post-accident, random and return-to-work testing for the presence of controlled substances, alcohol or adulterants in their systems.

C. Employees who report for work with alcohol, adulterants or unauthorized controlled substances in their system will not be permitted to remain on the Project. Employees who violate the substance abuse policy and applicants who fail the pre-employment testing, will be denied employment and will not be eligible for reassignment to any Contractor on the Project until a period of not less than ninety (90) calendar days has passed. Such employees/applicants shall be subject to pre-employment, random and periodic controlled substance, adulterant or alcohol testing thereafter at the request of Sound Transit for up to one year. The program will apply to all Contractor craft personnel, union and non-union, at all construction sites.

D. The Contractor shall assure a drug-free workplace by implementation of a substance abuse program that complies with all applicable federal and state laws. Documentation of the Contractor's program and evidence of testing shall be maintained by the Contractor and provided to Sound Transit for review and inspection upon request.

4.1 SECTION 06 – PREVAILING WAGE RATES

Washington State prevailing wage rates can be found at:
http://www.lni.wa.gov/TradesLicensing/PrevWage/WageRates/.

Davis-Bacon Act Wage determinations are available at http://www.wdol.gov/dba.aspx, and the current rates are included in the following pages.

Questions may be directed to the local Seattle office:

Seattle District Office US Dept. of
Labor Wage & Hour
Division
300 Fifth Avenue, Suite 1130
Seattle, WA 98104

Phone:
(206) 398-8039
1-866-4-USWAGE
(1-866-487-9243)

General Decision Number: WA170036 07/21/2017 WA36

Superseded General Decision Number: WA20160036

State: Washington

Construction Type: Building

County: King County in Washington.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.20 for calendar year 2017 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.20 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2017. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	**01/06/2017**
1	**01/13/2017**
2	**02/03/2017**
3	**02/17/2017**
4	**03/03/2017**
5	**03/10/2017**
6	**05/19/2017**
7	**06/02/2017**
8	**06/16/2017**
9	**07/07/2017**
10	**07/21/2017**

ASBE0007-002 06/01/2017

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR	$ 32.86	15.37

BRWA0001-011 06/01/2016

	Rates	Fringes
Bricklayers, Caulkers	$ 38.24	15.57

CARP0770-020 06/01/2016

	Rates	Fringes
CARPENTER (Acoustical Installation)	$ **40.92**	**14.59**
CARPENTER (Including Formwork, Drywall Hanging, Cabinet Installation; Insulator-Batt and Metal Stud Installation)	$ **40.92**	**14.59**

MILLWRIGHT.....$ 42.42 14.59
PILEDRIVERMAN.....$ 41.17 14.59

(HOURLY ZONE PAY: WESTERN AND CENTRAL WASHINGTON - ALL CLASSIFICATIONS EXCEPT MILLWRIGHTS AND PILEDRIVERS

Hourly Zone Pay shall be paid on jobs located outside of the free zone computed from the city center of the following listed cities:

Seattle	Olympia	Bellingham
Auburn	Bremerton	Anacortes
Renton	Shelton	Yakima
Aberdeen-Hoquiam	Tacoma	Wenatchee
Ellensburg	Everett	Port Angeles
Centralia	Mount Vernon	Sunnyside
Chelan	Pt. Townsend	

Zone Pay:
0 -25 radius miles Free
26-35 radius miles $1.00/hour
36-45 radius miles $1.15/hour
46-55 radius miles $1.35/hour
Over 55 radius miles $1.55/hour

(HOURLY ZONE PAY: WESTERN AND CENTRAL WASHINGTON - MILLWRIGHT AND PILEDRIVER ONLY)

Hourly Zone Pay shall be computed from Seattle Union Hall, Tacoma City center, and Everett City center

Zone Pay:
0 -25 radius miles Free
26-45 radius miles $ .70/hour
Over 45 radius miles $1.50/hour

ELEC0046-006 02/06/2017

	Rates	Fringes
ELECTRICIAN	$ 47.56	3%+19.31

ELEC0046-007 02/06/2017

	Rates	Fringes
ELECTRICIAN (Alarm Installation Only)	$ 31.67	3%+12.45
ELECTRICIAN (Low Voltage Wiring Only)	$ 31.67	3%+12.45

ELEV0019-005 01/01/2017

	Rates	Fringes
ELEVATOR MECHANIC	$ **50.82**	31.585

FOOTNOTE:
a. Employer contributes 8% of the basic hourly rate for over 5 year's service and 6% of the basic hourly rate for 6 months to 5 years' of service as vacation paid credit.
b. Eight paid holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Veteran's Day; Thanksgiving

Day; Friday after Thanksgiving and Christmas Day

ENGI0302-019 06/01/2017

	Rates	Fringes
Power equipment operators:		
Group 1A	$ 41.90	19.20
Group 1AA	$ 42.52	19.20
Group 1AAA	$ 43.13	19.20
Group 1	$ 41.29	19.20
Group 2	$ 40.76	19.20
Group 3	$ 40.29	19.20
Group 4	$ 37.70	19.20

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1AAA - Cranes-over 300 tons, or 300 ft of boom (including jib with attachments)

GROUP 1AA - Cranes 200 to 300 tons, or 250 ft of boom (including jib with attachments); Excavator/Trackhoe: Over 90 metric tons

GROUP 1A - Cranes, 100 tons thru 199 tons, or 150 ft of boom (including jib with attachments); Loaders-overhead, 8 yards and over; excavator/Trackhoe: over 50 metric tons to 90 metric tons

GROUP 1 - Cranes 45 tons thru 99 tons, under 150 ft of boom (including jib with attachments); Excavator/Trackhoe: over 30 metric tons to 50 metric tons; Loader- overhead 6 yards to, but not including 8 yards; Dozer D-10; Screedman; Scrapers: 45 yards and over; Grader/Blade

GROUP 2 - Cranes, 20 tons thru 44 tons with attachments; Drilling machine; Excavator/Trackhoe: 15 to 30 metric tons; Horizontal/directional drill operator; Loaders-overhead under 6 yards; Crane Oiler-100 Tons and Over; Compactor; Scraper: under 45 tons

GROUP 3 - Cranes-thru 19 tons with attachments; Dozers-D-9 and under; Motor patrol grader-nonfinishing; Roller-Plant Mix; Crane Oiler under 100 tons; Excavator/Trackhoe: under 15 metric tons; Forklift: 3000 lbs and over with attachments; Service Oiler; Concrete Pump; Outside Hoist (Elevators and Manlifts); Pump Grout

GROUP 4 - Roller-other than plant mix; Forklift: under 3000 lbs with attachments; Bobcat; Rigger/Bellman

IRON0086-010 07/01/2016

	Rates	Fringes
IRONWORKER (Reinforcing, Structural and Ornamental)	$ 40.52	24.71

LAB00242-002 06/01/2017

ZONE 1:

	Rates	Fringes

LABORER
GROUP 2.....$ 28.45 10.99
GROUP 3.....$ 35.54 10.99
GROUP 4.....$ 36.41 10.99
GROUP 5.....$ 36.99 10.99

ZONE DIFFERENTIAL (ADD TO ZONE 1 RATES):
ZONE 2 - $1.00
ZONE 3 - $1.30

BASE POINTS: BELLINGHAM, MT. VERNON, EVERETT, SEATTLE, KENT, TACOMA, OLYMPIA, CENTRALIA, ABERDEEN, SHELTON, PT. TOWNSEND, PT. ANGELES, AND BREMERTON

ZONE 1 - Projects within 25 radius miles of the respective city hall
ZONE 2 - More than 25 but less than 45 radius miles from the respective city hall
ZONE 3 - More than 45 radius miles from the respective city hall

LABORERS CLASSIFICATIONS

GROUP 2: Flagman

GROUP 3: General Laborer; Mason Tender-Cement/Concrete; Chipping Gun (under 30 lbs.); Form Stripping; Roof Tearoff

GROUP 4: Chipping Gun (over 30 lbs.); Concrete Saw Operator; Grade Checker; Gunite; Pipe Layer; Vibrating Plate

GROUP 5: Mason Tender-Brick

* **PAIN0005-029 07/01/2017**

	Rates	Fringes
DRYWALL FINISHER/TAPER	$ 39.50	17.43

PAIN0005-030 07/01/2013

	Rates	Fringes
Painters:		
Parking Lot and Highway Striping Only	$ 28.00	14.33

* PAIN0005-031 07/01/2017

	Rates	Fringes
PAINTER (Including Brush, Roller, Spray and Prep Work)	$ 29.75	11.58

* PAIN0188-005 07/01/2017

	Rates	Fringes
GLAZIER	**$ 43.24**	17.16

* **PAIN1238-002 07/01/2017**

	Rates	Fringes

SOFT FLOOR LAYER (Including
Vinyl and Carpet).....$ 30.82 16.56

PLAS0528-002 06/01/2017

	Rates	Fringes
PLASTERER	$ 38.10	16.34

PLAS0528-004 06/01/2017

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 40.52	16.54

PLUM0032-009 01/01/2017

	Rates	Fringes
PIPEFITTER	$ 53.06	23.03
PLUMBER (Including HVAC Pipe Installation)	$ 52.81	22.28
REFRIGERATION MECHANIC	$ 52.22	22.79

ROOF0054-008 01/01/2017

	Rates	Fringes
ROOFER (Includes Roof Tear Off, Waterproofing, and Installation of Metal Roofs)	$ 33.32	14.17

SFWA0699-006 07/01/2017

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers)	$ 48.47	25.52

SHEE0066-023 06/01/2016

	Rates	Fringes
Sheet Metal Worker (Including HVAC Duct Work and Installation of HVAC Systems)	$ 48.17	25.52

* TEAM0174-005 01/01/2017

	Rates	Fringes
Truck drivers:		
ZONE A:		
GROUP 2:	$ 34.13	18.57

ZONE B (25-45 miles from center of listed cities*): Add $.70 per hour to Zone A rates.
ZONE C (over 45 miles from centr of listed cities*): Add $1.00 per hour to Zone A rates.

*Zone pay will be calculated from the city center of the following listed cities:

BELLINGHAM CENTRALIA **RAYMOND** OLYMPIA

EVERETT	SHELTON	ANACORTES	BELLEVUE
SEATTLE	PORT ANGELES	MT. VERNON	KENT
TACOMA	PORT TOWNSEND	ABERDEEN	BREMERTON

TRUCK DRIVERS CLASSIFICATIONS

GROUP 2 - Semi-Trailer Truck

HAZMAT PROJECTS

Anyone working on a HAZMAT job, where HAZMAT certification is required, shall be compensated as a premium, in addition to the classification working in as follows:
LEVEL C: +$.25 per hour - This level uses an air purifying respirator or additional protective clothing.
LEVEL B: +$.50 per hour - Uses same respirator protection as Level A. Supplied air line is provided in conjunction with a chemical "splash suit."
LEVEL A: +$.75 per hour - This level utilizes a fully-encapsulated suit with a self-contained breathing apparatus or a supplied air line.

SUWA2009-024 05/22/2009

	Rates	Fringes
LABORER: Driller	$ 17.17	5.36
LABORER: Irrigation	$ 11.58	**0.00**
LABORER: Landscape	$ 9.73	**0.00**
LABORER: Overhead Door Installation	$ 22.31	**3.44**
OPERATOR: Backhoe	$ 29.95	**7.20**
OPERATOR: Mechanic	$ 24.33	**4.33**
ROOFER: Metal Roof	$ **24.30**	**4.05**
TILE SETTER	$ **18.72**	3.35
TRUCK DRIVER: Dump Truck	$ **27.43**	**0.00**

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons

resulting from, or to assist a family member (or person who is

like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CSA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requester considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative

Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

item	Software or Application Title	Draft copy of License Agreement: File name or weblink	Proposal Reference - associate the License with the applicable Proposal Section	Brief description of the license purpose including major rights/restrictions	Provided by party	License Model / License Type	License QTY	License Term
[redacted]								

item	Software or Application Title	Draft copy of License Agreement: File name or weblink	Proposal Reference - associate the License with the applicable Proposal Section	Brief description of the license purpose including major rights/restrictions	Provided by party	License Model / License Type	License QTY	License Term
[redacted]								

1. Technical Proposal of INIT's Account Based Open Architect System

2. Methodology and Approach to Implementation and Operation and Maintenance Services

3. Extensive Experience and History of Innovation in Transit Technology

4. Knowledge and Recent Experience of Key Individuals

5. Price

6. Value Added Features or Capabilities

7. Commitment to and Compliance with Equal Employment Opportunity Law

8. Outreach Efforts and Commitment to Small Businesses and DBEs

9. Appendices (Appendix 1 – Resumes, Appendix 2 – Required Forms, and Capability Conformance Matrix Tab 1 and Tab 2

10. ORCA Commercial Legal Terms
Software License Information
Draft Maintenance Agreement

Systems Integrator for Next Generation ORCA
Request for Proposal (RFP)
RFP No. RTA/RP 0119-17
Submitted 06/08/2018

INIT Innovations in Transportation, Inc.
424 Network Station
Chesapeake, Virginia 23320
Phone (757) 413-9100
Fax (757) 413-5019
http://www.initusa.com

rstaib@initusa.com
direct: (757) 615-8500

June 8, 2018

Attn. Ashley Bowman, Agency Agreements Analyst
Sound Transit Procurement and Contracts Division
401 S. Jackson Street
Seattle WA 98104-2826

RE: RFP No. RTA/RP 0119-17 – Cover Sheet and Declaration of Revision

Dear Ms. Bowman:

INIT is pleased to provide you with our Revised Proposal #2 to be the System Integrator for the ngORCA Program and to collaboratively develop, build, and test the best solution for the Region.

We appreciate the valuable Sound Transit feedback that allowed us to improve our offer. This Revised Proposal #2 supersedes the previously revised proposal submitted by INIT Innovations in Transportation on March 23rd 2018. All changes are clearly marked per the revised proposal submittal instructions. I hereby declare the text in the revised proposal that is not marked as changed has not been changed, and if it has the text of the last revised proposal prevails.

Additionally, we have provided a revised Price Proposal document which reflects modifications to our system design and scope of work. We have also included a cross reference which identifies the specific sections of the Proposal which have been revised.

We remain excited about the prospect of working with the ORCA agencies to deliver the ngORCA project on time and on budget. We are convinced that the agencies will be amazed at the functionality and flexibility of our best-in-class fare collection solutions and the capabilities of our company.

INIT was founded in 1983 with the goal of providing Intelligent Transportation Systems (ITS) to Public Transit Agencies. INIT Inc. (USA) was incorporated in the Commonwealth of Virginia in 1999 to serve the North American market. The INIT group of companies has never changed ownership. Many of our original employees are still working at INIT; giving us unmatched insight into the deployment of all types of transit oriented ITS projects. INIT has deployed over 50 electronic fare collection systems to transit agencies around the world and every day millions of transit riders pay for their public transit rides using INIT supplied technology.

This Project will be led by INIT's Pacific Northwest team, who recently delivered a state of the art, open payment, account based fare collection system to TriMet and its regional partners in Portland,

Oregon. The regional HOP FastPass system, which Sound Transit recently visited, was implemented on schedule and on budget and publicly launched on July 17, 2017. Recently the HOP FastPass system recorded its one millionth smartcard tap. The system already supports open payments through Android and Apple smartphones and is the first in the world to support virtual closed loop cards through Android Pay and soon through Apple Pay!

The system that INIT proposes to Sound Transit will accept agency issued smart cards as well as credit, debit and smartphone payments. All financial transactions will be processed – end to end - in less than ½ second. The technology is complex but to the end-user it will be simple and easy to use and appear to work like "magic".

> "Any sufficiently advanced technology is indistinguishable from magic." Noted Author and futurist Arthur C. Clarke

When fully delivered by 2021, this INIT integrated system will provide ORCA's customers with convenient, flexible, and secure fare payments and will allow for the introduction of new payment options as they become available. We will implement a service-proven, modular system, leveraging industry leading COTS applications. The design follows principles of open architecture which will permit the next generation ORCA system to evolve as technology changes. As an added bonus INIT is proposing advanced value added features such as open payments and fare capping at no additional charge to Sound Transit.

INIT's system will be designed specifically to respond to the goals that were specified in your RFP. An experienced Project Team will deliver this most technically advanced and service proven AFC solution within the project timeline. INIT has assembled a team of employees with deep industry experience and thorough leadership expertise, as well as an ecosystem of experienced and very well qualified subcontractors, all aligned with the organizational structure defined in your RFP. The key project management and the technical staff as well as a software development group will be located at INIT's Seattle facilities.

INIT has proposed Amy Gardner as the Lead Project Manager. Amy has previous knowledge of the legacy ORCA system and has most recently worked with INIT as the Project Manager responsible for the delivery of the TriMet "HOP Fastpass" system. Amy has the unique experience of working with both card-based and account-based fare collection systems. She will be responsible for guiding project resources and the schedule through the duration of the project.

Thomas Schaich, the proposed Lead Project Engineer, has deep technical knowledge of AFC systems and worked with Amy to successfully deliver the Portland "HOP Fastpass" system in 2017. Thomas is well known and respected in the industry and was recently recognized as a "Top 40 under 40" by Mass Transit magazine.

INIT is proposing David Steigleiter as the Project Systems Engineer. As the primary architect of INIT's Online Validation module, MOBILEvario, David has substantial expertise in the engineering and core technical components of the INIT back office system and was very much involved in the TriMet HOP Fastpass" project implementation. David will be relocating to Seattle from INIT's German HQ and will be the lead engineer responsible for the project specific software development.

These key project positions are augmented by highly talented and dedicated technical and project professionals, with extensive AFC experience, who have successfully implemented AFC systems worldwide. For more details and background on the team see Tab 4 "Knowledge and Experience of Key Individuals".

Our local Seattle office team – lead by Eric Linxweiler, Regional Director and Contract Representative – has an established presence in the area. This gives us a complete understanding of the regional transit system and the Pacific North West. Your single point of contact will be Jim Hicks, Director of Business Development for Western North America, also associated with our Seattle office. Jim can be reached at 757-413-9100 ext. 314 or at jhicks@initusa.com.

Our UBI number is 602-407-922 and Federal Tax ID Number is 54-1930353.

As a complete ITS solutions provider to Public Transit Agencies worldwide, INIT is uniquely qualified to provide Sound Transit and the ORCA member agencies with a comprehensive electronic fare collection system with unmatched flexibility, reliability, and speed. The combined capabilities of INIT's technology and the strength, experience, and local support that our Seattle based Project Team will bring to the Puget Sound Region is truly unique and we look forward to demonstrating this to Sound Transit and the ORCA member agencies in the coming months .

Yours Sincerely

[redacted]

Roland Staib
President and CEO

Legend:	
mandatory	This weakness must be addressed as defined in the scope of work in order to be considered for award.
high priority	This weakness is considered high priority and is weighted accordingly in the evaluation of your firm's proposal. Further priority is indicated with bold text.
	More detail has been added to the existing weakness or it is a new weakness.

Notes:
- Comments that are stricken are no longer considered a weakness or deficiency
- Some weaknesses/deficiencies are no longer included in this list as indicated by the evaluation tracking number. Those comments are no longer considered weaknesses or deficiencies so they are not included in this document.

Evaluation Tracking Number	Revised Proposal Reference (Proposer completes this column)	Original Proposal Reference	Weakness	Capability and/or RFP Submittal Requirement Reference	Attention
Evaluation Criterion 1 - Technical Proposal					
1. Security:					
4	Federated Indenity Services are certainly a possibility; however are not called out for in the RFP. INIT is happy to discuss adding to the SOW	Tab 1, 143			
2. Integration:					
7	Tab 1, section 1.4.3.4	Tab 1, 58		Evaluation Criterion 1, Submittal Requirement 4	**high priority**
8	Tab 1, section 1.4.3.5	Tab 1, 53		General	
12	Removed DataWarehouse language from Tab 1, section 1.8.2	Tab 1, 138		Genaral	
15	Tab 1, section 1.4.3.9	Section 1.4.3.9		SOW Section 3.3.10	
3. Other System Architecture:					
17	Provided more information in Tab 2, section 1.7.2	Tab 1, 65		Evaluation Criterion 1, Submittal Requirement 8.e.ix	
19	Tab 1, 1.4.2.5.1	Tab 1, 37		General	

24	Tab 1, section 1.4.1.6 Tab 5 Price Notes 1.01	Section 1.4.1.6	[redacted]	SOW Section 3.1.6	high priority
26	Tab 1, 1.4.2.5.1	Tab 1, 37		SOW Section 3.2.6, 3.2.6-5	
4. Vending Machines:					
27	Tab 1, section 1.4.1.9.3 corrected	Tab 1, 19-21		Evaluation Criterion 1, Submittal Requirement 2.b.	
31	Tab 1, section 1.6.3.2.1.	Tab 1, 92		General	
33	Tab 1, section s 1.6.3, 1.6.3.8.1	Tab 1, 70		SOW Mandatory Capability 3.1.1-1	mandatory
34	Tab 1, section 1.6.3.2.3,	Tab 1, 98 and 104		~~SOW Capability 4.5.2.2-1, 3.1.6-3,~~ and Section 3.1.7	
35	Conformance Matric 4.5.2.5-10 and 3.1.9.3-1	Capability Conformance Matrix Tab 2: pg 11 and 90		SOW Capability 4.5.2.5-10 and 3.1.9.3-1	
39	Tab 1, section 1.6.3.2.2	Tab 1, 96		SOW Section 4.5 narrative	
5. Customer Service Equipment:					
41	Tab 1, section Chapter 1.6.4.1	Tab 1, 110-115		Evaluation Criterion 1, Submittal Requirement 6	
42	Tab 1, section 1.6.4.1 and Tab 5 Price Form should agree	Tab 1, 111- 113		Evaluation Criterion 1, Submittal Requirement 6	
43	Tab 1, section 1.6.4.1 and 1.6.4.1. 11	Tab 1, 111 and 113		SOW Capability 3.1.1-1	mandatory
44	referred to Tab 1 section 1.6.4.1.14 for explaination of offering three different printers for you different use cases	Capability Conformance Matrix Tab 2: pg 70 and 77		SOW Capability 4.4.2.10-6, 4.4.4.3-10	

45	Tab 1, section 1.6.4.2.4	Tab 1, 117	[redacted]	SOW Capability 4.4.2.1-5	
49	Added section to Tab 1 - 1.6.4.1.14 Addressed document scanner in Tab 1 section 1.6.4.1.8 Added datasheets to section 1.6.4.1.12 and 1.6.4.1.13	Tab 1, 111- 113	[redacted]	SOW Section 4.4 and Capability 4.4.1-8, 4.4.1-3	high priority
54	Added section to Tab 1 - 1.6.4.1.14	Tab 1, 110-111	[redacted] ~~quantities and pricing b ased on table provided.~~		
6. Other Onboard/Wayside Field Devices and Fare Media:			[redacted]		
55	Tab 1, section 1.4.2 provided INIT's description of how we meet the capabilities listed in Section 2 titled "System Architecture" of the SOW Added PROXmobil3 and TOUCHit2 datasheet to Tab 1, section 1.4.1.9.2 Described PROXmobil3 SAM and USB interfaces in section 1.4.1.9.2 Added VENDstation datasheet to Tab 1 section 1.4.1.9.3	Tab 1, 19-21		Evaluation Criterion 1, Submittal Requirement 2 and 6	
56	Added PROXmobil3 and TOUCHit2 datasheet to Tab 1, section 1.4.1.9.2	Tab 1, 78		Evaluation Criterion 1, Submittal Requirement 6	
58	INIT addressed these weaknesses in Tab 1, section 1.6.5			General	
60	Tab 1, section 1.8.2.2	Tab 1, 141		SOW Section 6.2.1	high priority
62	Tab 1, section 1.5.1.4 Tab 1, section 1.6.5. The "years in service" numbers refer to industry proven design that explicit device version	Tab 1, 68		SOW Mandatory Capability 3.1.1-1	mandatory
63	Conformance Matrix 3.1.9.3-1	**Conformance Matrix Tab 2, 3.1.9.3-1**		SOW Capability 3.1.9.3-1 ~~and 3.1.1-1~~	
64	Conformance Matrix 4.2.2.4-3	Conformance Matrix tab 2 - pg 53		SOW Capability 4.2.2.4-3	
66	Tab 1, section 1.6.1.1			SOW Capability 4.2.4-7	
68	Tab 1, section 1.6.1.2.5	Tab 1, 84		SOW Section 3.1.6	
7. External Apps (Web/Mobile):					
72	Conformance Matrix 5.3-12	**Conformance Matrix Tab 2, pg 114**		**SOW Capability 5.3-2** **SOW Capability 5.3-12**	mandatory

73	Conformance Matrix 5.3-12	Conformance Matrix Tab 2, pg 114	[redacted]	SOW Capability 5.3-12	
74	Tab 1, section 1.7.3	Tab 1, 125-126		Evaluation Criterion 1	
75	Provided more information in Tab 2, section 2.7.2	Section 1.7.2		~~Evaluation Criterion 1, Submittal Requirement 5~~ SOW Section 5.2 SOW Capability 5.1-16	high priority
76	1.7	Tab 1, 126		Evaluation Criterion 1, Submittal Requirement 7.a.	
77	1.7	Tab 1, 125		Evaluation Criterion 1, Submittal Requirement 7.a.iii and SOW Section 5.2 and Capability 5.1-16 and 5.2-13	
79	Tab 1, section 1.7.1.2	Tab 1, 124		General	
80	1.7	Section 1.7		General	
82	Tab 1, section 1.7. added sentence: . INIT owns the Intellectual Propoerty rights of the proposed Marthon Solution. Software Licensing Information.xlsx : The document " Marathon - Umbraco License.doc" is attached to this list.	Tab 1, 128		SOW Section 3.1.11	
84	Provided more information in Tab 2, section 2.7.2			SOW section 5.2	high priority

302	1.7				
8. Finance, Central Payment, Tariff Management:					
88	Tab 1, section 1.8.2.10.1	Financial Management		Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e.	
89	Tab 1, section 1.8.2.3	**Tab 1, 140**		Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e.	**high priority**
90	1.8.2.10.1 **1.8.2.10.2**	Tab 1, 150		Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e. SOW Section 6.2.5.2-1	**mandatory**
92	1.8.2.10.1	Tab 1, 150		Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e. SOW Capability 6.2.5.2-2	
9. Customer Relationship Management:					
98	Tab 1, section 1.8.3	Tab 1, 152		Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e.	
102	Tab 1, section 1.8.3			SOW Capability 3.1.1-4	
105	Tab 1 Section 1.8.3	Section 1.8.3		SOW Capability 6.3.1-1	**mandatory**
106	1.8.3.1.8	**Section 1.8.3**		SOW Section 6.3	
113	Tab 1, section 1.8.3 and subsections	**Section 1.8.3**		**SOW Section 6.3.3**	
10. Other Back Office Applications:					
114	Tab 1, section 1.8.2.3	Tab 1, 143 Section 1.8.2.3.2		Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e.	
115	Tab 1, section 1.8.2.10.1	Section 1.8.2.2		Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e.	

116	Increased to 40%, Tab 1, section 1.5.1.3 Tab 5, Price Forms, Line 2.05	Tab 1, 148 and 162		Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e.	
118	Removed all references to cold list	Tab 1, 141		General	
124	Tab 1, section 1.8.2.4	Tab 1, 143		SOW Capability 3.1.14.2-10	
303	1.8.7.6				
Evaluation Criterion 2 - Methodology and Approach to Project Manageme					
11. Training:					
132	Tab 2, section 2.7.2.5.4 Tab 2 Table 2-4 updated	Tab 2, 46		SOW Section 2.5.4	
133	Added Tab 2 section 2.7.2.5.6	Table 2.3		SOW Section 2.5	**high priority**
136	Tab 2, section 2.9	Manual_MOBILE va rio_Tariff_Manag e ment_1.0		SOW Section 2.5.2	
137	Tab 2, section 2.7.2.6.1 and 2.7.2.6.2	Section 2.5.2.5.7		SOW Section 2.6.1	
138	Tab 2, section 2.7.2.5.3	Tab 2, 46		SOW Section 2.6.2	
12. Testing:					
141	Removed word "beta" from Tab 2, section 2.7.2.4.1 Modified Tab 2, sections 2.8.3 and 2.12.6. Gantt lines 222 & 223 & 230	Section 2.10.6		General	
144	Tab 2, section 2.7.2.4.6	Section 2.5.2.4		SOW Section 2.4	**mandatory**
147	Tab 2, section 2.7.2.4.2.1			SOW Section 2.4.2.1	

148	Tab 2, section 2.7.2.4.2	Tab 2, 37	[redacted]	SOW Section 2.4.2.2	
149	Tab 2, section 2.7.2.4.5.3	Tab 2, 40-41		SOW Section 2.4.5.3	
13. Transition and Installation:					
151	Added Tab 2, section 2.8.5 Added Section 1.8.5 Tab 2, section 2.8.1 Added Section 1.8.5	Section 2.6		Evaluation Criterion 2, Submittal Requirement 6	high priority
154	Tab 2, sections 2.10 and 2.13	Section 2.12		See Toolbox for Risk Mitigation and Management for ideas about a risk security solution.	high priority
157	Gantt Line 170, 188, 235, 243, 246, 252, 255, 257 and 259 added	Tab 1, 63		SOW Section 2.3.1.1	
158	Tab2 Updated: 1.7.2.3.1.1 1.7.2.3.1.2 1.7.2.3.1.3	Section 2.6.1		SOW Section 2.3.2	
159	Updated Tab 2, sections 2.7.2.3.1.1 and 2.7.2.3.1.5			SOW Section 2.3.2	

160	Gantt 247-254 extended	Tab 2, 63	[redacted]	SOW Section 2.3.3	
161	Updated Tab 2, sections 1.7.2.3.1 and 1.7.2.3.5	Tab 2, 33		SOW Section 2.3.5	
162	Updated Tab 2, section 2.7.2.3.7	Tab 2, 34		SOW Section 2.3.6	
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241	Provided more information in Tab 2, section 2.7.2		Information gained from reference check.	**high priority**
242	Provided more information in Tab 2, section 2.7.2		Information gained from reference check.	**high priority**
243	Tab 1, section 1.4.1.6	Tab 1, 16	Information gained from reference check.	**high priority**
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254	Updated Table in Tab 2, sections 2.4 and 2.5			Evaluation Criterion 2, Submittal Requirement 3	
307	Tab 4, section 4.2				**high priority**
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308	Tab 1, section 1.4.1.6 Tab 5, Attachment A				
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283	Tab 6, section 6.11.2	Tab 6, 7		valuation Criterion 6, Submittal Requirement 2.b.	

285	Removed from Tab6	Tab 6, 8	[redacted]	SOW Capability 3.1.14.1-2, 4.2.1-3, etc.	
286	Removed from Tab6	Tab 6, 3 and 9		SOW Capability 7.2.2-4	
288	Removed from Tab6	Section 6.11.6		SOW Capability 7.2.2-4	
289	Removed from Tab6	Tab 6, 3		SOW Section 3.3.2	
290	Removed from Tab6	Tab 6, 3		SOW Section 6.5	
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294	Tab 7, section 7.2.3	Tab 7, 2		Evaluation Criterion 7, Submittal Requirement 2.b.	
295	Tab 7, sections 7.2.2, 7.2.3 and section 7.3 This information is available upon request of your EEO office	Tab 7, 1		Evaluation Criterion 7, Submittal Requirement 2.c.	**high priority**
Evaluation Criterion 8					
21. Outreach Efforts and Commitment:					
297	no changes unless Eric has an idea	Tab 8		Evaluation Criterion 7, Submittal Requirement 2	
298	See Form 3B	Form 3B		Form 3B	

Contract Negotiation					
309	Software Licensing Information.xlsx :added 3 columns for Licnsor, Licensee, Re-seller. "License exectued/implemented in Project Phase. (Referencing the Proposed Program Schedule)"	Software Licensing Information			
310	Software Licensing Information.xlsx :added column "License exectued/implemented in Project Phase. (Referencing the Proposed Program Schedule)"				
311	Tab 10 Standard Maintenance Agreement (new document)				
312	Tab 2, section 2.13.2.2.3.2	Tab 2, section 2.13.2.2.3.2			
313	Tab 2. section 2.7.2.1.3.9	[Proposed] Systems General Conditions, Article 7.29			
314	There is no separate O&M agreement at this time.	Tab 2, section 2.13.2.4			
315	Tab 2, section 2.7.2.7 (new section)	[Proposed] Systems General Conditions, Article 7.29			

Technical Proposal of INIT's Account Based Open Architecture System

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

Resubmittal June 8, 2018

orca

init

The Future of Mobility

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The sections listed below contain trade secret information that provides a business advantage to INIT over competitors. These sections are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

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1 INIT's Open Architecture, Account-Based AFC System

INIT is pleased to submit this technical proposal to Sound Transit in order to demonstrate how INIT meets and exceeds the capabilities stated in the next generation ORCA (ngORCA) RFP Scope of Work (SOW). As required by the RFP (Section 1.10.B), our proposal is in the order specified in Section 1.11.E.

The following chart illustrates which Evaluation Criteria submittal requirements corresponds to which proposal section.

Evaluation Criteria 1 Submittal Requirement	**INIT Proposal Section (Tab 1)**
1. Complete and submit Tab 2 of Proposal Form No. 1, Capability Conformance Matrix.	Appendix
2. Include a detailed narrative description of how the system architect[redacted] capabilities in the Scope of Work will be fulfilled. This section should also include the approach for providing and validating an account-based and open architecture system that will enable ease of integration for new partners, equipment and meet the capabilities of the Scope of Work	1.2 An Innovative, Open Architecture, Service-proven Account-based System
3. Include a chart that identifies the subcontractor firms that will be responsible for providing the products or services required by the Scope of Work	1.3 INIT's Highly-Qualified Subcontractor Team
4. Provide a description of the proposed system architecture (Scope of Work, Section 3) with supporting diagrams that clearly identify the following: a. Relationships between applications and devices in the proposed System b. Systems integration and open architecture Application Programming Interfaces (APIs) that will be used to exchange data between the different applications within the System c. The interface points of each element and the physical and logical communication standards utilized between applications within the System	1.4 INIT's Open Architecture System
5. Include a detailed description of how the proposed System conforms to the service- proven and other capabilities in the Scope of Work Sections 3 through 7, and, if applicable, clearly indicate whether or not the solution requires new development (and the extent of development required) or	1.5 A Service-Proven and Innovative Solution

Evaluation Criteria 1 Submittal Requirement	INIT Proposal Section (Tab 1)
commercial-off-the–shelf (COTS) applications. Describe how the firm proposes to satisfy the service-proven capabilities and still be the innovative solution described in Scope of Work Section 1. For each furnished device that has been used in service, list public agencies or private organizations for which device has been supplied. Include the following information for each: a. Agency or company name and contact person, b. Business address and phone number, c. Model number (and original equipment manufacturer, if applicable) of the module, d. Quantity of equipment provided, and e. Approximate number of years in revenue service	
6. Specifically, for Field Devices and Subsystems (Scope of Work Section 4): a. Provide a detailed description of each of the following proposed devices, software, and associated mounting systems i. Onboard Validator ii. Driver Display Unit iii. Wayside Validator iv. Vending Machine v. Customer Service Terminal b. For each device listed in 6.a. above: i. Provide drawings that show dimensions and materials used ii. Describe supported functionality as it relates to the capabilities in Scope of Work Section 4 iii. Describe the proposed customer interfaces for each device iv. Describe the communication interfaces provided v. Describe the interchangeability of modules and assemblies among devices and ease of maintaining the components of the system and the expected reliability of the equipment	1.6 INIT's High-Reliability Field Devices and Subsystems
7. Specifically for Website and Mobile Application (Scope of Work Section 5): a. Provide your proposed subcontractor's development methodology for the following items: i. Customer account website ii. Content management system iii. Customer mobile app iv. Agency mobile apps	1.7 INIT's User Friendly and Intuitive Website and Mobile Applications

Evaluation Criteria 1 Submittal Requirement	INIT Proposal Section (Tab 1)
b. Provide previously designed website URLs and credentials to websites developed by the proposed provider. c. Describe how the proposed UI/UX solution provider will design a common user experience across multiple platforms. d. Provide a draft licensing agreement(s) for items in this section.	
8. Specifically, for Back Office (Scope of Work Section 6): a. Describe in detail each component of the proposed back office including details such as: i. System hardware ii. Interfaces iii. Operating system iv. Databases v. Applications software vi. Supported functionality b. Identify any proprietary hardware, interfaces or software utilized, indicate whether industry standard equivalents are available, and if so, describe the benefits justifying use of the proprietary product. c. Considering the information provided in Scope of Work Section 6.3, explain in detail the reasoning for choosing the proposed CRM solution including why other solutions were not proposed. For example, if you are proposing a CRM solution that does not leverage another agency's existing CRM application, explain why the agency's existing CRM software was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions. d. Considering the information provided in Scope of Work Section 6.7, explain in detail the reasoning for choosing the proposed financial management solution including why other solutions were not proposed. For example, if you are proposing a financial management solution that does not leverage another agency's existing financial management application, explain why the agency's existing financial management application was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions. e. Describe in detail the proposed systems for providing	1.8 INIT's Back office: Open-Architecture and Interchangeable Modular Applications

Evaluation Criteria 1 Submittal Requirement	INIT Proposal Section (Tab 1)
the full range of services including: i. Monitoring and management of field devices ii. Authorization of payments, debit and credit networks iii. Data collection from devices iv. Timely and accurate transaction processing v. Clearing and settlement between participants vi. Third-party billing and funds collection vii. Financial reconciliation viii. System management and monitoring ix. Indicate which applications and functions are already operational, and which have to be developed. Also, indicate which applications have been purchased from industry vendors and which have been or will be developed on a proprietary basis. f. Describe the proposed reporting system and the types of reports that will be provided to meet the system needs including KPIs, device health, and asset inventory reporting. g. Describe how the agencies will be able to generate custom reports using provided data and standard report generator tools	

1.1 INIT's Capability Conformance Matrix – Tab 2

As indicated in INIT's Capability Conformance Matrix, INIT meets all the mandatory capabilities and key desired capabilities. While there are a few desired capabilities which INIT does not meet exactly as stated in the SOW, INIT does meet the required functionality in a different manner. INIT offers value-added capabilities beyond what is stated in the RFP; therefore, we believe we exceed the required capabilities for the next generation ORCA system.

1.2 An Innovative, Open Architecture, Service-Proven Account-Based System

Include a detailed narrative description of how the system architecture capabilities in the Scope of Work will be fulfilled. This section should also include the approach for providing and validating an account-based and open architecture system that will enable ease of integration for new partners, equipment and meet the capabilities of the Scope of Work.

INIT will fulfill and exceed the next generation ORCA requirements by aligning with the ORCA Agencies' strategy of utilizing:

- Service-proven Automated Fare Collection System (AFCS) system core modules and devices,

- Best-of-breed Commercial-off-the-Shelf (COTS) business applications,
- Industry leading firms with proven AFC track-record for externally sourced applications, and
- New development of selected existing modules for innovative enhancements.

INIT will implement an open architecture solution with a modular design and extensive use of Application Programming Interfaces (APIs), which has been INIT's consistent approach for ID-based ticketing systems. INIT's API's are well defined, documented and are woven throughout our solution providing fast and flexible integration possibilities for validation, inspection, retail sales, mobile ticketing, system monitoring, and websites.

This approach will enable the use of INIT's core AFC modules, including INIT's service proven account-based Transaction Processor (ATP), to integrate with best of breed Commercial Off-the Shelf (COTS) sub-systems – such as, Salesforce Customer Relationship Management (CRM) and Sage Financial Management. INIT has selected industry leading firms (such as, Bytemark) for mobile apps, and Marathon Consulting for website development, which has a strong proven record for AFC website development. With our approach of service proven AFC modules, best of breed COTS sub-systems, industry leading firms for external apps, and innovative development, INIT will provide the best solution for ngORCA.

1.2.1 INIT Fulfills and Exceeds the System Architecture Capabilities

INIT meets all the key ngORCA system architecture capabilities, and exceed these requirements, with service proven solutions which include:

- Account-based automated fare collection
- Open architecture
- Modular design
- API driven
- Real-time transactions
- Real-time fare calculation
- Secure payment transactions
- Fraud prevention
- Accurate multi-agency revenue apportionment
- Flexible and powerful tariff management
- Customer-friendly user interfaces and user experience

- User-friendly reporting
- Best of breed COTS support systems
- Retail network interfaces
- Ruggedized field devices
- Minimal transition-only software
- Maintainability and serviceability
- Scalability
- High-availability

In addition to meeting the above functionality required for ngORCA, INIT is proposing to implement its service-proven open payments solution, which can significantly enhance customer experience, as a value-added option. As the functionality will be designed and developed as part of the project, the feature can be 'turned' on at any point. However, in light of the Agencies preference to ensure core system functionality is delivered to users first, INIT proposes implementing this option at the end of the Phase 1 deliver, to ensure the required functionality is implemented first.

1.2.1.1 INIT's Modular Design System Architecture Leverages Open APIs

INIT's modular open architecture design enables the interchangeability of system blocks. In the event the ORCA agencies wish to utilize a different subsystem today or in the future, INIT's flexible architecture supports this interchangeability.

From its inception, INIT's Automated Fare Collection (AFC) system has supported an open architecture with extensive use of Application Programming Interfaces. INIT recognizes the need for the agencies to be able to efficiently upgrade their systems as transit customer expectations and operations evolve. INIT offers a complete open architecture approach. From the COTS based equipment solutions to the open architecture of the back-office software, INIT offers an open solution which enables the ORCA agencies to control:

- System enhancements to add future capability
- Third party integration to add future capability

INIT's existing API's are currently in use by several transit agencies to grow their system capability cost-efficiently and with minimal delay. These existing APIs are documented with their own specifications including online help giving the ORCA agencies detailed information on how to enhance the system by implementing new functionality. In addition to the use of existing

APIs, INIT will leverage its extensive experience in the development, implementation and use of APIs to develop new functionality to fulfill ngORCA's requirements and desired capabilities.

1.2.1.2 Leveraging Best of Breed Commercial-Off-the-Shelf (COTS) Subsystems

INIT's open architecture, modular design enables the use of best-of-breed Commercial Off-the-Shelf (COTS) solutions for the AFC ancillary functions. The table below lists the COTS INIT solicited, considered, and selected. As indicated above, INIT's open architecture can accommodate interfaces with any third party; therefore, INIT is open to considering other COTS solutions if so preferred by the ORCA agencies and agree upon during design review. For some of the subsystems INIT has priced an additional option in case ORCA prefers INIT's second option.

ngORCA Subsystem	COTS Solutions Considered	Solution Proposed	Potential Alternative
Customer Relationship Management (CRM)			
Financial Management Application (FMA)			

Asset Incident & Management (AIM)	[redacted]	[redacted]	
Configuration & Change Management (CCM)	[redacted]	[redacted]	[redacted]
Fare Media Management (FMM)	[redacted]	[redacted]	[redacted] ons
Light Featured VM	[redacted]	[redacted]	[redacted]
Bank Card Payment Gateway	[redacted]	[redacted]	[redacted]

1.2.1.3 INIT Teams with Expert COTS Consultants/Integrators

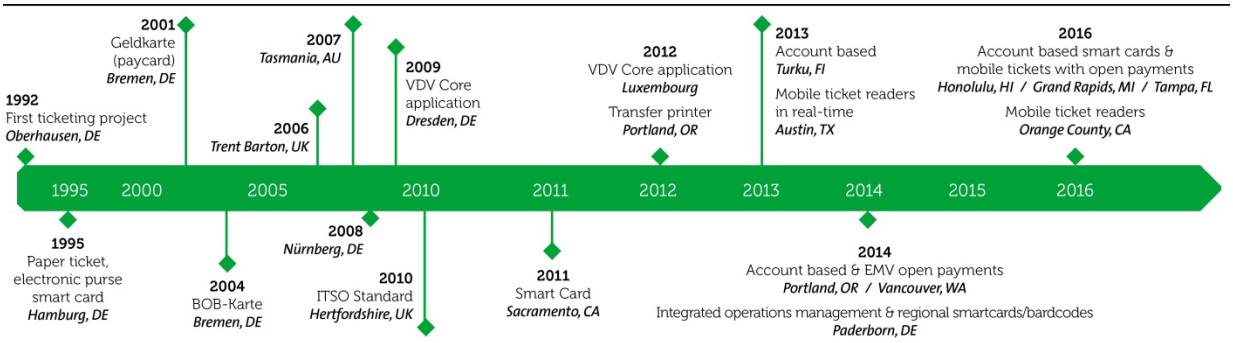
The selection of best-of-breed commercial-off-the-shelf software does not ensure successful integration and interoperability with the INIT system; therefore, INIT is leveraging relationships with COTS value-added resellers and experts. These companies will provide knowledge and expertise required to realize the full potential of interoperability between COTS products and INIT's API library. Please see Section 1.3 for a listing and information on the INIT subcontractor team.

INIT is uniquely suited to be the System Integrator (SI) for ngORCA because:

- INIT has experience implementing multi-agency, account based, Automated Fare Collection System (Portland, Tampa, Honolulu)
- INIT has experience transitioning an existing Vix Automated Fare Collection System to an INIT AFCS (Christchurch, New Zealand)
- Approximately 80% (1700 out of approximately 2100) ngORCA vehicles are currently equipped with INIT onboard equipment resulting in reduced onboard integration risks

1.2.1.4 INIT's Extensive Automated Fare Collection Experience

The figure below provides a timeline summary of INIT's 25 years of fare collection history showing key systems and reflecting INIT's innovation and ability to evolve with changing technology.



INIT's 25 Years of Fare Collection History – Innovations with Changing Technology

INIT has deployed two account-based systems that are currently in revenue service, one in Portland, Oregon and the other in Turku, Finland. Additionally, we are currently implementing account-based systems in Tampa, Florida and Grand Rapids, Michigan which are all about to enter the pilot phase of the project and will soon be starting the pilot phase in Honolulu, Hawaii.

Each of these systems leverage open architecture and extensive use of APIs as similarly proposed for ngORCA. The following table provides a more comprehensive list of our automated fare collection system experience including multi-agency systems similar to ngORCA.

City	Buses	LRV / Platform Validator	German Chip Card (Geld Karte)	Agency Smart Card	2D Barcode	Multi-Agency	Account Based	Open Payments (EMV)
Marburg, Germany	50			●				
Hamburg, Germany	1,200		●	●				
Hildesheim, Germany	80		●					
Neunkirchen, Germany	70		●					
Frankfurt, Germany	200		●					

City	Buses	LRV / Platform Validator	German Chip Card (Geld Karte)	Agency Smart Card	2D Barcode	Multi-Agency	Account Based	Open Payments (EMV)
Hamm, Germany	80		●					
Osnabrück, Germany	282		●					
Leverkusen, Germany	240		●					
Keil/Plön, Germany	96		●					
Bochum, Germany	340	90	●					
Mühlhausen, Germany	113		●					
Bonn/Troisdorf, Germany	250		●					
Südthüringen, Germany	85		●					
Solingen, Germany	100		●					
Heidelberg, Germany	100		●					
Trier, Germany	120		●					
Mülheim a.d. Ruhr, Germany	65		●					
Oberhausen, Germany	150		●					
Bremen, Germany	265	128	●	●				
Bremerhaven, Germany	70		●	●				

City	Buses	LRV / Platform Validator	German Chip Card (Geld Karte)	Agency Smart Card	2D Barcode	Multi-Agency	Account Based	Open Payments (EMV)
Herne-Castrop-Rauxel, Germany	56		●					
Oldenburg, Germany	88		●	●				
Gotha, Germany	110		●					
Wesermarsch, Germany	38		●					
W.Giese, Germany	27		●					
Delmenhorst, Germany	12		●					
Fulda, Germany	40		●					
Lüdenscheid, Germany	335		●					
Dortmund, Germany	240		●					
Graftschaft Hoya, Germany	22		●					
Trent Barton, Nottingham, UK	330			●				
Bavaria, Germany	3,100		●	●	●			
Tasmania, Australia	220			●				
Dresden, Germany	685		●	●	●	●		
Nuremberg, Germany	352	52		●	●			

City	Buses	LRV / Platform Validator	German Chip Card (Geld Karte)	Agency Smart Card	2D Barcode	Multi-Agency	Account Based	Open Payments (EMV)
Christchurch, NZ	305			●				
Sacramento, CA.	425			●	●	●		
Portland, OR	888	49		●	●	●	●	●
Turku, Finland	260			●	●		●	●
Birmingham, UK	1500						●	●
Orange County, CA	556						●	
Tampa, FL	600					●	●	●
Grand Rapids, MI	150	34					●	
Honolulu, HI	550	250				●	●	

1.2.1.4.1 INIT's Experience Transitioning a Vix System

INIT possesses experience transitioning agencies from legacy Vix system to INIT-offered systems. In an AFCS competitive procurement, Christchurch, New Zealand selected INIT over other competitors as well as the incumbent (Vix). Although the Christchurch project was not as large as ngORCA, INIT transitioned the system with Christchurch successfully addressing similar complex AFC system transition challenges, including:

- Minimizing customer impact
- Preserving operating revenue
- Minimizing operational impacts to the agency
- Overcoming onboard equipment space constraints
- Minimizing transition-only software

In addition to the Christchurch, NZ solution, INIT also successfully transitioned a legacy card-based solution to an account-based solution in Turku, Finland. The Turku system was transitioned approximately 3 years ago and is one of INIT's key reference projects.

1.2.1.4.2 INIT's Existing Transit Technology Deployment with ORCA Agencies Reduces Integration and Implementation Risk

INIT currently provides the transit CAD/AVL systems for King County Metro (KCM) and Community Transit (CT), which involves over 50% of the ORCA agencies' vehicles. This will significantly simplify and mitigate the risk related to the onboard integration – as the INIT onboard validators will be communicating with the INIT Vehicle Logic Unit (VLU) COPILOTpc2s (CPC2s). This advantage is especially pronounced for the KCM vehicles which require the AFCS to communicate not only the INIT VLU service data, but also to share the single Driver Display Unit (DDU).

1.2.2 Enabling Ease of Integration for New Partners and Equipment

INIT's open architecture and modular design, leveraging our broad API library, enables ease of integration of new equipment or the addition of 3rd party hardware and software providers. Should the ORCA Agencies wish to add a new agency to ngORCA, INIT's MOBILEvario can easily do so. In the rare event the new agency utilizes business rules which do not exist, there may be additional scope involved. MOBILEvario is inherently architected to support multiple agencies and can easily add new agencies quickly and non-disruptively. Each agency's data is partitioned from one another to ensure data integrity and privacy. These controls prevent an agency from accessing another agency's data, user administration, etc. The system has the capability of providing separate, agency-oriented storage of data, presentation (GUIs), and configurations (customizations).

Each transit agency or subdivision is only able to see and change its own data. In MOBILEvario the agency is the top-level partition for access authority and represents a closed, technical and organizational, data unit within the system.

The system contains both global and agency specific data and parameters. Agency specific data and objects can be customized. Examples are additional tickets or different fare fees. Universal agency data and objects serve the general and agency-independent configuration of the system. Examples are customer data, card management and system parameters.

The additional API Management platform, hosted in [redacted] provides for simplified and controlled on-boarding of 3rd party API consumers. As the API gateway, the API management platform can ensure the identity, integrity and appropriate access and API call volume restrictions required to safely provision new partners and equipment.

1.2.3 Meeting and Exceeding the Capabilities of the Scope of Work

In summary, INIT will meet and exceed the capabilities required for ngORCA by:

- Using INIT's service-proven open architecture with an extensive use of open APIs
- Leveraging best-of-breed COTS subsystems
- Leveraging INIT's experience transitioning legacy systems, including Vix systems
- Utilizing best-of-breed expert consultants for the different COTS subsystems
- Utilizing API Management best practices
- Providing direct access to developers
- Exceeding requirements by providing service-proven open payments capability as part of Phase 1

1.3 INIT's Highly-Qualified Subcontractor Team

Include a chart that identifies the subcontractor firms that will be responsible for providing the products or services required by the Scope of Work.

The INIT team includes highly-qualified, industry leading subcontractor firms as indicated in the following table:

Subcontractor Firm	Qualifications	Scope
Marathon Consulting	Extensive experience with website development and CRM implementations – including both Salesforce and Microsoft Dynamics. Website developer for INIT's Portland, Grand Rapids, Tampa, and Honolulu AFCSs.	Design & development for the responsive Website CRM (Salesforce) integration and implementation
Bytemark	Extensive mobile app development experience in the transit industry including work with INIT in Grand Rapids, Tampa, Austin and Sacramento.	Mobile app (virtual card) development

Subcontractor Firm	Qualifications	Scope
BrainSell	Extensive experience in the integration and implementation of Sage financial management applications.	Financial management application (Sage) integration and implementation
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
ESP	Extensive vehicle installation experience and DBE.	Vehicle installations
WOWRACK Hosting	Enterprise Class data center with multi-datacenter locations in Seattle supporting large Seattle based organizations.	Datacenter hosting –Production System, Pre-Production System, Test System, Out-of-region Backup
Arctic Wolf	Security Operations Center –as a service provider with security engineering personnel and tools providing security monitoring and escalation.	Information Security, Compliance, Operations and Maintenance
[redacted]	[redacted]	[redacted]

1.4 INIT's Open Architecture System

This section is ordered according to the RFP Scope of Work Section 3, System Design & Architecture.

1.4.1 Common Design Capabilities

Following are design elements common throughout the System – including the overall system architecture that will support the System leading to a cohesive, reliable, and easy-to-use regional fare collection system.

1.4.1.1 Service-Proven Design

INIT is proposing a modern System which is proven at the core. The software and hardware proposed will have a service life of at least 12 years from the commissioning date. INIT will enhance some elements to meet next generation ORCA's required capabilities, but the main back office and field components are currently in use in similar transit fare collection systems as indicated in the following table.

System	In-Service Date	ngORCA Proposed Back Office	ngORCA Proposed Wayside & Onboard Validators	ngORCA Proposed VMs	ngORCA Level Reliability, Accuracy, Availability
Portland, Oregon	Jun. 2017	●	●	Not in Scope	●
Turku, Finland	2016	●	●	Not in Scope	●
Sacramento, CA	Jul. 217	●		Not in Scope	●
Tampa, FL	Pilot Q2 2017	●	●	Not in Scope	●
Luxembourg		●		●	●
Bremen, Germany		●		●	●
Grand Rapids, MI	Pilot Q3 2017	●	●	Not in Scope	●
Honolulu, HI	Pilot Q1 2018	●	●	●	●
Orange County, CA	Pilot Q4 2017	●	●	Not in Scope	●
Metrolink SCRRA, So. California	Pilot Q4 2019	●	Not in Scope	●	●

1.4.1.2 Nonproprietary Technology

INIT's proposed next generation ORCA system does not include any obsolete or discontinued components. The system is service proven and does not involve prototypes. The system is designed using open standards for software design, communication protocols, and fare media. INIT's proposed system leverages best of breed commercial-off-the-shelf (COTS) software where possible. The proposed fare media is available for competitive purchase from multiple U.S. sources.

The proposed System utilizes a modular design for all relevant field replaceable components, without the need to make adjustment for compatibility. INIT was the first AFC vendor to introduce intelligent wayside validator platforms which stored metadata in non-volatile memory to enable replacement without any configuration of the new validator.

1.4.1.3 Supply & Availability

INIT will make best efforts to supply devices, components, parts, modules assemblies and subassemblies, as well as software and other essential elements of the Systems, itself and from original equipment manufacturers (OEM) that have a service life of 12 years after Final System Acceptance. If any OEM component is discontinued or obsoleted by the SI or OEM, INIT will provide the Agencies six (6) months advance notice prior to the last available date of purchase or support. Additionally, INIT will work with the Agencies to provide suitable replacements which are like in functionality and compatibility as the original.

1.4.1.4 Materials & Workmanship

INIT will utilize new components which conform to the capabilities of the next generation ORCA SOW – however, as allowed for in the SOW, INIT may utilize new components which utilize recycled materials. In the event INIT wishes to change components, it will do so only with the ORCA Agencies' approval. INIT will utilize equipment which is free from safety hazards and complies with relevant Underwriter's Laboratory (UL) standards. All interior and exterior surfaces will be fee from sharp edges, protrusions, exposed wires, and other hazards. If it is found that approved sources do not furnish a uniform product, or if the product from such source proves unacceptable in meeting the requirements in the SOW, INIT will address and correct these issues.

1.4.1.5 Software Design Principles

INIT is determined to deliver quality implementations for all customers. Detailed below is INIT's CMMI based Design Principles. CMMI design principles along with JIRA, our Defect Tracking Tool, define the process for reporting, tracking, and resolving problems/issues during and after implementation.

Carnegie Mellon University's Capability Maturity Model Integration (CMMI) principals are designed to correct issues with software, firmware, hardware products, service, maintenance processes and more.

The CMMI is a world-class performance improvement framework for organizations that want to achieve high-performance operations. CMMI best practices address three areas of interest:

- CMMI for Development addresses product and service development processes
- CMMI for Acquisition addresses supply chain management, acquisition, and outsourcing processes
- CMMI for Services addresses guidance for delivering services within an organization and to external customers

To address user security, the security guides "Security Management" and "Security by Design" are part of the CMMI.

Principles embraced include:

- Built in diagnostics and reporting
- Object-oriented software
- Easily configurable
- Portability
- Automated distribution of updates

The ORCA agencies will benefit from this reliability and performance improvement system embraced by INIT that paves the way for reliable software, firmware, hardware, and dependable service.

INIT's Quality Engineer, Matthew Riley, lead INIT's ISO 9001:2008 efforts to ensure superior Quality Management across all business processes and functions. He facilitates continual process improvement and ISO audit recommendation implementation. In a few short months INIT will be ISO 9001:2015 certified.

1.4.1.6 User Interface & User Experience

The RFP highlights the importance of improving customer experience with the next generation ORCA system and lists important customer experience goals, including (from the RFP, page 5):

- Ease of use
- Convenience

- Equitability
- Existing relationships
- Open customer communication
- Seamless transition to customer

We complement the region for recognizing that a positive and consistent customer experience is critical to customer adoption and perception of the new system. Designing easy to use, accessible and consistent system interfaces will also support other agency needs such as operational efficiency, scalability of the interfaces to other agencies, as well as decreased customer support costs often incurred when the system is difficult for customers use.

Achieving this consistent and positive customer experience across all next generation system interfaces (which currently leverage different technologies and vendors), doesn't happen by accident. It requires a repeatable, proven and wholistic approach for engineering human experiences that involves the users of the system at all stages of the design and development process.

In partnering with the Agencies for the next gen ORCA project, INIT will provide this focus on user experience throughout the design and development phases. [redacted]

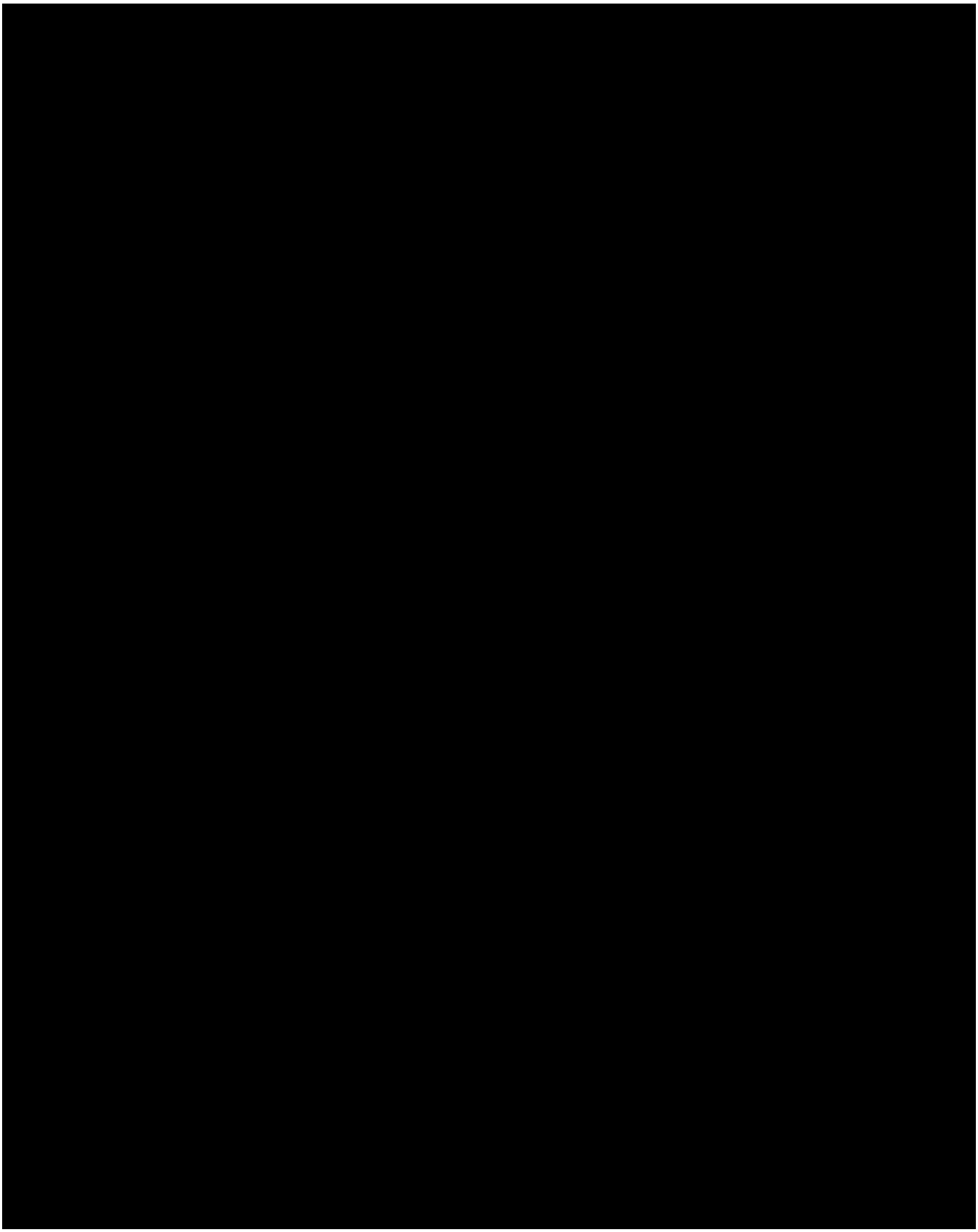
[redacted]

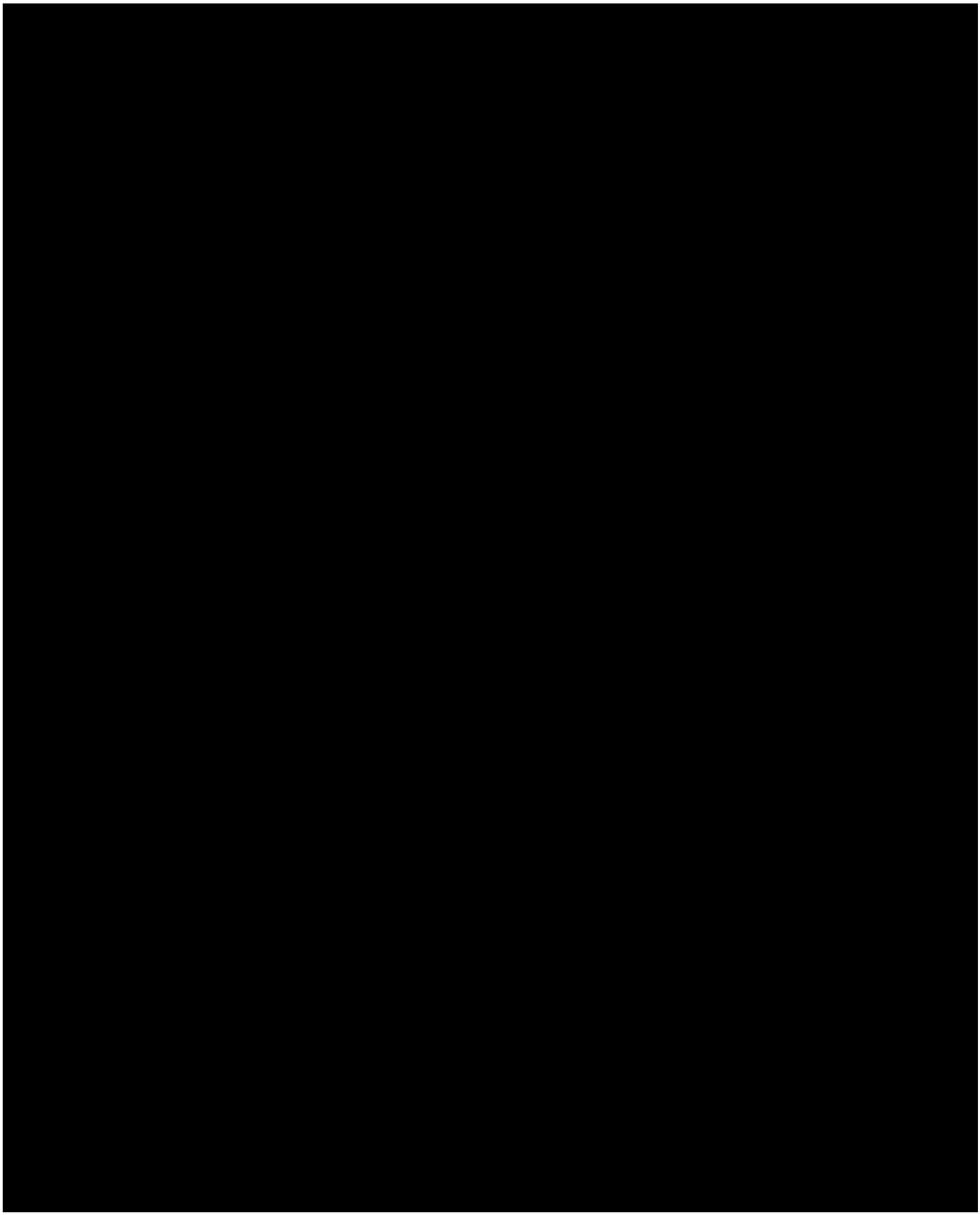
User-centered design approach for creating UI/UX

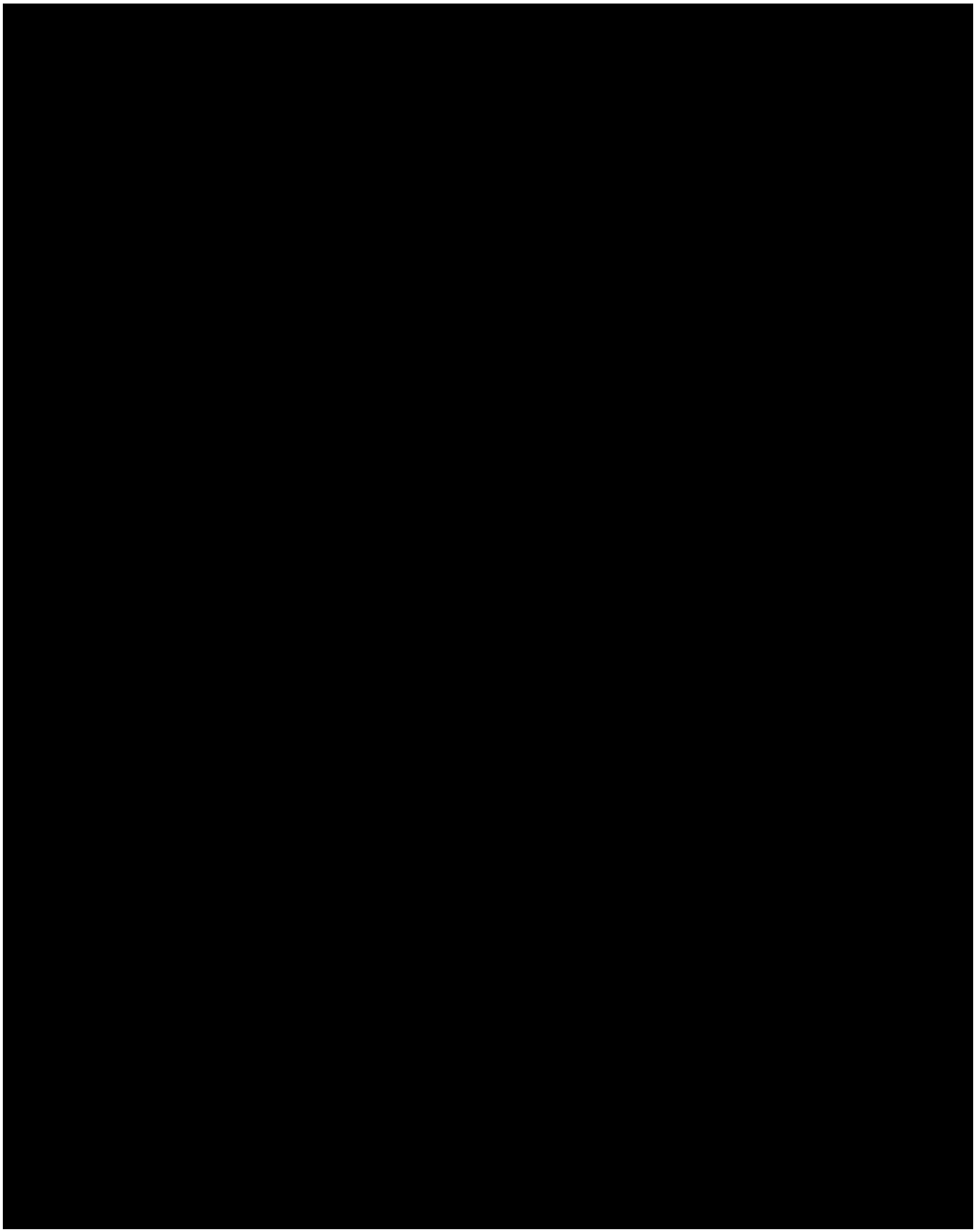
[redacted]

[redacted]

[redacted]







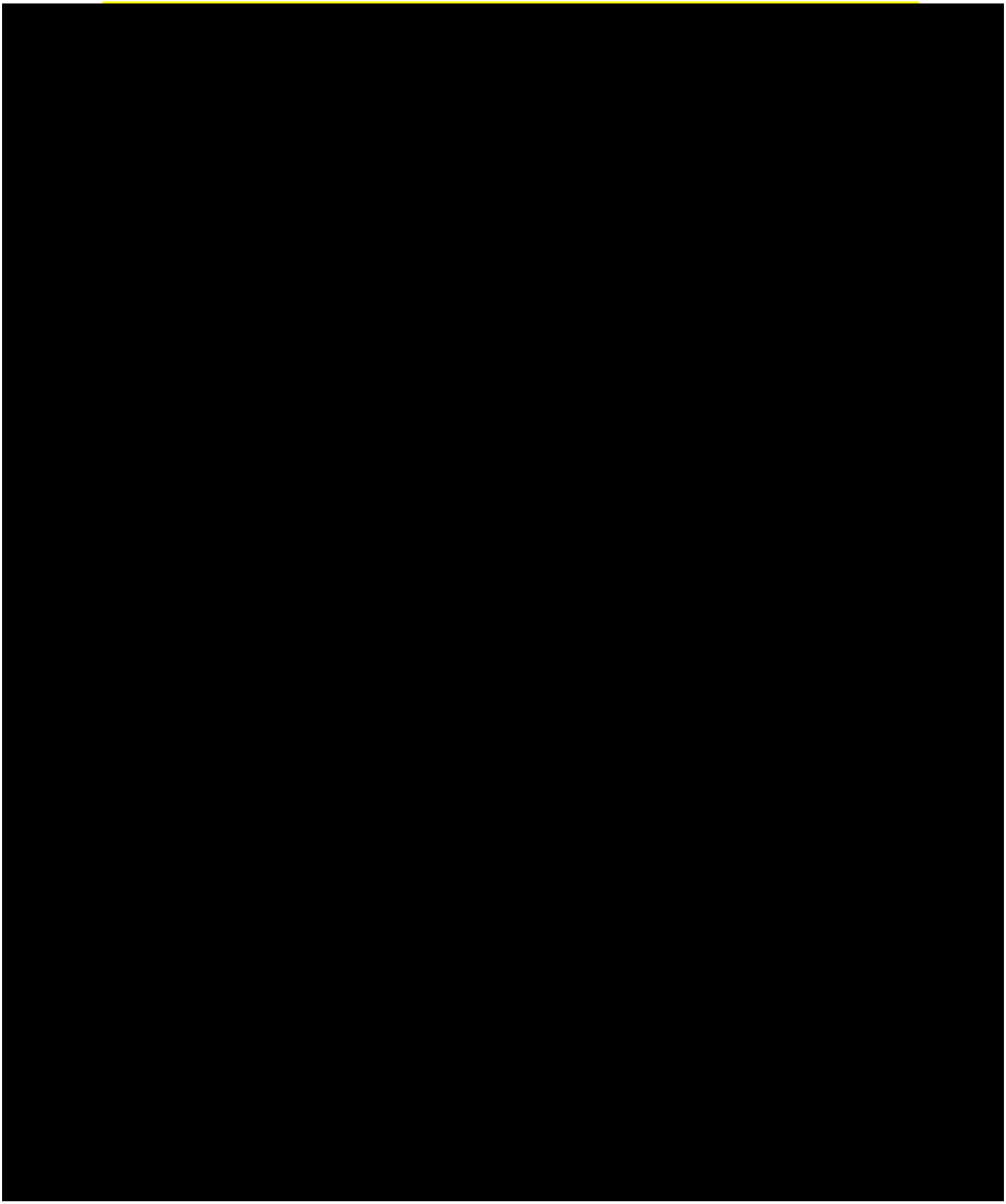
1.4.1.6.1 UI/UX Approach for next gen ORCA

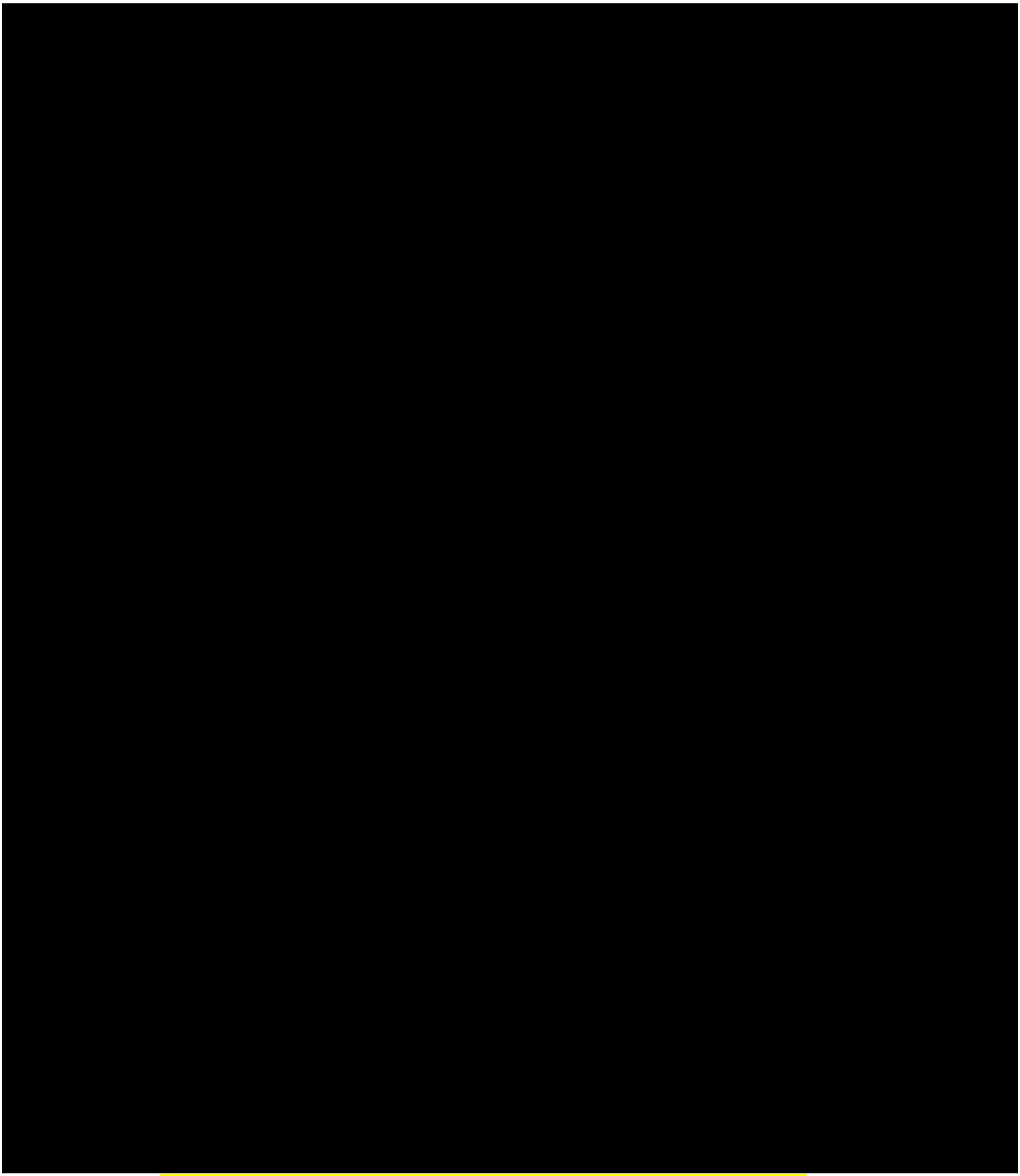
The following section outlines our UI/UX approach for the next generation ORCA project.

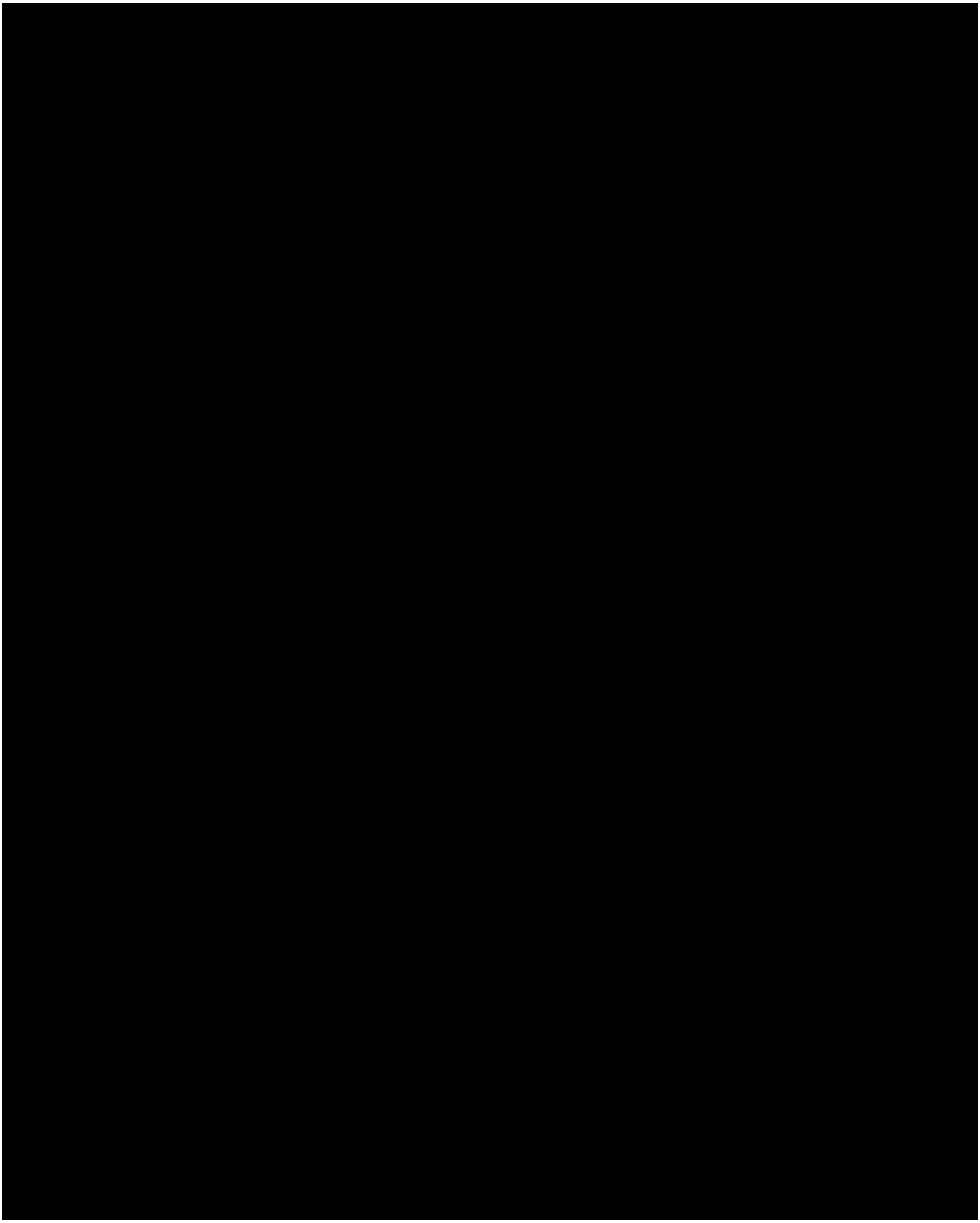
Our goal is to ensure a seamless, user friendly experience across interfaces following the user-centered design process and principles outlined above while also meeting the sensitive timeline for the project.

For next gen ORCA, the definition of 'users' of the system is inclusive of both Agency operators and administrators as well as patrons/customers so this would include public transit riders, business customers who manage public transportation benefits, agency operators and administrators, bus drivers, fare inspectors and other people who are interfacing with next gen ORCA systems.

We have scaled the user-centered design process and activities to three high-level areas of focus that we believe most appropriately meet the combined user-experience, schedule, and budgetary needs of the project:







Detailed approach for usability testing

The RFP states that the design and acceptance of UI/UX components will include usability testing - a common technique for evaluating the usability of system interfaces. Anthro-Tech's approach to testing the user-experience follows the principles detailed in ISO 9241-210:2010 - Ergonomics of human-system interaction. This validated approach includes summative and formative usability testing with next gen ORCA representative users to evaluate designs for interactive systems.

Formative evaluations (or diagnostic usability tests)

We propose formative evaluations for the majority of Next gen ORCA user tests. This type of user experience evaluation helps inform the design for the specific interface/component (web portal, web app etc.). These tests are conducted throughout the design and development phases, with the goal of detecting and eliminating usability problems early in the development cycle and incrementally improving customer experience.

Summative evaluations (or pre-launch usability tests)

The summative user experience tests evaluate a complete or near complete design under realistic conditions to determine whether the design meets specific measurable performance and/or satisfaction goals. For each of the customer-facing access points we have proposed pre-launch user experience summative evaluations (see UI/UX roadmap in section 1.4.1.6.2).

Usability testing principles

All usability tests will adhere to definitive components of usability testing:

- The primary goal is to improve the product. We will articulate test-specific goals and concerns when planning each test
- The participants represent real users
- The participants perform real tasks/scenarios
- A qualified team observes and records what participants do and say, including errors, task completion, time on task, satisfaction, and perceptions of usability
- A qualified team analyzes data, diagnoses problems and recommends UI/UX design solutions to fix problems

Next gen ORCA usability testing

We will screen participants to ensure they meet recruitment profile criteria, include meaningful subgroups of users, and meet any criteria for the inclusion of minorities, unbanked, women, and people with disabilities.

Next gen ORCA testing will include current and prospective users from each of the partnering agencies, representing a mix of regular commuters, transit dependent riders, occasional transit riders, visitors, business customers and other users.

To plan the usability tests, we will:

- Develop recruitment criteria, quota, and screener to ensure the user testing participants are representative of the existing system and prospective users of the Next gen ORCA
- Develop usability schedule and guide recruitment process of representative participants
- Design the test: identify research issues, develop tasks, write scenarios, and determine measurements and data collection
- Get approval on the test plans: get input and final approval from agency stakeholders on the test plan to ensure their priority test questions are addressed

A typical test will include the following activities:

- Greet and orient participant to the purpose of the study (outlined in a Facilitator Script)
- Participant completes consent form that explains that participation is voluntary and requests permission to video tape the sessions
- Facilitator administers pre-study questionnaire to gather basic background information about the participant such as role, demographics, frequency of use of ORCA, perceptions of the system and more
- Participant works with the mobile app, web portal, ticket vending machine (and other interfaces) to accomplish pre-determined tasks and scenarios while thinking out loud. Researchers observe and collect quantitative and qualitative data
- After the participant has finished working with the system, they may be asked to complete post study survey to evaluate their satisfaction and rate their perception of the usability of the system
- Participant takes part in a post-study interview to gather impressions and subjective feedback about their experience using the system

The researchers will protect the confidentiality of participants' information by removing identifying information from the data collected. Eligible participants will be given an honorarium for participating in the study.

Each testing session is:

- approximately 60 – 90 minutes;
- facilitated by an experienced researcher;

- documented by an experienced notetaker; and
- digitally captured on video (audio and participant screen activity) with participants' consent.

User experience testing sessions can take part in [redacted]'s usability lab, in the field, or remotely using our usability testing software tools. We have proposed a variety of approaches to best match the goals for each testing focus.

Data analysis and findings and recommendations

Data gathered during usability studies includes:

- A list of usability problems observed during the sessions
- Quantitative data on task time, errors, task completion and other measures
- Quantitative on subjective ratings such as post study questions, post task questions and exit surveys
- A log of qualitative data with participants' comments and description of their behaviors typed into a spreadsheet or usability testing software
- Observer notes about problems observed or participant quotes
- Background data on the participants from the user profiles, recruiting questionnaire or pre-study questionnaire

To analyze the data and develop findings and recommendations, we will:

- Analyze qualitative and quantitative usability test data such as time on task, task completion, pathways, clicks, errors, customer satisfaction and perceptions
- Prioritize found issues according to scope and severity
- Develop a summary report documenting the main findings
- Debrief core team and stakeholders on study findings and recommendations
- Develop actionable UX design solutions to address found usability problems in the system

Our recommended approach for conducting usability testing throughout the design and development phases, as well as during the pre-launch phase, ensures usability problems are found and fixed before next gen ORCA is rolled out the region. A positive first-time user experience with next gen ORCA is critical for a seamless transition for riders and users across the region.

[redacted] **Experience in Focusing on the user first in all UI/UX projects.**

We were selected as the UI/UX partner based on the following factors:

- Over 20 years of demonstrated experience in user-centered design (UCD) which involves users in all phases of the design and development process to ensure systems are intuitive, usable and satisfactory to use
- Extensive experience in UI/UX for (public) transportation focused interfaces (including ORCA, Sound Transit, Community Transit, WA State Department of Transportation, WALTZ)
- Deep expertise in helping dozens of WA state agencies
- Extensive experience providing customer experience leadership and strategy for large scale, multi-agency initiatives with the goal of creating a consistent user experience (including Department of Energy, State of WA Business Portal, Integrated Project Review and Mitigation Tool, Bill & Melinda Gates Foundation post-secondary program)
- Thought leadership and forward-thinking approach to customer experience design based on close affiliation with the UW Department of Human Centered Design and Engineering (https://www.hcde.washington.edu/about) at the College of Engineering, an internationally recognized Department with a focus on research, design and interactions between humans and technology
- Extensive user research and UI/UX design experience for innovative payment systems for Amazon Pay, Chase, and WALTZ
- Highly relevant and applicable agency-specific and ORCA-specific experience in UI/UX (User research and personas, TVM user interface redesign, TVM decals, ORCA websites baseline studies, focus groups with all the regions to gather agency needs for next generation ORCA system, UX for regional trip planner, Sound Transit mobile site, Sound Transit digital signage, etc.)
- Proven experience collaborating closely with COTS solution providers, helping traditional tech engineering focused firms embrace a user-centered design process to adapt their out of the box interfaces to be more intuitive and usable for end-users

These experiences and resulting accomplishments all involved strong execution of the user-centered design process, which by design includes users at all stages of the design and development process. Over the course of our firm's 20-year history we have successfully improved hundreds of interfaces and services by putting the user first and involving them through usability testing, focus groups, field studies, surveys, customer feedback sessions, and other methods in all stages of the development process.

We are receptive to feedback about past work with ORCA agencies and would welcome the opportunity to understand and clear up the concern regarding the neglect of users in past projects, especially since involving users at all stages is at the core of our proven process. At the

same time, we are confident in our proposed UI/UX roadmap (Section 1.4.1.6.2)which we developed based on our expertise in providing UI/UX leadership for large scale projects and a solid understanding of what it takes to meet the objectives of the engagement to provide a seamless, consistent, simple to use, intuitive, accessible user experience for all customer and agency interfaces.

As we indicated in the UI/UX roadmap and cost proposal we plan to:

a) Clearly define target users for all system interfaces and document their top tasks/use cases, goals, needs and current pain points. For the purposes of next gen ORCA, the definition of 'users' of the system is inclusive of both Agency operators and administrators as well as patrons/customers

b) Develop up a customer advisory panel so it is easy and efficient to quickly tap into customer feedback at key junctures as we develop the UI/UX

c) Involve users in all stages of the design and development process through focus groups, usability testing, field studies, surveys and other methods

d) Work with the region and project partners to assemble and guide a UI/UX steering group, with representation from across the ORCA agencies to ensure agency stakeholders are involved in reviewing and approving UI/UX (see proposed stakeholder touchpoints in the UI/UX roadmap) and cost proposal)

e) Ensure we conduct a pre-launch usability test with representative users to validate that the experience across system interfaces is truly consistent and seamless

We understand the scale and complexity of the next gen ORCA system roll out and know from experience that the only way to design great user-experiences is to involve users at all stages in the design and development process.

[redacted] UI/UX roadmap and proposed price is tailored to the desired outcomes for the project

The RFP highlights important UI/UX requirements to ensure positive customer experiences with the system as the region transitions to next generation ORCA:

- The UI/UX across all platforms will be similar and designed for ease of use and commonality (RFP page 43)
- UI/UX design spans all user and agency interfaces such as back office applications, validators and DDU's, vending machines, customer web site, mobile app and agency mobile apps (RFP page 43)

- System equipment will provide customers and agency users with displays, graphics and signage, controls and mechanisms that are simple to use, easy to understand, and conveniently located (RFP page 43)
- All interfaces will be user friendly; that is safe, predictable, simple to use, accessible for personas with disabilities, and in accordance with other applicable human engineering principles (RFP page 43)
- The customer website and mobile app will be designed to be user friendly and accessible to current and potential riders and agency employees (RFP, page 54)
- All equipment, software, employee and customer interfaces will meet or exceed ADA standards to maximize ease of use (RFP, page 54)
- The design and acceptance of UI/UX components will include usability testing (RFP page 43, page 54)
- The system satisfies federal, state, and other requirements for ergonomics and usability (RFP page 55)
- For all transactions, the VM will display a progression of screens to the customer that will be easy to understand and intuitive (RFP, page 140)

These requirements are directly in service of the overarching customer goals and agency needs for the new system to improve customer experience, improve ease of use and support a seamless transition for customers (RFP, page 5) and increased ORCA usage.

Accomplishing these goals and meeting the requirements of the RFP requires much more than adding a UI/UX polish to a variety of system interfaces that were currently not designed to work together as a seamless system, and some of which are Commercial of the Shelf Solutions (COTS), which do not always provide an out-of-the-box usable interface.

Meeting the goals as outlined in the RFP requires the proven and repeatable user-centered design process to create usable systems and wholistic user experiences. As outlined in our UI/UX roadmap and price proposal, our process goes far beyond late cycle user input and is designed to keep the needs, limitations and goals of the users front and center at all stages of the design and development process. Prototyping and wireframing are part of this process and allow for ideation and exploration of innovative design solutions in a cost-effective and low risk manner. Throughout the project we will test the efficacy of designs through multiple rounds of usability testing with end users (including users with disabilities) and adapt the user interfaces based on the testing results to optimize usability and best fit users' needs. Our resulting UI/UX requirements package provides all the UX specifications such as task flows, visual design mockups, interface terminology, help text, and user interface behaviors so development partners

can efficiently develop the user interface in line with a set of consistent UI/UX standards for all interfaces.

To accomplish the objectives of this engagement, we cannot work in interface, vendor or agency silos. Instead, it requires agency stakeholders, subject matter experts, researchers, designers, developers, plain talk and accessibility experts, engineers, communication specialists to work together to engineer the human experience across each of the next generation ORCA interfaces. We designed our UI/UX roadmap and cost proposal to support such a partnership and leadership across the workstreams.

As an example, Anthro-Tech has used a user-centered design approach to improve the interface of the ticket vending machine. For reference, we have included an article on this engagement to provide further background and illustrate how the interface was improved using an iterative design and usability testing approach. The article demonstrates how good UI/UX requires more than a facelift but instead involves improving the information architecture, task flows, language, interactions, animations to support a more efficient, effective, error-tolerant and engaging user experience.[1]

The next gen ORCA will need a similar and thoughtful approach for not just a single interface but across multiple systems and interfaces so that design elements such as layout, buttons, language, interactions, icons, maps, calls to action work in concert and are consistent in support of a seamless experience across the customer websites, mobile app, ticket vending machines and other interfaces.

Finally, the RFP indicates a desire for agency partners be closely involved in design reviews, approvals and UI/UX decisions. We recognize that it is critical to tap into the unique perspectives of each agency and have successfully facilitated these design discussions in the past, bringing along the customer and research perspective which accelerates data-driven decision making. Our UI/UX roadmap proposes stakeholder touchpoints and involvement throughout the entire engagement.

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[1] The total UCD/UI/UX task order for the TVM user interface redesign was $330,000. This includes design and user testing of the signage decals that are placed on the hardware

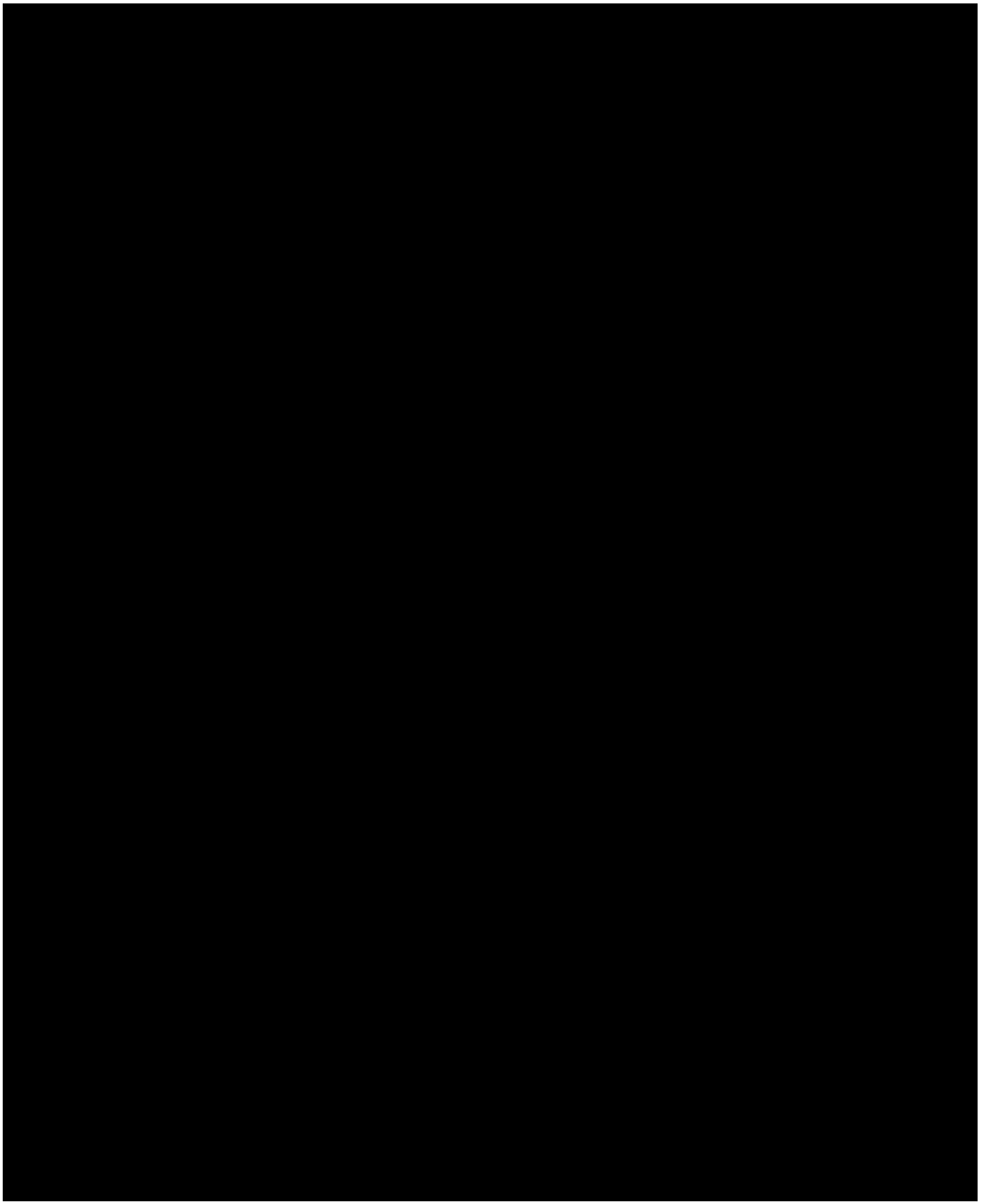
Our UI/UX roadmap and price proposal reflect a thorough understanding of the scale and complexity of this project and is carefully designed to successfully accomplish the desired outcomes for the project.

1.4.1.6.2 UI/UX Roadmap

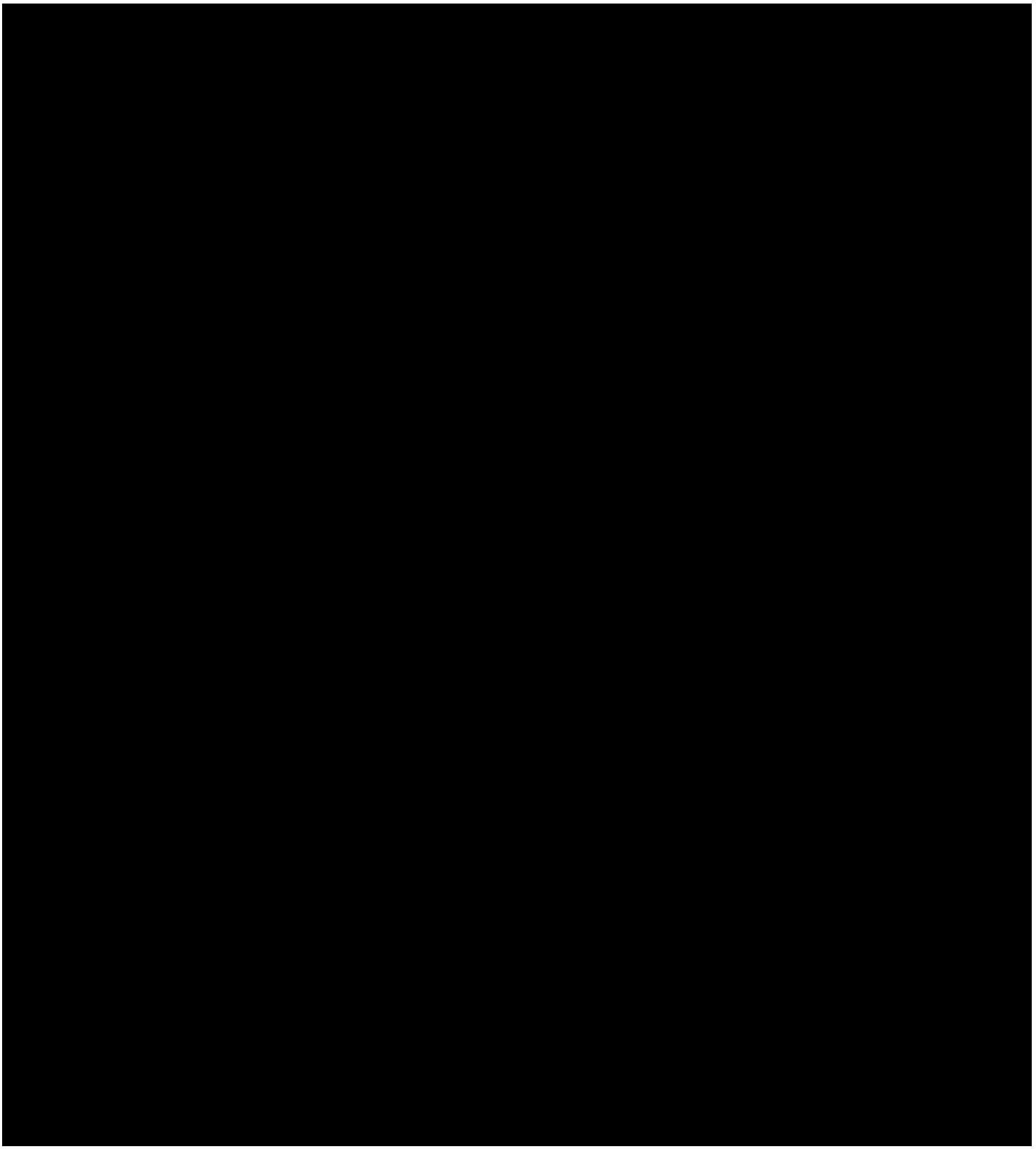
We have provided an overview of [redacted] T[redacted] UI/UX tasks and their expected window of activities below. The overarching focus for this effort is to deliver a great customer experience for ngORCA users and stakeholders. That means making sure user interfaces are intuitive, easy to use, plain talked, and accessible to people of all abilities and seamlessly integrated with the other touchpoints.

1.4.1.6.2.1 UX Strategy, Consulting & Stakeholder Engagement

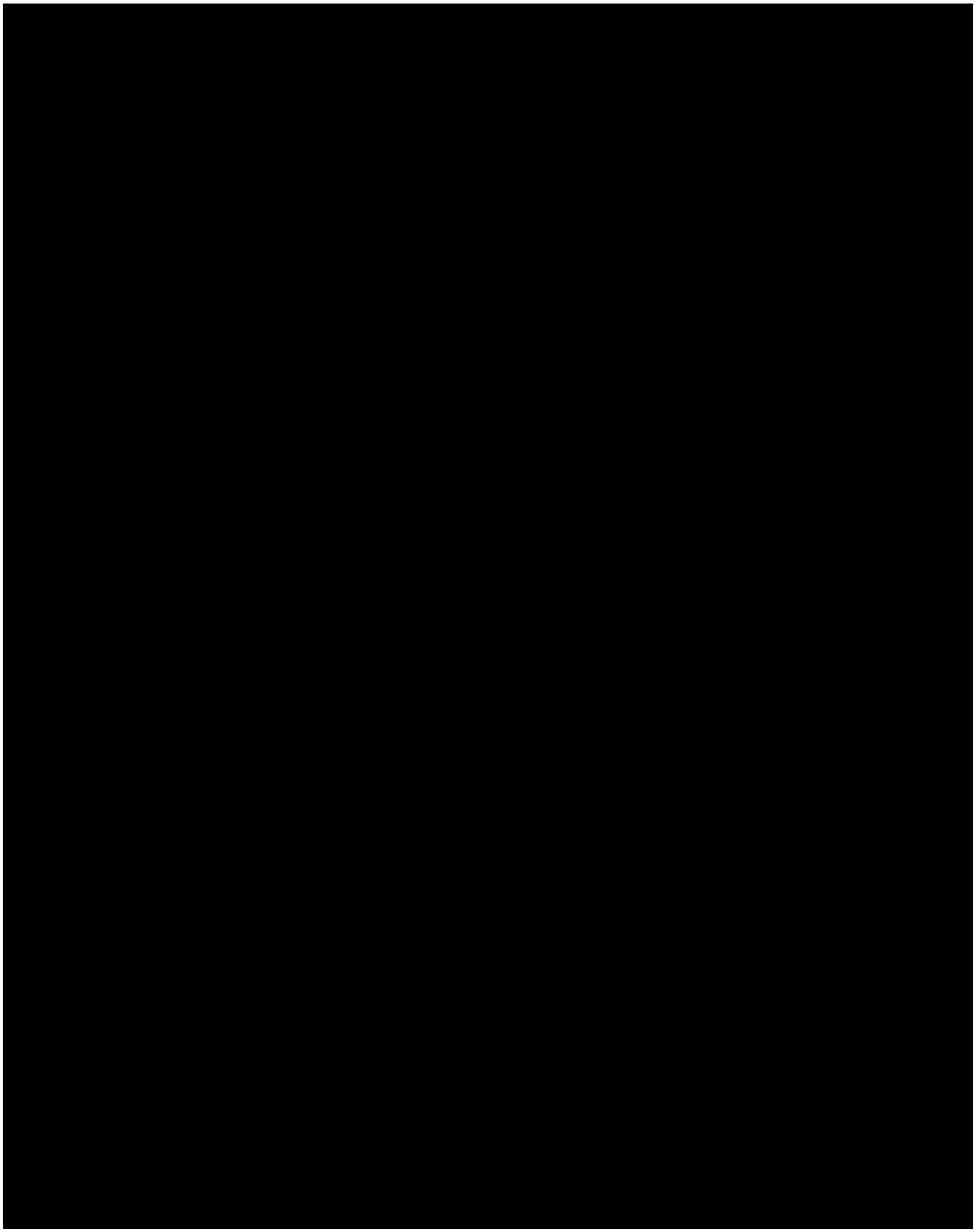
[redacted]

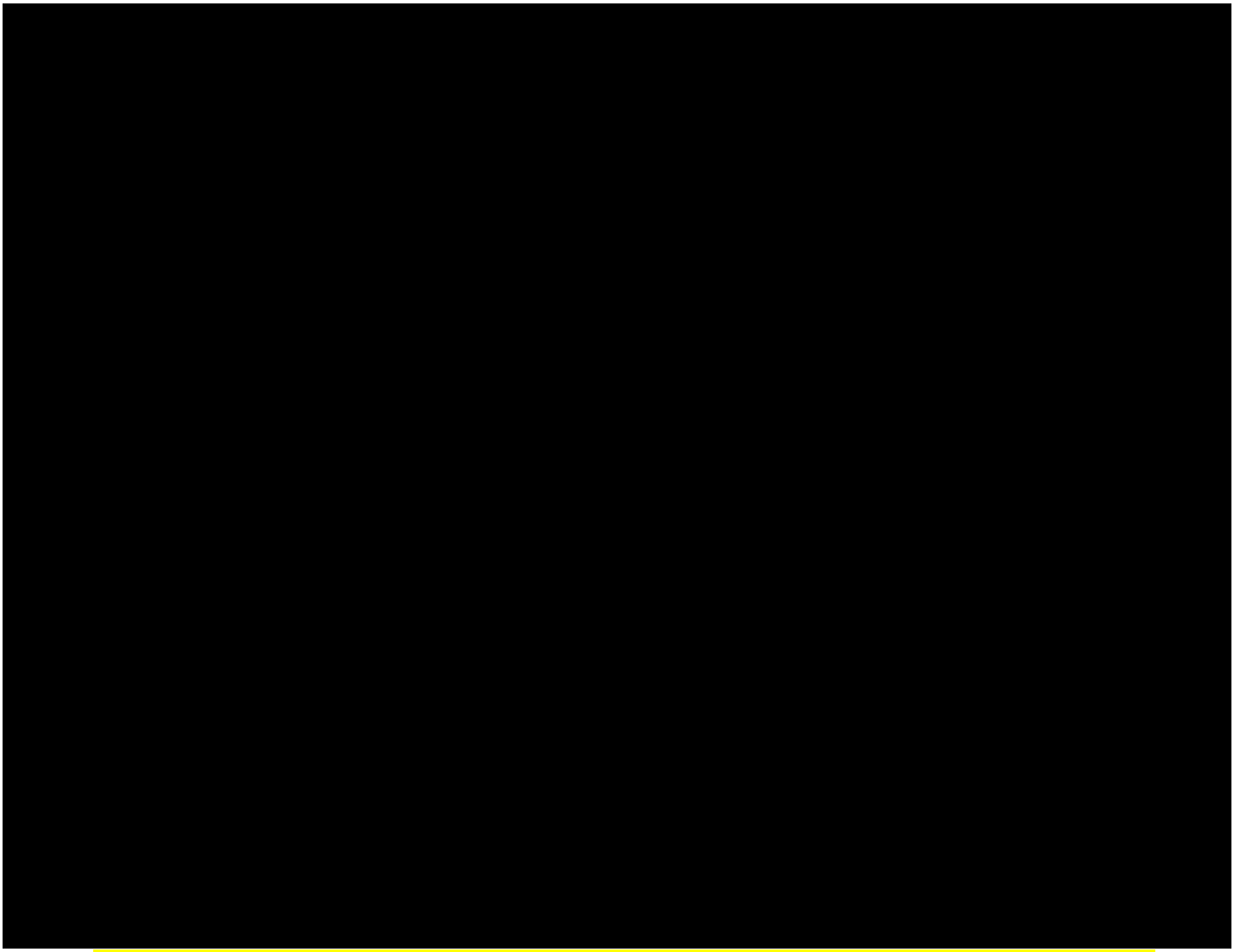


1.4.1.6.2.2 UI/UX Ticket Vending Machine



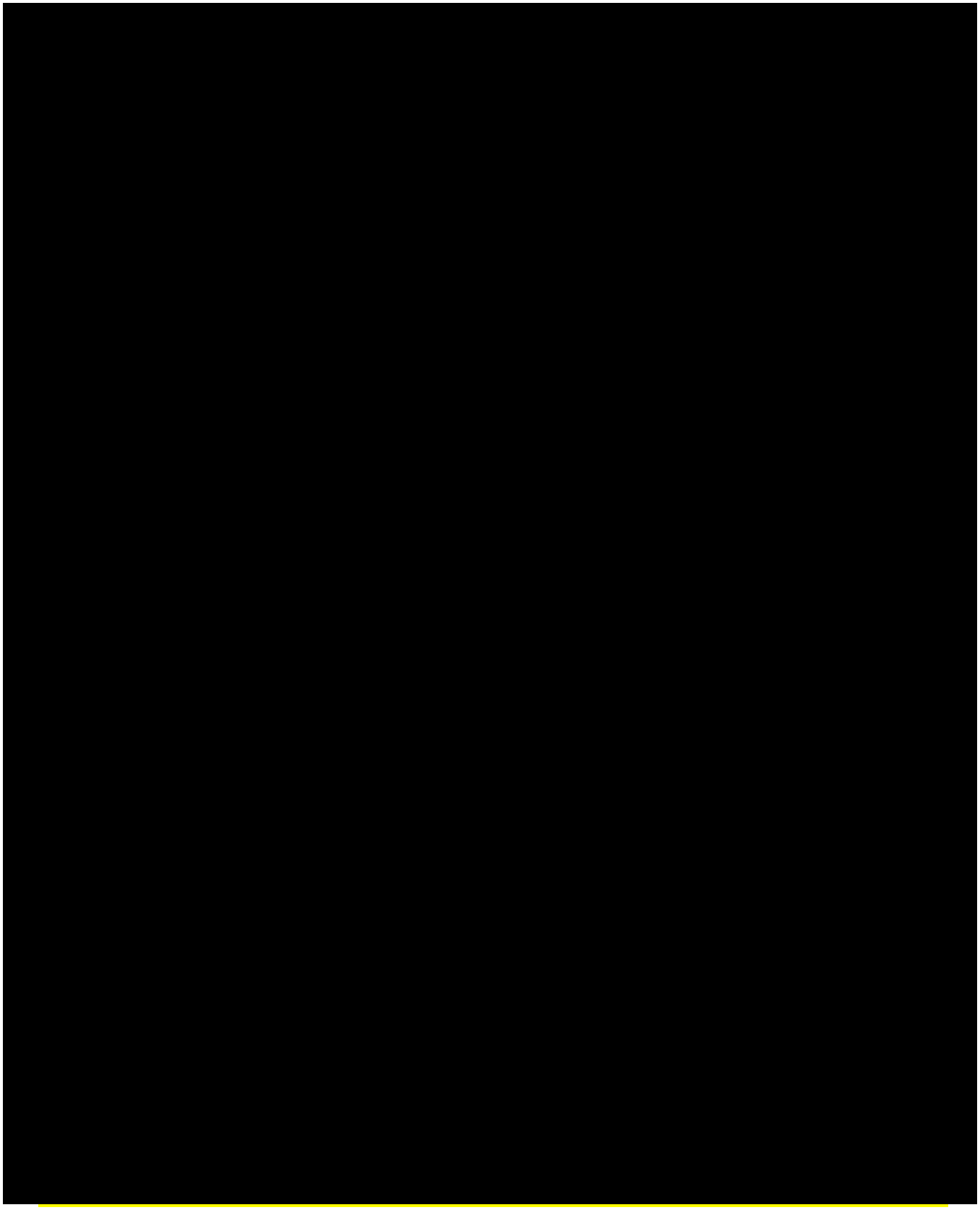
1.4.1.6.2.3 UI/UX Customer Website – Focus on Riders

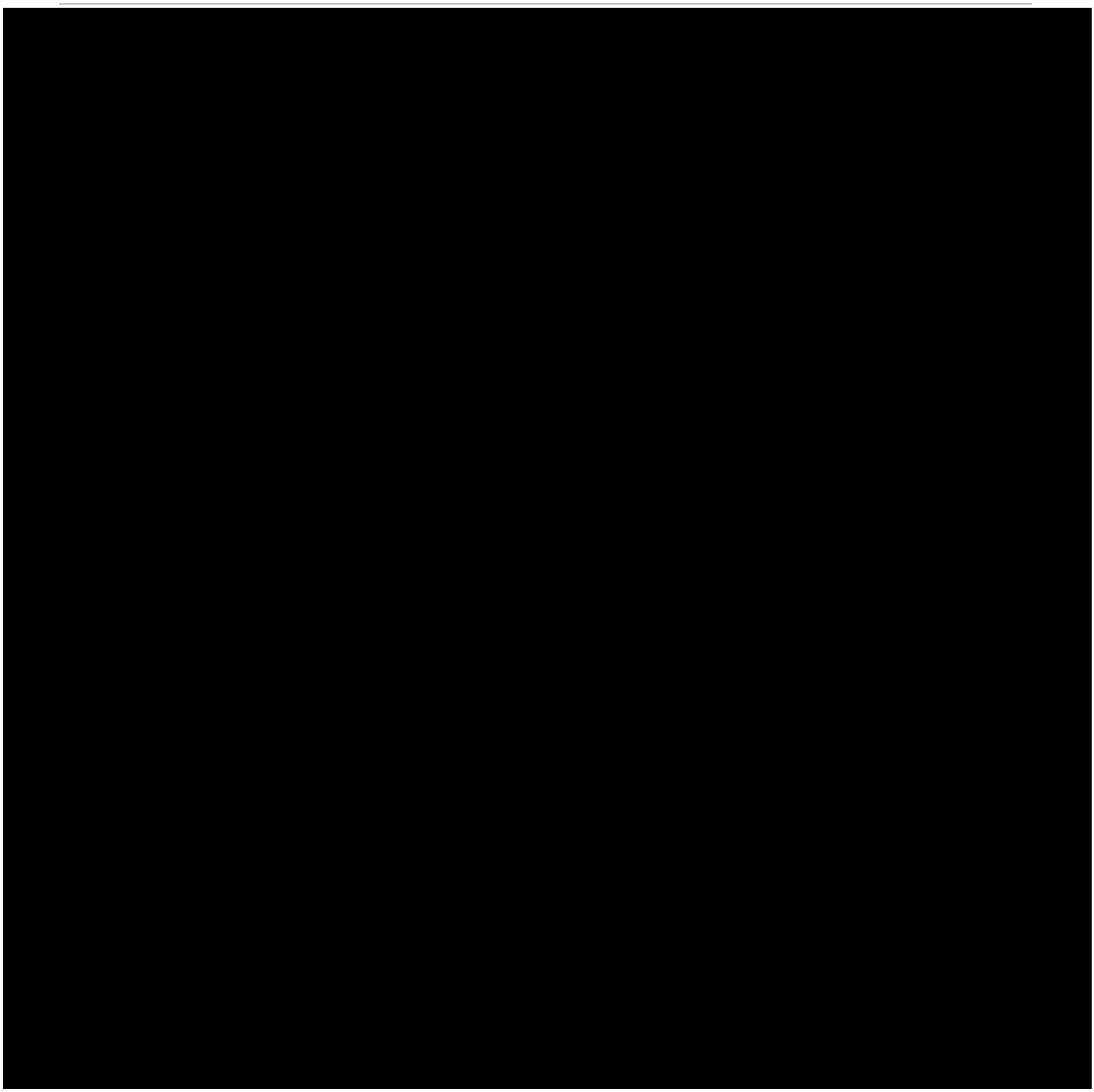




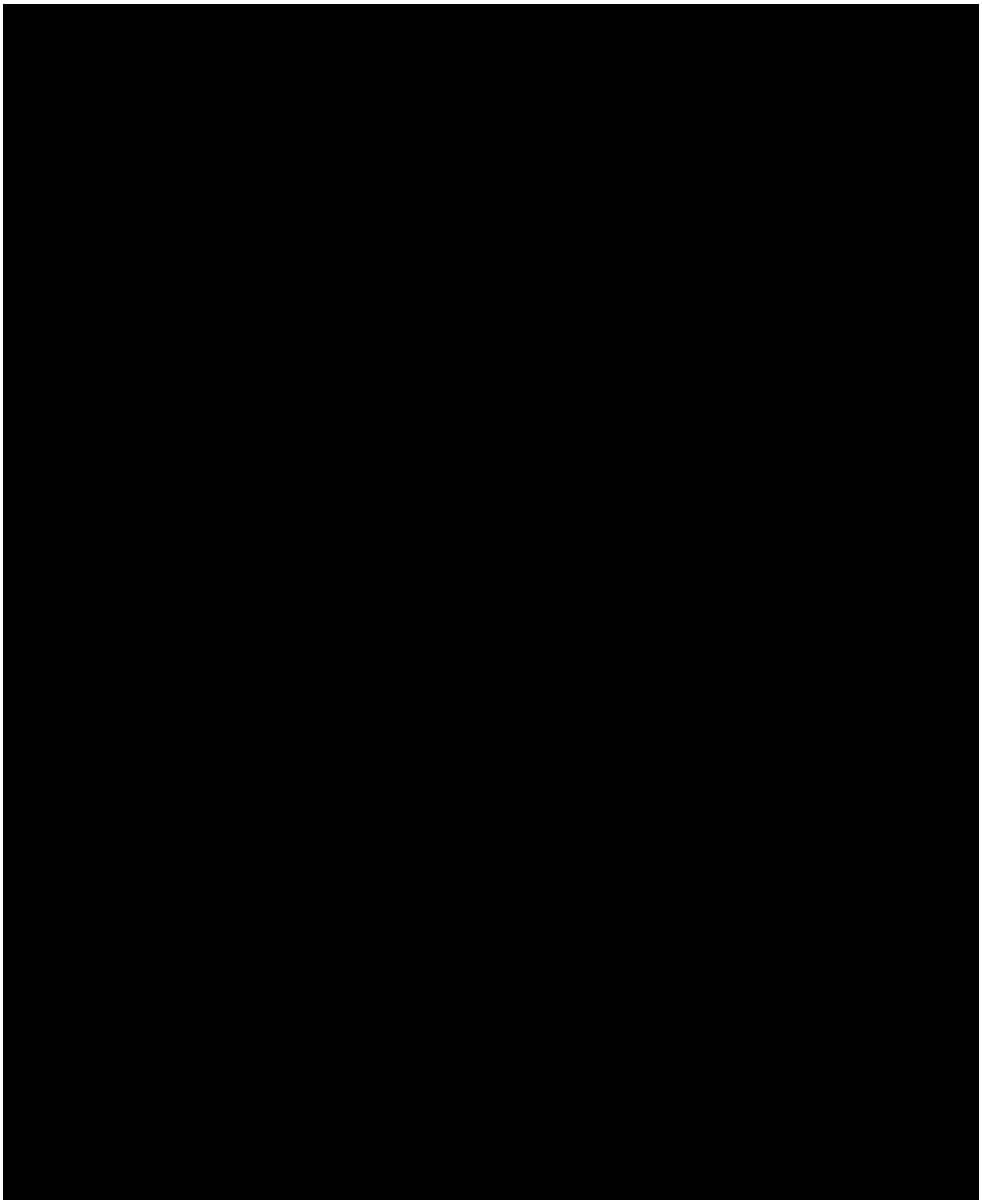
Note: The customer website will be a single website with varying levels of permissions, however the needs and goals of the customer groups (riders and institutional users) are different and unique. Therefore we have two parallel but separate workstreams for UI/UX to ensure that the website is designed to reflect and address their unique needs and pain points.

1.4.1.6.2.4 UI/UX Customer Website – Focus on Institutional Users

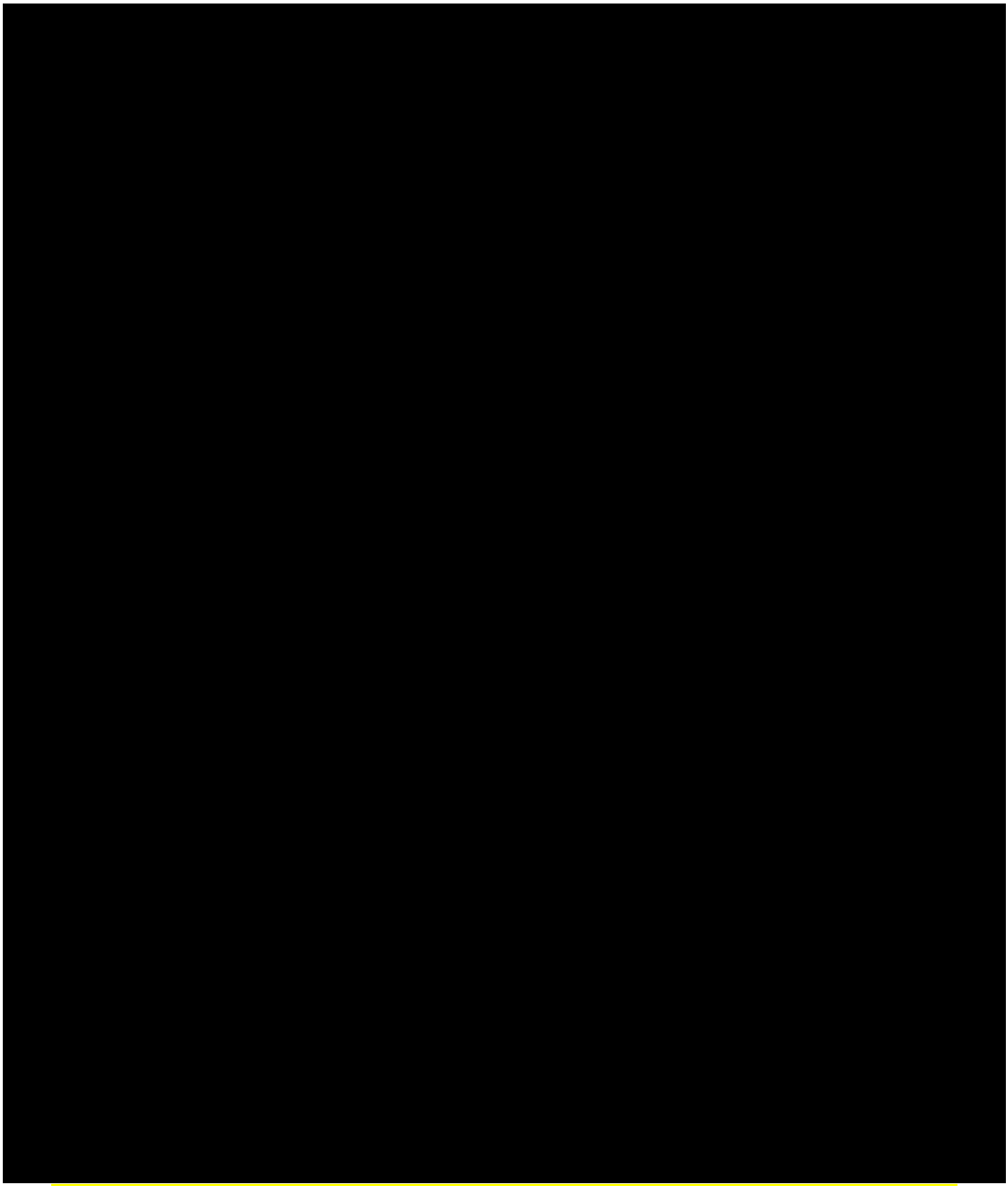


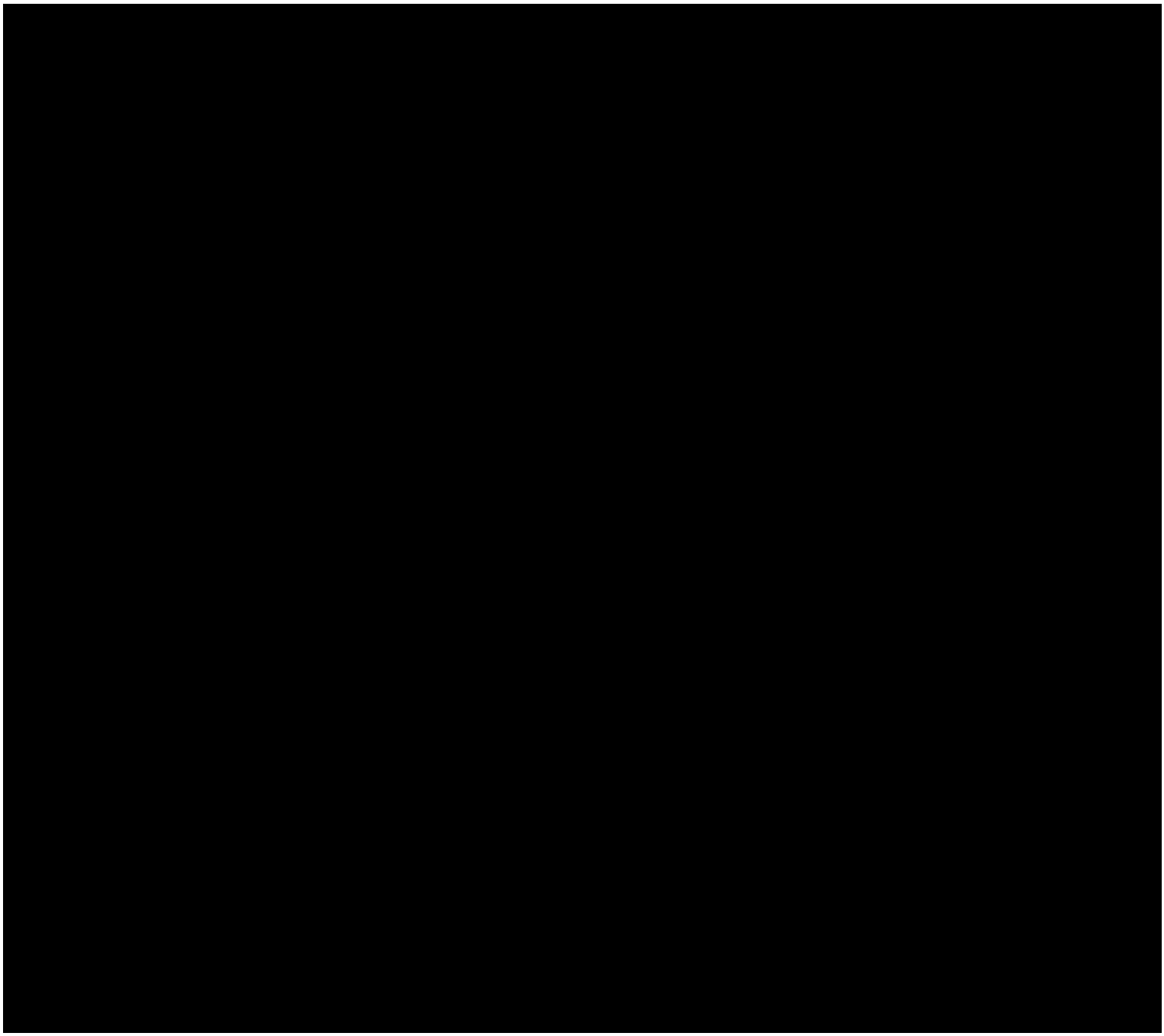


1.4.1.6.2.5 UI/UX Customer Mobile App



1.4.1.6.2.6 UI/UX Other Interfaces





1.4.1.7 Maintainability & Serviceability

Given INIT's extensive experience with transit CAD/AVL and AFC systems, INIT has ruggedized its field equipment to require minimal scheduled and unscheduled maintenance. As the chart below indicates, most of the equipment is maintenance-free, and there is minimal scheduled maintenance on some mechanical moving parts.

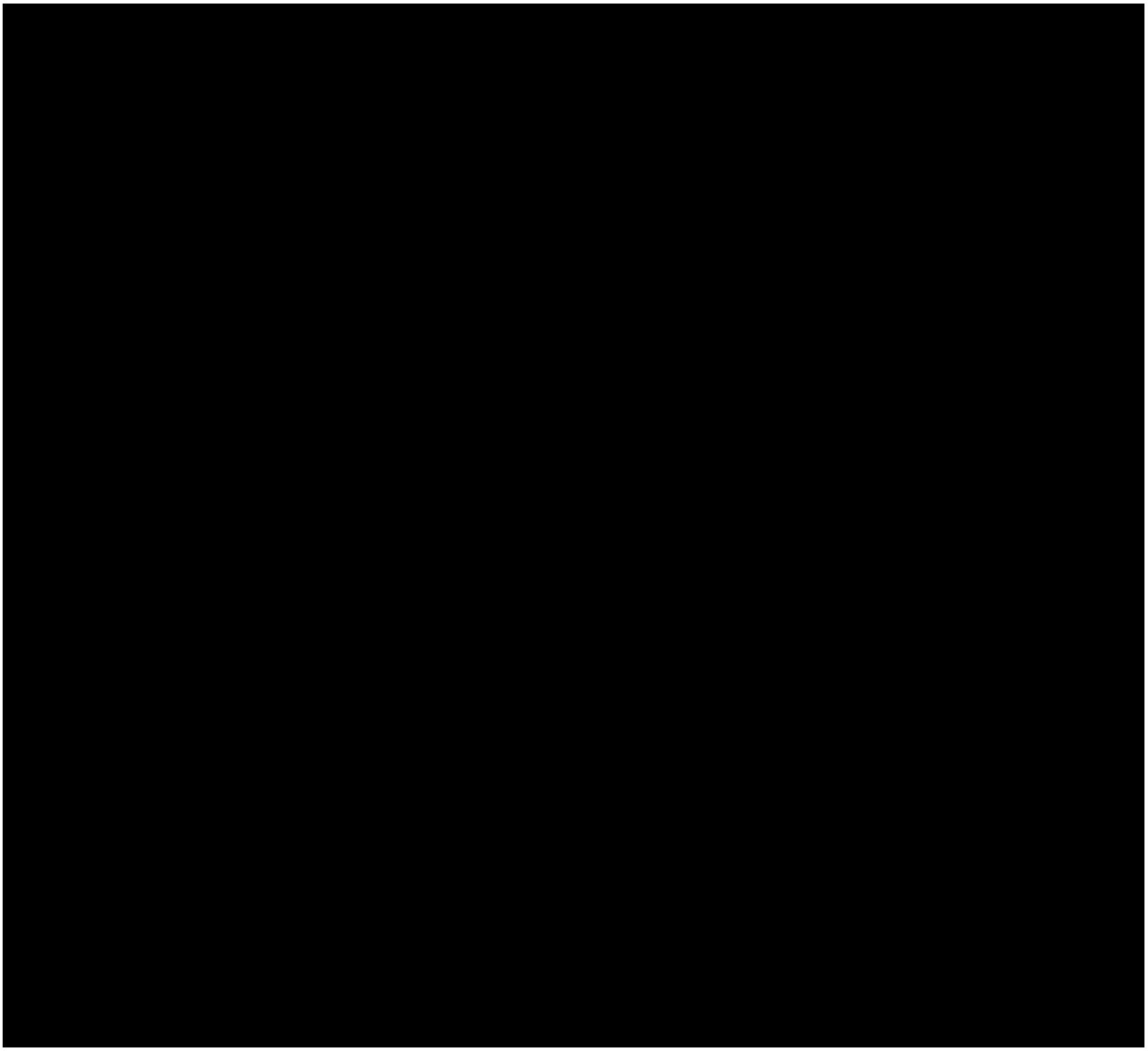
Equipment	Scheduled Preventative Maintenance Requirement (Not Including Consumables – such as, printer paper)
PROXmobil3 onboard/platform validator	Possibly change battery (after 5-10 years)
TOUCHit3 Driver Display Unit (DDU)	None (maintenance-free)
VENDstation and VENDmobile Vending Machines (VMs)	Minimal (lubrication of some moving mechanical parts annually, and compressed air spraying of sensors every 6 months)
Customer Service Terminal (including peripherals)	None (maintenance-free)

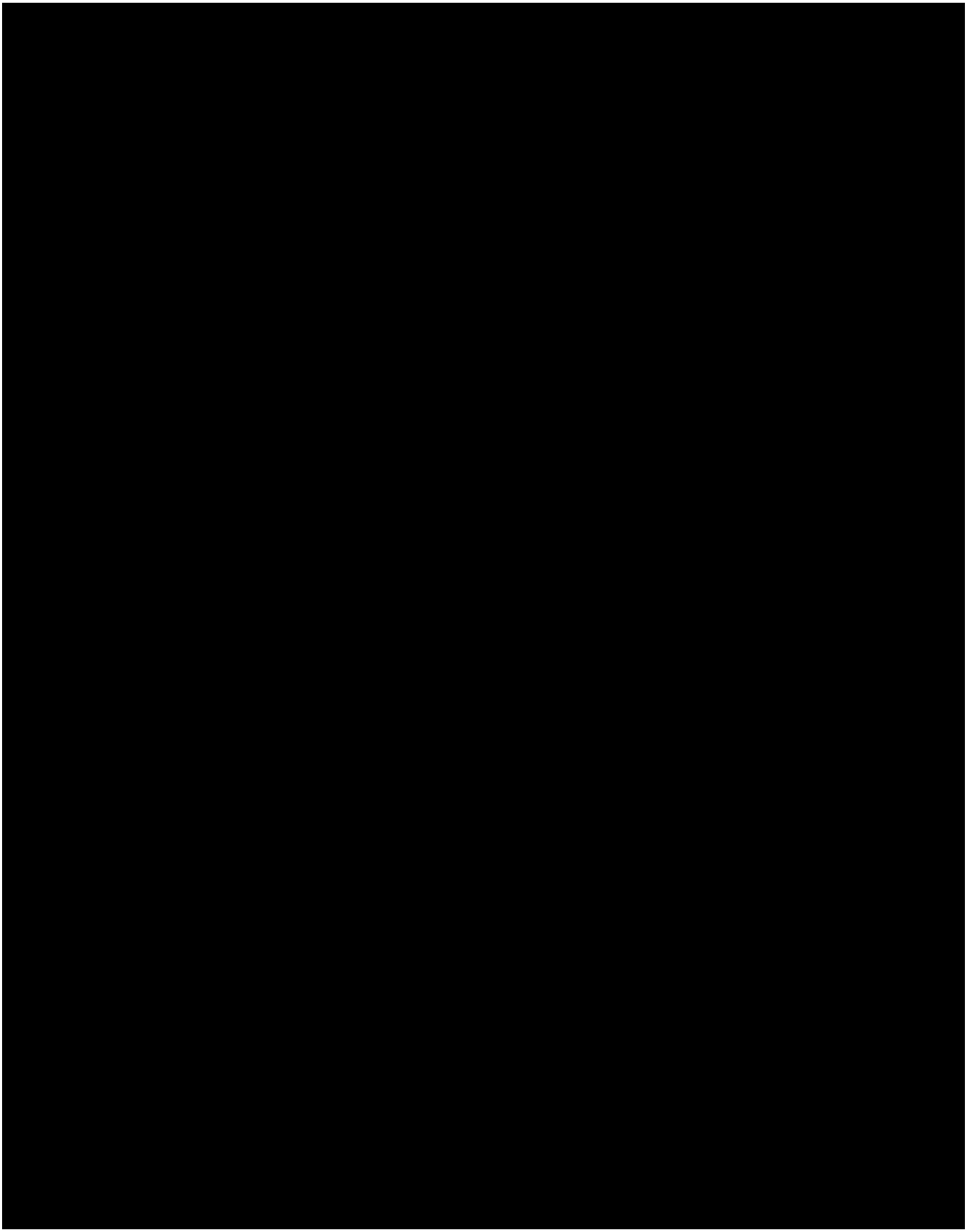
All the scheduled, preventative maintenance required – including frequency, procedures, durations, and required tools, parts, and materials – will be provided by INIT in a Preventative Maintenance Plan.

System components include automatic diagnostic test routines to aid in troubleshooting down to the Lowest Level Replaceable Unit (LLRU). As the chart below indicates, most of the equipment is maintenance-free, and there is minimal scheduled maintenance on some mechanical moving parts.

INIT minimizes unscheduled maintenance by designing equipment suitable for the transit industry with high Mean Time Between Failures (MTBF). INIT ensures that any COTS components used, also possess these characteristics.

The placement of the Onboard and Wayside Validators, the Driver Display Units, and the Customer Service Terminal equipment will be finalized jointly with the agencies to ensure adequate access for maintenance. INIT's field equipment has been designed and optimized taking maintenance considerations into account. The interior of housings and cabinets provides easy and safe access, and provides adequate space to work on the internal components as indicated in the figures below of the VENDstation and VENDmobile, which show that all components are accessible.





As indicated in the above two figures, the different modules are on rails and tracks and include handles for easy removal and insertion. This modularized design also leads to lower weight modules that a single technician can replace – none of the modules, other than a full cash containers, weighs more than 20 lbs.

redesign – the changes only require the upgrading of the VENDpc and VENDpc Extension

[redacted]

Security lock MK5 2700

The lock is integrated in the lower part of the mounting plate and prevents access to the fixation screw for demounting the device from the mounting accessory. The locking mechanism covers the opening of the fastening screw with the bar of the lock. The key can be removed in locked state only.

1.4.1.8 System Sizing & Scalability

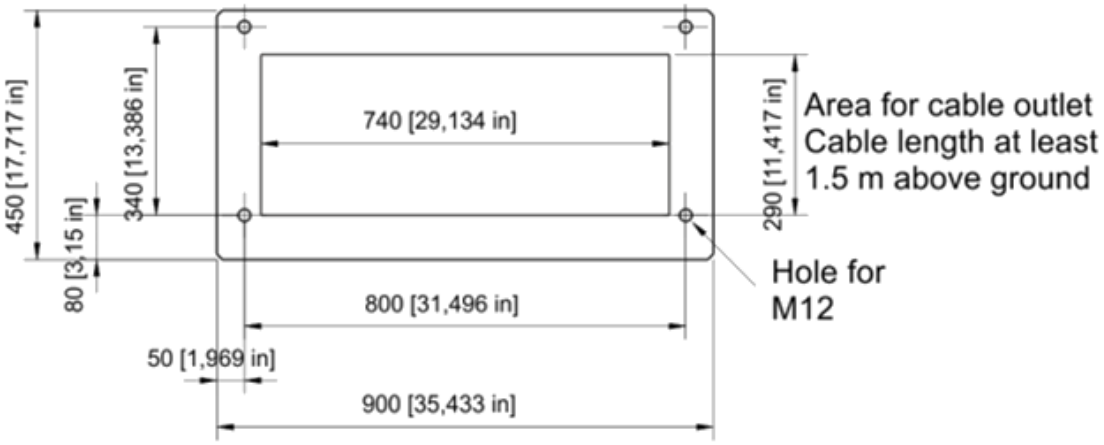
As part of the design process, INIT conducts usage and transaction analysis to model the peak usage of the System – including peak concurrent account-based transactions, peak website usage, etc. – and designs the system to accommodate at a minimum 200% of the current and anticipated ridership figures for the year 2040 and up to 400% of the anticipated peak processing load.

1.4.1.9 Operating Environment

As a transit CAD/AVL and AFC system provider, and currently having six systems operating in the environmental conditions of the Pacific Northwest, INIT's field equipment is environmentally service-proven.

1.4.1.9.1 Shock & Vibration

INIT will comply with the local codes regarding stability of structures and contents in earthquakes, high velocity wind (up to 60 mph), and other natural phenomena. For VMs INIT utilizes a pedestal made of 0.08" [2mm] stainless steel, which is fixed to the ground with M12 screws (see the following figure for the VENDstation pedestal mounting). In the event additional bracing is required, INIT will ensure it complies with the specifications related to seismic, wind, and other natural phenomena.



VENDstation Stable Pedestal Mounting

INIT's system components are designed to withstand structure-borne stresses and vibrations caused by the motion of transit vehicles, daily customer use, passing of trains or other vehicles, and emergency braking of fully-loaded trains. INIT products are vibration tested according to European Railway standards EN50155. In EN50155 sinusoidal testing has been replaced with broad band random vibration. Test parameters used by INIT are: Frequency range of 5-1000Hz, Acceleration 1.3g rms, sweep time 5h per axis. The standard intends to simulate 25 years of usage onboard a rail vehicle.

The PROXmobil3 is rugged in design and the housing is made in a special die casting process named thermoplastic structure foam molding (TSG) and are made of polystyrene (PS) or acrylonitrile butadiene styrene (ABS). This casting process creates a device that has a very stiff structure compared to normal die casting processes. The housings are flame-retardant according to UL94 V-0, and meet the product meets the horizontal shocks of up to 6g and vertical shocks of 1.2g without permanent deformation or failure. Both devices pass the EN 61373 Railway applications for Rolling stock equipment for Shock and vibration – specifically:

- EN 60068-2-27: Environmental testing - Tests - Test Ea and guidance - Shock
- EN 60068-2-64: Environmental testing - Tests - Test Fh - Vibration, broadband random and guidance

These onboard devices also meet the specified the shock and vibration tests:

- IEC 60068-2-27
- IEC 60068-2-64

The rail equipment, including vending machines and wayside validators will pass the ERTMS/ETCS shock and vibration tests – e.g., EEIG 97s0655.

1.4.1.9.2 Onboard Equipment

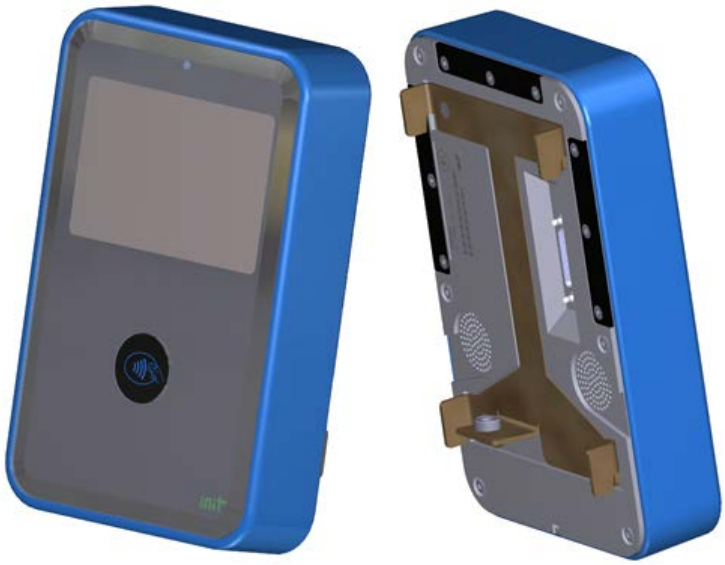
INIT's onboard equipment is designed, and proven, to prevent degradation in performance from exposure to moisture or dust raised by inclement weather or interior cleaning. As the two figures below show, both, the PROXmobil3 onboard validator and the TOUCHit3 driver display unit, are tightly sealed to provide a high degree of ingress protection. The PROXmobil3 has been installed in approximately 12,000 transit vehicles, and the TOUCHit3 predecessors on approximately 16,000 without any ingress issues.

INIT's PROXmobil3 supports four (4) SAM slots integrated into the FEIG reader

INIT's PROXmobil3supports three (3) USB ports as follows:

- One USB on the bottom of the device (special connector, designed for device maintenance)
- One usb connector on the d-sub connector on the back of the device. This is currently reserved for the storage chip on the mounting bracket that contains the vehicle/platform number
- One internal USB interface

The validator is a payment terminal so it cannot have any general purpose USB interfaces on the housing for security reasons. If the agency wants to integrate external devices, INIT suggests to integrate them via Ethernet or Ethernet/USB or Ethernet/UART bridge. The validator can be delivered with an integrated 2d barcode reader if the agency opts for this during the system specification phase.



PROXmobil3 tight seal prevents ingress

TOUCHit3 provides high ingress protection

As indicated in the previous section, the PROXmobil3 and the TOUCHit3 are designed and service proven to withstand the harsh, high shock vibration operating environments of onboard transit vehicles.

The following chart demonstrates that INIT's onboard equipment operating environment specifications meet the SOW requirements.

Capability	**SOW Requirement**	**PROXmobil3** **Onboard Validator Specification**	**TOUCHit3** **Driver Display Unit Specification**
Storage temperature	-22 to +150°F	-22 to +176°F	-22 to 158°F
Operating temperature	-15 to 140°F	-15 to 140°F	-15 to 140°F
Thermal shock	Up to 50°F in 1-hour, non-condensing	Up to 50°F in 1-hour, non-condensing	Up to 50°F in 1-hour, non-condensing
Relative humidity	5-100% non-condensing	5-100% non-condensing	5-100% non-condensing
Airborne dust	Up to 180 µg / m^3, with iron & salt particles	Up to 180 µg / m^3, with iron & salt particles	Up to 180 µg / m^3, with iron & salt particles
Sunlight	Direct sunlight, radiation loading of up	Direct sunlight, radiation loading of up	Direct sunlight, radiation loading of up

Capability	SOW Requirement	PROXmobil3 Onboard Validator Specification	TOUCHit3 Driver Display Unit Specification
	to 789J/s/m^2	to 789J/s/m^2	to 789J/s/m^2
Inclination	0 to 20° off vertical	0 to 20° off vertical	0 to 20° off vertical
Rainfall	10" over 12 hrs	Ingress Protection (IP) 54 (splashing water protected)	Ingress Protection (IP) 53 (spraying water protected)
Water/solvents	IEC529 to level IP54 or equivalent	IP54	IP54
Pollution	Vog (e.g., sulfur dioxide-laden air)	Atmospheric pollutants characteristic of Puget Sound area	Atmospheric pollutants characteristic of Puget Sound area
Other	Water spray, industrial cleaning solvents, and mud from cleaning vehicles	Water spray, industrial cleaning solvents, and mud from cleaning vehicles	Water spray, industrial cleaning solvents, and mud from cleaning vehicles

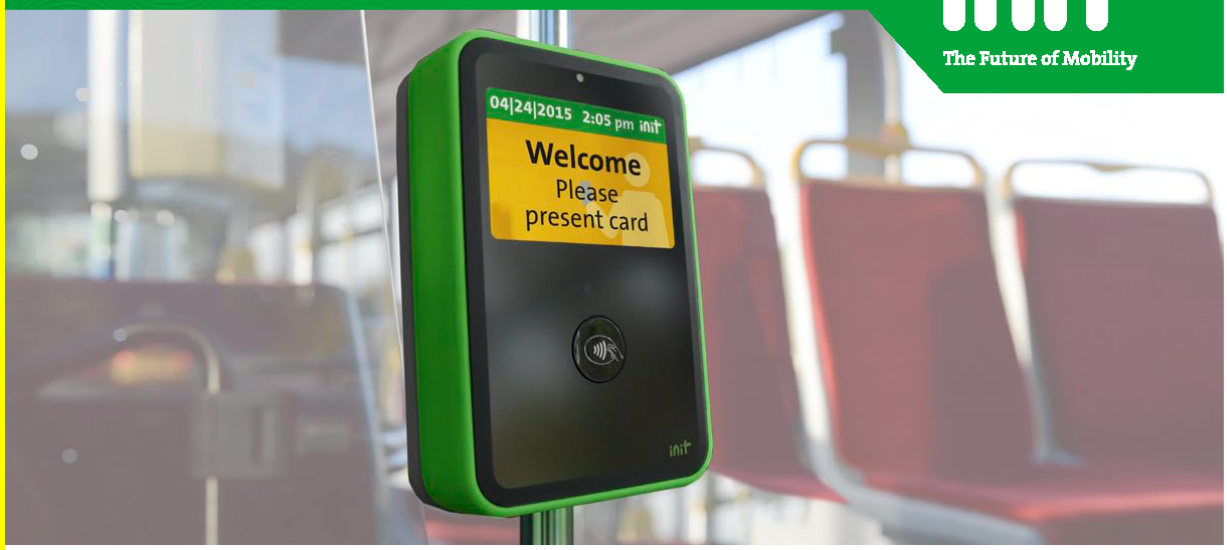
The onboard equipment will not be impacted from the damaging effects of visible spectrum and ultraviolet radiation. There are no active cooling devices in the onboard equipment to report failures on. The onboard equipment will be tested and certified to operate under the environmental conditions specified in SAE J1455.

1.4.1.9.2.1 PROXmobil3 DataSheet

PROXmobil3

Passenger Terminal

The Future of Mobility



Flexible, fast and secure

An easy-to-use fare collection system makes public transportation more attractive. Especially now that electronic fare management and passenger-operated terminals are in great demand.

Like its predecessor, INIT's new passenger terminal PROXmobil3 supports all variations of e-ticketing. The housing is more sleek taking up less aisle space on the vehicles.

With its 12.0 cm (4.75-inch) display PROXmobil3 offers passengers a convenient and intuitive way to manage all their ticketing transactions. For instance, they can select the ticket that is best suited for their needs, store tickets on smart cards, or validate bar code tickets. VDV-KA, ITSO, Calypso and boarding control are supported, as well as credit card based applications according to the EMV standard or account-based ticketing. The software supports different standards, even combined in one system.

The intelligent terminal can be operated as well as a stand-alone device as it is equipped with WLAN and GPRS/UMTS. PROXmobil3 is available in two versions: for mobile use inside vehicles and for stationary use at platforms.

Features

- Contactless payment in the vehicle
- Controlled boarding
- Check-in / check-out
- Automatic fare calculation
- EMV, NFC
- On-board or at platforms
- Easy installation

PRODUCT INFORMATION

Passenger Terminal

PROXmobil3

- Support of different standards (VDV-KA, ITSO, Calypso, etc.)
- Compact housing
- Hybrid card reader
- Back-up storage of sales data on a µSD card in the mounting plate

Technical Data	
Display	12.0 cm [4.75"] Diameter 754 x 480 dots 262k colors 900 cd/m² LED-backlight (controlled) Projected Capacitive Touch (optional)
Processor and Memory (RAM)	32-Bit ARM Cortex-A9 800 MHz 512 MByte DDR3L
Memory (Flash)	2 x 1 GByte µSD-card
Interfaces and Modules	Ethernet 10/100 Mbit WLAN IEEE802.3 a/b/g/n (optional) UMTS/LTE (optional) 2D Barcode scanner (optional) Audio output
Contactless RFID Reader	Chip cards (contactless): ISO 14443 a/b; Mifare(R) EMVCo Level2 (Mastercard, Visa, American Express, Discover), PCI PTS SRED certified optional: – VDV-KA – ITSO – Calypso NFC reader compliant Up to 4 safety modules (ISO 7816)
Power Supply	8 V – 33 V; max. 10 Watt
Dimensions	140 mm [5.5"] x 212 mm [8.3"] x 41 mm [1.6"] (width x height x depth) Installation using quick-change bracket; device secured by lock
Weight	approx. 1.1 kg [2.43 lbs]

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All information in this data sheet are to be perceived as proposals for configuration and don't necessarily belong to the basic scope of supply. The product is individually set up in accordance with customer requirements and corresponding commissioning.

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The Future of Mobility

1.4.1.9.2.2 TOUCHit3 DataSheet

There is not a datasheet for the TOUCHit3at this time. Below please find the datasheet for our TOUCHit2. The TOUCHit3 utilizes similar circuitry as the highly proven TOUCHit2, but with the following enhancements:

- Use of a capacitive (as opposed to a resistive) touchscreen for a brighter and sharper display, and a more responsive touch
- Independent standalone power circuitry as opposed to being dependent on the COPILOTpc2 onboard computer

TOUCHit2

Ergonomic Touch Screen Data Terminal

The Future of Mobility

Improved features of proven technology

TOUCHit2 is the 16.5 cm (6.5"), full-color touch screen that is ergonomically designed to provide essential information to drivers at a glance. Thanks to the fully graphical touch panel, maps and route displays and much more can be clearly displayed on the screen. The terminal also offers turn by turn navigation. All pertinent information is easy to grasp and functions are easy to operate, providing more efficiency to the driver.

TOUCHit2 is designed with a high resolution touch screen of 800 x 480 pixels giving drivers easy to read information even in bright sunlight. The improved display comprises LED backlights adjusting automatically to ambient light conditions. It also provides an easier light setting for night mode.

With its user friendly touch panel and outstanding readability of the display, TOUCHit2 is a sound investment for transportation companies worldwide.

Features

- Ergonomic design
- Flexible display layout
- Full-color touch screen graphics
- Customer-tailored display layout
- Custom functionalities can be added

PRODUCT INFORMATION

Ergonomic Touch Screen Data Terminal

TOUCHit2

- Automatic adaptation to the ambient lighting conditions
- Anti-glare touch screen
- 1 million touches guaranteed
- Connection to on-board computer via Ethernet with integrated power supply
- Double head operation possible (up to 60 m)

Technical Data	
Display	Graphic 6.5" [16.5 cm] TFT display, 800 x 480 dots, brightness up to 600 cd/m² LED backlight with automatic brightness control and 70,000 hours operating lifetime 0.5 – 100 % wide range dimming
Touch screen	Analog resistive touch screen 0.07" [1.8 mm] thickness ITO-glass antireflection coating
CPU	Freescale i.MX6 Solo (ARM Cortex A9) with 800 MHz, 512 MB RAM, 4GB Flash
Touch controller	Texas Instruments TSC2046E
Interfaces	Ethernet 10/100 Mbit/s (with integrated power supply)
Power supply	Input voltage range 8 V to 36 V Max. voltage of 1.5 A
Dimensions	7.3" [185 mm] x 4.1" [105 mm] x 1.4" [36 mm] (width x height x depth)
Weight	1.32 lbs [0.6 kg]

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The Future of Mobility

1.4.1.9.3 Wayside Equipment

The following chart demonstrates that INIT's wayside equipment meets the SOW requirements, except the ingress protection level IP65 as discussed below.

Capability	SOW Requirement	PROXmobil3 Platform Validator Specification	VENDstation / VENDmobile VMs Specification
Storage temperature	0 to +140°F	0 to 150°F	0 to 150°F
Operating temperature	-15 to 140°F	-15 to 140°F	-15 to 140°F
Thermal shock	Up to 30°F in 1-hour, non-condensing	Up to 30°F in 1-hour, non-condensing	Up to 30°F in 1-hour, non-condensing
Relative humidity	5-100% non-condensing	5-100% non-condensing	5-100% non-condensing
Airborne dust	Up to 180 μg / m^3, with iron & salt particles	Up to 180 μg / m^3, with iron & salt particles	Up to 180 μg / m^3, with iron & salt particles
Sunlight	Direct sunlight, radiation loading of up to 3MJ/hr/m^2	Direct sunlight, radiation loading of up to 3MJ/hr/m^2	Direct sunlight, radiation loading of up to 3MJ/hr/m^2
Platform inclination	0 to 10° off vertical	0 to 10° off vertical	0 to 10° off vertical
Rainfall	10" over 12 hrs	10" over 12 hrs	10" over 12 hrs
Water/solvents	IEC529 to level IP65 or equivalent	IP54 according to IEC 60529	IP34 according to IEC 60529
Pollution	Vog and other forms of native air pollution	Air pollution characteristic of Puget Sound	Air pollution characteristic of Puget Sound
Other	Water spray, industrial cleaning solvents, and mud from cleaning vehicles	Water spray, industrial cleaning solvents, and mud from cleaning vehicles	Water spray, industrial cleaning solvents, and mud from cleaning vehicles

Our standard validator is IP54 classified and therefore suitable for outdoor use. The suitability for outdoor use has been proven in environments similar to Seattle, e.g. in Portland, OR.

IP 54 means that the validator has a limited protection against dust ingress, with no harmful deposit of dust within the device. In addition the validator is protected against splash water from any direction.

Getting the validator to a IP65 classification would require a redesign that could be priced as an option.

INIT will ensure that incidental moisture that enters the VMs through the coin, bill, and card slot is managed – for instance, the coin shutter directs any water that enters the coin slot to the waste chute. The wayside platform validator and VMs do not use any cooling devices to report on and cause a graceful shutdown.

Please see Appendix 3 for the following VM component hardware specifications:

- Display
- Bill handling unit
- Coin acceptor
- Coin shutter
- Coin escrow
- Bank card reader and pin pad
- Smartcard dispenser
- Receipt paper
- Receipt paper roll
- Power supply
- UPS

VENDstation

Stationary Ticket Vending Machine

The Future of Mobility

Cash or cashless: easy access to the requested ticket.

The stationary ticket vending machine VENDstation offers a clearly structured menu on an easy-to-read 15" TFT display. The colorful touchscreen provides a clear presentation of various tariffs and can be easily read under all lighting conditions. Passengers benefit from the ability to find their way around more easily – even if they are not familiar with the local tariff structure.

In addition, braille fonts and the adapted height of all user components (compliant to the TSI PRM standard) make it much easier for people with reduced mobility or visual impairment to use the ticket vending machine.

According to their preference, passengers can pay for their tickets either by credit card, smart card or cash. Depending on the option selected, passengers receive their tickets on their smart card or printed as paper ticket.

Features

- Touch screen operation
- Clearly structured menu
- Credit card acceptance
- Smart card acceptance
- Cash processing
- Disability-friendly

PRODUCT INFORMATION

Stationary Ticket Vending Machine

VENDstation

- Credit card payment in accordance with all standards
- Complies to disability act based on US-standards
- Up to 4 independent thermal printers
- Various paper types possible

Technical data	
Housing	2 mm steel housing, 4 mm stainless steel door with 2 mm aluminum front Degree of protection IP54 (excluding apertures, e.g. ticket tray), 9-toothed locking bar for multiple locking
Display	38.1 cm [15"] TFT-color display, resolution 1024 x 768 pixels, brightness 1100 cd/m² IPS Resistive touch (operation with gloves possible)
Processing unit	Industrial PC with Intel Atom processor; Flash memory (µSD); passive cooling
Printer	Thermal printing unit(s) (up to 4 independent printers): Graphics-capable printer supports 1D and 2D barcode printing Ticket output up to 200 mm/s [7.87"/s] , resolution 200 dpi (8 px/mm) Each printer uses one paper roll with up to 300 mm [11.81"] diameter Print width of 50 mm [1.97"] to 80 mm [3.15"], paper width of 70 mm [2.76"] to 82.5 mm [3.25"], paper thickness up to 140 g/m²
Barcode scanner	1D / 2D barcode scanner, Standards (among others): VDV-KA und UIC 918.3; reads from cell-phone display or paper
Coins	Electronic lock of the coin slot, electronic coin checker, 6 change devices with 50 coin holders each, up to 4 hoppers, self-sealing coin box with 7 liters
Banknotes	Coin box 600 / 1400 / 2000 banknotes; Escrow with up to 15 banknotes; Recycling up to 4 note values
Debit / credit cards	Customer requirement Option: Contactless credit card reader
Smart cards	Card reader for contactless cards (RFID); RFID standards: ISO 14443a/b, ISO 15693, MIFARE®, Support of NFC mobile phones; 4 x SAM (ISO 7816), supported standards: VDV-KA, EMV-Level-1, ITSO (optional), Calypso (optional) Card dispenser to issue cards with 250 / 500 cards on stock; internal writing to and reading from the cards; ticket return
Interfaces	USB, LAN, WLAN, GSM/GPRS/EDGE/UMTS/LTE
Temperature range	-20° C to +65° C (-4° F to +149° F)
Power supply	100 V to 240 V / with integrated uninterruptible power supply
Special features	Handicapped accessible in accordance with TSI-PRM, braille, loudspeaker, alert
Optional modules	Microphone, headphone connection, anti-graffiti paint, drum lock
Dimensions	max. 900 mm [35.43"] x 1930 mm [75.98"] x 450 mm [17.72"] (width x height x depth; incl. base and cover)
Weight	Approx. 300 kg

All information in this data sheet are to be perceived as proposals for configuration and don't necessarily belong to the basic scope of supply. The product is individually set up in accordance with customer requirements and corresponding commissioning.

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1.4.1.9.4 Office Equipment

The Customer Service Terminals (CSTs) will be designed to be installed in an office and mobile environment. Please see Section 1.6.4 for information and specifications of the CST components.

1.4.1.10 Electrical

This section addresses the electrical capabilities of the onboard and wayside equipment. Please see Section 1.6.4x.x for CST electrical capabilities.

1.4.1.11 Power & Voltage Capabilities

INIT's equipment incorporates robust, reliable power and voltage capabilities suitable for the environment it's operating in. The PROXmobil3 onboard validator and the TOUCHit3 DDU draw power from the vehicle DC power source. The VMs obtain power from the station 115 or 240 Vac line voltage, and the platform validators can obtain power from the station line voltage or Power over Ethernet (PoE). All power conditioning is done within the equipment enclosures, except for the platform validator (whose power conditioning is done within the installation pole).

The onboard equipment, as indicated by the chart below, can operate over a wide range of input voltage.

Onboard Equipment	Minimum Input Voltage	Maximum Input Voltage
PROXmobil3 onboard validator	9 Vdc	36 Vdc
TOUCHit3 Driver Display Unit	8 Vdc	36 Vdc

The PROXmobil3 uses a varistor in the power supply rail to absorb transient surges which provides protection against damage to internal components. The PROXmobil3 system controller monitors the voltage level, and will shut down the device if the voltage level is too high. Low-voltage conditions are handled by the power circuitry itself by performing a power-on reset. The PROXmobil3 uses filters and switching regulators to withstand noise and power fluctuations. The printed circuit board is an 8-layer board with two complete ground planes, which vastly improves immunity to electronic interference, which may come from other onboard equipment. The validator protects against transaction data damage, loss or modification during voltage fluctuations or other power related events through the use of high-grade flash memory by storing several copies of the sales data to different flash areas in the validator.

The VENDstation and VENDmobile use the station line voltage, and can accept an input voltage range of 90 Vac to 305 Vac (as indicated in the power supply specification in Appendix 3).

The VMs incorporate a UPS within its enclosures which provides 30 minutes of back-up power to allow for graceful shutdowns in the case of power loss. The VMs power up automatically upon resumption of AC power. The platform validators can utilize either station line voltage or Power over Ethernet (PoE), and will accommodate 10% fluctuations in the line voltage. All field equipment will retain all information stored on non-volatile memory regardless of any voltage or power issues.

1.4.1.11.1 Electrical Noise Capabilities

1.4.1.11.2 Grounding

INIT shall, with respect to grounding, conform to the National Electric Code (NEC) and UL, SAE, and local codes where applicable.

1.4.1.12 Licensing & Ownership

1.4.1.13 Accessibility & ADA Compliance

The proposed System will be compliant with current accessibility standards, laws, and regulations and ensures that the system meets or exceeds the Americans with Disabilities Act (ADA) and accessibility requirements of federal, Washington State and Puget Sound regional governments. INIT is working with external ADA consultants to ensure ADA compliance.

1.4.1.14 Code & Regulation Compliance

INIT concurs with the requirement that the proposed system will be compliant with relevant standards, laws, and regulations to ensure that the System

- Presents no safety hazards for customers and agency employees
- Will withstand the rigors of the environments in which the equipment will be installed, and the public use to which it will be subjected
- Provides for the secure storage and transmittal of data
- Is designed using state-of-the-art methods to maximize quality
- Satisfies federal, state, and other requirements for ergonomics and usability

1.4.1.15 Information Security

Information security is a critical component of the next generation ORCA technology solution. Ensuring the confidentiality, integrity and availability of the system is critical to the customer experience and trust in the system. The people, processes and technology involved in system delivery will need to work collaboratively under common guidance to achieve system security. INIT will work with the agencies, subcontractors, vendors and service providers to ensure selected ISMS controls are implemented and followed. INIT has not included effort to pursue or obtain ISO or ISMS certification independently, as we understand that this is portion of a ROOT-managed ISMS.

An ISO27001:2013 driven ISMS has a broad amount of guidance and controls, therefore INIT recommends the selected ISMS controls to be right-sized and appropriate for the solution rather than attempted to be applied at a level requiring compliance with every potential control within the ISO framework. Not every ISO control is applicable or likely palatable to the agency, provider or subcontractors due to the costs and time to document and manage the vast amount of information associated with implementation, testing and tracking every control. While INIT understands the intention of the system to be operated within a selected set of ISMS controls, INIT has included a subset of recommended controls as described in section 1.4.2.8. INIT assumes that the agencies, ROOT, or other external auditing party may recommend additional controls throughout the lifetime of the system. The implementation of these new controls, if adopted or requested by the agencies, will be considered a change as they are additional to what has been priced and included.

1.4.1.15.1 Information Security Management System – Asset Management

As a control objective of an ISMS, asset management within the next generation ORCA information technology is concerned with the identification and management of the assets involved in service delivery. Inventory will be managed using a CMDB within the Asset Information Management (AIM) platform. Assets include hardware, software, licenses, and other equipment or systems associated with the delivery of the system. Each tracked asset will be assigned an asset owner, description, and location, criticality and classification. The CMDB will be

the system of record to manage the assets and their associated information and life cycle. All hardware and software will be procured through primary sources rather than the secondary market to ensure integrity of firmware and legality of licenses. Ensuring license, support and access to primary sources supports ISO guidance regarding supplier relationships and the reduction of risk associated with supplier's assets. In the case of the proposed hosted environments, the hosting provider will ensure the maintenance and lifecycle of the assets.

1.4.1.15.2 Access Control

This chapter is focused on INIT's access control approach.

1.4.1.15.2.1 User Authentication

All users of the system are required to authenticate to a centralized directory within the back office. Windows Active Directory centrally manages user login identity, password policy, and roles for access to the INIT provided systems and applications. The role based access control available within the integrated Active Directory and INIT solution can provide individual or group access and ensure which level of access those users are granted. While Active Directory between the next generation ORCA system and the existing ORCA agencies could be federated and trusted, the large number of users combined with the internal and external applications will benefit from a universal directory. In alignment with ISO27001 guidance, INIT recommends deploying this strategy to create user authentication consistency in the distributed network environment required by the next generation ORCA system. A federated identity solution provider such as Azure AD Services can provide the recommended universal directory, SaaS application integration, multi-factor authentication and secure access.

1.4.1.15.2.2 Password Policy and Management

Password policy is set and enforced in the settings of the primary user directory. Accounts will be forced to create and rotate passwords depending on a mutually agreed policy definition. INIT recommends adopting the most recently updated NIST password guidelines which emphasize longer passwords with longer rotation schedules. This provides a higher level of security through increasing the amount of entropy within an individual password as well as decreasing user shortcuts that inevitably occur when forced to create complex passwords at a high frequency. With the addition of Azure AD, password policies and changes should be able to be enforced throughout the entire distributed application infrastructure adding additional security and easing the burden on end-users.

1.4.1.15.2.3 Privileged Remote Access [redacted]

[redacted]

1.4.1.15.2.4 Firewalls, Routers, Switches and Network Security

Edge devices such as firewalls and routers, along with internal access layer devices such as layer 2

[redacted]

1.4.1.15.2.5 Physical, Environmental and Equipment Security

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

1.4.1.15.3 Encryption

[redacted]

1.4.1.15.3.1 Database Encryption

1.4.1.15.3.2 Communication Security

1.4.1.15.3.2.1 API Communication

INIT secures all API communication

1.4.1.15.3.2.2 Field Device Communication

[redacted]

1.4.1.15.3.2.3 Public Website

The publicly accessed web applications are secured [redacted].

1.4.1.15.4 PCI & PII

In order to reach 100% PCI compliancy and most important a bullet proof secure payment system, [redacted]

For this project, INIT will also contract with a local PCI QSA who can make all local evaluations necessary.

Highlights of the INIT PCI solution:

- [redacted]

In order to provide reliable, flexible and versatile and 100% PCI compliant payments, INIT is working with different gateway providers such as the CreditCall payment gateway.

The following diagram gives an overview how payments are processed in the system and which parts of the system are in the PCI scope.

On the lower left hand side is the card holder who can purchase services via different system services. The card can be presented to one of the validators (PROXmobil3) which generates an open payment credit card transaction and forwards in to the payment gateway.

[redacted]

1.4.1.16 Fraud Prevention

INIT's system supports a host of fraud detection and prevention functionality – including:

- Data analytics to support fraud detection based on ridership data
- Agency-configurable velocity checks
- Detection of potentially cloned cards

In addition to the detection of fraud, the system provides numerous fraud prevention capabilities:

- Passback protection configurable by fare media type, fare product, agency, mode, and passenger type which can be set differently for different device types
- Upper ride limits on period passes generating automated alerts, with the configurable auto-blocking
- Configurable "floor limit" for stored value (which can be set to zero or a negative value) with configurable auto-blocking
- Ability to set credentials and transit accounts to "observation mode" so that all activity is reported in an extra report for further investigation
- Blocking credentials and transit accounts automatically and manually (including on a bulk basis)
- Master Status Lists (MSLs) including negative lists of blocked cards regularly updated to field devices for offline validation provisions
- Writing limited information to cards for offline validation purposes

1.4.2 System Architecture

INIT is proposing an open architecture, modular design system with extensive use of Application Programming Interfaces (which will be licensed to the Agencies) as depicted in the figure below.

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1.4.2.1 Account-Based System

INIT's proposed system is a service-proven account-based system. The back office Account-based Transaction Processor (ATP), performs the fare calculation and processes all transactions in real-time. It also acts as the system of record for fare calculations and enforcement. To keep it a true account based system, fare media such as smart cards and NFC enabled smartphones, will serve only as credential for accessing transit accounts. Limited amount of data will be written to the fare media to support risk mitigation strategies, mostly for fare inspection reasons.

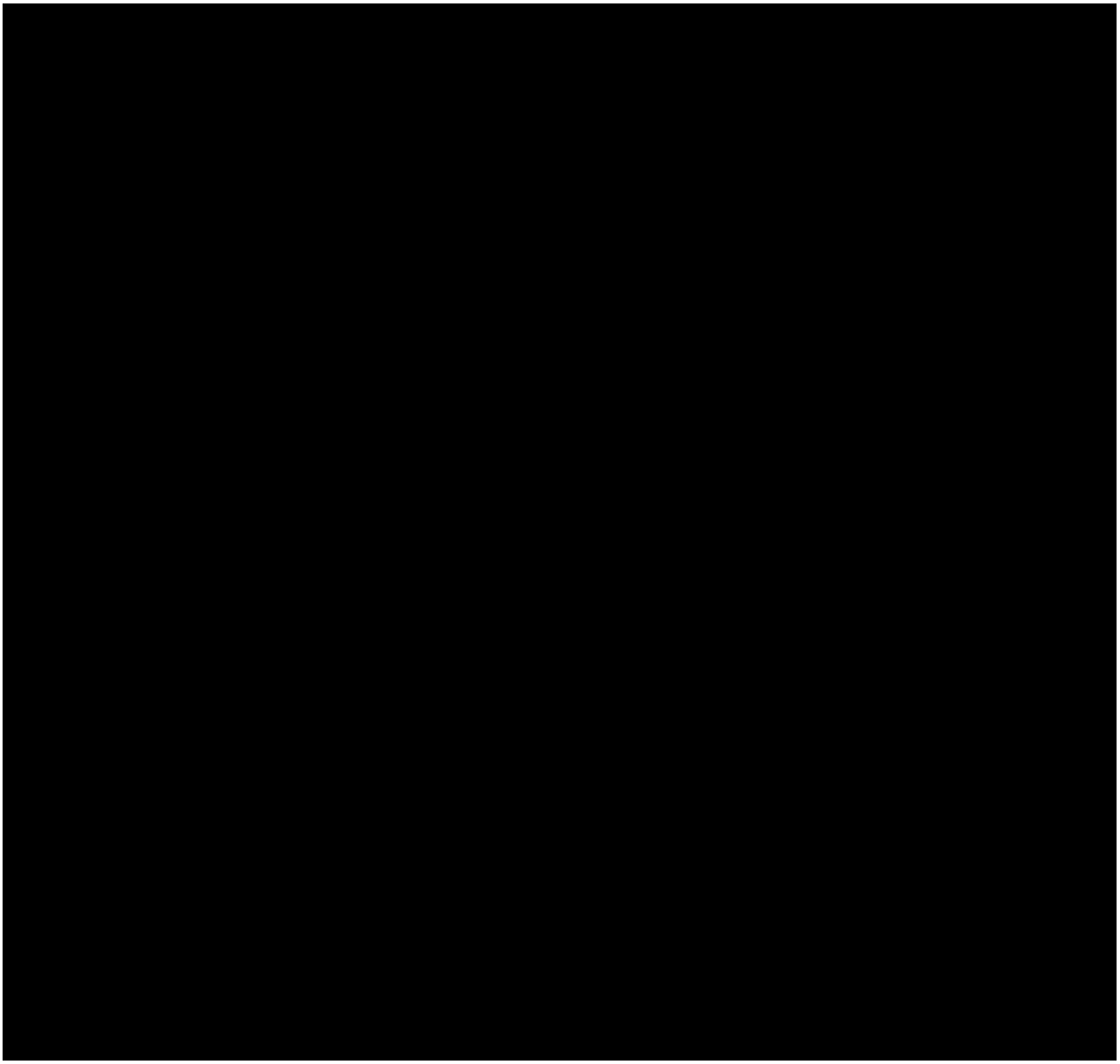
The ATP includes a module to configure and maintain fare apportionment rules between agencies based on fare products purchased, products used, number and value of trips taken, and agency associations. The ATP apportionment module includes an intuitive, user friendly interface to allow the rules to be securely maintained and updated, including the ability to change current rules and add new rules based upon new fare products, trip types, or Agencies being added to the next generation ORCA program.

1.4.2.2 Real-Time Communications

Each fare validation and fare distribution device will perform real-time communications with the back office. If no wired connection can be established (e.g. on-board devices), the devices will communicate using cellular technology.

1.4.2.3 Offline Provisions

[redacted]



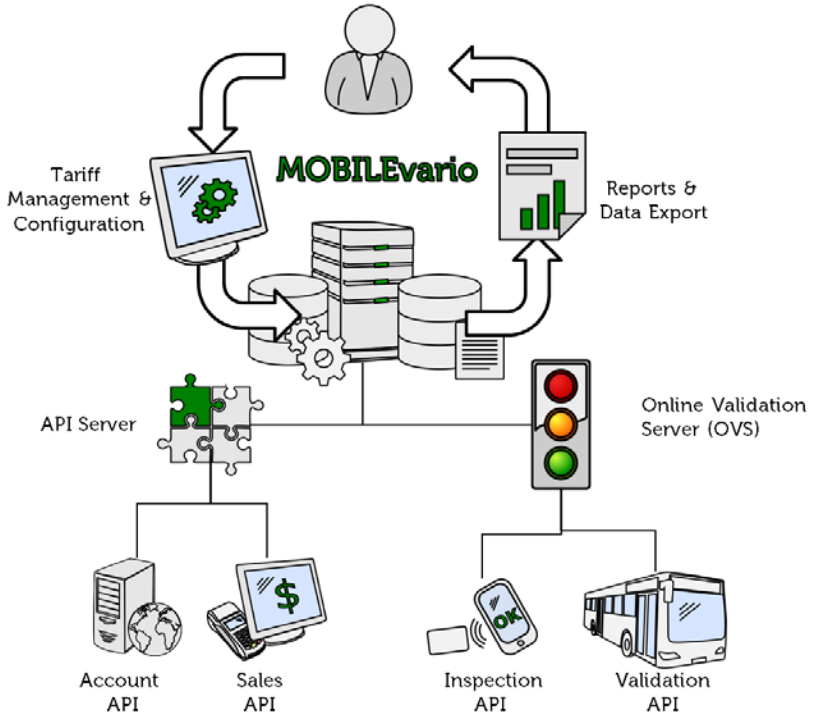
1.4.2.4 Application Programming Interfaces

A core aspect of INIT's account based system is the use of Application Programming Interfaces (APIs). These RESTful (Representational State Transfer) APIs provide an Open Architecture that supports vendor independence and streamlines integration with other payment channels. INIT will utilize the vast majority of its existing service proven APIs, modify some, and develop new ones to meet the next generation ORCA requirements. INIT will develop Interface Control Documents (ICDs) that specify the API calls, data formats, and communication and security protocols. INIT will implement strong security controls to prevent fraudulent use of APIs and

authenticate all users in accordance with the ORCA Agencies Information Security Management System (ISMS).

INIT's open architecture APIs are based on the REST standard and JSON data format which is the de facto standard today for web APIs. The API developers can use the APIs with standard http client libraries of the programming language of their choices (#C, C++, Python, Java, Javascript etc.), command line tools such as curl or wget, or API development tools such as postman or insomnia to test and develop against the APIs.

The figure below shows INIT's existing core APIs that provide functionality for any 3rd party devices and networks to sell and validate fares. All client devices and customer interfaces use INIT's APIs to sell and validate fares.



INIT's Core APIs to create an Open Architecture Platform

The account API provides services to access customer and transit account information in order to integrate mobile applications, web services and even 3rd party CRM tools. All sales transactions like product sales or value loads are generated via the sales API and the Online Validation Service (OVS) provides the validation API to recognize that revenue.

The test environment will allow the ORCA agencies or Third-Party Vendors (TPVs) to design and test their solutions. This protects the agencies' valuable investment for many years to come as it allows the agencies to enhance the system autonomously.

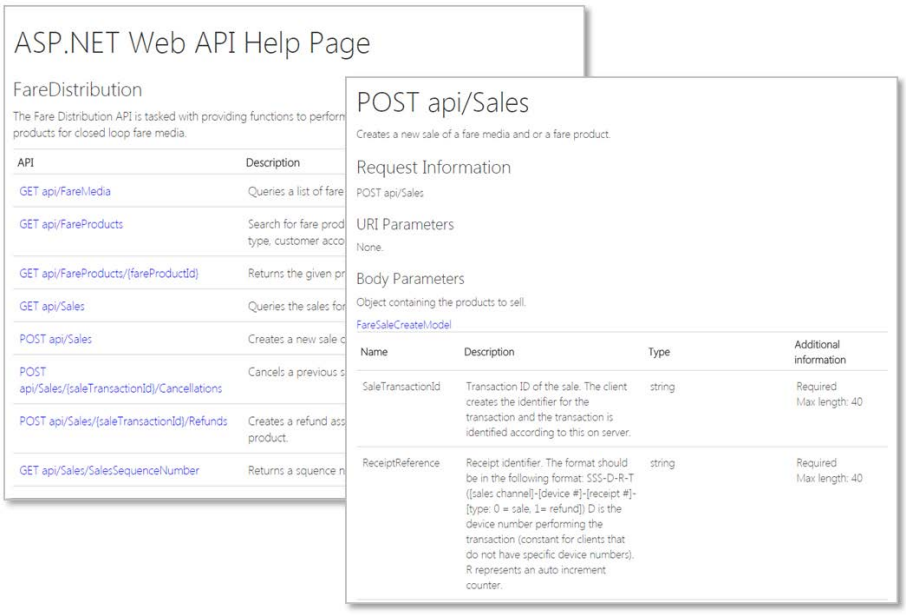
OVS is also an API server that provides REST APIS for the validation/inspection devices. The system clients can access these APIs via the API management gateway (Azure) or directly. For the validators that require very low response times, INIT suggests that the devices access the API services directly.

The APIs provide a standard and easily understandable interface to the next generation ORCA System. These APIs demonstrate the open architecture of the system, and provide the agencies full flexibility to integrate 3rd party sales and fare validation solutions. The following table lists some of the main APIs of MOBILEvario.

Specification	Description
Product API	API is tasked with product related operations
Fare Distribution API	API for selling fare products and adding stored value on transit accounts
Fare Payment API	API used by platform/vehicle validators and agency mobile app for real-time fare validation and stored value usage
Fare Inspection API	API used by fare inspection devices to check if a given fare media has a valid transit product
Transit Account Management API	API used by POS devices, web portals and CRM system to list transactions do value adjustments etc.
Customer Account Management API	API used by web portals and CRM system to manage registered users (including institutional customers)
Cardholder API	API used to query and modify data maintained on cardholders
Device Management API	API for remotely managing and monitoring devices in the City system

In addition to the above existing main APIs, INIT utilizes additional APIs – such as, central payment processing API – which will be added to the list during the design phase. INIT will also add specific APIs required by the ORCA Agencies such as, the onboard integration API. In addition to the APIs, INIT will publish specifications, as requested in the SOW, for all transactions generated and used within the system but not already covered by the required API.

INIT provides an easy to understand help page for all API calls.

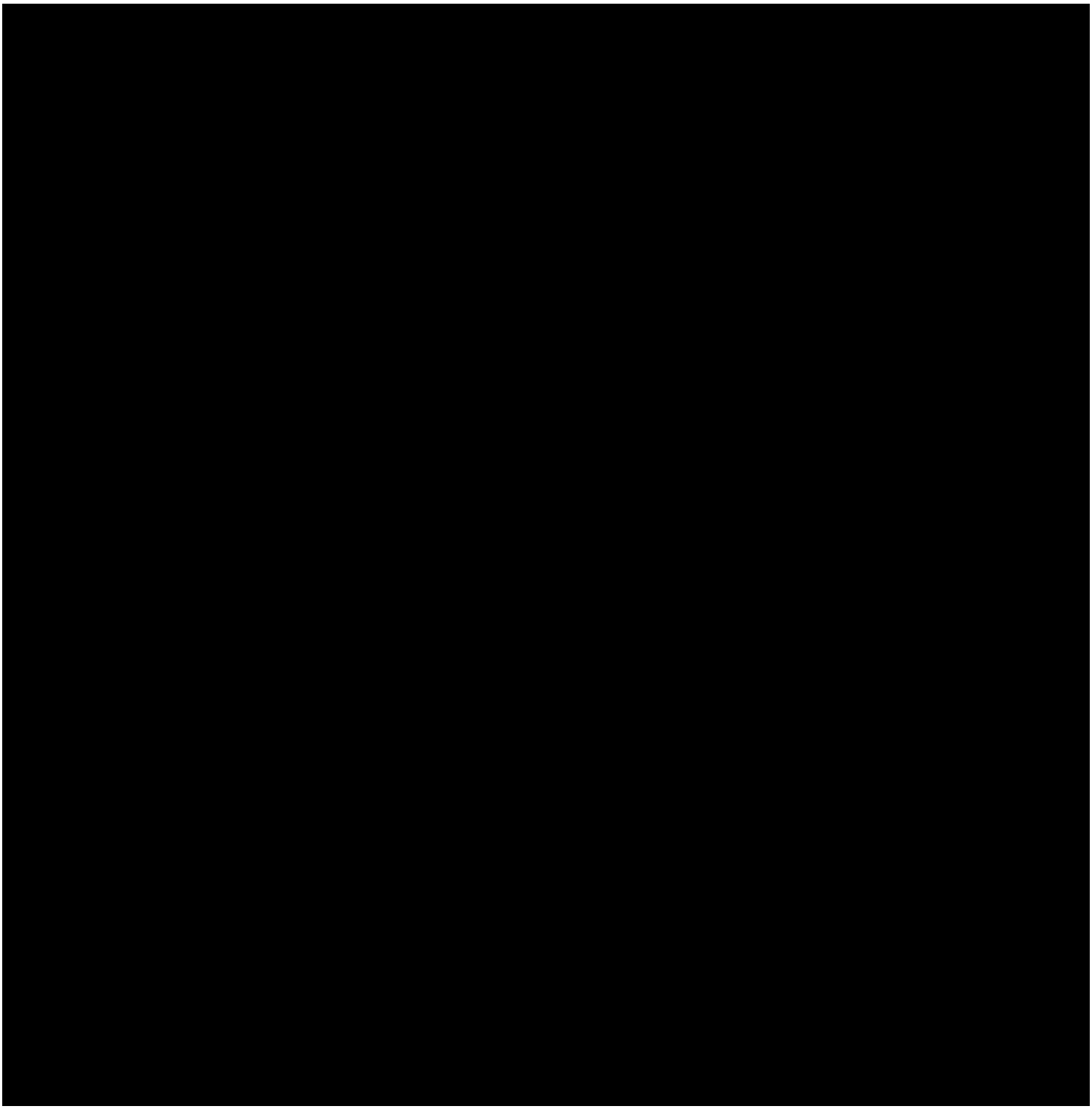


API Help Page

Below is a screenshot of an API development and testing session with postman (a very popular API testing and development tool).

In the above screenshot the users gets a list of the available sales channels with the SalesChannels REST API endpoint.

The following example shows how the get the 5 most recently blocked transit account. The example is written in Python:



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1.4.2.5 Network Architecture

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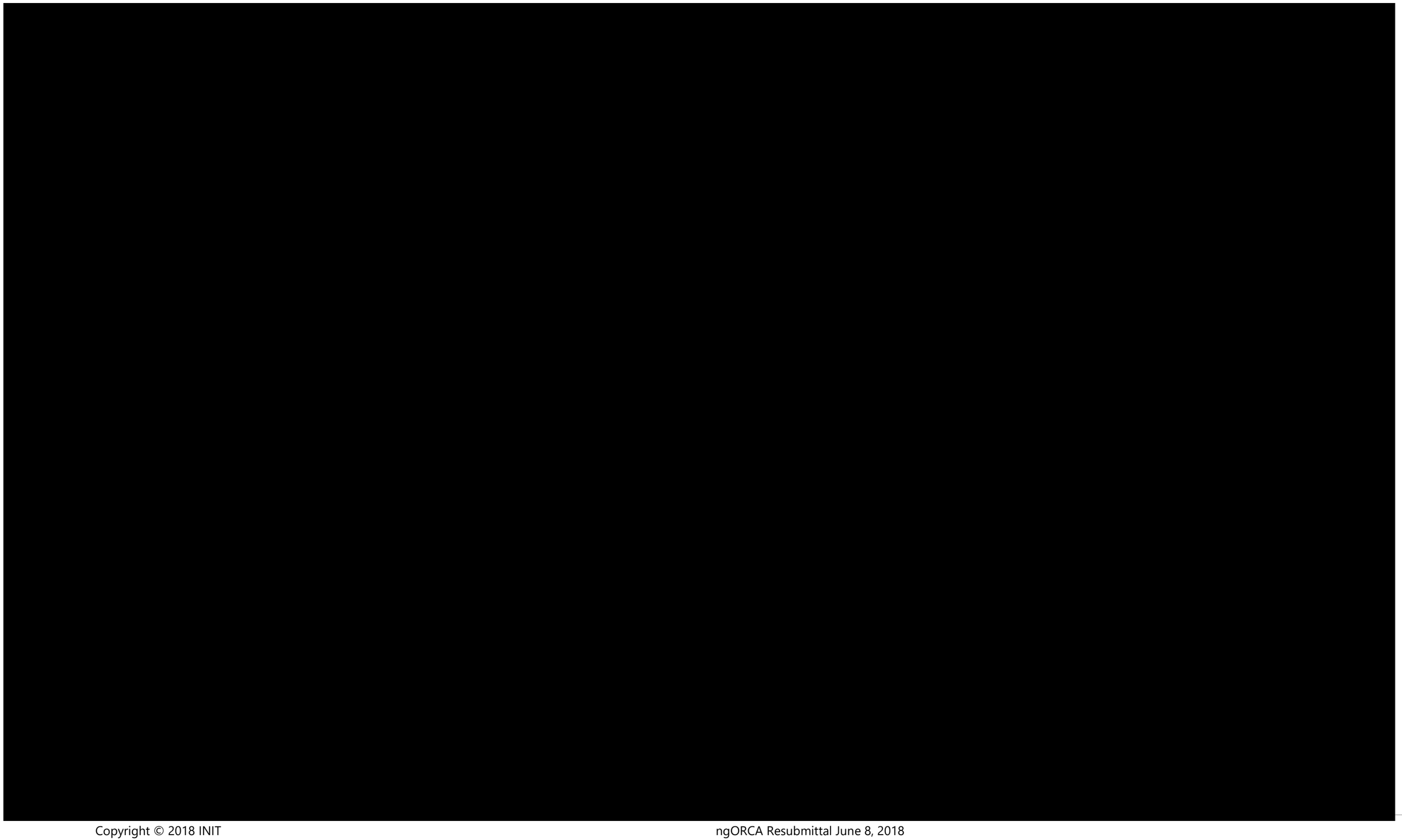

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1.4.2.5.1 Description

The proposed network architecture consists of a datacenter managed [redacted] consisting of enterprise class servers, storage and networking deployed in a multi-site, stretched virtual cluster leveraging geographic load balancing to create an active/active disaster resilient infrastructure. Production and pre-production virtual machines and applications live within the resources of the stretched cluster which is capable of making either proactive or lightly automated decisions to ensure system availability across sites. A separate test back office infrastructure replicates the load balancing and availability characteristics of the production system but without the multi-geographic site strategy. Importantly, a third out-of-region data backup facility ensures data availability in the rare case of a catastrophic regional event.

INIT proposes the managed [redacted]

[redacted]

See Appendix A: Disaster Avoidance vs. Disaster Recovery for additional information.

[redacted] a [redacted] low-latency data center infrastructure with broad wide area networking capabilities ensures uninterrupted access to internet based resources and agency networks. Enterprise class data center software including Windows, VMWare, [redacted] provide commercial off-the-shelf software capabilities to create a managed, secure and resilient information technology infrastructure. Local, remote and data-center managed services provide 24/7/365 response capabilities to infrastructure events. The two proposed datacenters are both located in the Seattle area to account for the real-time, or near-real time data synchronization necessary for an active/active cluster. While active/active clusters can be installed in environments further apart then the two proposed facilities, there is a geographic distance limitation which can be increased with additional licensing and configuration cost. INIT has identified more than one qualified potential data center provider that can provide stretched clusters across two datacenters in the Greater Seattle area as well as datacenters located in geographically separate regions.

The Seattle-based hosted environment was proposed to be able to provide a localized data center, with private cloud resources and security, at a predictable cost. Hosting in a public cloud increases latency risks between agencies, users, vehicles and the public cloud hosted back end environment. Due to the sensitive nature of real-time validations, INIT prefers deploying in locations close to the operating environment. INIT recommends private-cloud infrastructures to provide more administrative control, monitoring, and single-tenant storage and resource guarantees. Further, the private cloud strategy provides a more predictable cost over a long period of time which more appropriately matches the fixed price contract and should allow the agency to avoid spikes in operational costs due to configuration changes made in the future.

1.4.2.5.2 Onboard Infrastructure

INIT supplied on-board equipment such as fare validators will leverage the agency-provided mobile access router (MAR) providing the required cellular or wireless communications to the back office. INIT recommends leveraging VLAN capabilities of the MAR to segment fare-related network traffic from other onboard technology systems such as CAD/AVL. INIT will require specific ports and protocols to be able to be routed through the MAR for the purposes of basic communications, software updates, and device management. Typical network protocols such as DNS, NTP, SNMP, UDP, HTTP/S, SSH are requested and either standard or non-standard ports can be assigned during design review. INIT recommends this traffic be routed [redacted] network, file transfer to the backend will occur via the [redacted] protocol.

1.4.2.5.3 Wayside Infrastructure

INIT supplied wayside equipment such as pole validators or VM's will leverage agency-provided wired infrastructure for communications to the back office.

1.4.2.6 System Hosting

INIT interviewed and analyzed several data center providers to provide the hardware, software and managed infrastructure as a service required to operate the next generation ORCA back office technology infrastructure. As expected, a large number of datacenter options available in the Seattle area were capable of fulfilling the technical requirements; however, several providers specifically met INIT's goals of having a strong, local Seattle-based presence, multiple local data centers, and a third, out-of-region on network datacenter. Superior availability, security, and deep technical engineering experience were also a key requirement used during our analysis.

INIT proposes Seattle-based [redacted] IAAS provider. [redacted]

[redacted]

[redacted]

1.4.2.6.1 Customer References

[redacted]

1.4.2.6.2 Security

[redacted]

[redacted].

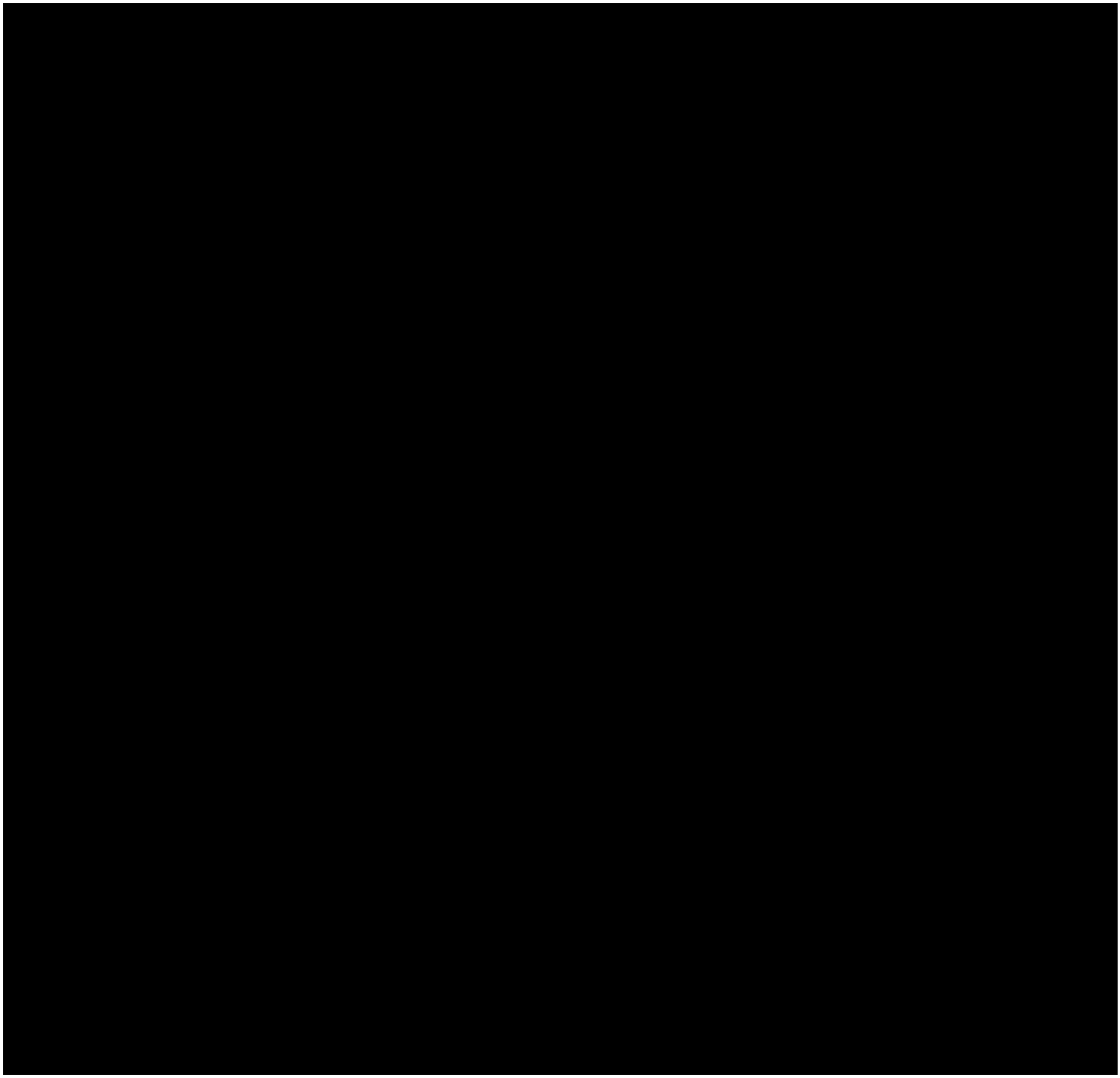
1.4.2.6.3 [redacted] Staffing and Resources

[redacted] uses a multilayered technical and engineering team approach to manage and maintain its cloud operations. The team comprises of engineers with different strength and expertise including program managers and project managers to manage and deliver projects to customers.

The team comprise of the following layers:

- Tier1 Technical Customer Support Representatives
- Tier1 System Administration
- Tier1 Network Administration
- Tier2 System Administration
- Tier2 Network Administration
- Tier3 System Administration & Architect
- Tier3 Network Administration & Architect
- Facility Engineers
- Software developer and application developers
- Technical Project Managers
- Virtual Chief Technical Officer (CTO)

[redacted]



1.4.2.6.4 Wowrack's Uptime History

Year	[redacted]	[redacted] Network	Comment	Corrective Action
2013	100%	99.999%	Network storm caused by failed hardware on distribution layer causing packet loss/latencies issues	Completely replaced and re-engineered the distribution layer. Retired the failed switch

Year	IGW Tuk & Westin Electrical	Wowrack Network	Comment	Corrective Action
2013	100%	99.999%	Network storm caused by failed hardware on distribution layer causing packet loss/latencies issues	Completely replaced and re-engineered the distribution layer. Retired the failed switch
2014	100%	99.99%	Network brownouts due to denial of service attacks – not volumetric.	Implemented Corero DDoS mitigation appliance in 2017 to eliminate the number of brown outs caused by DDoS attacks
2015	100%	99.999%	Network brownouts due to denial of service attacks.	Implemented Corero DDoS mitigation appliance in 2017 to eliminate the number of brown outs caused by DDoS attacks
2016	100%	99.99%	Network brownouts due to denial of service attacks.	Implemented Corero DDoS mitigation appliance in 2017 to eliminate the number of brown outs caused by DDoS attacks

1.4.2.6.5 Wide Area Networking Capabilities

[redacted]

1.4.2.6.6 Single Tenant Private Cloud

[redacted]

1.4.2.6.7 Multi-Site

[redacted]

Multi-site solutions prioritize proactive and partially automated

disaster avoidance over orchestrated failover oriented disaster recovery strategies. A third site will be leveraged for an out-of-region data archive location to ensure data availability in the unlikely event of a regional disaster that could impact both data centers.

1.4.2.6.8 Load Balanced / Parallel Transactions

The multi-site infrastructure allows for the hosting of web sites and API services at both data center locations simultaneously. A load balancing strategy providing global server load balancing DNS-based capabilities allows traffic to be routed into either data center. This allows the infrastructure to operate in an active/active mode, dynamically routing traffic between datacenters to avoid over capacity servers or failed services. Inbound traffic is processed in a primary site by highly available middleware applications and databases capable of being migrated or failed-over to the secondary site.

1.4.2.6.9 Hardware Redundancy

All deployed hardware is deployed using industry standard best practices in either active/active or active/passive configurations depending on the technology layer. Any networking devices such as switches, routers, firewalls, fiber switches, etc. are deployed in high availability configurations with at least two devices in each datacenter location. This allows for multiple network and storage network paths between host servers, storage, and wide area networks.

All storage mediums regardless of location in servers or dedicated storage arrays are protected with RAID ensuring disk failures or disk performance issues can be isolated and protected from impacting the system as a whole.

Multiple host servers are deployed to create a larger, distributed resource pool the virtual machines and appliances can use to perform the compute operations necessary. For example, five host servers are clustered together into a virtual datacenter to create a pool of CPU and Memory resources. The deployed virtual machines can operate on any of the five hosts that has enough capacity to run the provisioned resource requirements. Hosts are configured with greater resource availability then the system requires to provide for availability, scalability and redundancy in the case of a host failure or intentional host maintenance.

1.4.2.6.10 Data Resiliency

Data is written into multiple databases in near-real time ensuring transactional integrity of the database. All databases, virtual machines and applications are stored on enterprise class storage devices leveraging redundant hard drives (RAID) to provide a resilient data infrastructure. Additionally, this data is replicated to secondary storage locations as well as archived to the off-site data storage location outside of the Seattle area.

1.4.2.6.11 Hardware Refresh

Over such a long period of performance, the back office system will necessarily undergo one or more hardware refresh cycles. Estimated to be at least every five (5) years, the INIT and WOWRACK teams will ensure maximum availability through regular hardware maintenance and refresh.

1.4.2.7 Operational Security

Perhaps one of the broadest areas of ISO guidance is operational security. INIT's proposed back office system already addresses many of the primary sub-clauses critical to maintaining the availability of the environment.

1.4.2.8 Security Operations Center

To support the security, compliance and ISMS requirements of next generation ORCA, INIT intends to operate a security operations center to monitor, evaluate, and respond to security incidents, vulnerabilities, or unexpected changes to the environment. The security operations center is responsible for security incident event management (SIEM), log management, intrusion detection and regular vulnerability assessments. In addition to providing a mature set of security related tools, the security operations center will evaluate and escalate important incidents while minimizing the significant amount of noise and overhead associated with managing these tools and their outputs. The Security Operations Center provides security management for perimeter defenses, data protection, endpoint protection, and vulnerability protection.

INIT will leverage [redacted], a Security Operations Center service provider will provide the security operations center applications and staff to monitor, analyze and report on the next generation ORCA infrastructure. [redacted]

1.4.2.8.1 Change Management

While the change management process and communication is handled by the Atlassian tools JIRA Service Desk and Insight, additional device and configuration change of IT devices are monitored and managed by [redacted] is a file integrity management platform that provides change auditing and security protection to servers, networks, databases. Deployed as an on premise, agent based system, [redacted] provides change details to support the who, what, when question details of changes. In addition to supporting ISO guidance, a change management control system also supports related PCI-DSS requirements for file integrity monitoring and change detection. [redacted] multiple change detection and response options including logging, recovering and prevention.

1.4.2.8.2 Web Server Change Tracking

[redacted] can be deployed to protect the configuration and content files behind public web servers. [redacted]

1.4.2.8.3 Network Device Change Tracking

[redacted]

1.4.2.8.4 Databases Configuration Change Tracking

[redacted]

1.4.2.8.5 Malware/Antivirus Protection

In addition to change management, anti-malware and anti-virus solutions align with controls recommended to protect the integrity of information systems. An effective anti-malware platform provides endpoint security to the servers and workstations deployed as part of next generation ORCA. [redacted]

1.4.2.8.6 Patch Management

Expected changes to the environment include those introduced by application and operating system patches. Following ISO guidance and general IT best practices, INIT will deploy a patch management platform to handle physical and virtual environments both internally and externally from the data centers. [redacted]

1.4.2.8.7 Capacity Management

Capacity management which monitors capacity and makes projections about future resource requirements is provided by an array of management and monitoring solutions. While the monitoring solutions are typically implemented as part of a larger Systems Management solution, the individual monitoring tools also provide the capacity management capabilities. [redacted] and storage provide tools for the system administrators to proactively predict and respond to potential resource constraints either through optimization or through the addition of resources.

1.4.2.8.7.1 S[redacted] Network Performance Manager

SolarWinds Network Performance Manager (NPM) provides performance monitoring and trend analysis for network and server devices in the back office environment. The solution extends beyond internal network devices to monitor and track WAN performance and capacity between the back office and the agency endpoints. While primarily used for system monitoring and reporting, the NPM platform provides the data collection and analysis needed for network capacity monitoring.

1.4.2.8.7.2 [redacted] Server Application Manager

SolarWinds Server Application Manager (SAM) provides performance monitoring and trend analysis of server resources in the back-office systems. SAM provides the capability for timeline based data correlation to provide operational intelligence across the technology stack. This data correlation allows for trend analysis intelligence to be performed between network, server, storage, and virtualization layers. While primarily used for system monitoring and reporting, the SAM platform provides the data collection and analysis needed for system resource monitoring.

1.4.2.8.8 Environment Separation

ISO controls suggest the separation of development, testing and production environments and INIT's proposed back-office infrastructure is deployed in support of that guidance. As demonstrated in the network architecture diagram, the production and pre-production back office systems are built within the same hosted, multi-site, distributed infrastructure and share the directory, monitoring, redundancy, load balancers and other administrative services deployed in support of the back-office requirements. Leveraging these support functions for both production and pre-production help limit costs and complexity while providing segmentation and isolation for the pre-production environment. Virtual machines from the

production environment can be replicated to the scaled down, separate test environment deployed on a separate infrastructure. While representing smaller scale and redundancy of the production environment, the test environment will mirror some of the load balancing and disaster avoidance strategies in order to be able to test these functions from the test facility. Development environments are deployed and maintained in virtualized development environments in INIT's on premise datacenters [redacted]

1.4.2.8.9 Backup

Backup is an integral component to system availability, business continuity and disaster recovery objectives. INIT will deploy a backup infrastructure to complement the multi-site disaster avoidance strategy as detailed in the Network Architecture section. INIT deploys backup solutions which are purpose built to leverage virtualization benefits allowing both full and incremental backups to be taken quickly and without production impact. Our backup controls are focused on backup verification and quick data recoverability. Integrations with VMWare, Windows, and Oracle provide granular backup and recovery options at either the virtual machine level or the file level. INIT proposes an out-of-region data backup facility to ensure resiliency from regional issues with the possibility of impacting both production datacenters in the greater Pacific North West region. Backups will occur locally within the production back office and be copied to an offsite, out of region storage location. This strategy provides for near-store backup data for the fastest RTO and RPO as well as for a remote-store backup for longer RTO/RPO but with protection against the rare, regional disaster that could affect the entire regional system and datacenters such as fire, flood, or earthquake. The scope of backups include applications, network devices and databases. Backup controls are additional to the disaster avoidance controls detailed in the Network Infrastructure and Business Continuity sections.

1.4.2.8.10 Network Segmentation

ISO27001 recommends introducing controls within larger network environments that segregate information domains to smaller, specific purpose enclaves. INIT's deployment strategies reflect this guidance using load balancers, firewalls, VLAN's, and DMZ's to segregate public facing services from internal servers including database servers. The creation of logical security perimeters creates the capability of further access control to higher-secured zones. A limitation of Internet access from some of the higher-security zone enclaves provides further protections but also creates complexity in operations. INIT leverages centralized patching, virus management and remote access proxies to extend the necessary management controls into the secure network segments.

1.4.2.8.11 Server Hardening

As recommended, INIT uses a standard server implementation template which has been hardened towards benchmarks from Center for Internet Security (CIS). INIT implements controls suggested by the CIS on a regular basis which improve the security of system without producing undue complexity or overhead. INIT prioritizes the selection of controls that are both simple and secure to ensure an environment simultaneously secure and manageable. Specifically, public facing servers such as web servers with Microsoft IIS receive additional configuration scrutiny and hardening to limit potential attack surfaces.

1.4.2.8.12 Security Incident and Log Management

[redacted]

1.4.2.9 Business Continuity & Disaster Recovery

A load-balanced, multi-site, active/active datacenter architecture provides the highest levels of availability focused on disaster avoidance through both light automation capabilities as well as proactive administrator-driven actions. [redacted]

[redacted]

1.4.2.9.1 Disaster Recovery Plan

INIT's disaster recovery plan, of which a sample template has been included, contains industry standard disaster recovery information. Because the proposed architecture is primarily designed to avoid disaster, the plan also includes details on the expected automated responses the system will take in certain common failure scenarios. Also included are templates for documenting business impact analysis and risk assessments that will be performed in collaboration and cooperation with ORCA agencies. Key personnel, application lists and dependency mappings are also detailed to provide operational intelligence to consumers of the disaster recovery plan. The DRP is intended to be a living document with updates made on a semi-annual basis to ensure accuracy, document changes, or to add additional information. A proposed disaster incident workflow and response plan document a recommended course of action and tracking mechanism that extends from disaster declaration and communication to system recovery priorities and order of operations.

Additionally, the disaster recovery plan would include data restoration procedures to restore data locally or from the proposed out of region data archive.

1.4.2.9.2 Out of Region Backup

[redacted]

1.4.3 System Integration Services

INIT will provide an open platform and work collaboratively with the ORCA Agencies and other parties to integrate new agencies, services, functionality and subsystems to the next generation ORCA system.

1.4.3.1 API Management

For API Management INIT proposes the comprehensive and widely used [redacted] The following diagram shows the proposed integration with the MOBILEvario APIs.

Client devices and software use the MOBILEvario APIs directly to provide the minimal latency times for the most critical system clients (for example the validators that require 500ms response times). Depending on the configuration that is determined during the negotiation or system specification phase, validator components can also be placed to use the API gateway. This depends on whether the vehicle routers (MARs) will provide a public internet or private APN connection.

With the API management, ORCA is able to publish APIs for different 3rd parties and publish even public APIs for everyone to use. ORCA can publish for example a public API to get the pricing information. Since this kind of information is normally read only, it can be cached in the gateway without placing too much burden on the fare collection system.

The Azure API management system also supports industry standard client authentication methods such as Oauth and OpenID. Authentication with client certificates is also possible.

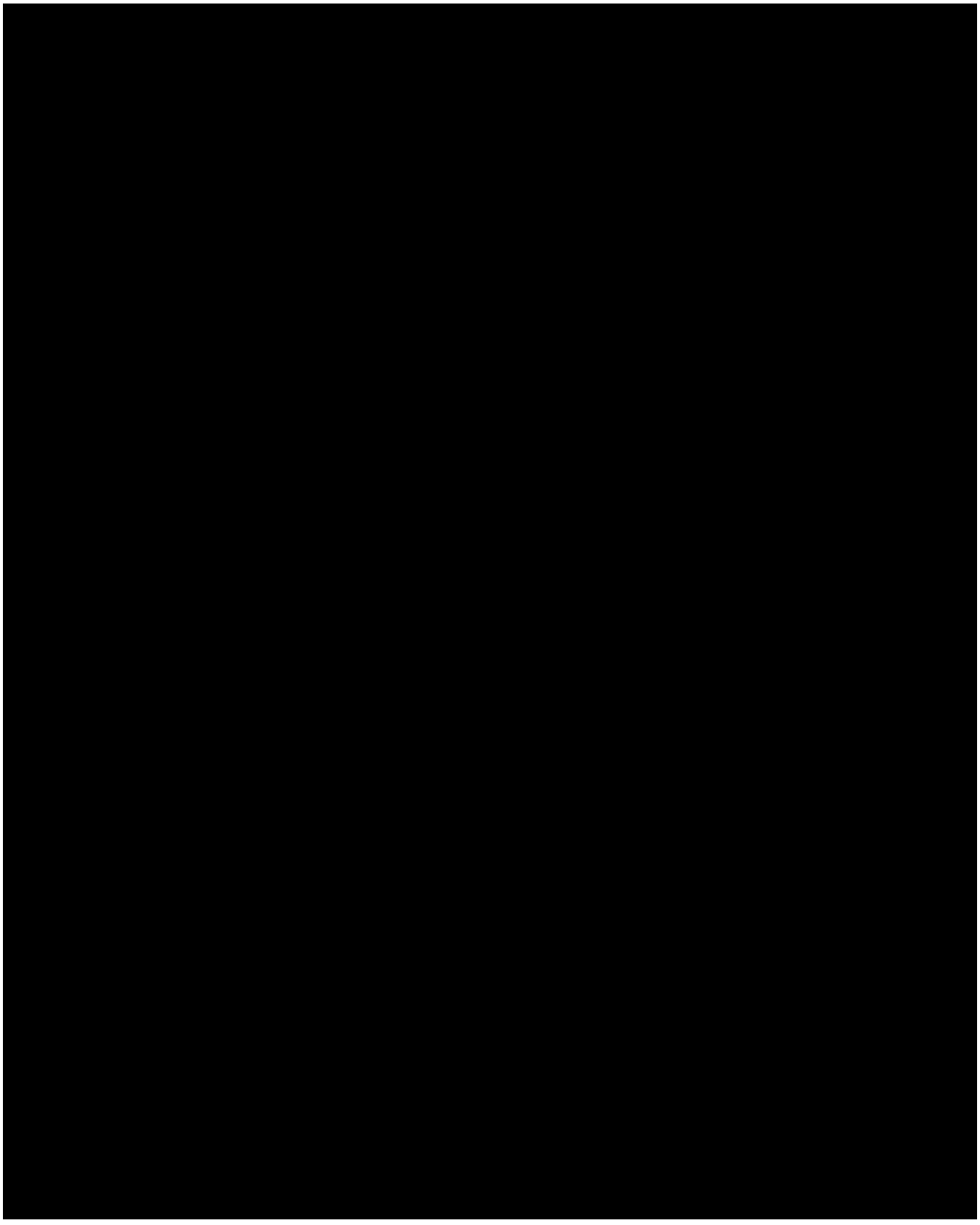
ORCA can also set limits for certain API clients; for example, limiting the number of API calls allowed per day. This is very important to secure proper system operation in case of malfunctioning API clients or DoS attacks on public APIs.

Although it is possible to implement on premises API gateway with some of the API gateway providers (for example Azure does not provide this option), the common way today is to use a

cloud/SaaS based solution which is also in line with the agencies preference. In order to overcome any latency issues for devices for which the latency time is critical (validators), INIT suggests that the validators use the OVS APIs directly to ensure low latency and high throughput for other system clients, Azure API Management provides two independent sites at US west coast (WEST US and WEST US 2). INIT proposes a solution where both sites are used. This will further decreace latency and increase throughput. If the agency prefers on premises API management instead, this can also be discussed during the system design phase.

General information on [redacted]

[redacted]



1.4.3.2 Onboard Integration

INIT currently provides the CAD/AVL equipment for the majority of the buses that participate in the next generation ORCA system (i.e., for King County Metro (KCM) and Community Transit (CT)).

Consequently, INIT can provide the onboard integration more cost-effectively and with lower implementation risk than other proposers. These advantages are especially amplified for the higher-level of integration required for the KCM busses. The integration at KCM, and potentially at Community Transit will require the INIT CAD/AVL DDU to also act as the next generation ORCA DDU. INIT will be able to provide single sign-on easily on these agencies' buses.

INIT's also has extensive experience with onboard integration to other vendors' onboard equipment, such as Clever Devices and Conduent. INIT will integrate with the remaining Agencies' onboard CAD/AVL equipment to obtain geolocation data, work status information (i.e., route/run/trip), and to provide single sign-on logon.

INIT will realize this interface over one of the open onboard communication standards – such as, J1708/1939, Ethernet/Wi-Fi, Bluetooth, and/or USB. The specific details will be determined during the design phase.

INIT recommends the use of the INIT developed Information Sharing Interface (ISI) to perform the on-board integration effort. The ISI is a TCP/IP based interface to share information like login information, trips, routes etc. The ISI messages are XML based and the interface used for dozens of integration projects between INIT devices and other vendors.

1.4.3.2.1 ISI Communication Example

In this example the validator requests the route number from the CAD/AVL system. The validator application sets a cyclic trigger and a change trigger for the route data items. This means that the CAD/AVL system will send the route number whenever the number changes and in addition every 60 seconds.

The application also sets an identifier <IsiId? for the IsiPut Message to have to ability to disable this message later.

The IsiGet Message looks like:

```
<IsiGet>
        <IsiId>123</IsiId>
        <Items>RouteNo</Items>
        <OnChange>RouteNo</OnChange>
        <Cyclic>60</Cyclic>
      </IsiGet>
```

The IsiPut Message that the CAD/AVL system will return looks like this:

```
      <IsiPut>
        <IsiId>123</IsiId>
        <BlockNo>1401</BlockNo>
      </IsiPut>
```

1.4.3.3 Customer & Agency Interfaces Integration

As discussed, connections between the back office and customer and agency interfaces – such as, the customer website, customer mobile app, and agency mobile apps, will be performed through INIT-provided APIs.

1.4.3.4 Washington State Ferries

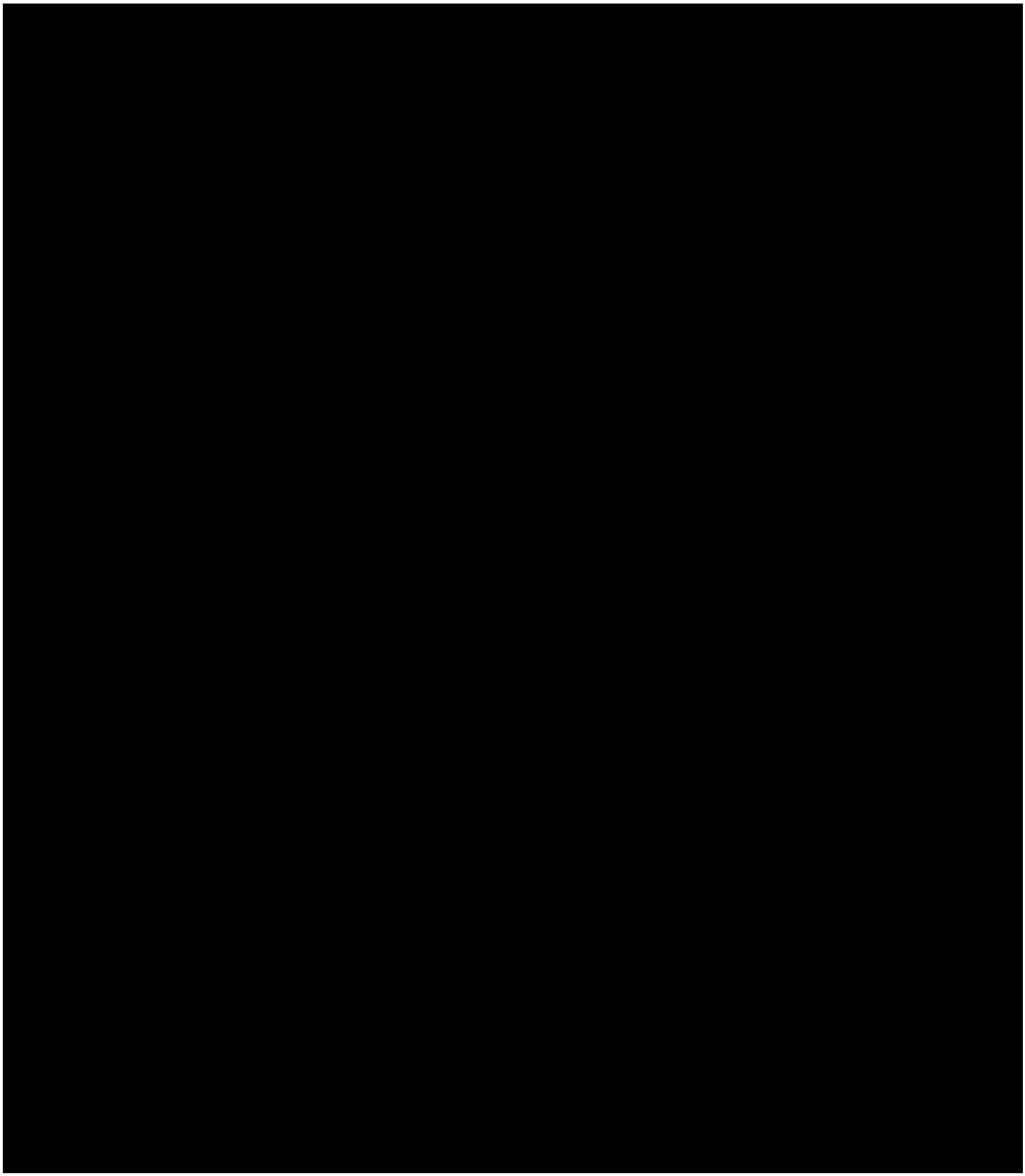
INIT will utilize the core next generation ORCA APIs to interface to the Washington State Ferries (WSF) frontend devices including the following:

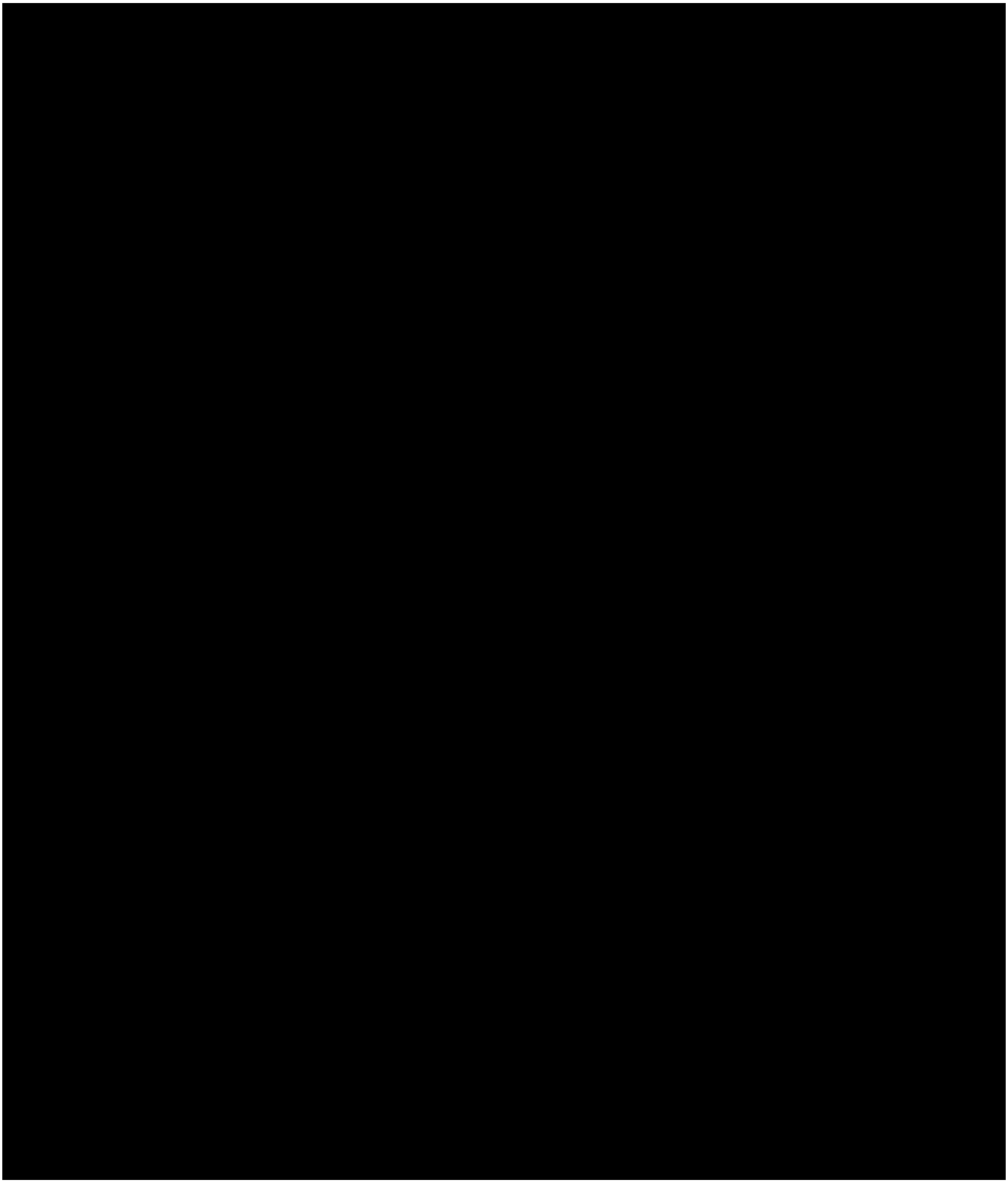
- Turnstiles (fare gates used for walk-on passenger fare payment at certain WSF locations)
- Handheld validators (mainly use for fare payment; however, include additional capabilities to query an account and adjust next generation ORCA value and products)
- POS system (to collect fare payment at a passenger or vehicle tollbooth, do a transit account query, use ORCA stored value, or load value/product)

INIT understands that all fare amounts, including calculated peak fares by trip, will be determined by the new WSF fare collection system, EFS2, and the next generation ORCA back office will only determine the time-based peak pricing.

All INIT validators are using INIT's own Fare Payment APIs to perform fare validation. Those APIs would be used by the WSF Turnstiles and Handheld Validators too to access the ngORCA back office. INIT is familiar with 3rd parties doing fare validation using the APIs. E.g. in the Portland

HOP Fastpass implementation the paratransit scheduling provider Trapeze is integrating into the back-office using INIT's APIs to perform fare payments.





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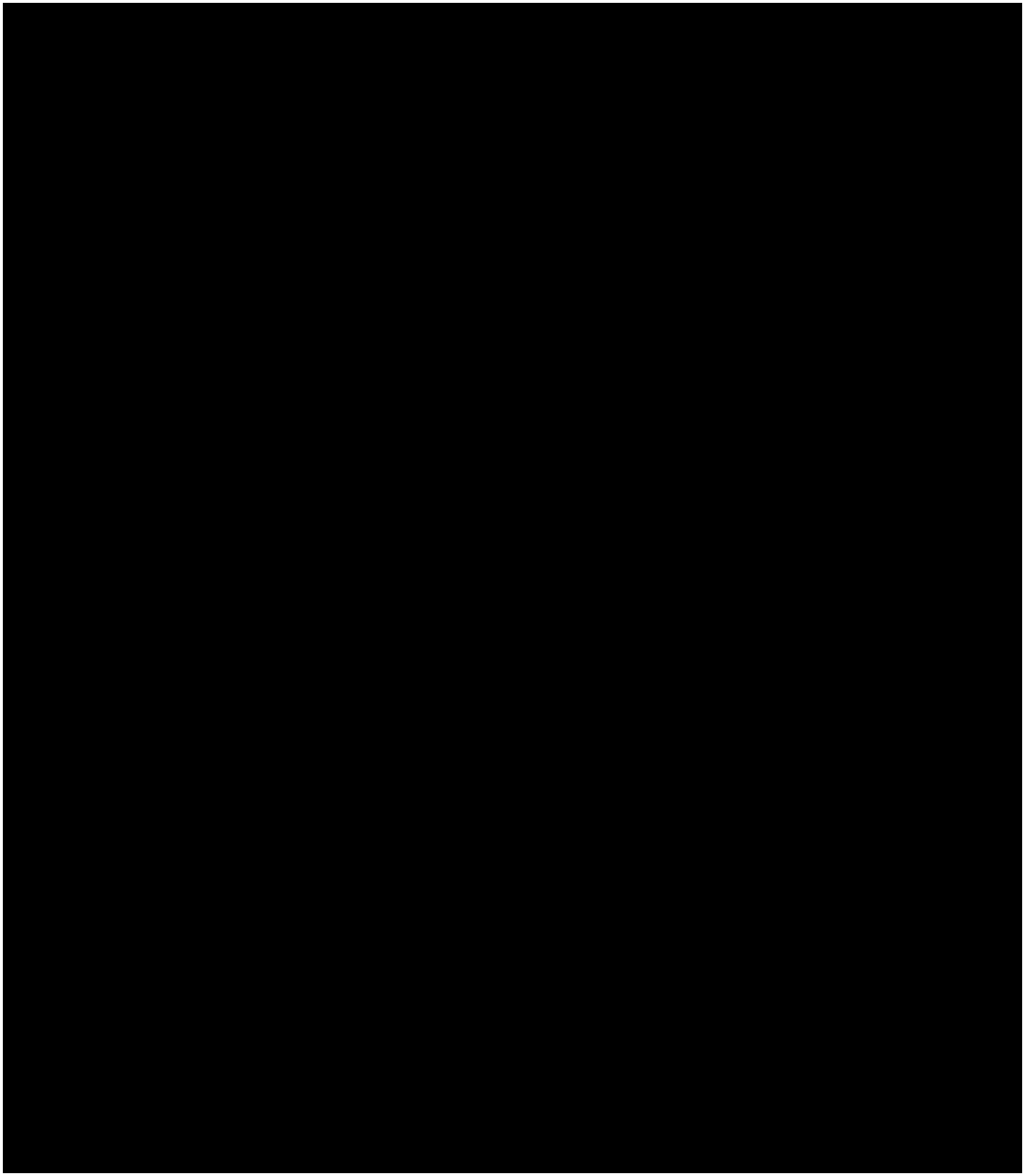
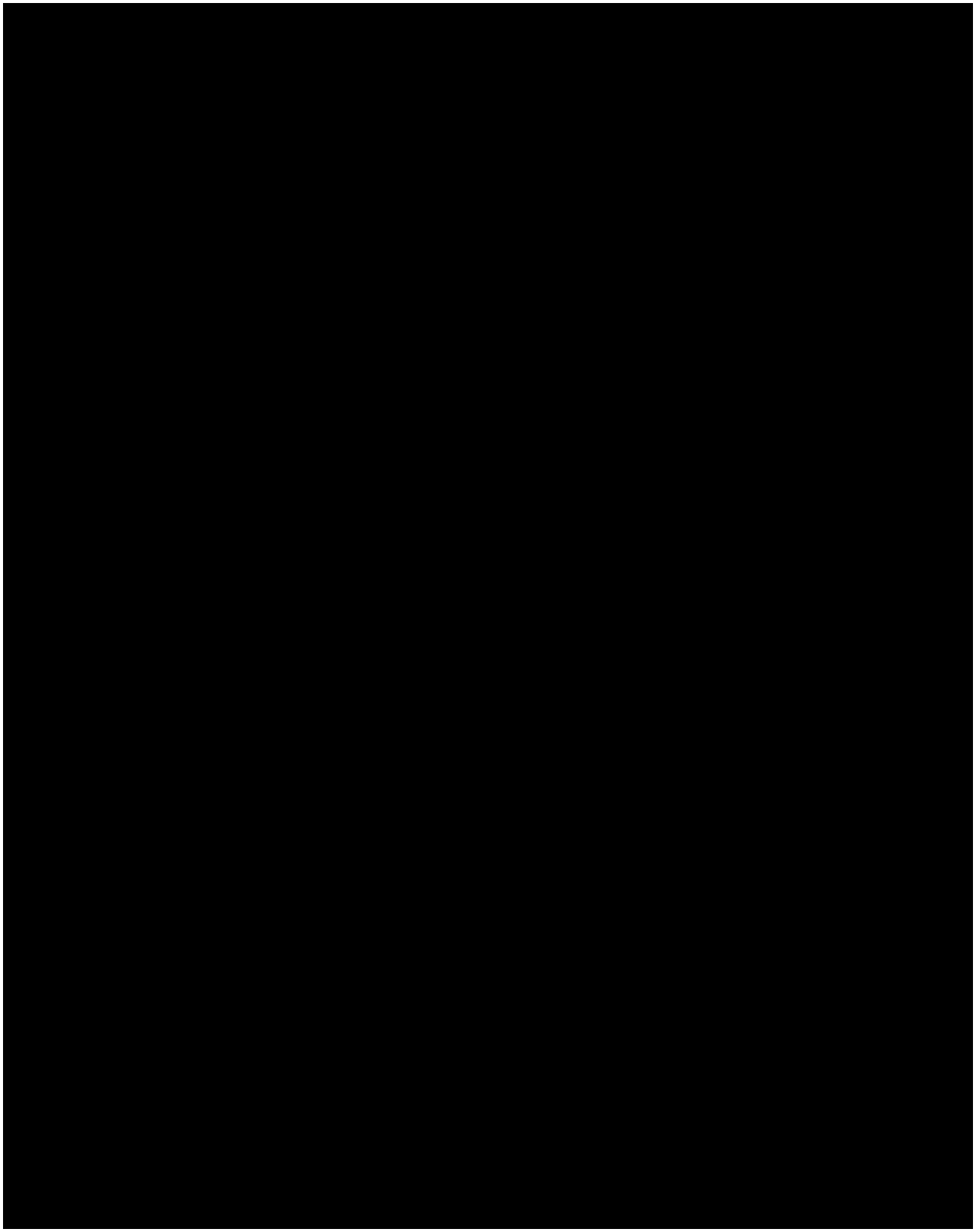
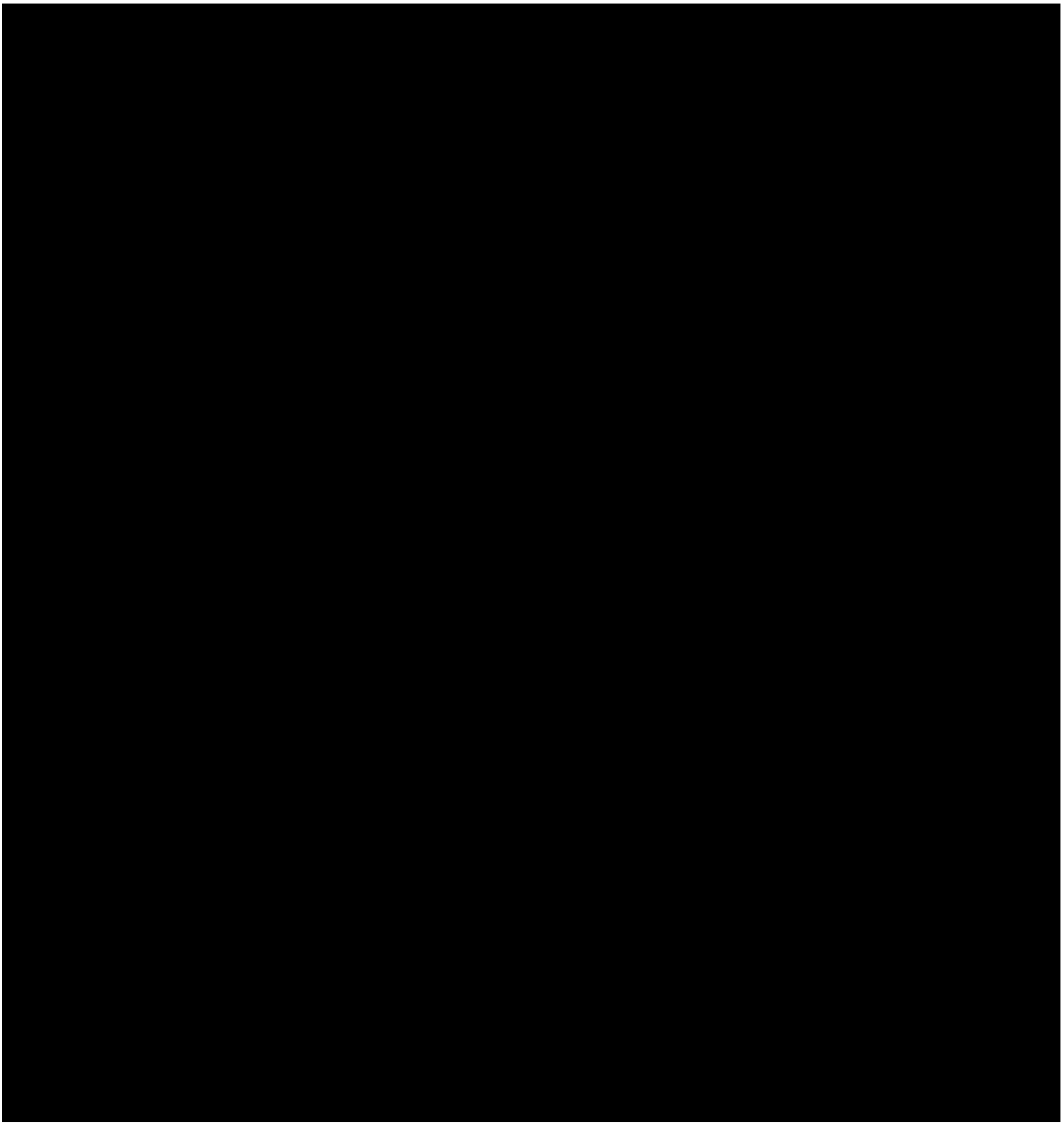
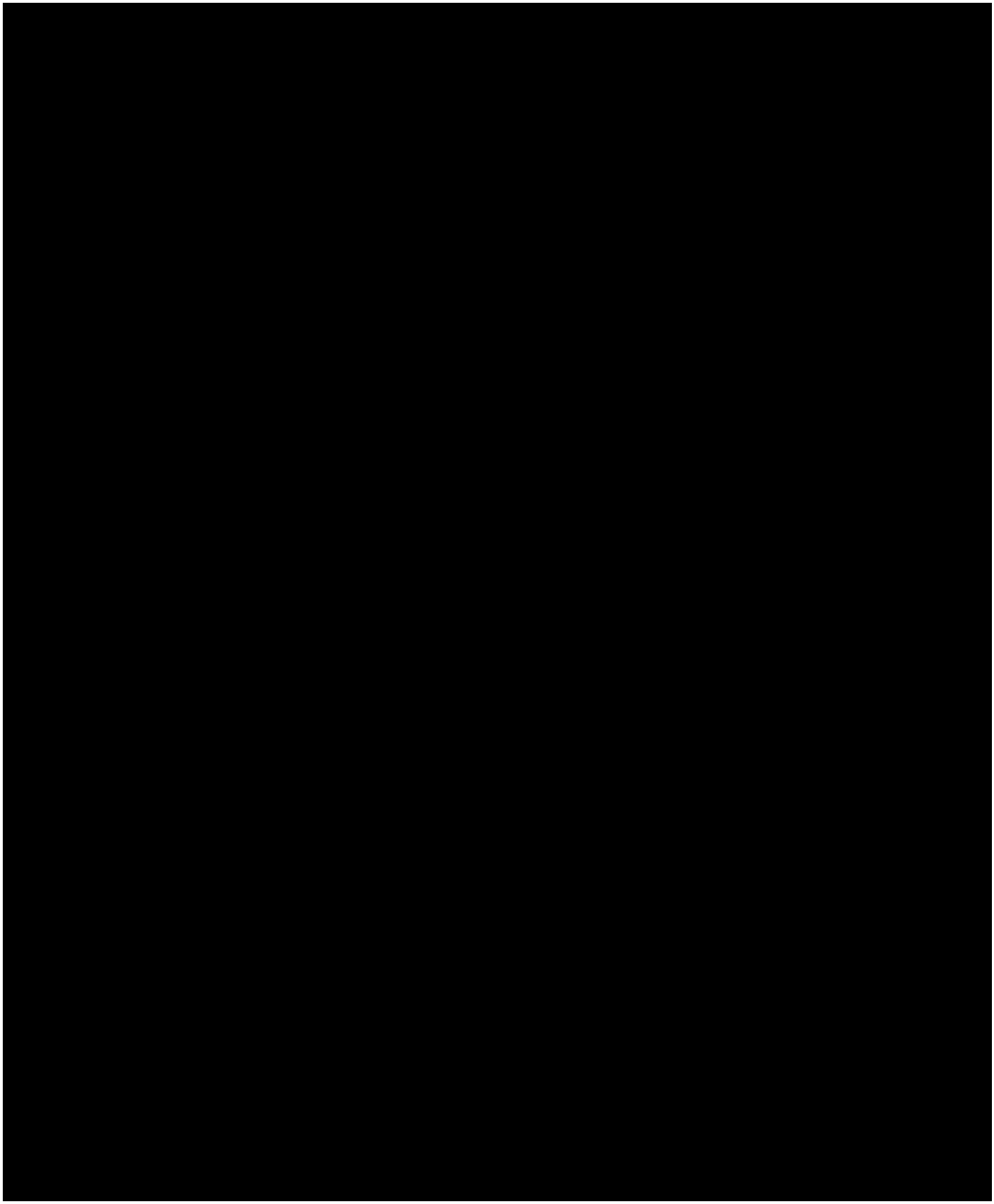
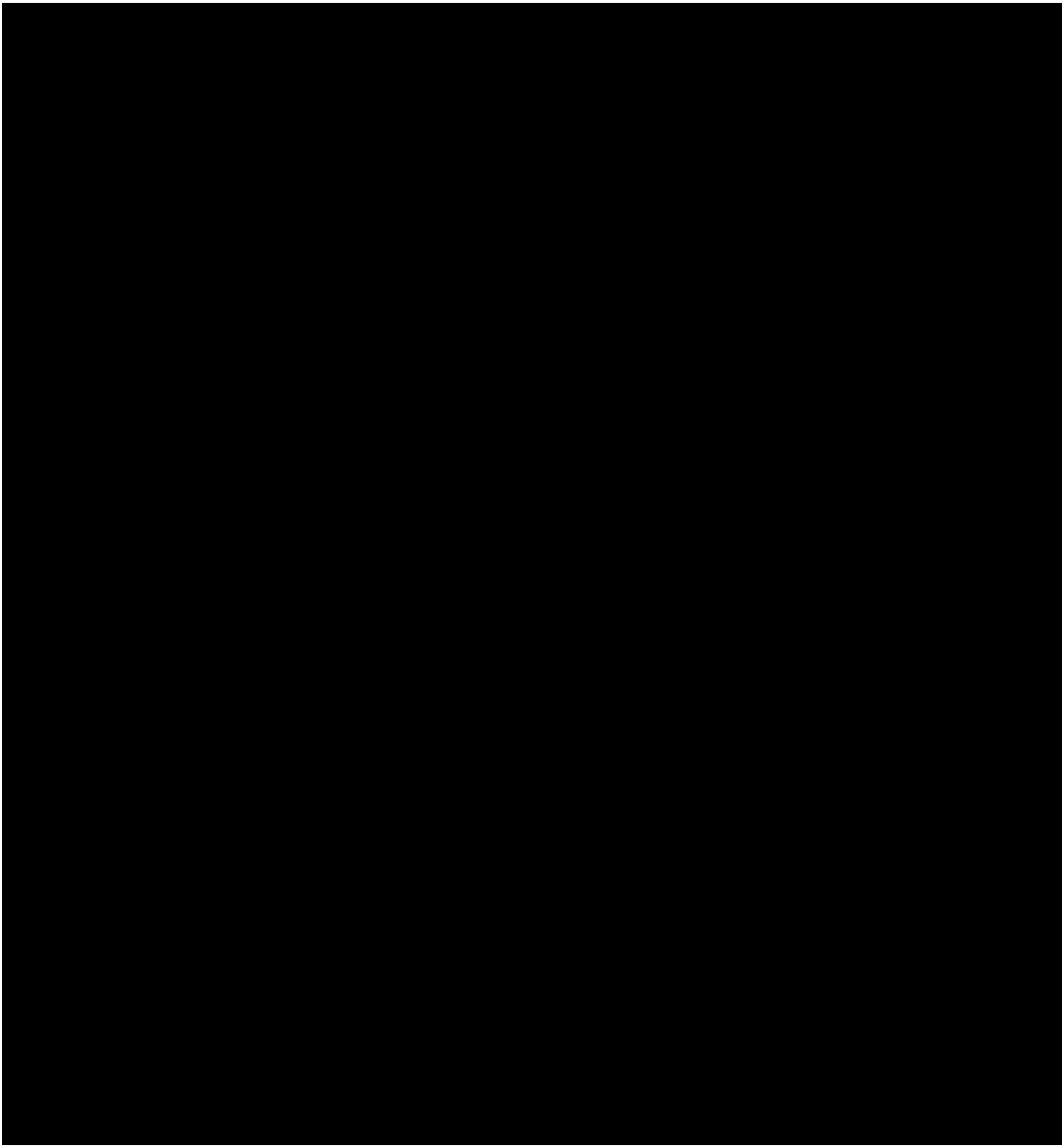
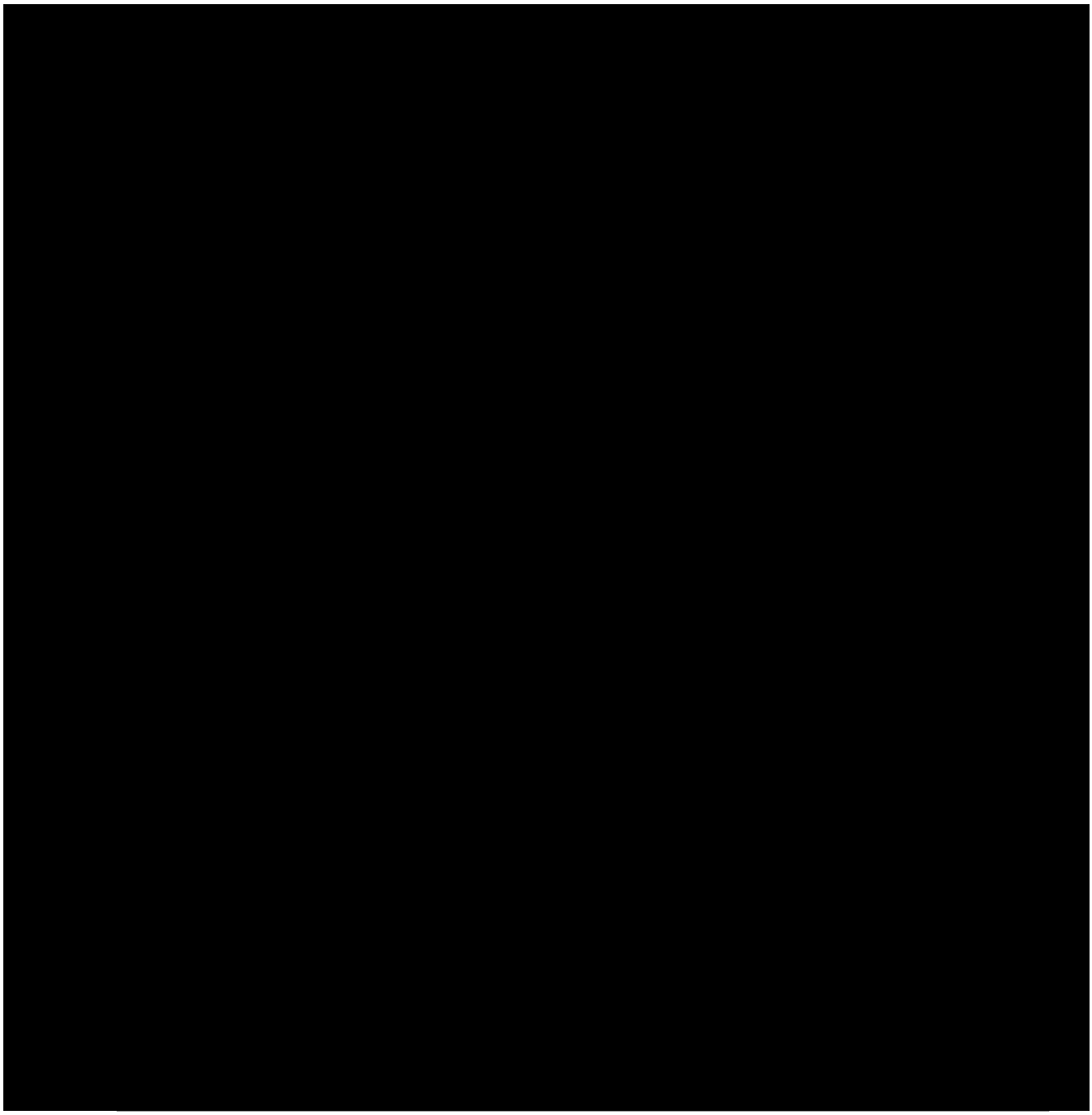












INIT API Reference for POST FarePayment Call

1.4.3.5 Data Access & Reporting Platform (DARe)

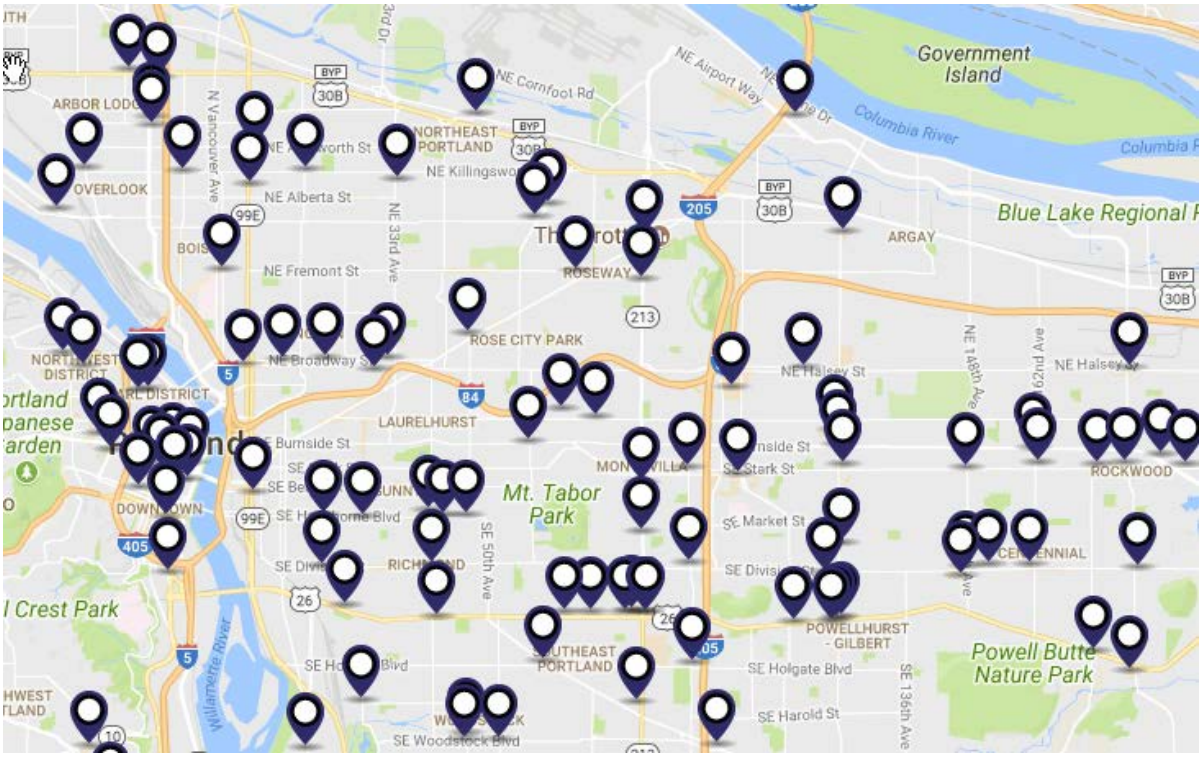
1.4.3.6 Retail Network

MOBILEvario is INIT's account based open architecture back office system that enables the integration of various types of sales clients. This can support a range of devices from individual POS devices up to and including an entire retail sales network.

The main task of a retail sales network is to sell customers new smartcards and to add stored value to existing cards. Since, in an account based fare collection system, the smartcard is used merely as an account identifier and all information is stored in the back office, it is very important that all retail sales transactions are immediately sent to the APIs without any batching being performed which would delay the newly loaded value being credited to the customer's account. This way the passengers will be able to use the card on a bus or platform validator directly after purchasing it in the store. The instantaneous availability of loaded value increases customer satisfaction by eliminating the waiting period for value added to the ORCA card.

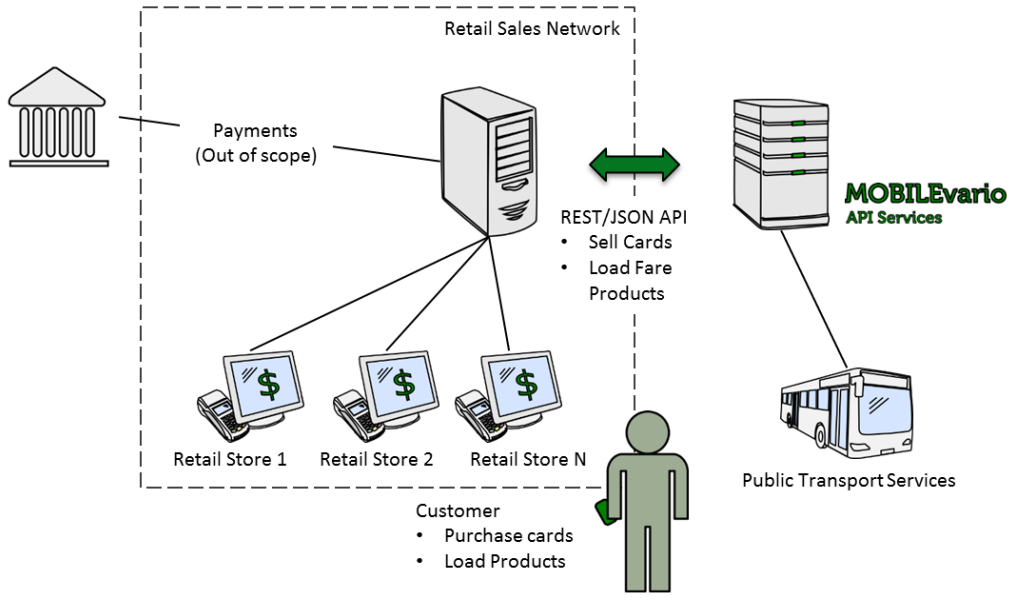
According the next generation ORCA RFP, the primary distribution channel for next gen ORCA fare media and stored value cards will be an extensive network of retail merchants. The retail network will consist primarily of merchant locations that currently sell prepaid debit cards (e.g., gift cards) and where the point-of-sale (POS) system is already integrated with at least one prepaid debit card network provider.

This scenario is identical to the retail network approach that was implemented by TriMet for the HOP Fastpass system in Portland, Oregon. The retail sales network implemented for the Portland HOP card uses ReadyCredit as the retail network. Retail outlets that are connected to this retail network include Safeway, New Seasons, Fred Meyer, 7-11 and others providing card distribution throughout the greater Portland metropolitan area.



Retail locations accepting HOP transactions in the Portland metropolitan area

The following diagram shows the main system components of the Retail Sales Network integration. The central service uses the REST/JSON API provided by the MOBILEvario system to add value/products to the card accounts (aka. transit account) and sell new cards. We do not envision that the payments of the retail network will be processed via the API's, but this would be possible too.



Retail Network System Components

1.4.3.6.1 Standard Use-Case

The retail network can either sell new passes or cash value loads. Giving the retail network the ability to load pass products may require complex interaction between the clerk and the retail load terminal (e.g. choosing the right agency, selecting the right product and fare category, selecting the right validity dates).

To avoid a complex selection process, other projects, like the HOP system in Portland, only allow cash value loads.

The following is a description of a normal sales procedure:

1. Customer selects a card from the card hanger or brings an already purchased card and passes it to the sales person.
2. The sales person swipes the card (either using the magnetic stripe) or scans it (using a barcode reader) to initiate the sale process.
3. The clerk asks for an amount of stored value to be added to the account and enters this amount into the POS.
4. The POS calculates the transaction amount. If the system detects that the card is new, the cost of the card will be added to the transaction.
5. The customer pays the amount owed.
6. The POS system generates the JSON transaction data for the MOBILEvario Sales API.

7. The transaction is sent to the MOBILEvario API.

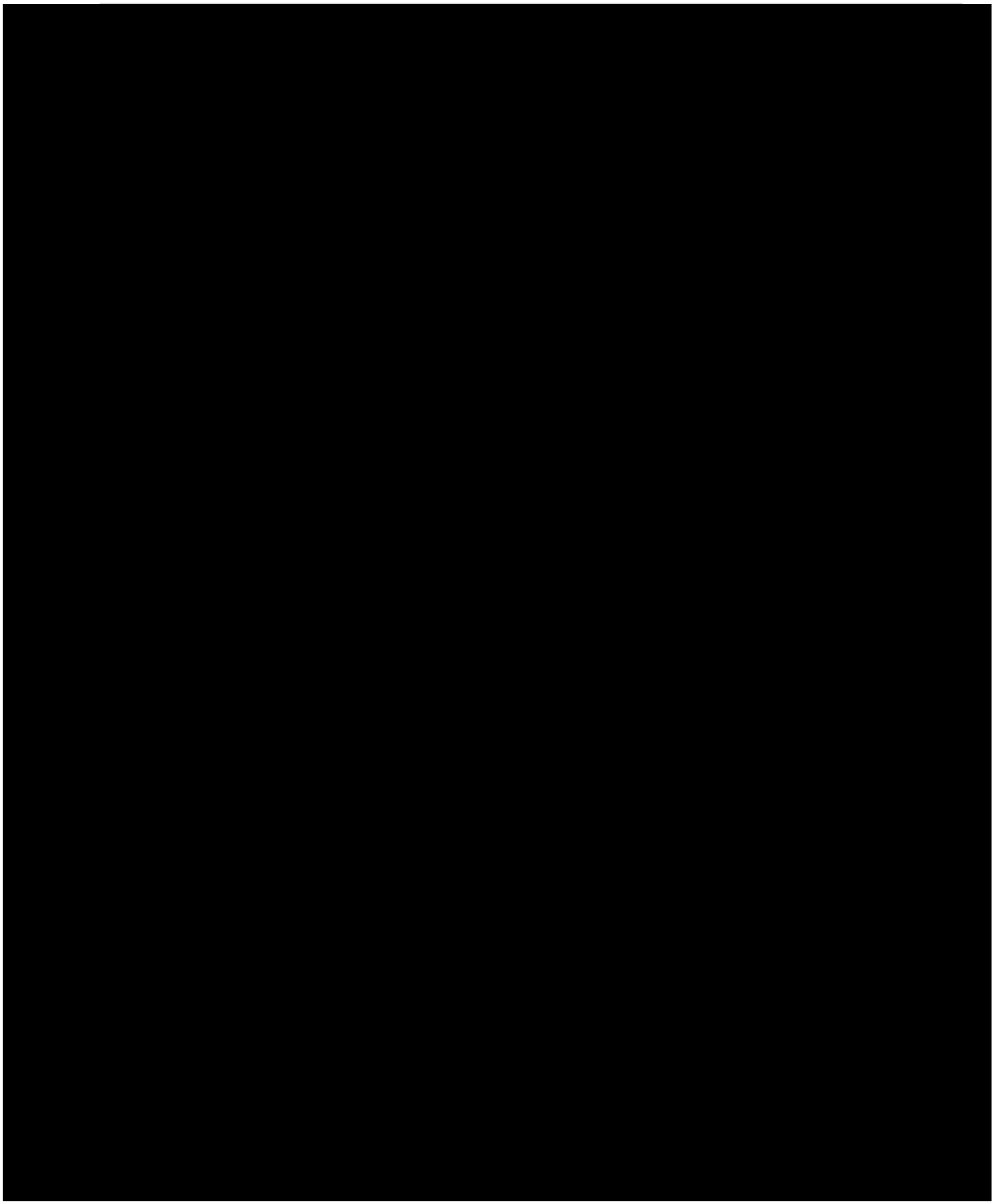
The API supports cancellations and refunds. This is especially important for situations where communication problems between the retail network and the backend exist.

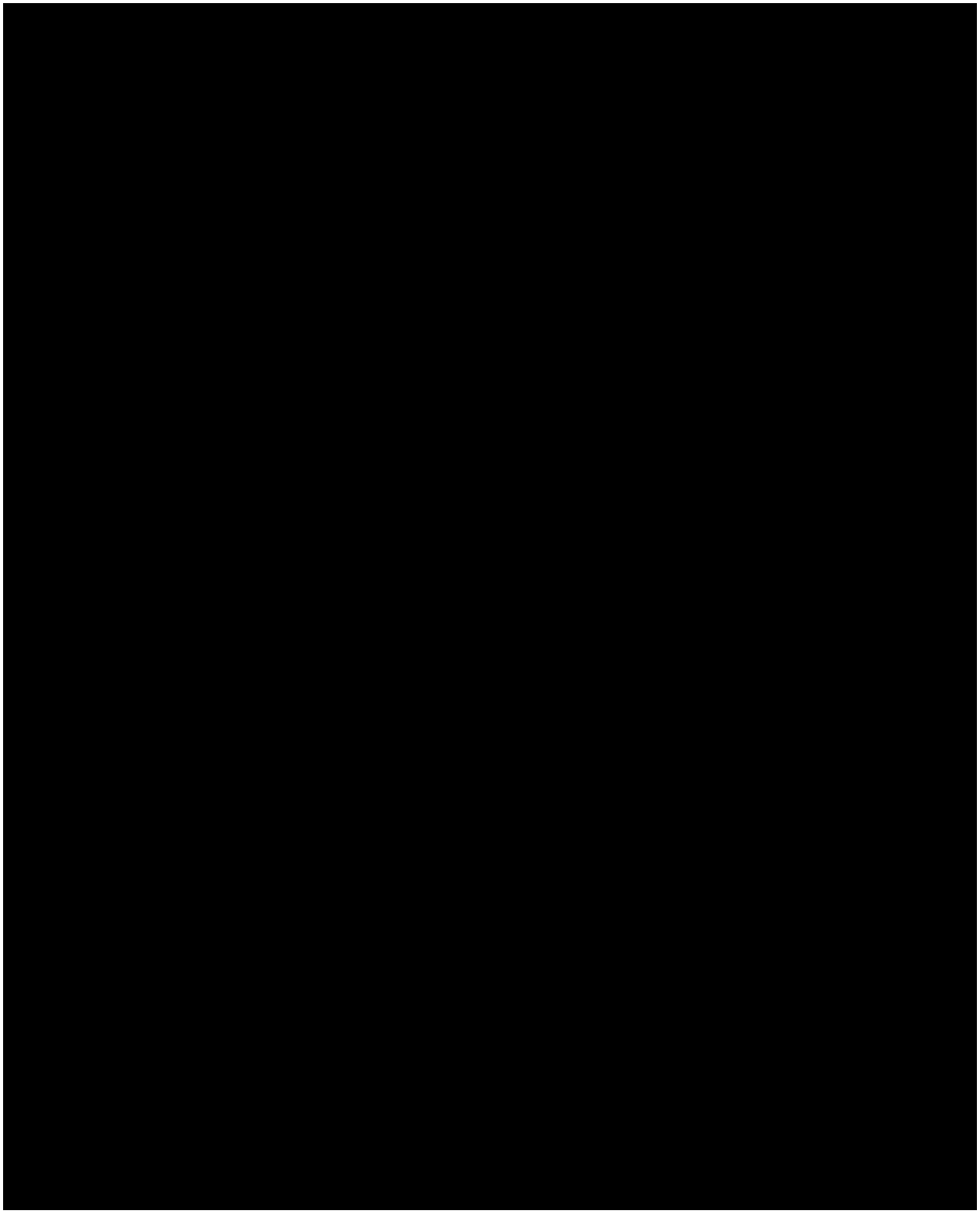
With a cancellation, the sales client can cancel the whole sales transaction shortly after it is executed. For example, if the sales transaction with the API is done before the payment and needs to be cancelled due to failed payment. With the refund transaction, the sales client can refund a transaction made maybe days before and it has finer grade of control on what is being refunded and how the refund is made (cash, credit card etc.). It might be that the customer bought a card, $25 of stored value and a month pass and want to have refund only on the month pass, maybe day after the sales transaction. Which sales channels can make refunds is in the agencies consideration. For example, the sales network does not normally process refunds.

The Retails Sales Network will have its own sales channel identifier that is submitted in every transaction. Based on this identifier the retail network can be invoiced for the amount loaded to the cards.

1.4.3.6.2 Retail Network API Example

The most important end point for any sales client is the Sales API which is used to issue a card and/or add a fare product to the cards account. Following table shows the different fields in the





1.4.3.7 Back Office Integration with Existing Solution

INIT will exchange data with the legacy ORCA system via the DARe repository. During the transition, INIT will obtain legacy ORCA transit account information via the DARe and provide negative lists to the legacy ORCA system using its facility for the bulk uploading of lists. The

actual method of information exchange and the design details will be determined collaboratively during the design phase.

All transactional data (e.g. all taps performed on the legacy ORCA validators) will be transferred to the ngORCA system using the DARe. Based on the dataset received from the DARe the Transit Account balances and all card histories will be updated accordingly.

The same applies to all sales transactions that are made with legacy hardware, for example with the legacy Vending Machines. All transactions will be transferred to the ngORCA system using the DARe.

Once the ngORCA system is the system of record, the only means for the legacy validators to determine if a card is valid is the status list / negative list. INIT will use a middleware to pull the status list information from the INIT API server and modify the list into any format so that it can be consumed by the legacy ORCA system. The status list could be a simple negative list with the card numbers of all cards that are blocked or have a negative balance. In addition, INIT could provide a blocking timestamp so that riders can finish their current ride that they paid for, even if their balance is negative at the end of the trip.

1.4.3.8 ADA Paratransit

INIT will replicate the legacy ORCA integration with King County's ADA paratransit system in Phase 1, and have it available for all participating ORCA Agencies.

Specifically, the next generation ORCA system will receive a list of eligible paratransit customers. INIT will support an agency-specific paratransit monthly pass, and the system will restrict sales of such a pass to eligible customers only. INIT will export a list with pass sales details from the back office on a daily or more frequent basis for import into agency paratransit databases.

In addition to system updates using a file import that contains all eligible customers, the customer eligibility for the ADA services can be managed by the CRM system.

1.4.3.9 Vanpool

In Phase 1, INIT will replicate the current legacy ORCA System integration with vanpool systems in the next generation ORCA system.

The tariff will be configured with a Vanpool product with flexible value. This product will be purchased whenever a customer wants to pay for their individual fare payment. In addition to this flexible Vanpool product, additional Vanpool products can be configured (with fixed value) to represent joint transit or monthly / weekly / annual Vanpool products.

The Vanpool users will be able to purchase the flexible value product by typing in (or selecting from a drop-down) the customized dollar value. The purchase can be made on the website, via app or using the CRM / POS.

All product purchases (the INIT system considers the individual fare payment contribution as a product purchase too) will be recognized based on the accounting rules. This will allow segregation and distribution of the products to individual agencies.

1.4.3.10 Additional Integrations

INIT's proposed next generation ORCA System will support additional integrations beyond Phase 1 to include additional agencies and additional modes. The System will support the addition of unlimited new agencies including fare rules that are part of the existing design. The system will provide a scalable framework to support the growth in users and data inherent in adding agencies. The System will be able to integrate with the Kitsap Fast Ferries reservation system in Phase II. All agencies added after the initial implementation will use the System's user interfaces, process flows, and business rules as designed during the initial implementation. Additional agencies will be able to have revenue sharing and apportionment turned on or off according to the existing apportionment rules.

The System will support the addition of new transportation connections, modes and products (e.g., parking) with unique fare pricing and all the configurability of existing modes and products without additional development. The System will support additional modes (Transportation Connections) through APIs that allow third party developers of external applications to communicate with the System in order to manager fare products, transit accounts, and report transactions.

For further details see Tab 6 of this proposal.

1.5 A Service Proven and Innovative Solution

*Include a detailed description of **how** your proposed System conforms to the service- proven and other capabilities in the Scope of Work Sections 3 through 7, and, if applicable, clearly indicate whether or not the solution requires new development (and the extent of development required) or commercial-off-the–shelf (COTS) applications. Describe how the firm proposes to satisfy the service-proven capabilities and still be the innovative solution described in Scope of Work Section 1. For each furnished device that has been used in service, list public agencies or private organizations for which device has been supplied. Include the following information for each:*

a. Agency or company name and contact person,

b. Business address and phone number,

c. Model number (and original equipment manufacturer, if applicable) of the module,

d. Quantity of equipment provided, and

e. Approximate number of years in revenue service.

1.5.1 INIT's Proposed System conforms to the Scope of Work

INIT meets the ngORCA capabilities by specifically meeting each of the ORCA Agencies' customer, technology, cost, and agency project goal. INIT's proposed system conforms to ngORCA's required service-proven and other capabilities by utilizing a combination of system modules and devices that include:

1. Service-proven INIT AFCS modules and devices
2. Best-of-breed Commercial Off The Shelf (COTS) business applications
3. Industry leading firms with proven AFC track record for externally sourced apps, and
4. New development for innovative enhancements

1.5.1.1 INIT Meets the ngORCA Required Capabilities

The table below indicates how INIT's proposed solution meets the ORCA Agencies' project goals.

next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Customer Goals	
Ease of use	INIT provides intuitive user-friendly design for ngORCA onboard validators and platform validators. The public and internal websites and applications are developed under common UI/UX guidelines and principles ensuring user adoption. High volume applications are deployed through web-browsers for improved consumption and adoption. Agency employees also enjoy the ease of use of familiar web-based and client-server based, point-and click administration tools for back office administration, tariff management, and reporting. INIT administration tools provide the highest levels of configuration flexibility. A UI/UX consultant will assist INIT and the ORCA agencies in ensuring common design principles will support system adoption and use.
Convenience	INIT provides multiple channels to load and manage accounts – including websites, mobile websites, Vending Machines (VMs), call-center functionality, and customer service terminals (CSTs). INIT provides this capability with a service-proven, real-time account-based system so that customers can use their cards immediately after loading. *To enhance customer convenience INIT is offering its service-proven open-payments solutions in Phase I.* The INIT solution supports real-time transactions and real-time fare calculation for quick and accurate transaction time. The INIT solution supports offline transactions which ensure continuous boarding even in the event of back office systems being offline or during cellular service interruption.

next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Equitability	Equitability is supported through cash-enabled vending machines, gift cards available through retail outlets and through innovative fare capping technology. Fare capping allows agencies to guarantee a fixed maximum price for varying terms including daily, weekly or monthly limits.
Existing relationships	INIT's website will provide an easy to use, full-featured administration tool for companies, universities, and social service agencies.
Seamless transition for customers	INIT will implement the ORCA Agencies' innovative transition strategy which utilizes the intermediary DARe database to minimize customer impact. *INIT will advance the Phase 5 and 6 transition schedules via resource loading to minimize the period of side-by-side legacy and ngORCA field devices which involves the most customer impact with customers potentially not receiving the most up to date account information.*
Open customer communication	INIT enables effective customer communication through powerful content management systems for customer information channels – such as, websites, VMs, etc.
Technology Goals	
Open architecture	Since the inception of its Automated Fare Collection (AFC) system, INIT has utilized an open architecture with extensive use of Application Programming Interfaces (APIs) which allow ease of interfacing between different system components – including third-party components.
Modular design	INIT's System highly modular design allows for the use and interchangeability of third-party Commercial-off-the-Shelf (COTS) solutions. This is supported by INIT's open API architecture and Azure API Management gateway.

next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Real-time communications	INIT provides a proven real-time solution which enables customer transactions to occur within milliseconds – customer can use their cards or smartphone "virtual cards" immediately after loading fare products or value onto their transit accounts. The robust solution allows for low risk offline operations with local approvals and store and forward capability.
High availability	INIT utilizes an active-active, load-balanced geographically redundant dual-site Infrastructure as a Service (IaaS) solution at Level 4 data centers to provide disaster avoidance and an extremely high availability hardware and software solution. Additional offsite, out-of-region data backups ensure resilience from generally rare, but increasingly prevalent regional disasters.
Compliance with security standards	INIT has recently deployed multiple Automated Fare Collection (AFC) systems which are certified PCI compliant. INIT's security strategy involves industry best practices including, tokenization and cryptography. Additional IT security best practices such as log management, flow monitoring, file integrity management, endpoint protection and intrusion detection systems are used to protect the production environment. The Oracle Enterprise database is fully encrypted at the table level.
Minimize transition-only software	INIT's solution, based on the ORCA Agencies innovative transition plan, involves very minimal transition-only software. Although INIT will develop an interface to the DARe for information exchange with the Legacy ORCA, this interface will also be utilized for reporting of long-term data.
API integration	Since the inception of its Automated Fare Collection (AFC) system, INIT has leveraged the use of APIs to realize an open architecture platform. This use of APIs to integrate different applications and devices enables the easy use of best-of-breed third-party COTS solutions.

next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Scalability	INIT's use of an Infrastructure as a Service (IaaS) solution allows for easy scalability as ngORCA expands agencies, modes, usage, and customers.
Cost	
Minimize dependencies on a single vendor	INIT's open architecture solution will allow for easy integration of different third-party COTS applications resulting in a higher-level of multi-supplier environment, increasing competition and reducing costs.
Manage and minimize risk to cost and schedule	INIT's use of a service-proven solution, extensive experience in the implementation of Automated Fare Collection systems and integrating to INIT CAD/AVL onboard equipment on the vast majority of the vehicles will significantly minimize risk to the program cost and schedule.
Lower Total Cost of Ownership (TCO)	The INIT solution lowers the TCO through the use of a service-proven platform (which minimizes development costs), an open architecture system (which increases competition), an INIT to INIT onboard system (minimizing complex, costly integration), and a Seattle office to provide deployment and ongoing support locally.
Agency Needs	
Preserve operating revenues	During the transition, integration with the DARe will protect data and operating information and therefore protect operating revenue. After transition, a robust financial management application and advanced multi-agency revenue distribution function will ensure accurate revenue reconciliation.
Revenue distribution	INIT brings an extensive track record in implementing multi-agency Automated Fare Collection systems with successful and accurate revenue distribution.

next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Access to information	INIT employs a browser-based standard reporting application, VASAweb which provides easy access to standard reports. Further information is available in web-based systems management dashboards from MOBILEsymon, JIRA Service Desk, Riada Insight, and MOBILEGuard.
Increase ORCA usage and market penetration	INIT appreciates the business advantages of increasing usage and penetration, and will act as a partner and support the ORCA Agencies to advance this goal from a technology, business and operations perspective. *As indicated above, INIT proposes to advance the use of its open payments solution from Phase 2 to Phase 1 which should assist in increased use of ORCA.* The high performing transactional system combined with the user-friendly and well-designed website will encourage increased adoption and market penetration. The use of fare capping within the INIT platform will increase good will amongst riders by being able to ensure a guaranteed best fare.
Operational efficiency	INIT incorporates extensive experience in the transit industry and will deploy its operations-centric solution to optimize System operations, administration and maintenance. With a COTS-based solution and a very strong subcontractor partner team, the INIT team will be able to roll-out new functionality and upgrades faster. Given the separate test platform, INIT's existing remote field device software update capability, and the configuration and change management application, the INIT solution will facilitate the ORCA Agencies to quickly assess and pilot new technology features and implement them efficiently. INIT's open architecture and extensive use of APIs will enable successful integration and operation with legacy and third party systems.
Work within the limited space available	INIT appreciates the space constraints on transit vehicles and has integrated with all major onboard transit equipment providers in a wide variety of locations including busses, LRV, streetcar, ferry, stations, garages and offices.

next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Scalable to agencies of varying sizes	INIT's system is very scalable and has been successfully implemented for multi-agency platforms with agencies ranging in size from several hundred vehicles to several thousand vehicles.

1.5.1.2 INIT's Service Proven Automated Fare Collection System

The table below shows how the proposed INIT system is service-proven – indicating that all the system components and devices have been deployed in other systems previously.

INIT's Service-proven Automated Fare Collection System

Agency	In-Service Date	ngORCA Proposed Back Office	ngORCA Proposed Wayside & Onboard Validators	ngORCA Proposed VMs	ngORCA Level Reliability, Accuracy, Availability
Portland, Oregon	Jun. 2017	●	●		●
Turku, Finland	2016	●	●		●
Sacramento, CA	Jul. 2017	●			●
Tampa, FL	Pilot Q2 2017	●	●		●
Luxembourg		●		●	●
Bremen, Germany		●		●	●
Grand Rapids, MI	Pilot Q3 2017	●	●		●
Honolulu, HI	Pilot Q1 2018	●	●	●	●

Agency	In-Service Date	ngORCA Proposed Back Office	ngORCA Proposed Wayside & Onboard Validators	ngORCA Proposed VMs	ngORCA Level Reliability, Accuracy, Availability
Orange County, CA	Pilot Q4 2017	●	●		●
Metrolink SCCA – Los Angeles*	Pilot Q4 2019	●		●	●
MTA Nashville, CA*	Pilot Q4 2019	●	●	●	●

* Projects recently awarded but not yet contracted.

1.5.1.3 A Balance of Service-Proven, COTS, and Innovative Modular System Design

INIT's proposed System provides a balance of service-proven, COTS and innovative modular design as indicated in the table below. This approach balances the risk mitigation and cost-effectiveness associated with service-proven components, and state-of-the art functionality associated with new development. Even though INIT's modules are service-proven, they continue to be updated and are very current. The most recently successfully implemented systems include Portland, Turku and Birmingham. Systems currently being deployed include Honolulu, Tampa, Grand Rapids and a recently awarded contract with SCCA Metrolink in Los Angeles County for a large number of VMs and MOBILvario back office software.

INIT understands that the ngORCA project is very complex. We have changed some of the percentage values in the table and added justification for them.

System Module / Application	INIT Service Proven Module	COTS Module	Externally Sourced Modules	Innovative Development/ Customization (Estimated)

System Module / Application	INIT Service Proven Module	COTS Module	Externally Sourced Modules	Innovative Development/ Customization (Estimated)
Account-based Transaction Processor (ATP) Percentage justification: INIT is using the OVS already in four projects and the experience has already shown that the API is mature and does not require much changes. INIT is however not underestimating the ngORCA complexity and the given 5% here is already a high percentage of changes for a mature API. For example, for Tampa and Grand Rapids projects no changes to the API were necessary.	MOBILEvario OVS & MOBILEvario API Server	[redacted]		5%
Customer Relationship Management (CRM) Percentage justification: INIT is not underestimating the CRM integration effort. INITs CRM/Salesforce integration strategy is designed together with a 3rd party Salesforce consultant (Persistent Systems). This strategy is designed with a high level of code-reuse in order to reduce the integration effort. INIT however agrees that the CRM integration is something that will require lot of integration effort and therefore the original estimation of 15% has been increased to 25%.	MOBILEvario CSW	[redacted]		25%

System Module / Application	INIT Service Proven Module	COTS Module	Externally Sourced Modules	Innovative Development/ Customization (Estimated)
Asset Incident Management Percentage justification: Since the effort is mostly integration effort of existing systems, INIT considers that the 15% value here is correct.		[redacted] t		[redacted]
System Manager Percentage justification: INIT will need to make many project specific adaptations to MOBILEsymon and other parts that deliver status information to MOBILEsymon. 20% is already a high level of changes for this purpose. INIT is not under-estimating the effort.	MOBILEsymon			
Fare Media Management Percentage justification: This effort is corrected to 40% since we need project specific changes to the MOBILEvario inventory management	MOBILEvario Inventory Management			

System Module / Application	INIT Service Proven Module	COTS Module	Externally Sourced Modules	Innovative Development/ Customization (Estimated)
Financial Management Application Percentage justification: INIT will need to implement the ORCA specific revenue apportionment and recognition rules. We do not currently know in detail how these rules look like, but according to the comments on INITs proposal they are apparently complicated so the percentage is here corrected upwards. INIT is however allocating a software engineer, who implemented the MOBILEvario revenue recognition and apportionment for on site development in Seattle for the ORCA project. This mitigates the risk and lowers the implementation effort. The revenue sharing and clearing is less SW development and more developing the operational processes for the INIT operational team and ROOT. This effort is not considered SE or integration effort here.		[redacted]		[redacted]
API Management Application Percentage justification: INIT will integrate the API gateway to INIT APIs. INIT needs to develop the API description files that are exported to the gateway. INIT also has effort on the integration and configuration. 20% effort is justified here.				

System Module / Application	INIT Service Proven Module	COTS Module	Externally Sourced Modules	Innovative Development/ Customization (Estimated)
ORCA Website Percentage justification: INIT and Marathon are using an industry standard CMS (Umbraco) with high level of code re-use from other projects. The look and feel however require a decent amount of adaptation. In addition, there are also new features to be implemented. The business website, customer website and Mobile Website are combined in the revised proposal.			[redacted]	
Agency Mobile Apps (Fare Inspection & Validation) Percentage justification: INIT is already delivering the validation and inspection apps to Honolulu and inspection App to Grand Rapids. The user interface needs to be adapted to meet ngORCA's requirements, but we do not expect big changes to the functionality.				
"Virtual Ticket" Mobile App Percentage justification: Bytemark have already implemented account management functionality for their mobile app for our customers in Grand Rapids and Tampa. The Virtual Card is independent on the mobile app.				

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1.5.1.4 Service-Proven Devices and Modules

The table below illustrates the type, quantities, length of time and references for the hardware devices that we are proposing for next generation ORCA project. For the Driver Display Unit (DDU) INIT is proposing it newest model, the TOUCHit3, which utilizes similar circuitry as the highly proven TOUCHit2, but with the following enhancments:

- Use of a capacitive (as opposed to a resistive) touchscreen for a brighter and sharper display, and a more responsive touch
- Independent standalone power circuitry as opposed to being dependent on the COPILOTpc2 onboard computer

Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]							

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]							

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]							
							Reference contact available on request
							Reference contact available on request

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]							

[2] Although the TOUCHit3 is a new model, it mainly uses the same electronics as the TOUCHit2 but with a capacitive (versus resistive) touchscreen for sharper and brighter display and a more responsive screen – the TOUCHit3 also provide internal power conditioning circuitry to obtain the power feed directly from the vehicle power source as opposed to the onboard computer.

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]							

DocuSign Envelope ID: 26BF6B95-BC90-4605-A5A8-570AB5583CFA

Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]							

DocuSign Envelope ID: 26BF6B95-BC90-4605-A5A8-570AB5583CFA

Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]							

DocuSign Envelope ID: 26BF6B95-BC90-4605-A5A8-570AB5583CFA

Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]							

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The "Years in Revenue Service" in the table below apply to the Service Proven Design. INIT has updated the design to meet industries demands. PROXmobil1, PROXmobil2 and PROXmobil3, TOUCHit1, TOUCHit2 and TOUCHit3 are all based on the same service proven design, PROXmobil3 and TOUCHit3 are very recent and the latest versions of the design. INIT does not have any plans make any of the devices obsolete for the current customers. We still deliver the same hardware for our customers who procured their ticketing systems 15 years ago. Whenever possible, INIT also makes the new models compatible with the old versions. For example, a current TOUCHit1 user can use TOUCHit3 without any HW changes since the attachment, connector and signals are backwards compatible. INIT has a strong experience and knowledge on providing backwards compatible hardware that also meets the latest technology requirements.

Series	Type	Years in Revenue Service
[redacted]		

Please also refer to chapter "1.6.5 INIT's Product Development Philosophy and Roadmap". The figures above (years in service) refer to INITs industry/service proven design, rather than to explicit product versions.

1.5.1.5 Fare Media

For the next generation ORCA system, INIT proposes the [redacted] which provide an excellent option for account-based transit applications because of the limited storage capacity that is needed. Additional features of this of [redacted] include:

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

1.6 INIT's High-Reliability Field Devices and Subsystems

Specifically for Field Devices and Subsystems (Scope of Work Section 4):

a. *Provide a detailed description of each of the following proposed devices, software, and associated mounting systems:*
   i. *Onboard Validator*
   ii. *Driver Display Unit*
   iii. *Wayside Validator*
   iv. *Vending Machine*
   v. *Customer Service Terminal*

b. *For each device listed in 6.a. above:*
   i. *Provide drawings that show dimensions and materials used*
   ii. *Describe supported functionality as it relates to the capabilities in Scope of Work Section 4*
   iii. *Describe the proposed customer interfaces for each device*
   iv. *Describe the communication interfaces provided*
   v. *Describe the interchangeability of modules and assemblies among devices and ease of maintaining the components of the system and the expected reliability of the equipment*

INIT's extensive experience and wide range of fare collection solutions including wayside validators, onboard validators, driver display units, vending machines, and customer service terminals provide a coherent customer experience, with similar look and feel across all the POS service points throughout the entire next generation ORCA system. The customer payment experience is designed to be a uniform and smooth experience for all riders including

commuters, infrequent customers (including tourists), children, the elderly, persons with disabilities, customers with impaired vision, customers with impaired hearing, and non-English speaking customers.

INIT's highly configurable Vending Machines (VMs) and validators will facilitate ORCA agencies to design a coherent customer experience for all customer facing equipment and applications. INIT and its User Interface/User Experience (UI/UX) consultant, will work collaboratively with the Agencies to develop a design that defines the UI/UX components – including:

- Consistent cross-platform branding
- Interface displays
- Lettering
- Lights
- Colors
- Tactile feedback
- Brightness
- Graphics
- Animation
- Screen savers
- Surface texture
- Component size and height

1.6.1 INIT's Service-Proven PROXmobil3 Vehicle Onboard and Station Platform Validator

INIT is proposing the same validator for vehicles and platforms. This simplifies operations and maintenance due to the benefit of shared spares and common training.

For well over a decade, INIT has provided validators to process tickets and electronic fare media serving riders around the world. We are now in our third generation of smartcard validation/processing devices, the PROXmobil3. Our latest generation of validators is designed to process all currently available smart media, barcoded paper and mobile tickets.

PROXmobil3

Passenger Terminal

The Future of Mobility

Flexible, fast and secure

An easy-to-use fare collection system makes public transportation more attractive. Especially now that electronic fare management and passenger-operated terminals are in great demand.

Like its predecessor, INIT's new passenger terminal PROXmobil3 supports all variations of e-ticketing. The housing is more sleek taking up less aisle space on the vehicles.

With its 12.0 cm (4.75-inch) display PROXmobil3 offers passengers a convenient and intuitive way to manage all their ticketing transactions. For instance, they can select the ticket that is best suited for their needs, store tickets on smart cards, or validate bar code tickets. VDV-KA, ITSO, Calypso and boarding control are supported, as well as credit card based applications according to the EMV standard or account-based ticketing. The software supports different standards, even combined in one system.

The intelligent terminal can be operated as well as a stand-alone device as it is equipped with WLAN and GPRS/UMTS. PROXmobil3 is available in two versions: for mobile use inside vehicles and for stationary use at platforms.

Features

- Contactless payment in the vehicle
- Controlled boarding
- Check-in / check-out
- Automatic fare calculation
- EMV, NFC
- On-board or at platforms
- Easy installation

PROXmobil3, INIT's Space-Efficient and User-Friendly Validator

1.6.1.1 Hardware

The PROXmobil3 meets the stringent requirements of the ADA standards. Furthermore, the PROXmobil3 fully complies with all environmental requirements, as stated in the RFP.

PROXmobil3 Reliable and Easy to Maintain Hardware

- **The Environmental Light Sensor** ensures that the screen brightness is appropriate for all lighting conditions making it easy to read even in bright sunlight
- **Customer Display** with optional touch function gives passengers information on the validation status and shows passengers information about the payment options (such as MasterCard and Visa logos). The touch function is not included in this proposal but can be priced as an option. The Tariff Management tool would be used to configure the functionality of the optional buttons
- **Reader EMV L1 & L2 and PCI/PTS certified** reader fast and secure closed and open loop payment card validations. The anti card clash collision is implemented according to the EMV Contactless Specifications for Payment Systems, Book D.
- **Barcode Reader (unpriced option)** can read all industry standard barcode formats with high speed. The barcode decoding is implemented with a HW accelerated barcode decoding module
- **Service Port** is a magnetic coupled USB 2.0 port that provides maintenance personnel an easily accessible interface. Non-standard waterproof design adds an additional layer of security while protecting internal electronics from water and dust
- **Mechanical Lock** is used to lock the PROXmobil3 device to the mounting plate

- **Mounting Plate** is firmly attached to the mounting pole. The mounting plate contains integrated memory where the vehicle number and any specific configurations are stored. Thus, the device can be exchanged without any configuration effort—Hot swappable. The mounting plate also contains backup memory for transactions to further protect your transaction history

PROXmobil3 =

Hot swappable

- **Cellular Communication (unpriced option)** can be included for the validator using an on-board cellular option so that there is no need for a mobile access router connected to the validator. There is an extra cost for this internal cellular device

INIT provides "Hot Swappable" field devices. Because logs of transactions as well as core configurations are stored in an intelligent mount, one need only swap out an INIT PROXmobil3 should a unit fail in the field. This can be done in a matter of seconds saving you valuable time minimizing any impact on your revenue and customer confidence. On boot-up, it will pick up without the need for further configuration or programming.

The PROXmobil3 can be equipped with a 2D barcode scanner, located at the bottom of the device. In the event the agencies will require barcode scanning in the future, the validators could be modified to include the reader. The convenience of placing the barcode scanner at the bottom of the device allows for a minimal footprint onboard a bus, where space is already limited.

1.6.1.1.1 ADA Compliance

The onboard validator was designed such that obstruction is minimal and to make access simple so that ADA compliance can be achieved. Within the vehicle, an ADA compliant location for the validators will be identified and confirmed by the agency together with INIT.

In order to be compliant, the validator must be installed at 48" (see requirement 308.3.1 of the ADA Accessibility Guidelines) maximum above the finished floor surface and provided in an area that provides a minimum of 30" x 48" of clearance in the floor space for wheelchair users to approach and access either by parallel or forward approach (see requirement 305 of the ADA Accessibility Guidelines).

If the validator is mounted in the dash console of the vehicle and is set back greater than 10" from the edge, forcing the user to reach over an obstruction, then a maximum of 46" to highest operable part or element is required (see requirement 308.3.2 of ADA Accessibility Guidelines).

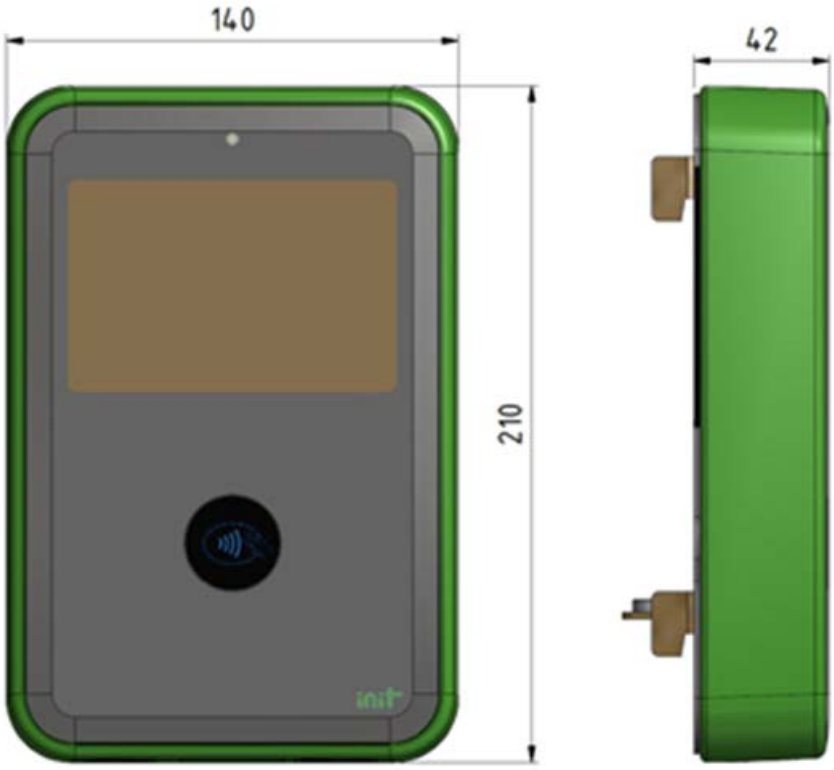
A speaker included in the validator will provide different audible tones to provide visually impaired persons with the validation result (either positive or negative).

With regard to the applicable ADA requirements, it is important to remember that the on-board validator is located in an attended environment (bus operator).

1.6.1.1.2 Enclosure

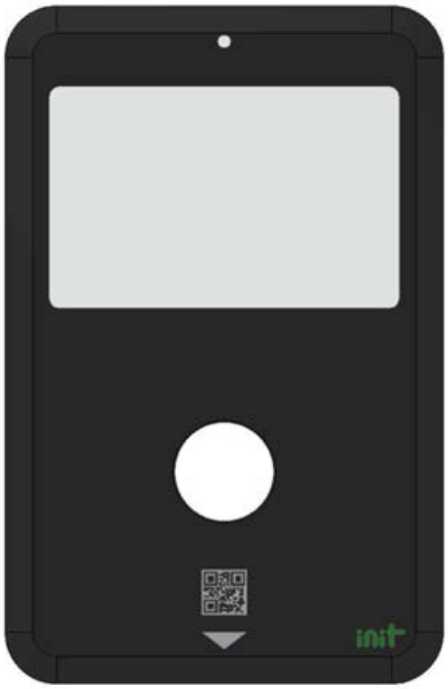
The PROXmobil3 is ruggedized and specifically designed for the transit industry with a proven track record. The PROXmobil3 has a safe design with all validator corners rounded, no exposed or accessible bolt heads, nuts, sharp edges, or cracks on outside surfaces. The display is flush-mounted in the housing. The validator housing covers for accessing modules and subassemblies are secured with mechanical locks. The keys are uniquely serialized and cannot be copied.

The dimensions of the PROXmobil3 validator are 5.5" x 8.3" x 1.6" (width x height x depth) as indicated in the drawing below.



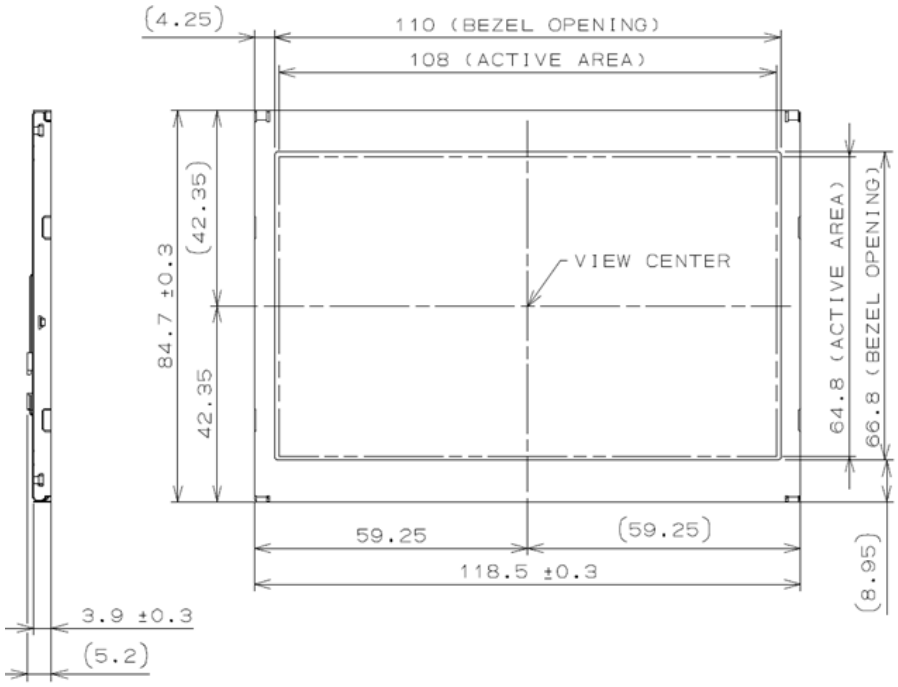
PROXmobil Validator Drawing

This proposal includes a glass screen as part of the housing. The validator housing can be optionally equipped with a plexi-glass screen (instead of a glass screen at no additional cost. The front glass screen is shown below.



PROXmobil3 Validator Glass Screen

The drawing below provides the dimension of the PROXmobil display.



PROXmobil3 Display Drawing

Please see the following section for some high-level specifications of the PROXmobil3, and detailed hardware specifications in Section 1.6.1. See section 1.6.1 for the software and functional information.

PRODUCT INFORMATION

Passenger Terminal

PROXmobil3

- Support of different standards (VDV-KA, ITSO, Calypso, etc.)
- Compact housing
- Hybrid card reader
- Back-up storage of sales data on a µSD card in the mounting plate

Technical Data	
Display	12.0 cm [4.75"] Diameter 754 x 480 dots 262k colors 900 cd/m² LED-backlight (controlled) Projected Capacitive Touch (optional)
Processor and Memory (RAM)	32-Bit ARM Cortex-A9 800 MHz 512 MByte DDR3L
Memory (Flash)	2 x 1 GByte µSD-card
Interfaces and Modules	Ethernet 10/100 Mbit WLAN IEEE802.3 a/b/g/n (optional) UMTS/LTE (optional) 2D Barcode scanner (optional) Audio output
Contactless RFID Reader	Chip cards (contactless): ISO 14443 a/b; Mifare(R) EMVCo Level2 (Mastercard, Visa, American Express, Discover), PCI PTS SRED certified optional: – VDV-KA – ITSO – Calypso NFC reader compliant Up to 4 safety modules (ISO 7816)
Power Supply	8 V – 33 V; max. 10 Watt
Dimensions	140 mm [5.5"] x 212 mm [8.3"] x 41 mm [1.6"] (width x height x depth) Installation using quick-change bracket; device secured by lock
Weight	approx. 1.1 kg [2.43 lbs]

We reserve the right to make future modifications / © INIT, 02/2016

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The Future of Mobility

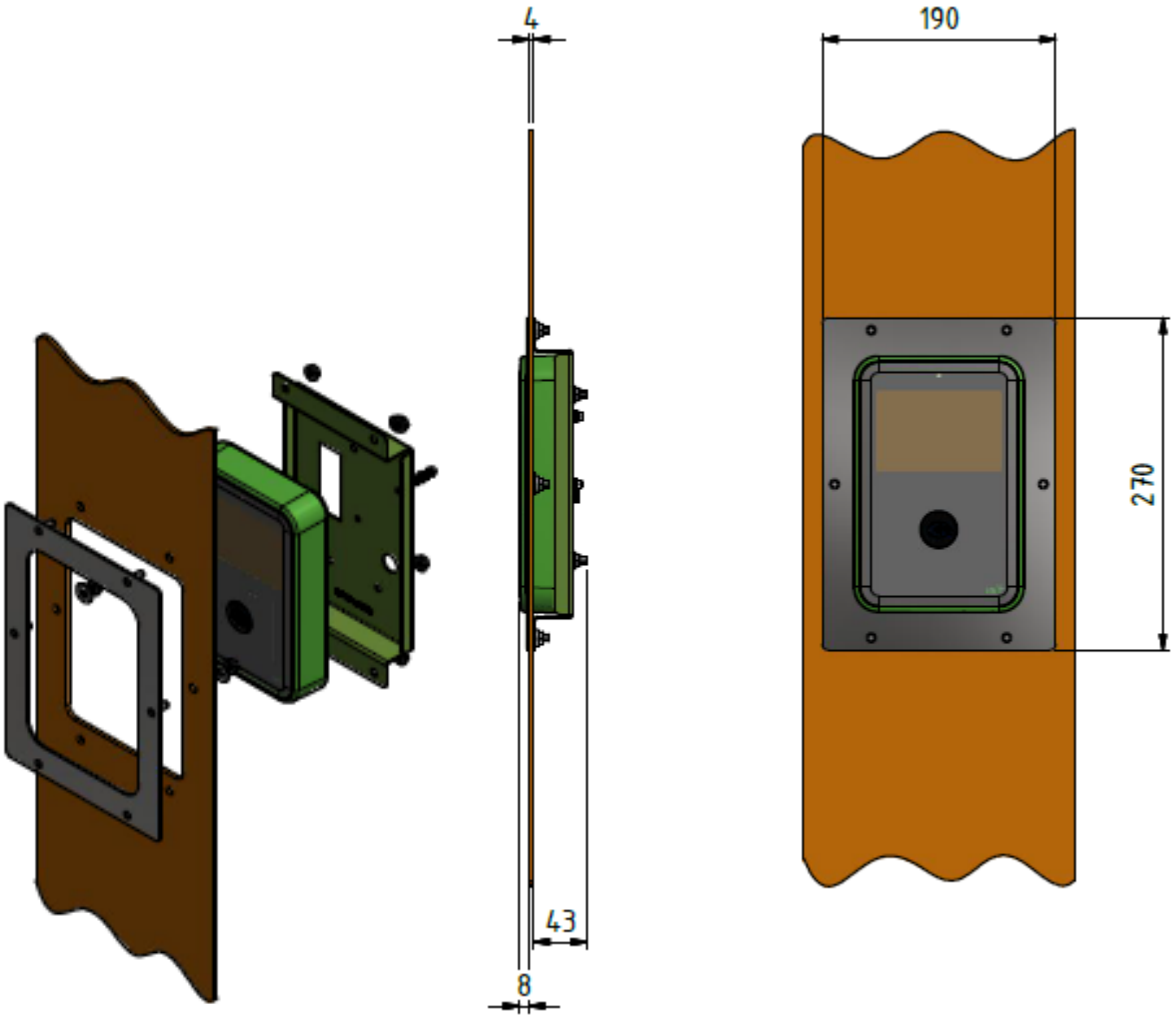
1.6.1.1.3 Installation & Mounting

The PROXmobil3 is capable of a variety of installations as shown in the figure below. Whether it's on a platform, bus or LRV, the PROXmobil3 has been designed to support the agencies requirements, even in outdoor environments.

Ease of PROXmobil3 Installation and Mounting

In addition to the mounting variants shown above, INIT designed a surface-mounted wall mount and a flush mount of the validator. See drawings / renderings below for more information.

Surface mounted wall mount



Flush-mounted wall mount

Because of its compact footprint, even dashboard mounting is possible. INIT works closely with our clients to find the optimal locations for the equipment supporting both ergonomic and aesthetic considerations. As seen here, most installations include vertical mounting, however, INIT can also provide a horizontal mount if preferred by an agency. The horizontal mount, is available for a small upcharge, which is provided in the options pricing.

1.6.1.1.4 Power

The PROXmobil3 can operate with the wide voltage range from 8V to 33V. When the bus ignition is turned off, the onboard validator will remain powered for a configurable time to allow completion of transmission of any and all data files and transaction records.

1.6.1.1.5 Communications

The figure below provides an overview of the onboard communications, which involves a single cable to the onboard validator to provide Ethernet connection, power, ground and the ignition signal to turn the validator on and off.

The validator will utilize Ethernet to connect to the ORCA Agencies' provided Mobile Access Route (MAR), the INIT or third-party CAD/AVL Vehicle Logic Unit (VLU), and the INIT or third-party DDU.

For [redacted]). Interfacing between INIT-only onboard components will lead to a very simple, cost-effective, low risk and quick integration for the KCM vehicles. INIT utilizes this same architecture for the HOP Fastpass project in Portland and Vancouver, WA, which utilized INIT for both CAD/AVL and AFC. For the Community Transit vehicles, INIT can also provide a simple, cost-effective, low risk, and quick integration, given that it involves communications between INIT-only components. For the CT vehicles, INIT can provide a separate DDU for the fare collection or share the existing one being used for CAD/AVL. Given that the KCM and CT vehicles make up the vast majority of next generation ORCA vehicles, there would be a significant advantage to utilizing an INIT System – especially, for the more complex KCM interface involving the sharing of the DDU for both CAD/AVL and AFC. For the non-KCM and non–CT vehicles, INIT will interface to the third party onboard CAD/AVL equipment.

[redacted]

The platform validator will connect to the back office via Ethernet to a station switch and then via the Agencies' WAN.

For the platform devices, the PROXmobil3 validators may be connected using standard POE.

1.6.1.2 Software (Functionality)

When the vehicle ignition is turned on, the PROXmobil3 will boot and go through its self-diagnostics. Any errors or anomalies will be logged and sent to the central system where MOBILEsymon, INIT's system monitoring too, will record and process them according to mutually agreed policies.

If no issues are found, the validator will finish its initialization routine and display a gray screen stating "Not in Service". This status and message will be pushed to the DDU for display to the operator.

Once the operator logs on the DDU, the validator will change its display to the default passenger screen, e.g. 'Please tap on'.

The onboard CAD/AVL system will report the vehicle location to the validator periodically. On door cycle events, the onboard CAD/AVL system will push the stop and location information to the validator so that any passenger payment interaction may be correlated with the route, stop and location.

In addition to the door cycle events or if the door cycle events are not available to the CAD/AVL system, the location (GPS coordinates and Stop ID) can be updated on a time basis (e.g. every 15 seconds).

1.6.1.2.1 Transaction Records

Onboard and wayside validators will generate, store and transmit a discrete data record for each transaction and/or validation performed, and include the information indicated in the table below:

Onboard PROXmobil3 Transaction Record	Wayside PROXmobil3 Transaction Record

1.6.1.2.2 Audit Registers

INIT's validators include local audit registers for data and analysis purposes, which maintain counts for the following events as applicable:

- [redacted]

- [redacted]

1.6.1.2.3 Events & Alerts

The PROXmobil3 validators will provide real-time status of device events and alerts to the MOBILEsymon, INIT's system manager – including:

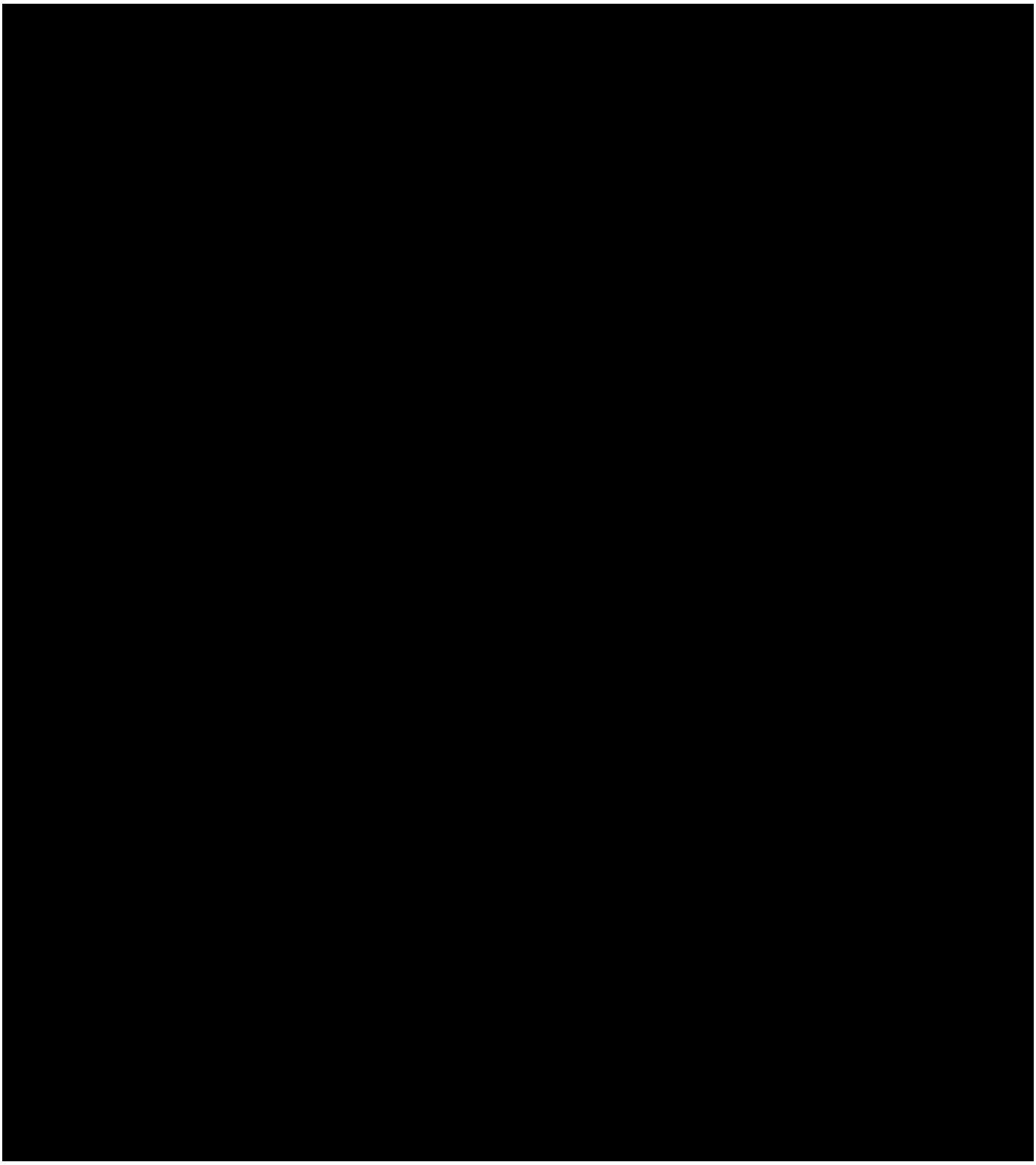
- [redacted]

In addition to providing real-time status information, the validators will locally store events and alert logs for up to three (3) months in the event of loss of communications to the back office.

The validators will transmit "heartbeat" messages at an adjustable frequency to confirm communication with the back office and basic status.

1.6.1.2.4 High-Speed Validation Process with Offline Provisions

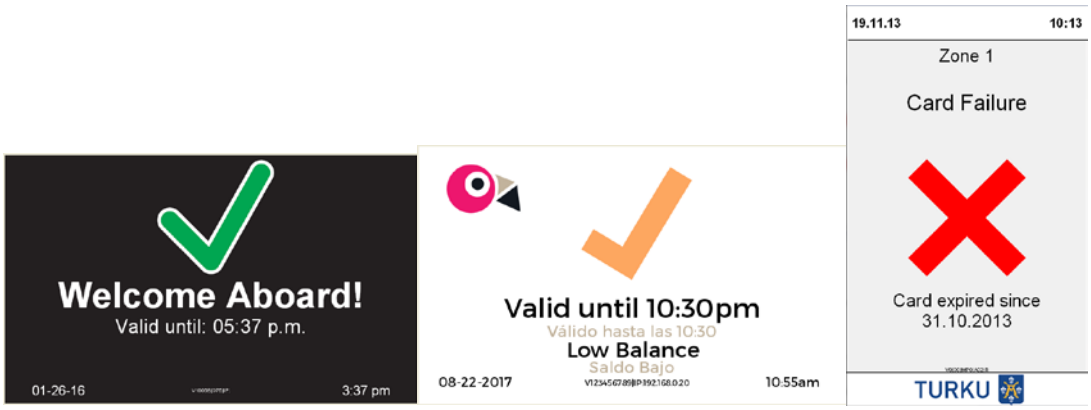
The figure below provides a flow chart of the validation process which includes an inherent provision for offline situations, by providing a local validation in the event the validator does not obtain a response from the ATP.



1.6.1.2.5 Customer Interfaces

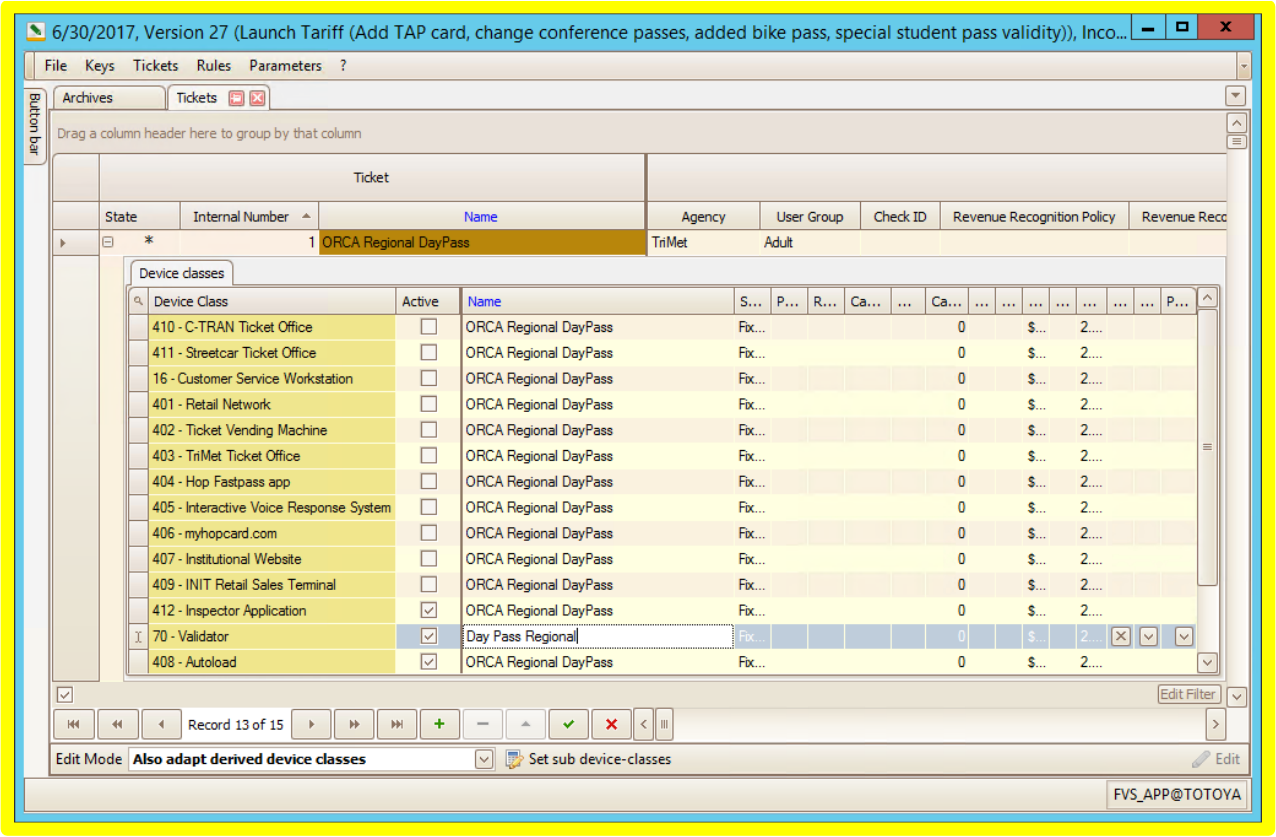
The PROXmobil3 customer interface is highly configurable. From left to right in the pictures below, you can see the look and feel of the user interfaces for the HOP Fastpass (Portland, OR), Tampa and Turku. These projects are all account based systems, making them very similar to the next generation ORCA functionality. The PROXmobil3 display is LED based with a light sensor to determine brightness. As evidenced above, the GUI will be customized to fit the look and feel of the next generation ORCA design. A speaker included in the validator will provide different audible tones to provide visually impaired persons with the validation result (either positive or negative).

The screens will be designed during the design phase together with the agencies and the UI experts. Changes to specific text elements (e.g. product names) can be configured by the agency. Changes to the main screen layout would need to be done by INIT.



INIT's Highly-Configurable Validator User Interface

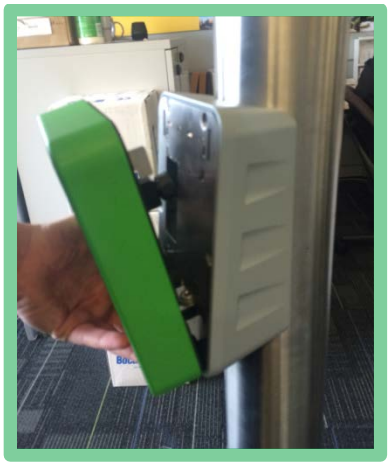
Changes to the text would be made in INITs Tariff Management. The example below shows how the text that it displayed on the validator when the product 'ORCA Regional Day Pass' is used. The name can be changed sales channel specific. In the example below only the name displayed on the validator is changed to 'Day Pass Regional'. As soon as this change is made in Tariff Management the validator would show the updated product name.



Changing the Validator Specific Product Name

1.6.1.3 Maintainability

INIT provides "Hot Swappable" field devices. Because logs of transactions as well as core configurations are stored in an intelligent mount, one need only swap out an INIT PROXmobil3 should a unit fail in the field. This can be done in a matter of seconds, saving you valuable time minimizing any impact on your revenue and customer confidence. On boot, it will pick up without the need for further configuration.



Easy validator replacement

1.6.2 INIT's Color, High-Resolution TOUCHit3 Driver Display Unit

INIT is proposing its new TOUCHit3 Driver Display Unit (DDU) for the next generation ORCA project.

INIT's Transit-Rugged Touchscreen DDU

1.6.2.1 Hardware

The TOUCHit3 consists of a brightness sensor for regulation of the display brightness, status LEDs and touch sensitive display. The 6.5", 800x480, full-color touch screen is ergonomically designed, and the display has LED backlight for optimal contrast and extended life-time. The

TOUCHit3 is designed with a high resolution screen giving drivers easy to read information even in bright sunlight. It automatically adjusts to ambient light conditions and offers a night mode.

The compact housing contains:

- All electronic components
- TFT Display
- Touch panel
- Connector to the on-board computer

1.6.2.1.1 Controller Board

The electronics of the TOUCHit3 are specially designed for automotive use. The components are nearly all manufactured in SMT (Surface Mount Technology). This offers the possibility of a compact design and the advantages of high-quality mechanics. The components are selected to fit the required industrial temperature range.

The TOUCHit3 is controlled by a 32-bit CPU-Module with ARM Cortex A9 processor from Freescale. The device features 512 MB RAM and 4 GB Flash Memory. A touch controller from Texas Instruments performs signal interpretation of the touch panels.

1.6.2.1.2 TFT-Display

The color display is a TFT display with LED Backlight:

- Aspect Ratio:16/9
- Screen diagonal: 6.5 inch
- Brightness: 600 cd
- Display Resolution: 800 x 480 dots
- Visible area: approx. 5.7" x 3.1" (144 mm x 78 mm)

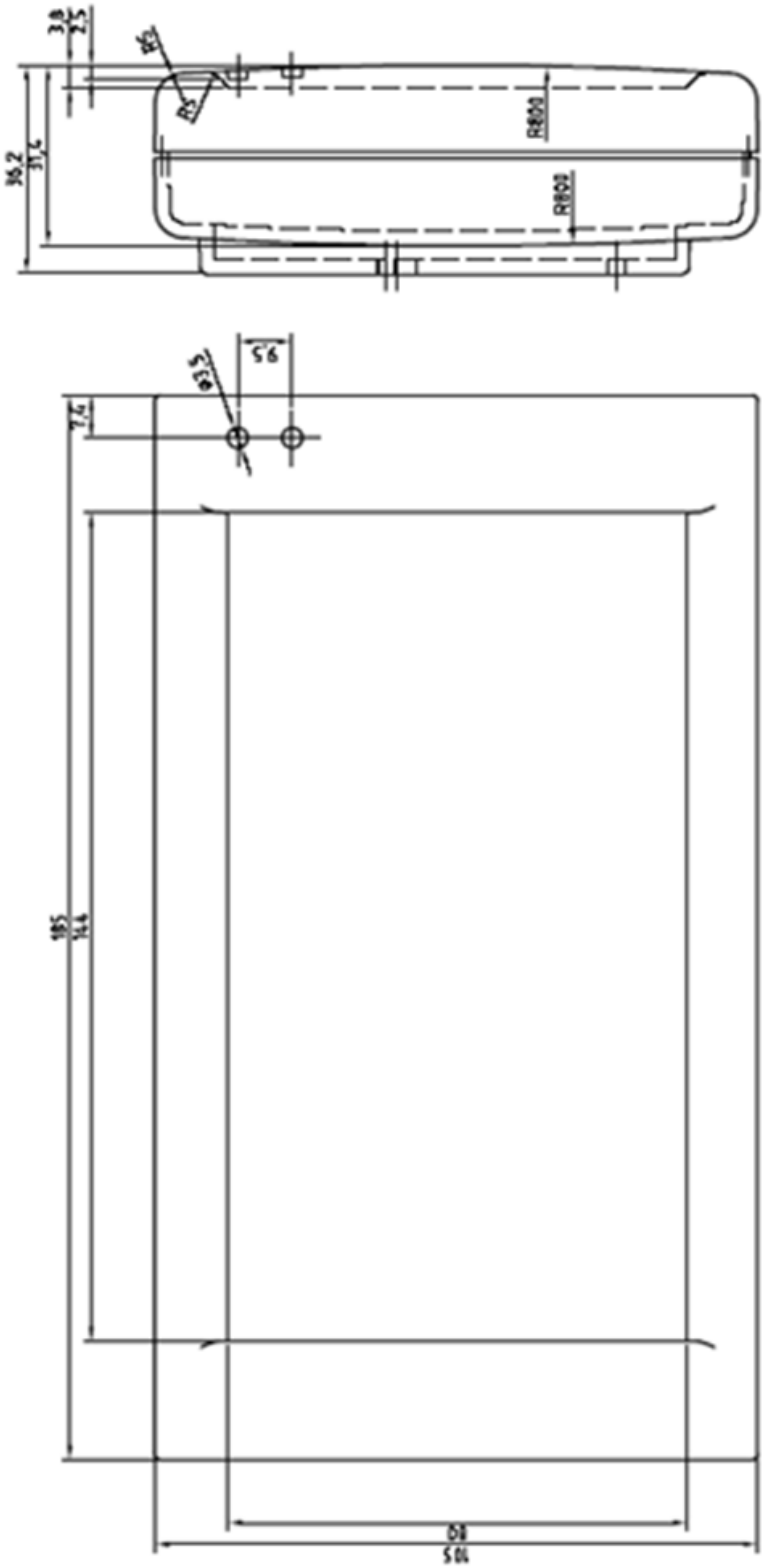
1.6.2.1.3 Touch Panel

The touch panel utilizes capacitive touchscreen technology and is coated to feature an anti-glare surface. The lifetime of the touch foil is specified to one million finger touches. As confirmed by the agency, a touchscreen solution is acceptable, therefore physical buttons will not be provided. Since there are no physical buttons, additional virtual buttons can be added to the graphical user interface to perform future functions. Because the touchscreen is capacitive, it provides a brigher and sharper display with a more responsive screen.

1.6.2.1.4 Enclosure & Mounting

The TOUCHit3 features a strengthened polyamide housing with dimensions of approx. 7.28" x 4.13" x 1.42" (185 mm x 105 mm x 36 mm) W x H x D (as illustrated in the drawing below). It is designed to withstand all the required bus environmental and operating conditions and to withstand the tough conditions of the bus environment.

The TOUCHit3 has various mounting accessories available to integrate or to mount to different locations of the different bus types. INIT will provide all necessary hardware and mounting brackets. The mounting location will be decided together with the Agencies so that the bus operator has an unobstructed view. The connector on the back of the device enables power and Ethernet connection with just one cable, making the installation simpler.



TOUCHit3 dimensions drawing

See Section 1.4.1.9.2 for the detailed hardware specifications. The TOUCHit3 being a tough-display, it does not have a lot of functionality.

1.6.2.2 Software

The operating system on the TOUCHit3 is Linux and will provide all system functions needed such as Ethernet communication drivers.

1.6.2.2.1 Operations

On system startup, the TOUCHit3 checks its hardware and boots the operating system. After a successful boot, the driver display application is loaded. As soon as the application is running, a connection to the PROXmobil3 bus validator is established. Fare validation results of transactions performed on the validator are transmitted to the TOUCHit3 to display them to the bus operator. The driver display also updates status information shown on the screen and is ready to send commands to the validator e.g. to enable the Maintenance Mode. If the connection to the PROXmobil3 can't be established, the driver display will show an error status.

1.6.3 INIT's Highly-Configurable Smart Vending Machine

INIT is pleased to propose its state of the art VENDstation Full Featured Vending Machine (FFVM) and VENDmobile Light Featured Vending Machine (LFVM) as the choice Vending Machine (VM) solution for the next generation ORCA project. INIT VENDstation and VENDmobile VM's are the perfect solution to satisfy the contractual requirements as the current design of the VM's align with the specific goals and objectives of the agency, setting the stage for a new era of ticketing convenience for next generation ORCA customers. Both VM models are designed to be simple, low-maintenance, and low-complexity machines utilizing a cost-saving design that meets or exceeds the functionality and common design capabilities specified.

Our highly efficient and user friendly VM's will improve the customer experience and reduce VM waiting times, especially at high priority stations. INIT is an experienced and qualified supplier of VM's, providing

proven and easily configurable options for full cash, limited cash (no change) and cashless configurations, enabling cost effective future enhancements at any time. Because of our commitment to Open Architecture, open APIs and COTS (Commercial off-the-shelf) based solutions, the VM's offer valuable benefits from low initial start-up costs to significant decreases in ongoing operations and maintenance costs.

A big advantage of the INIT VMs are their sustainable design which allows for a lifetime of 12 years as requested in the RFP. All modules of the VMs are exchangeable and can be replaced by successor or alternative models if needed. With this concept ngORCA can be assured that they will receive state of the art Hardware and Software at initial delivery and that during lifetime replacements with newer modules can be performed as needed. The modular approach is described in this section and subsections.

Once installed, the new VMs, with their modular open architecture and open Application Programming Interfaces (APIs), will provide unmatched flexibility to control the VM configurations, implement future enhancements and support third party integration. A direct result of this flexibility is a significant improvement in the VM useful life, and the elimination of ADAextremely flexible open system is highlighted in the table below:

Benefits of the INIT VENDstation and VENDmobile VM System
✓ **Reduced Capital Costs and Ongoing Operations and Maintenance Costs** ▪ Experienced and qualified supplier of VM Systems ▪ Proven Modular Designs in both Cash and Cashless Configurations ▪ Commitment to Open Architecture and COTS based solutions ▪ Experienced Project Staff for cost effective project management
✓ **Provide Integration Flexibility for Cost Effective Future Enhancements** ▪ Modular Open Architecture and Open APIs enables effective Third Party Integration ▪ Configurable, Modular VM and TOM Designs for Simple, Cost Effective Updates ▪ Enhanced Control Over System Configurations ▪ Unrestricted Access to APIs, Keys, Data Formats and Data ▪ Upgradeable and integrated INIT VENDpc2 computer running Windows ver. 10- IoT
✓ **Improved Customer Experience – Reduce Lines for Ticket Purchase** ▪ Install Field Proven, Standard Configuration INIT VMs ▪ Significantly Reduce Transaction Times o Eliminate Confusion with Simplified Purchase Screen Flow o Improved Ticket Issuance Speed ▪ Improved System Monitoring for Minimal Maintenance Response Times

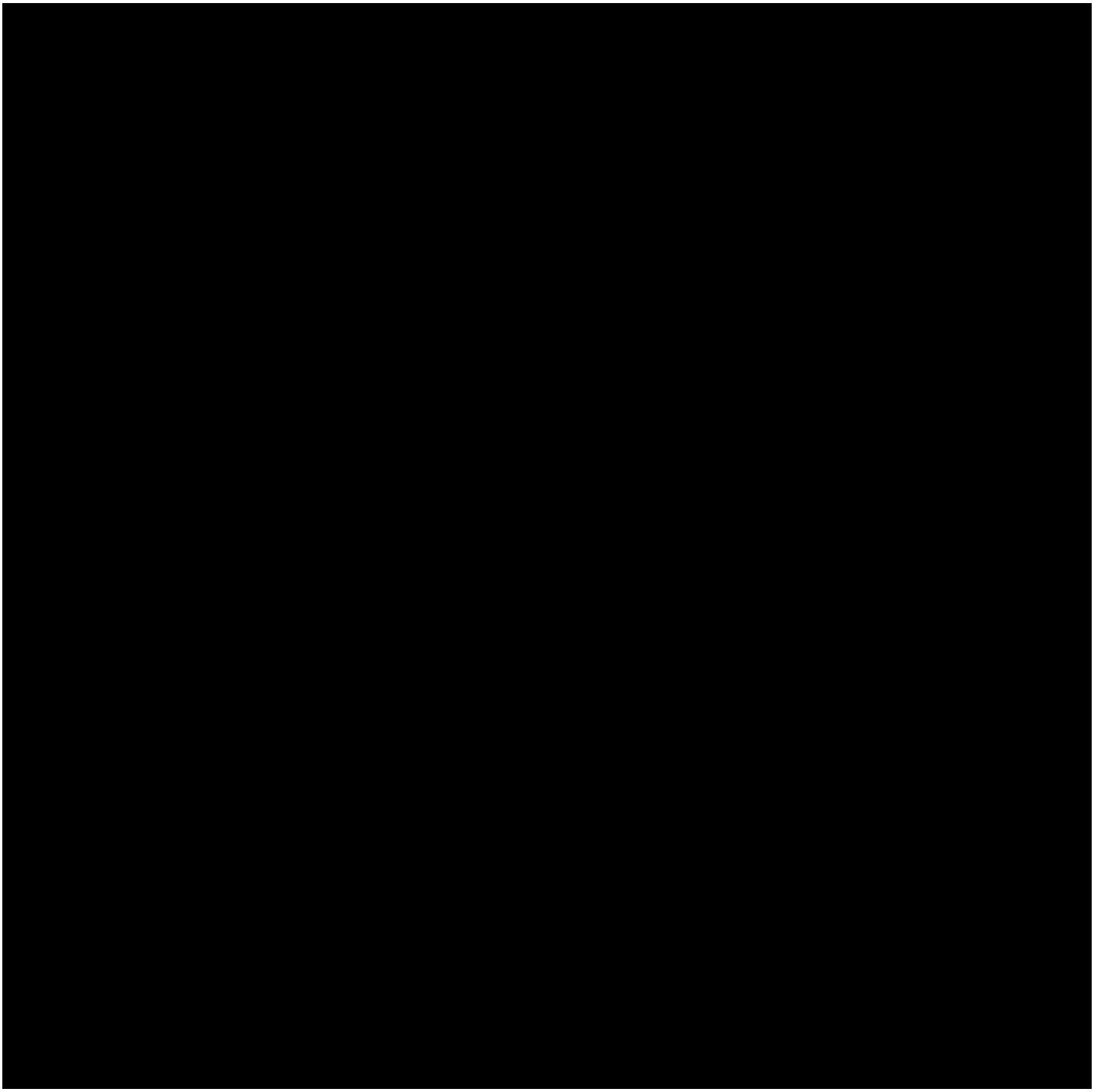
1.6.3.1 General Capabilities

For clarification, the INIT VENDstation and the acronym FFVM are one and the same. Likewise, the INIT VENDmobile and the acronym LFVM are one and the same. When referring to the functionality of a specific Vending Machine, the acronym or the INIT tradename (VENDstation or VENDmobile) will be used. Otherwise, the term VM will refer to both Model Vending Machines as referred in the RFP.

In keeping with the preferred goal of a common platform approach, the internal components of the VM's, where applicable, are essentially the same and can be interchanged between each type of VM seamlessly. The table below details the components between each VM which are interchangeable:

INTERNAL COMPONENTS	FFVM	LFVM
Controller (VENDpc + VENDpc extension)	Same	
Push Buttons	Same	
FEIG closed and open loop card reader	Same	
Coin handling Unit with Escrow but without change	Coin carousels that enable Change	Escrow for refunds, no possibility for change
Bill Handling Unit MEI SCR small version	SAME	
Bank Card Processing Unit - Ingenico iSelf	SAME	
1 x Double printers (2 paper rolls in total)	Printer unit is the same. Paper roll width 300mm. Sheet metal & mounting differs from LFVM.	Printer unit is the same. Paper roll width 130mm. Sheet metal & mounting differs from FFVM.
Smartcard Dispenser	Same	

In addition, INIT's cash and "no change given" VM variants allow the transit agencies to pick the right variant at each station. The logic flow of the transaction for both VM's is the same. The following figures depict the easy three-step process the VM follows during the patron transaction. The only difference is the removal of the Coin recirculation components necessary for issuing change.



1.6.3.2 Hardware

The following chapters focus on the INIT VM's hardware.

1.6.3.2.1 Enclosure

The high security VM housings are made of 2mm thick stainless steel with reinforced corners. The secure, modular VM enclosure is constructed to withstand rugged harsh environmental

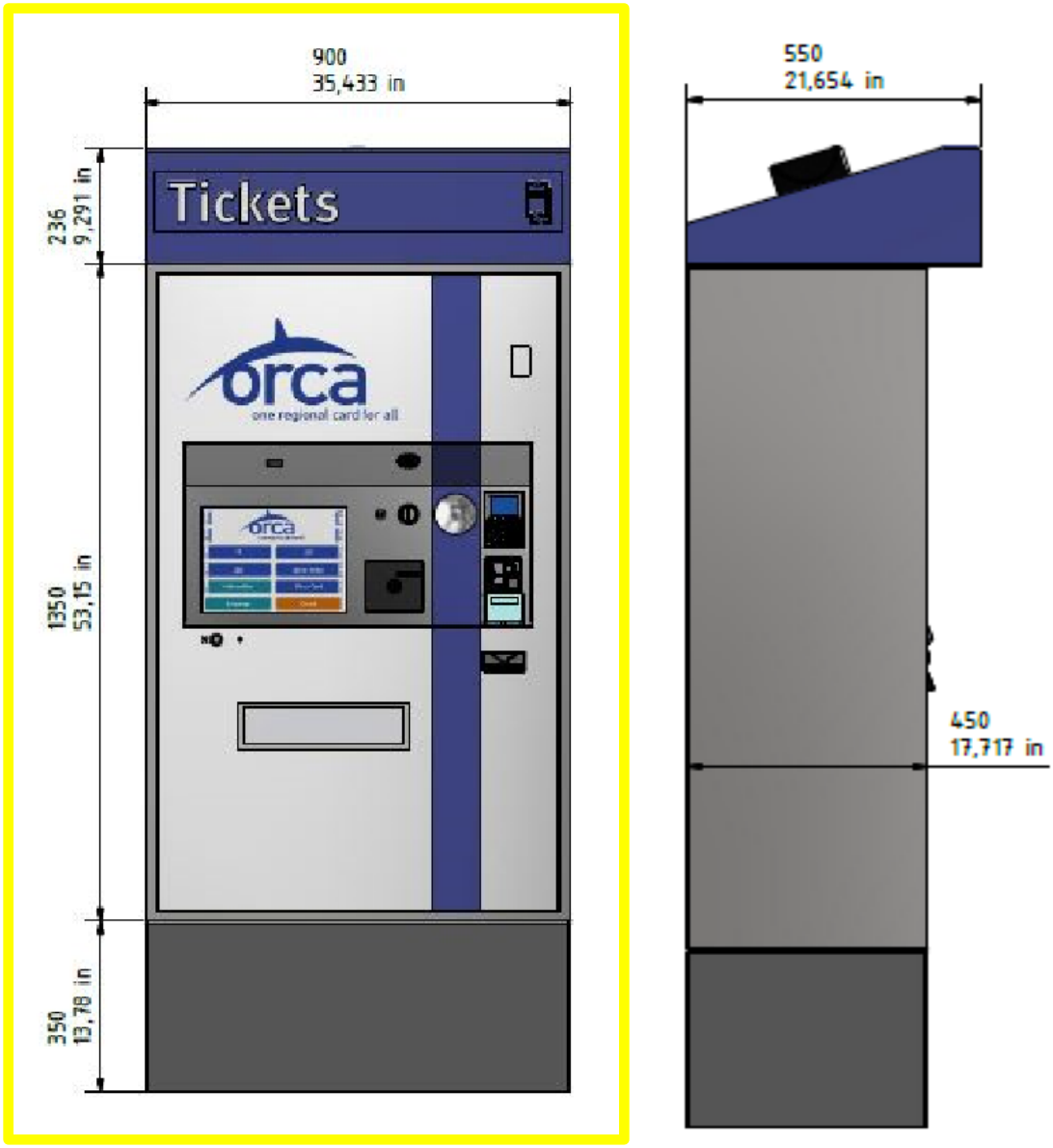
conditions against moisture, dust/grit/sand, humidity, electrical storms, exposure to urban and marine environment, and the range of elevations and altitudes in the operating region, while providing next generation ORCA customers with a convenient customer interface.

The COTS based service proven design supports a high availability, low maintenance model, where the ORCA transit agencies can provide a positive purchase experience to its customers. As detailed in the table below and illustrated in figures, the ergonomics of the user interface front panel and component layout for both VM's provide a smooth and easy to use transaction experience for the customers.

INIT VM Features	next generation ORCA Benefit
Simple, service proven VM design	• Low capital and ongoing operating costs • Proven functionality to allow for timely VM acceptance and expedited replacement of existing malfunctioning VM's.
Modular, COTS based VM Components	• Low risk, low maintenance, low complexity as compared to custom designs • Extremely low maintenance costs • Reduced downtime for improved customer experience • COTs components can be upgraded as newer technology becomes available therefore extending the product lifecycle and avoiding technical obsolescence.
Flexible, Configurable VM	• Flexibility for next generation ORCA authorities based on passenger flow • Cost savings based on flexible configurations

Exterior and Overall Dimensions of the VENDstation (FFMV)

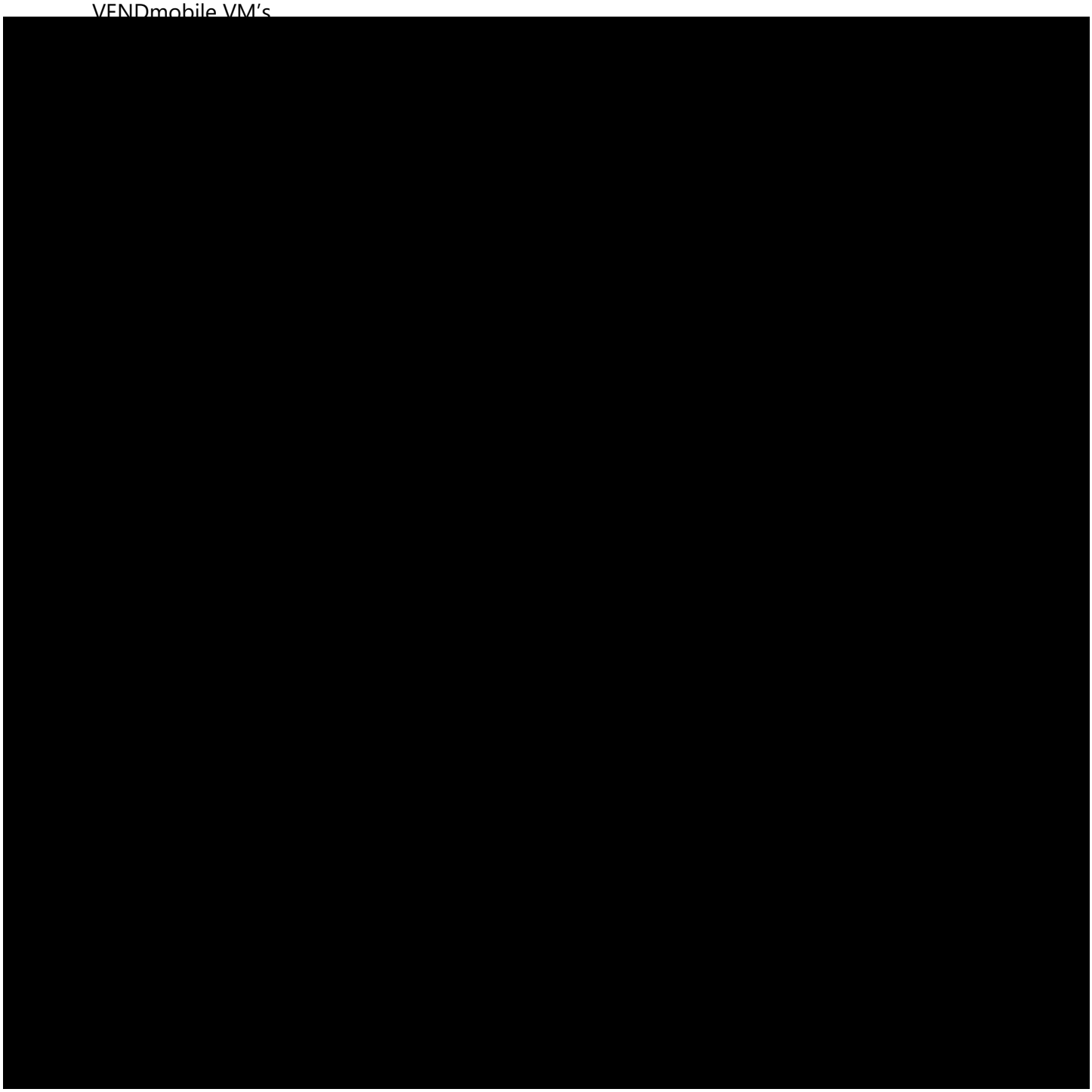
The pedestal and base heights are adaptable to meet ADA requirements as well as variable enclosure requirements. The height of the hood (with the text "tickets") is configurable and can be reduced from a height of 9.3 inches to a height of 2.5 inches in order to meet specific enclosure requirements while still providing overhead lighting for the VM front panel.

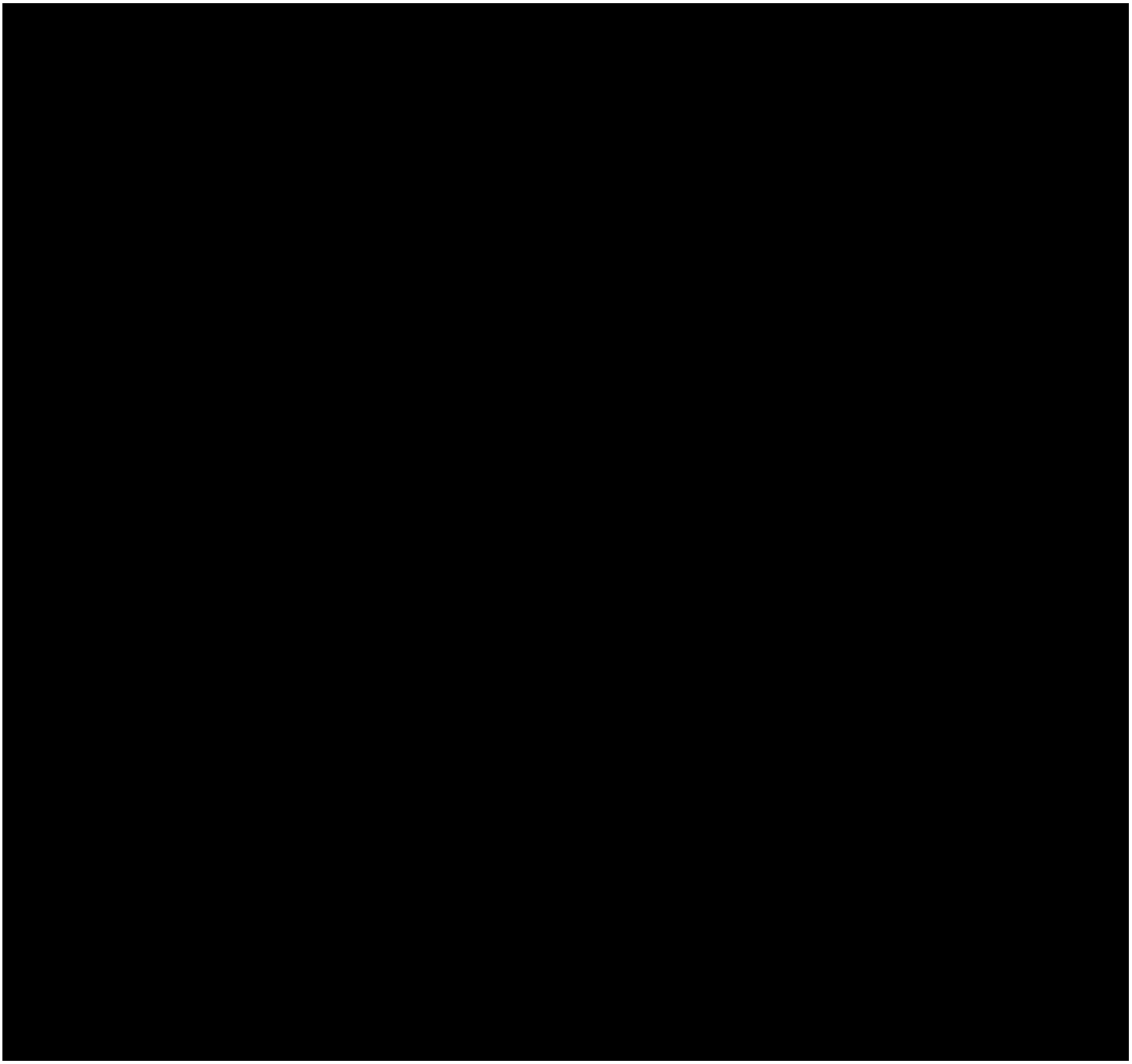


Exterior and Overall Dimensions of the VENDmobile (LFMV)

1.6.3.2.2 Modular Design

INIT's flexible modular design allows the VM's to be configured for each customer's specific requirements. The figures below shows the location of components of the VENDstation and VENDmobile VM's





The following table shows common and unique features and functionality of the INT VM's.

INIT VENDstation & VENDmobile	Features and Options
Pedestal / base	• Standard pedestal made from powder coated stainless steel • FFVM: Standard pedestal made from concrete
Housing	• 2 mm powder coated stainless steel • Anti-graffiti coating (optional) • Reinforced corners • Interior hinged door
Printers	• FFVM Up to 4 thermo printers with 300 dpi resolution • LFVM: Up to 2 thermo printers with 300 dpi resolution • FFVM: Up to 4 paper rolls with up to 300 mm diameter • LFVM: Up to 2 paper rolls with up to 130 mm diameter • Paper width up to 84 mm • Paper weight up to 80-120 g/m^2 • Paper level monitoring (optional) • Paper tracking using 1D barcode reader (optional) • Full and partial cut possible
Card Dispenser	• Up to 500 cards • Card return reject bin for up to 10 cards • Write and read encoding/decoding of ISO14443 proximity cards)
Coin Processing	• Electronic coin shutter prevents non-metallic objects from being inserted. Self-cleaning function • Entire coin path within device monitored by 7 photoelectric sensors • Electronic coin validator

INIT VENDstation & VENDmobile	Features and Options
	• FFVM - Up to 6 change magazines, correctly sorted, with 50 coins per magazine. Escrow function based on "first-in-first-out" process • Self-closing stainless steel cashboxes with a 6,5 l volume • FFVM- Up to 3 "big" hoppers with up to 1100 coins or up to 4 "small" hoppers with up to 250 coins. Hoppers in lockable stainless steel boxes (optional)
Uninterruptible Power Supply (UPS)	• Uninterruptible Power Supply
Bank note handling SCR	• Escrows 15 banknotes • Cashbox: Lockable, removable and durable with 600-note capacity • Security Gate Module: Mechanical security, anti-stringing protection • Acceptor Head: Multi-width (3.27") SC Advance acceptor head • Security and/or stainless steel inlet (o)
Barcode reader	• Allows for quick scanning of mobile ticketing or barcodes on paper tickets (optional).
Security	• Locking o Locks on three sides o Lock bar with nine 6 mm stainless steel hooks o Security lock o Vibration secure door lever o Sensors for monitoring the locked status of the door • Hinge o Stainless steel hinge o Adjustable

INIT VENDstation & VENDmobile	Features and Options
Display	• Horizontally installed 10'' display (LFVM) • Horizontally Installer 15" display (FFVM) • 1024 x 768 resolution • 1000 cd/m², easily readable including under direct sunlight
Touch	• Capacitive touch
Contactless customer cards	• Write and read customer cards
Ticket tray	• 1mm stainless steel with liquid drain • Plastic cover with stop and return spring • Electrically lockable cover (o)
Credit card terminal	• Integrated PIN pad, EMV card reader and contactless card reader with keypad to provide ADA compliance
Cover	• Stainless steel standard cover with logo and lighting • FFVM: Cover with illuminated and changeable title box
Miscellaneous options	• Illuminated arrows for customer direction guidance • Electrical lock cover • Microphone • Camera

Dispensing limited use media is also possible but requires different components depending on the type of the LU media (on roll, stacked, thickness). If LU media needs to be issued this should be decided and specified during the system specification phase. Upgrading the VM after the fact to enable dispensing of LU tickets would add additional effort.

1.6.3.2.3 Display

The VM has a trans-reflective backlit 15" flat panel TFT LCD touch screen display which provides optimal view in bright sun light as well as at night time. The display detects customer selections and is unaffected by rain, temperature and sunlight. All content shown on the display is ADA compliant. User input is given via the touchscreen or through the keypad on the credit card terminal, corresponding to the active regions of the touchscreen. The Glass Covered TFT LCD Touch Screen is secured with a stainless steel back plate to ensure against intrusion through the monitor cut out.

The touchscreen display is the primary customer interface, used to guide the customer through simple and easy to read instructions on how to complete the fare purchase process. To simplify the process, one is consistently allocated to language, while another is dedicated to the CANCEL function. Customer selections are consistently displayed, eliminating confusion in any sequential purchasing process. The display is installed on the front door of the VM, situated so its view is not obstructed and to avoid any parallax effect.

1.6.3.2.4 Bill Handling Unit

The Bill Handling Unit (BHU) is the proven design of the [redacted] unit without bill recycling. The unit includes a bill validator, escrow module and bill vault. The SC product line has redefined expectations for note acceptors by improving acceptance rates, jam rates, security and the cost of operation. The reliability that has resulted in an installed base of more than 1.5 million units worldwide is now the engine that drives a unit engineered to further reduce the costs associated with cash management. New bill designs are easily programmed to add to current bill designs.

[redacted]

The bill validator is equipped with a protective shutter to ensure that foreign matter does not enter the BHU while the machine is not accepting bills. The bill validator will remain closed until a transaction is selected for which cash payments are available. The shutter will automatically open once payment due has been displayed. The specification highlights of the [redacted] are as follows:

- o [redacted]
  - [redacted]
  - [redacted]
  - [redacted]
  - [redacted]

1.6.3.2.5 Coin Handling Unit

The Coin Handling Unit (CHU) is the proven design of the COTS based chassis [redacted] a complete self-locking and self-closing coin handling solution for indoor and outdoor machines. [redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

The coin acceptance is self-cleaning and opens only for metallic objects. Only one coin is accepted at a time. The integrated escrow provides a universal solution for pre-vend coin storage requirements. All inserted coins are safely stored in the escrow prior to the confirmation

of the sales transaction. Any interruption of the vending process results in all coins being returned, reducing the likelihood of coin manipulation and attempts of money laundering.

The VM software determines the amount of coins in coin storage and calculates the weight. When the weight reaches a certain threshold parameter, the device stops accepting coins. The INIT MOBILEsymon system monitoring software monitors the CHU storage and issues pre-assigned notifications to optimize service and maintenance response times.

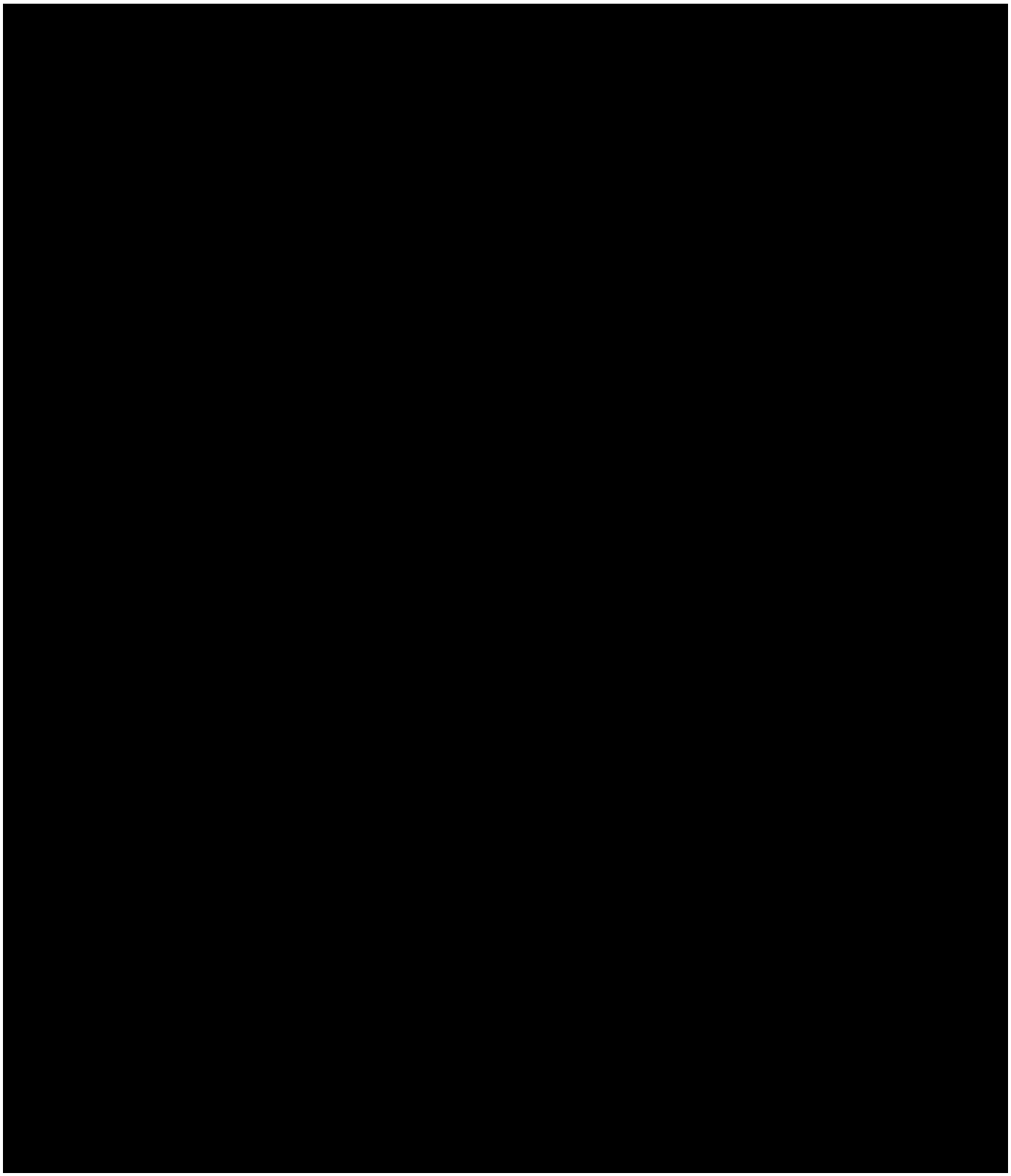
1.6.3.2.6 Bank Card Processing Unit (BCPU)

The VM Bank Card Processing Unit (BPCU) is the COTS based, field proven [redacted] compliant Chip Card reader components shown in the figure below. The BPCU solution consists of the following proven and certified components:

- [redacted]
- [redacted]
- [redacted]

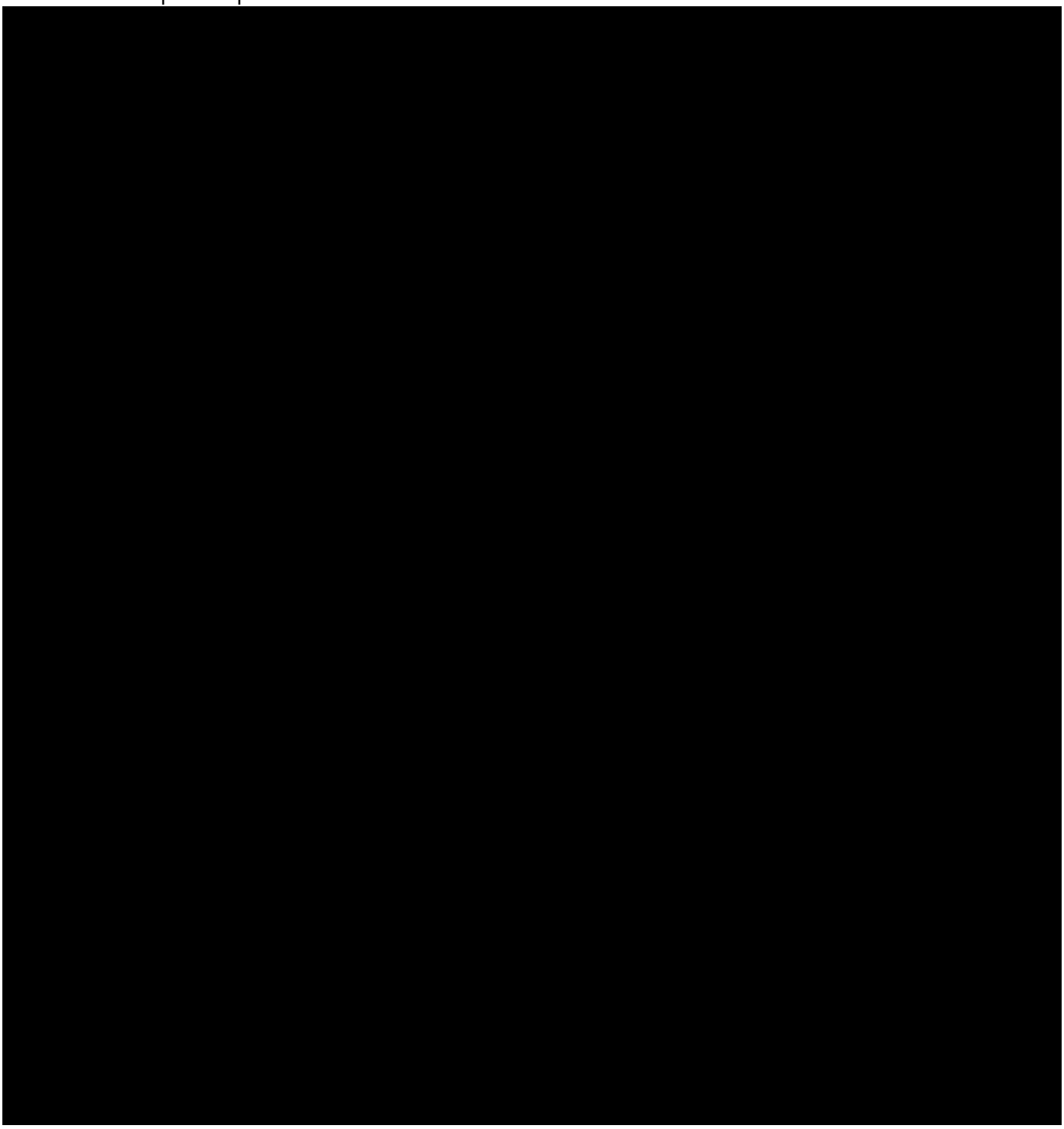
The [redacted] components are installed at ADA compliant locations on the front of the VM's .

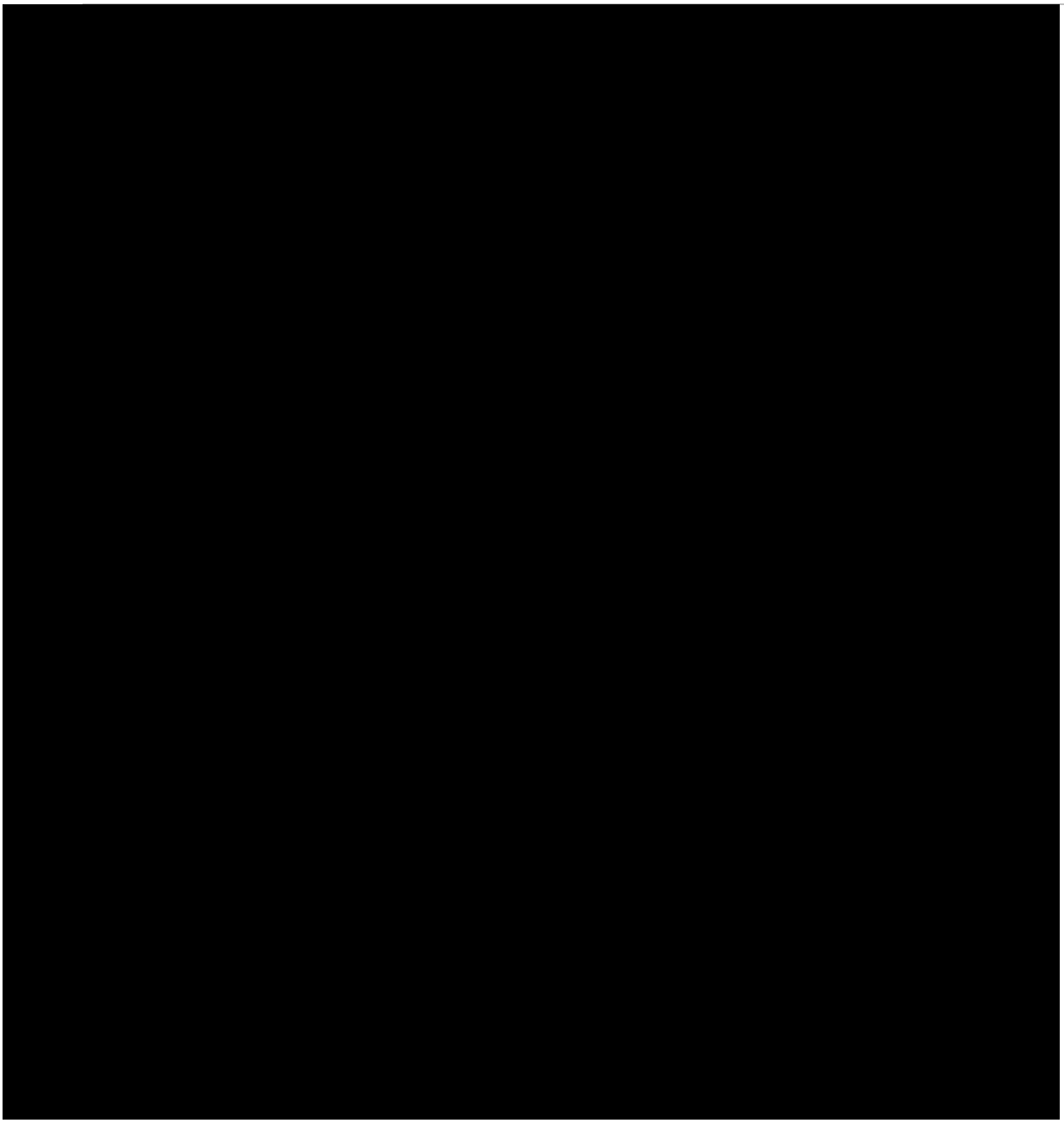
More details on the proposed iSelf terminal:

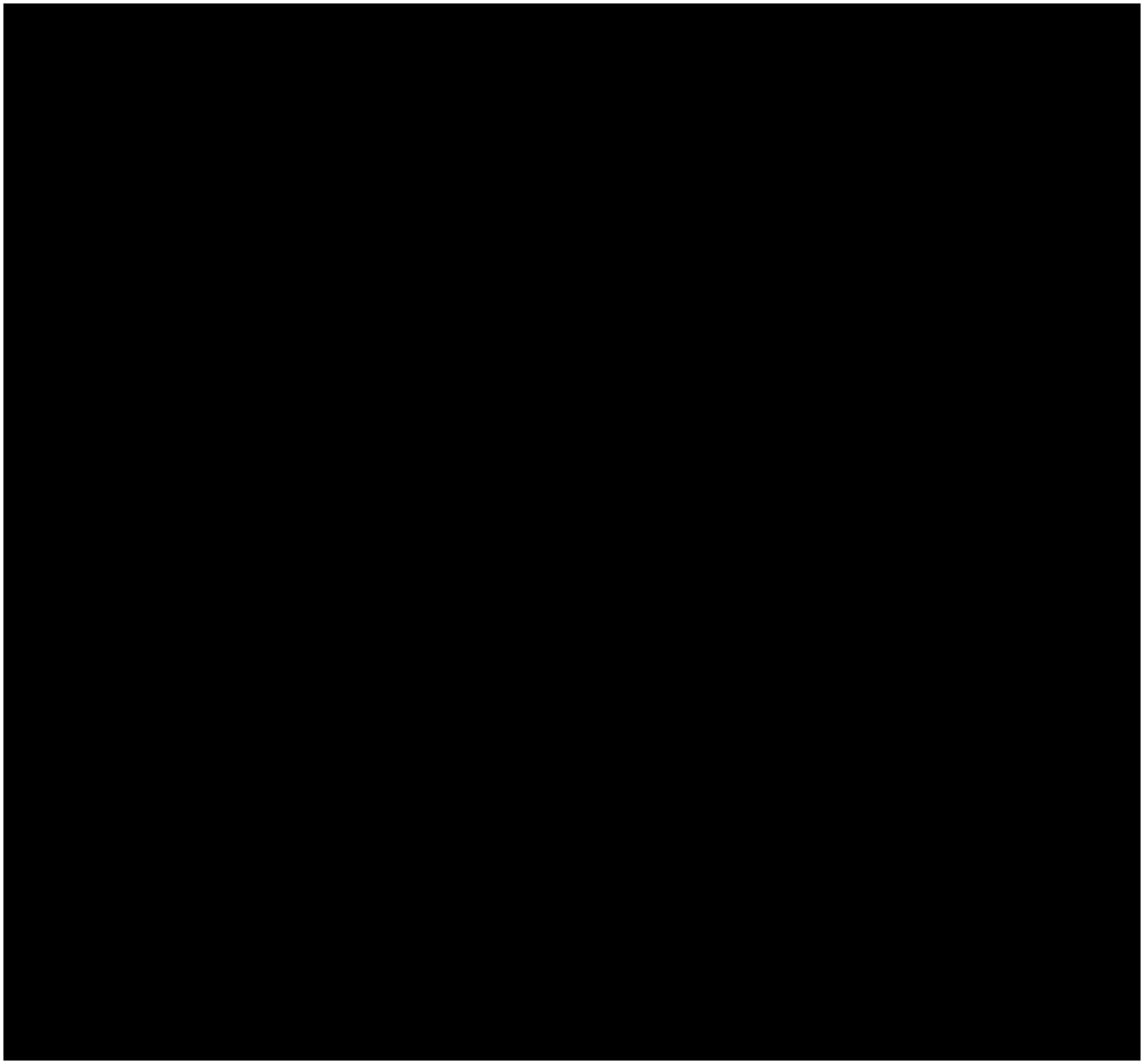


1.6.3.2.7 Smart Card Encoder / Dispenser

Extended Use Smart card encoder dispenser is easily configurable for EU or LU card dispensing and encoding by simply changing card dispensing carriage. As shown in the figure below the unit is setup to dispense EU cards. The encoder head unit remains the same.



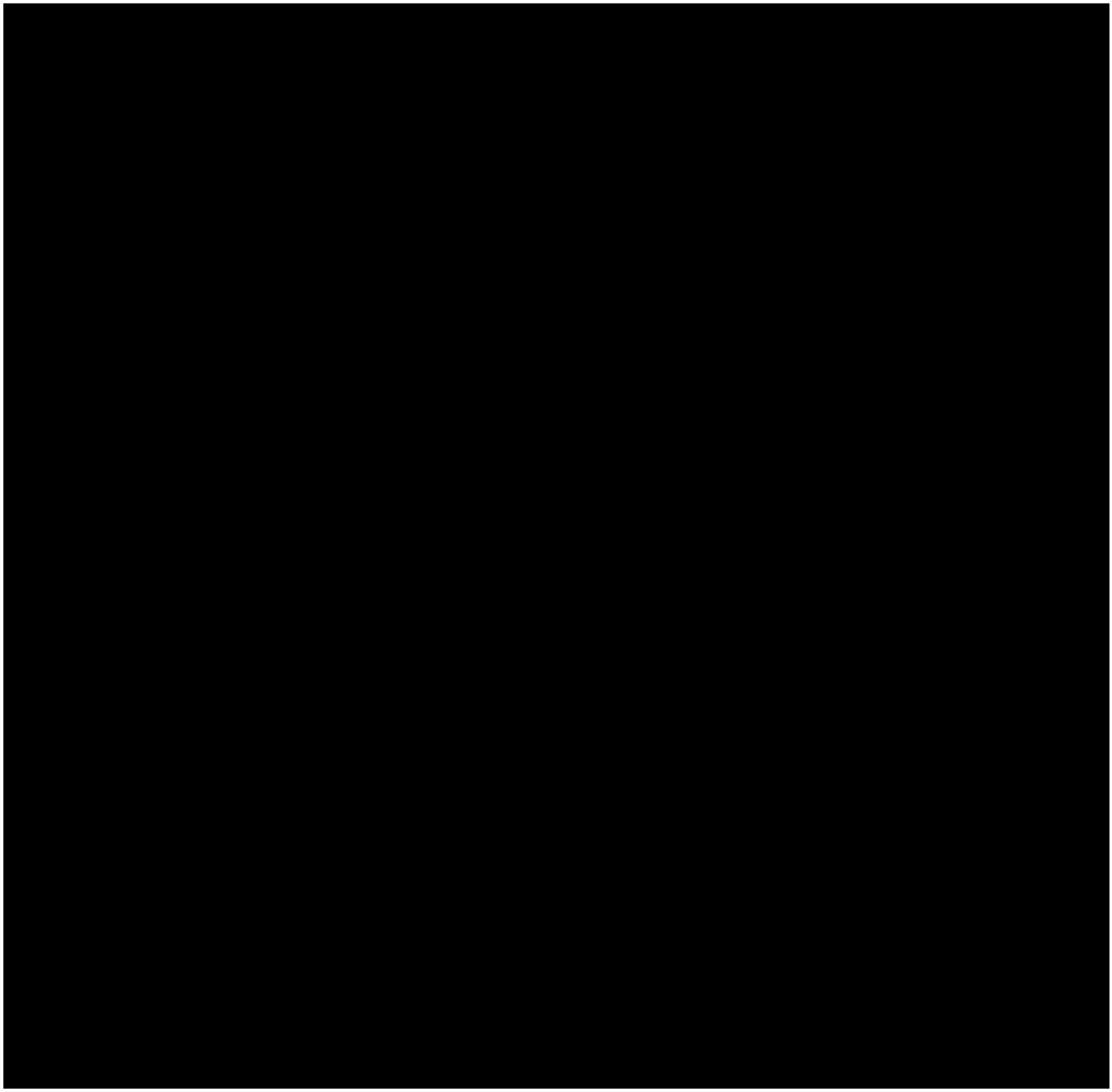




1.6.3.2.8 Smart Card Reader

The COTS [redacted] EMV and PCI certified Smart Card OEM terminal is INIT's choice for smart card contactless ticketing applications. This service proven smart card reader is added to the front of the VM terminal as shown in the figure below and mounts flush the front of the VM.

See next page for details on the reader.



1.6.3.2.9 Receipt Printer

The VM provides high speed and resolution receipt printing with the integrated printer. The paper roll can be up to 11.8in in diameter and thus provides enough paper for long interval paper exchange. After printing the ticket, the integrated cutter cuts the paper and the receipt falls into the output tray. In case multiple receipts need to be printed, the cutter is able to make partial cuts which leave the receipts loosely connected together. The printer is also able to print high resolution 2D barcodes for any possible automatic data evaluation. Highlights and technical specifications of the printer unit:

- High Resolution: 300dpi, High Speed: 7.87in/s

- Max print width 3.2in
- Max paper width: 3.30in
- Cutter: full and partial cut
- Easy paper loading
- Max paper roll diameter: 11.81in
- Paper weight: 1.9 -2.8 lb/ft2

The next generation ORCA VM will be equipped with one EU dispenser and one Paper Media Dispenser. Each paper media dispenser is capable of using two separate paper rolls (ticket stock and/or receipt paper). Each dispenser is equipped with two (2) printers, effectively providing a separate printer for each roll. Each printer unit comprises a printing unit, a cutting unit, paper sensors and a controller. A holder for the paper rolls is installed on the rear wall of each unit. The paper ticket stock roll is tracked with a barcode reader. It is important to note that the individual paper rolls are configurable.

The integrated printing units offer the following features:

- Max. printable paper width: 81.3 mm
- Resolution: 300 dpi
- Maximum Print Speed: 200 mm/s
- Specified lifetime print head: 100 km
- Cutting unit: 1.5 m sections (full and partial cut)

The VM's Paper Stock Rolls and Printers Provide Flexibility to Optimize Configurations at each Location	

The Paper Media Dispensers and Configurable Paper Rolls (Ticket Stock or Receipt Paper)

1.6.3.2.10 Controller (VENDpc)

The control unit consists of 2 parts; [redacted]

[redacted]

1.6.3.2.11 UPS

As uninterruptible Power Supply (

1.6.3.3 Customer Interface

The INIT FFVM and LFVM front panel provide a simple to use and easy to understand for the experienced and occasional rider.

One of the key success factors of VM is to enable the rider to use it quickly and conveniently without additional support from the agency. We achieve this with an overall clear design, including a simple and powerful user interface.

INIT's simple to use intuitive next generation ORCA FFVM Customer Interface

The front panel customer interface includes:

- Touchscreen display, up to 15" diagonal in size with twelve (12) active regions
- Coin slot input
- Bill Handler Input
- Bank Card Processing Unit (contact / contactless)
- ADA Compliant PIN Pad
- Contactless Smart Card Reader
- Audio interface
- Media dispense tray
- Instructional graphics and text
- Information sign(s)

Features of the customer interface include:

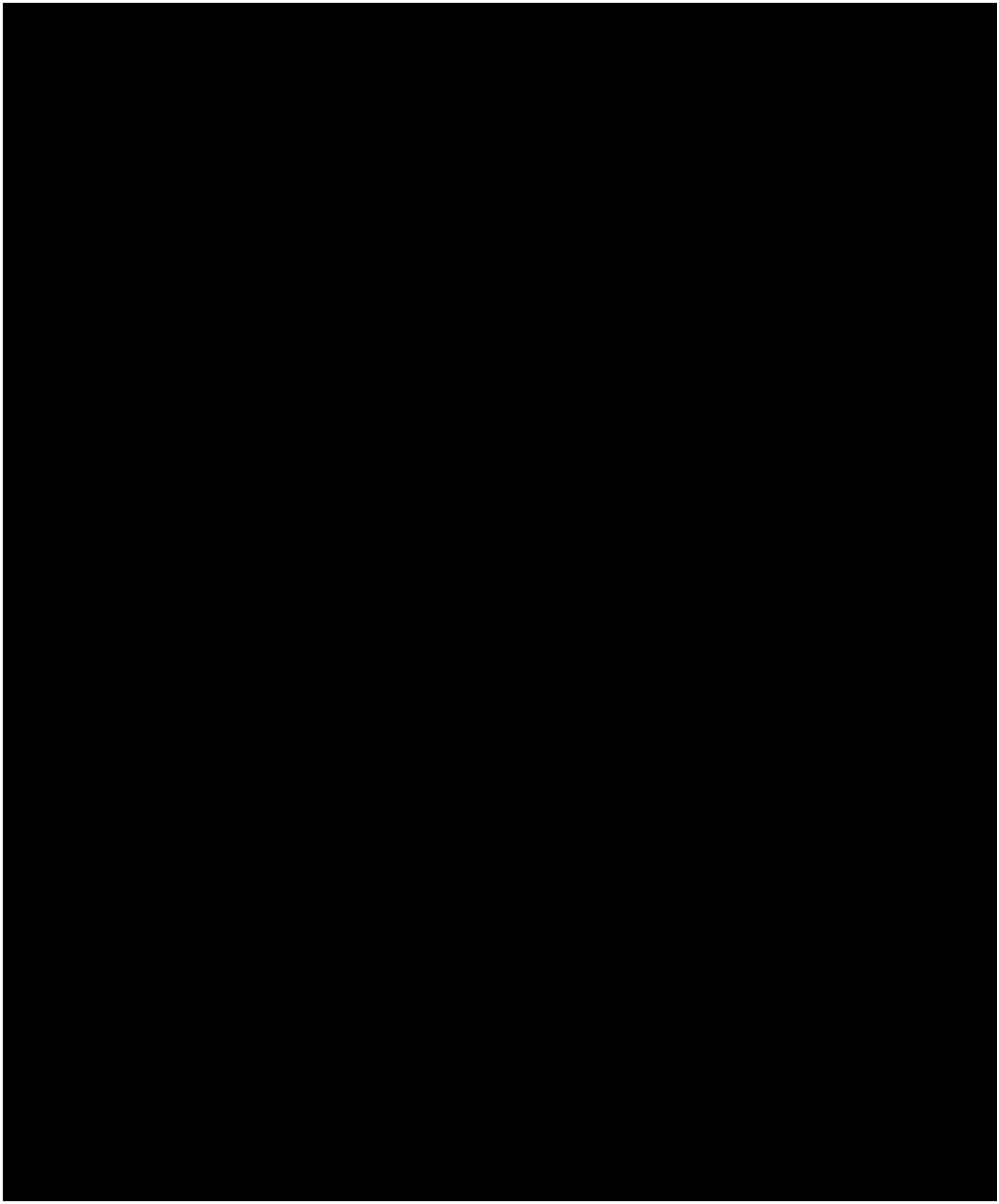
- ADA compliance
- Audio interface with internally mounted speaker
- Media dispense tray for tickets / receipts / change

- Payment options via coins, bills and bank cards

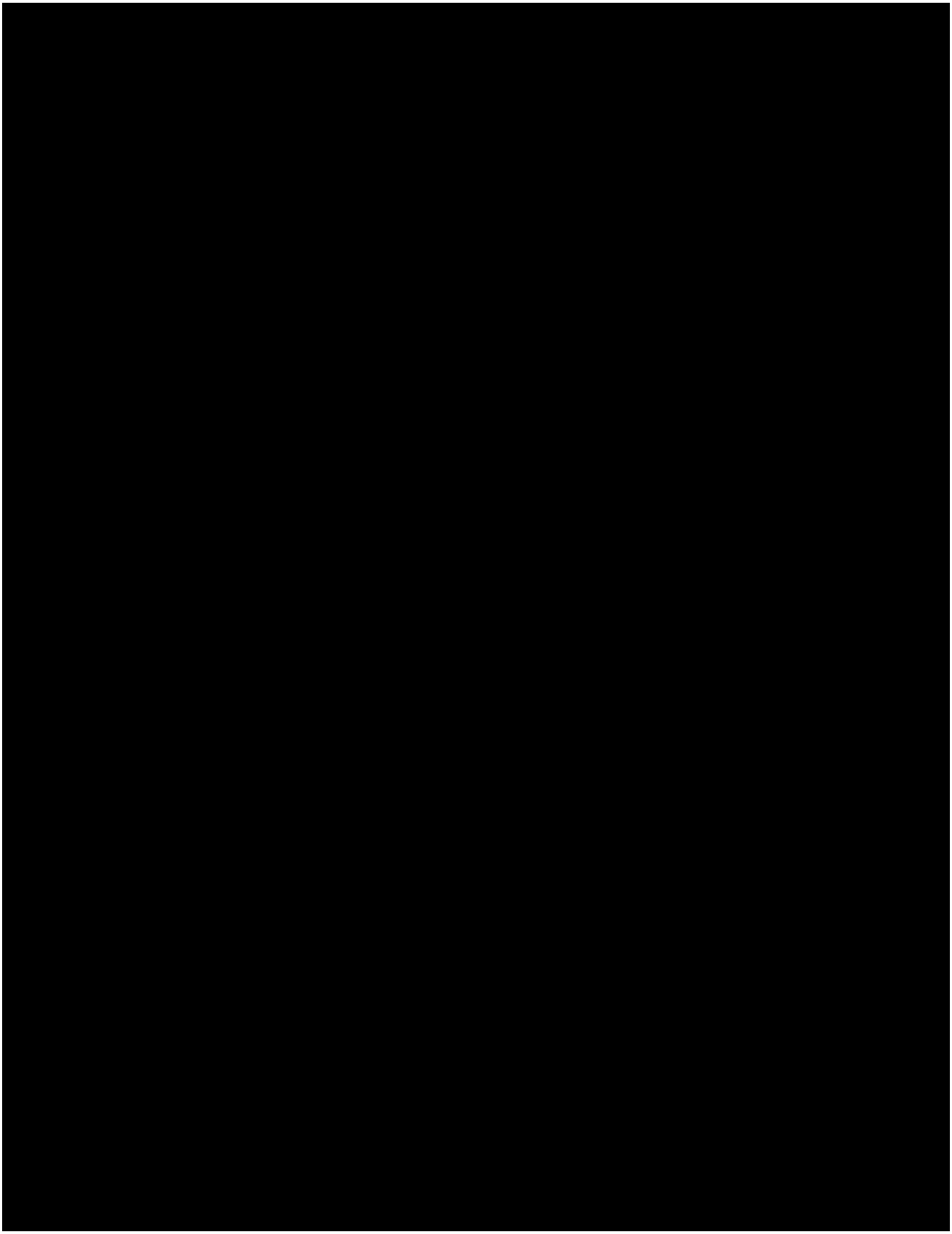
1.6.3.3.1 Screen flow - Simple Patron Purchase Process

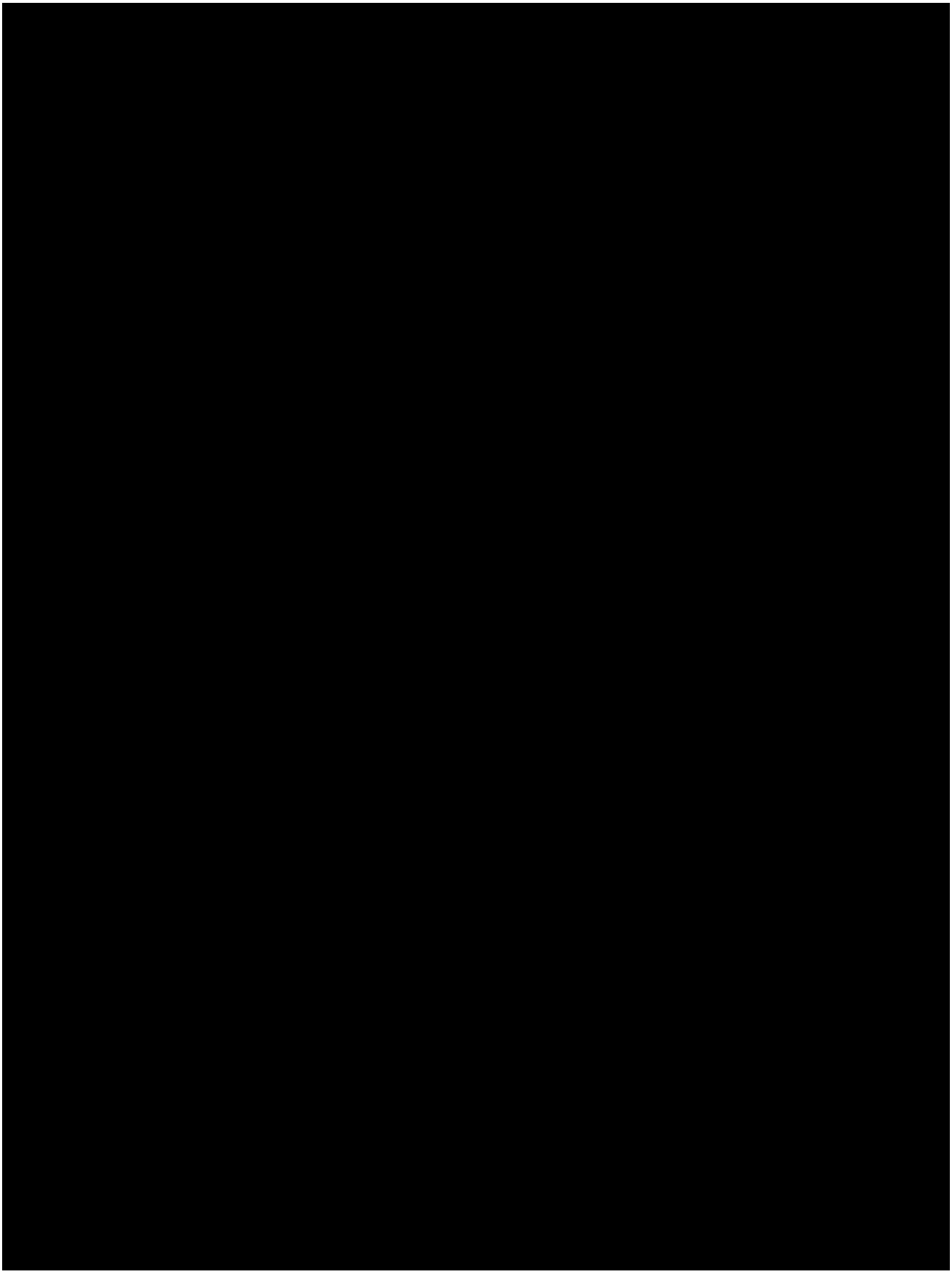
1. The user first presents the fare media (if available) to the card reader located next to the screen.
2. After this, the display shows products or functions available for the presented card (for example available stored value load amounts).
3. After selecting the value load amount, the display prompts the user to enter cash or credit card in section "2. Pay". The user can also select to issue a new card.
4. If 'Credit Card' is selected, the user is prompted to complete the credit card process by entering/tapping the credit card.
5. After payment confirmation, a receipt is issued and dispensed in the receipt/ticket tray. If the user selected to issue a new fare media (extended use card), a new card is issued and dispensed as well.

1.6.3.4 Locks and Physical Security



1.6.3.5 Alarms and Reported Events





[redacted]

1.6.3.6 Communications

The VM's communicates with the central system via Ethernet Interface. Communication via mobile network or WLAN is also possible if Ethernet is not available. The VM provides a SCADA interface for the Rail control discreet signals. The electrical level and function of the signals are to be specified and finalized during the system design phase. The VM provides protected inputs and outputs for this purpose.

1.6.3.6.1 Cellular Modem (Option)

The VM's can be equipped with an industrial mini PCI express card enabling cellular (LTE) communications. The exact card is dependent on the cellular provider being used. INIT offers this optional modular 3G/4G cellular modem, supporting all 3G and 4G frequencies, on all major US carriers, as a backup communications channel. If exercised, INIT provides the modem for the agency-provided 4G/LTE cellular data service. When communicating in the wireless mode, all TVD and back office functions are the same as in the hardwired Ethernet mode.

1.6.3.7 Power Supply FFVM

The FFVM uses a modular COTS [redacted] Switching Power Supply. It is a 320W industrial AC/DC power supply designed to operate in a harsh environment with high dust density, humidity, vibration and altitude. It is housed in a robust aluminum case and fully potted with heat-conducted silicone. I [redacted]

[redacted]

1.6.3.8 Software

This chapter provides details of the software used within the INIT Vending Machines.

1.6.3.8.1 Operating System

The operating system of the VENDstation is Windows© Ver. 10 IoT. It will provide all system drivers needed such as Ethernet communication drivers. Special drivers which are necessary and not part of the standard Windows Ver. 10 IoT are developed and integrated by INIT. During startup of the operating system a self-test is initiated. Errors occurring during the self-test will be written into the Windows event log file. The system partition containing the Windows Ver. 10 IoT Operating System is write protected with the "enhanced write filter" (EWF). This is to avoid system partition damage in the case of unexpected power loss or hard reset.

The VENDstation is equipped with two micro SD memory cards. The sales data is saved on two physically different memory cards to ensure redundancy.

1.6.3.8.2 Vending Machine Application

The VENDstation software is implemented in the programming language C/C++. To access standard functions, like file transfer or serial ports, the resources of the operating system are used. The main functionality of the VENDstation application is:

[redacted]

[redacted]

All functionality is provided in one executable application file. Additional configuration specific files the application software needs are provided in a software archive by INIT. The software archive is distributed via the usual data provision.

1.6.3.8.3 Transaction Records

The VM's generate, store and transmit a unique data record for each transaction performed. The record is stored locally in non-volatile memory until confirmation of receipt and database storage is received from the back office. [redacted] of transaction data is stored to support financial audits. Offline transactions are recorded as such in the transaction record, to support easy identification and tracking. The transaction record details will be finalized during the design review phase of the project. At a minimum, the unique transaction record will include:

- [redacted]

1.6.3.8.4 Audit Registers

The VM's employs audit registers for data tracking, verification and analysis. They store counts and values for specific events in non-volatile memory. The audit records are transmitted to the back office for reconciliation at a configurable time period, usually at the end of each service day.

[redacted]

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1.6.3.9 Operations

This chapter provides details in regards of the device operation of the vending machines.

1.6.3.9.1 Voice Annunciation

The VM is equipped with a headphone jack on the front panel customer interface. When used, it provides brief context-sensitive audio voice messages conveying the information on the screen for disabled customers. The audio tracks the change in transaction status as the customer navigates the screen flow. The voice annunciation supports the multi-lingual capabilities of the VM as finalized during the design review phase of the project.

1.6.3.9.2 Multi-Lingual Capabilities

The VM provides multi-lingual capability through the use of a display selection button. English is the default language and the alternate language selection is active at all times on all screens while the VM is in service. Pressing the button causes the display and audio messages to toggle to the selected language. INIT will implement the required languages and their corresponding audio and text translations.

INIT's proposal is fully compliant with the Voice Annunciation requirements.

1.6.3.9.3 Customer Operations

The VM performs the following minimum customer operations:

- Sell one or more tickets in a single transaction
- Accept specialty codes for promotional products
- Interface with other systems integrated with VM

The final list of customer functions is determined during the design phase of the project and will be worked out in close collaboration with the UI/UX consultants.

The VM displays a progression of simple, intuitive screens to complete a transaction. Available options are determined by the status and configuration of each VM. The information displayed is configurable by authorized agency staff.

Clear instructions guide the customer to the sequence of steps necessary to complete their transaction. English speaking customers complete their purchase in three (3) screens or less, guided by audio tones to provide feedback each time a button or screen is pressed. Sales transactions are generated and sent to the back office for reconciliation. Corporate Quick Card transactions are initiated by the Bank Card Processing Unit reading the customer's card and sending that data to the back office to generate a sales transaction.

To keep the purchase process simple, intuitive and convenient, the following operational features are provided:

- Idle Mode
    - Screen saver activated after programmable idle period
    - Screen saver terminates automatically when transaction initiation detected
- Degraded Mode
    - Transactions are stored locally until communications restored
- Offline Mode
    - TVD takes cash payments for fare products designated for offline sale
    - Send data generated in offline mode when communications restored
- Payment Features
    - Automatic detection of form of payment
    - Insert coins and bills in any sequence
    - Credit or Debit prompt, with PIN required for Debit
    - Bank card authorization prior to ticket issuing
    - If bank communications down – VM enters "cash only" mode
    - Cancel transaction any time before full payment or authorization
    - Failure during transaction automatically cancels with screen notification
    - Cash returned and Credit/debit reversed for cancelled transactions

  - Adjustable time-out period for no input between transaction steps
  - Time from full payment / authorization to media issuance less than three seconds
  - Time between successive media issuance less than two seconds
  - VM readiness less than three seconds after completed or cancelled transaction

- Receipt features
  - Receipts are provided (configurable)
    - Upon customer request
    - Automatically for transactions above a configurable dollar value
    - Optionally for transactions below the configurable value
    - For every transaction
    - Never (when receipt stock is empty)
    - Within three seconds of completed transaction
  - Print format
    - Indication that not a valid ticket
    - Machine number
    - Date
    - Time
    - Purchase station name or location
    - Transaction amount
    - Machine unique sequence number
    - Additional info for bank card transactions

1.6.4 INIT's User-Friendly Customer Service Terminal

INIT will provide a COTS PC-based Customer Service Terminal (CST) with peripherals to support the Customer Service Offices (CSOs), remote use in the field, and the ORCA Agencies mail center.

1.6.4.1 Hardware

The following table defines the Customer Service Terminal (CST) hardware components and quantities for the different applications.

INIT's COTS Full Featured Customer Service Terminal PC and Peripherals Overview & Quantities:

QTY (Estimated)	CSO	Customer Outreach	Mail Center	Model Number
	15	12	14	
Computer	15	12	14	HP EliteBook x360 1030 G2
Docking Station	15		14	HP Elite USB-C
Keyboard/Mouse	15	Integrated	14	Logitech MK520 Wireless Keyboard and Mouse Combo
Touchscreen Monitor	15	Integrated	14	HP Elite Display E220T
Closed Loop Media Processor	15		n/a	INIT PROXmobil3 validators
Closed Loop Media Processor	n/a	12	n/a	New INIT Portable Feig Reader
Image Capture	15	12	n/a	Logitech 4K Pro Webcam
Document Capture Desktop	15	n/a	14	Epson DS-1630 Flatbed Color Document Scanner
Document Capture Mobile	n/a	12	n/a	Epson WorkForce DS-40 Color Portable Scanner
Secure Cash Storage	15	Agency Provided	Agency Provided	MS-Cash Drawer (J-423-USB-M-B)
Bank Card Processing	15	12	14	Ingenico Mercury iPP350, v4.x, PIN Pad/Reader/SCR/Contactless
Receipt Printing (Desktop)	15	n/a	14	Epson TM-T20II Direct Thermal Printer
Receipt Printing (Mobile)	n/a	12	n/a	Brother RuggedJet RJ4030CA
Customer Display	15	n/a	n/a	Hewlett-Packard LV3000 Smart Buy Logic Controls Pole Display 7" Video with USB Connector
EU Printer (400 card)	n/a	n/a	2	HID Fargo HDP8500

EU Printer (200 card)	15	n/a	n/a	HID Fargo HDP5600
EU Printer (100 card)	n/a	12	n/a	HID Fargo DTC1250e
Cellular Communications	n/a	12	n/a	TBD
Uninterruptible Power Supply Desktop	15	n/a	14	APC Back UPS Pro BX1500M
USB Hub (10 Port)	15	12	14	TripLite USB Hub

INIT's COTS Full Featured CST PC and Peripherals Overview & Quantities

If an end of life statement is issued for a specific component before FDR, INIT will replace the specified component with a newer version after agency approval. The final list of components will be determined during FDR. Drawings of components, device firmware/OS and other details will be submitted as part of FDR.

1.6.4.1.1 Customer Service Terminal Computer

The recommended hardware to support deployment types in a customer service office, special location or a mail center, is a high performance, dockable laptop with the required peripherals integrated or added to create a fully functional customer service terminal. INIT is proposing a Windows 10 Professional, HP EliteBook x360 1030 G2. The EliteBook model provides a small, ultra-light, sturdy and flexible machine usable in any of the Orca Agencies' deployment intentions. Equipped with an Intel Core i5 processor, 8GB of RAM, 256GB Solid State Drive, and 13.3' Full HD touch screen, the EliteBook's small form factor and long battery life will provide flexibility and endurance and enjoyment for customer service representatives use. The proposed laptop has passed the test procedures of the MIL-STD-810G standard. This includes drop, functional shock, vibration category 4, vibration category 24, dust, humidity, altitude, high temperature, low temperature, temperature shock, sand, explosive atmosphere and freeze/thaw. INIT recommends using the same hardware model across all three customer service locations to leverage the benefits of a homogeneity across deployment, management, maintenance and overall system lifecycle. The agencies will also benefit from the flexibility and simplicity of asset re-deployments if a system is ever needed to be used for more then one purpose. If the ORCA agencies prefer a different primary computing platform, INIT is open to exploring other Windows-based alternatives that the agencies prefer.

1.6.4.1.2 Customer Service Terminal - Dock

HP Elite USB C docks will be used to facilitate easy connections to the required peripherals detailed below. Multiple USB ports, display connections and a wired network port are available in the driver-free dock. A USB-C dock leverages the latest docking technology and is the recommended docking solution for any mobile computing platform. As such, INIT believes the dock is useful in each customer service terminal location, including mobile, to provide an easier process for connecting the variety of peripherals needed without adding significant weight or cost.

1.6.4.1.3 Customer Service Terminal External Monitor

The Agencies indicated that in some deployment options, an external display may be desired to be added to the customer service terminal. INIT is proposing an HP EliteDisplay E220t 21.5-inch Touch Monitor. Reflecting the desires of the high definition, integrated touch screen on the HP EliteBook, the proposed 21.5 inch display boasts the same high definition and touch capabilities.

1.6.4.1.4 Customer Service Terminal – Keyboard and Pointing Device

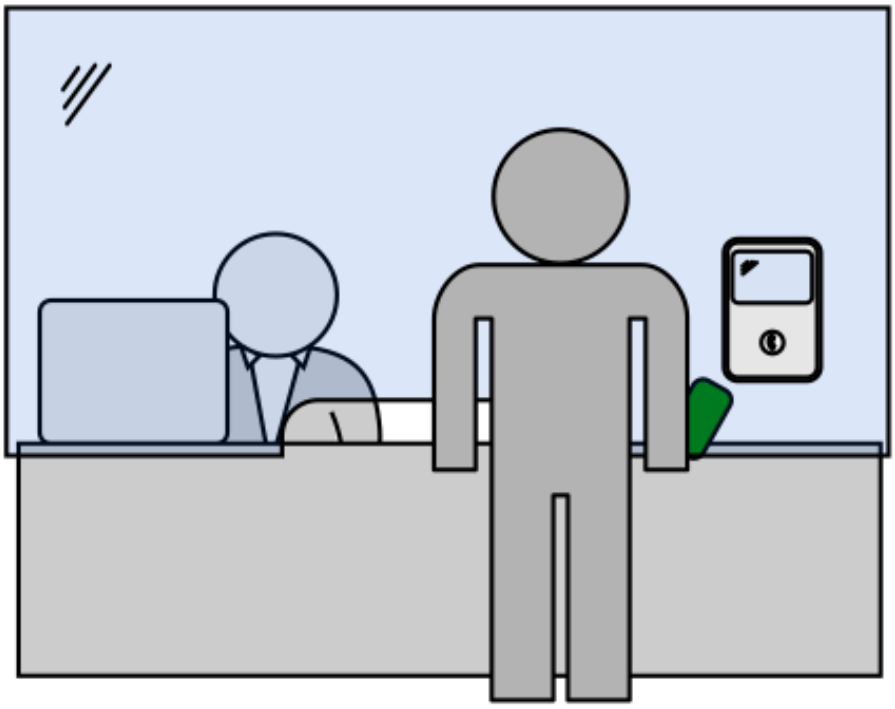
For traditional installations within the Mail Center and Customer Service Office, an external, wireless keyboard and mouse combination will be provided. INIT proposes the Logitech MK520 Mouse and Keyboard combination. The keyboard and pointing device will connect to the Customer Service Terminal via Wireless USB interface.

1.6.4.1.5 Customer Service Terminal - Closed Loop Media Processor

INIT proposes to use a PROXmobil3 validator as the Closed Loop Media Processor in the Customer Service and Mail Center environment. The validator can either be mounted on a desktop stand, against a wall or behind glass.

The major advantage in using a validator instead of a standard USB card reader is the ability to read virtual cards and Open Payment cards in a PCI compliant way. Additionally, riders will be familiar with the intuitive card tapping method through their ridership experience on vehicles and at platforms. The familiarity will re-inforce process, branding, user experience and design consistency.

For use within the mobile environment, INIT proposes to design a smaller form factor validator without a screen but using the same secure element and functionality of the PROXmobil3 validator. The newly designed enclosure dimensions for the secure element will be finalzed during design review; however, the agencies should expect a device approximately 1/3 smaller then the PROXmobil3. Similar ancillary benefits of using a full PROXmobil3 can be achieved using similar design and branding decisions.



Service Center Closed Loop Reader

1.6.4.1.6 Customer Service Terminal – Image Capture

For traditional installations within the Mail Center and Customer Service office, an external webcam for image capture is provided. While the agencies indicated that the integrated webcam will be used for special events installations, INIT recommends including the image capture device for all installation types to maintain standardization and quality and has included webcam's for all customer service terminals in the price. The use of the integrated image capture device will create variability in both the process and the quality of the images. The Logitech 4K Pro webcam has the quality, size, and flexibility to be used across all three proposed implementations of the customer service terminal. For fixed locations, the web camera can be attached to the top of a standard LCD monitor or be used with an unpriced camera tripod. For mobile uses, the camera comes with a carrying pouch, can be attached to the top of a laptop screen or could be used with an unpriced camera tripod.

1.6.4.1.7 Customer Service Terminal – Document Capture

For the purpose of document capture, INIT proposes the Epson DS-1630 Flatbed Color Document Scanner. With both flatbed and document feeding capabilities, the Epson scanner can scan in both color and black and white as well as either simplex or duplex at 25 and 10 pages per minute, respectively. (sing. The document capture device will connect via USB interface.

Epson DS-1630 Scanner

1.6.4.1.8 Customer Service Terminal – Portable Document Capture

For document capture in the mobile environment, INIT proposes the Epson DS-40 Color Portable Scanner. This hand-held, 1.1 pound scanner is designed for quick scanning of small documents in either color or black and white, with scanning quality similar to it's larger, desk-bound counterparts.. It will connect to the mobile customer service terminal via USB interface but can be battery powered. At 11.7" wide by 1.7" high and 2.7" deep, this is one of the smallest portable document scanner on the market. An alternative would be to use the HP EliteBook's camera.

Epson DS-40 Scanner

1.6.4.1.9 Customer Service Terminal – Secure Cash Storage

A secure cash storage device will be connected to the customer service terminal via USB. The MS-Cash Drawer USB Standard Duty Cash Drawer will be controlled by the Customer Service Terminal software.

1.6.4.1.10 Customer Service Terminal – Customer Display

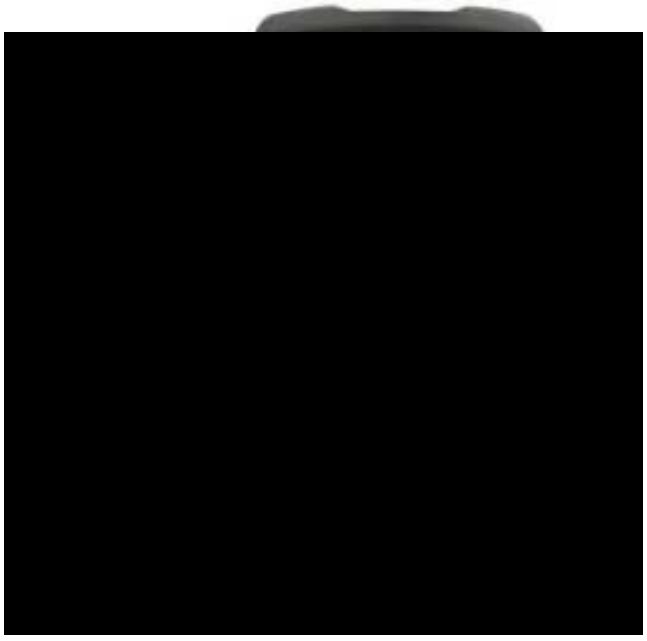
In order to provide a customer friendly visual display, INIT has included an HP LV3000 Pole Display which provides a 7 inch, customer facing screen that connects to the Customer Service Terminal via USB.

Customer Display

1.6.4.1.11 Customer Service Terminal – Bank Card Processing

For Bank Card processing, INIT will provide the [redacted] Payment Terminal. The [redacted] is a PCI certified, technically advanced smart terminal that supports EMV, Chip and Pin, Magstripe and contactless media. The [redacted] is an ideal smart terminal to standardize on for both fixed and mobile payment solutions providing industry standard capabilities, in an attractive housing, with 15 key back-lit keypad and color LCD display.

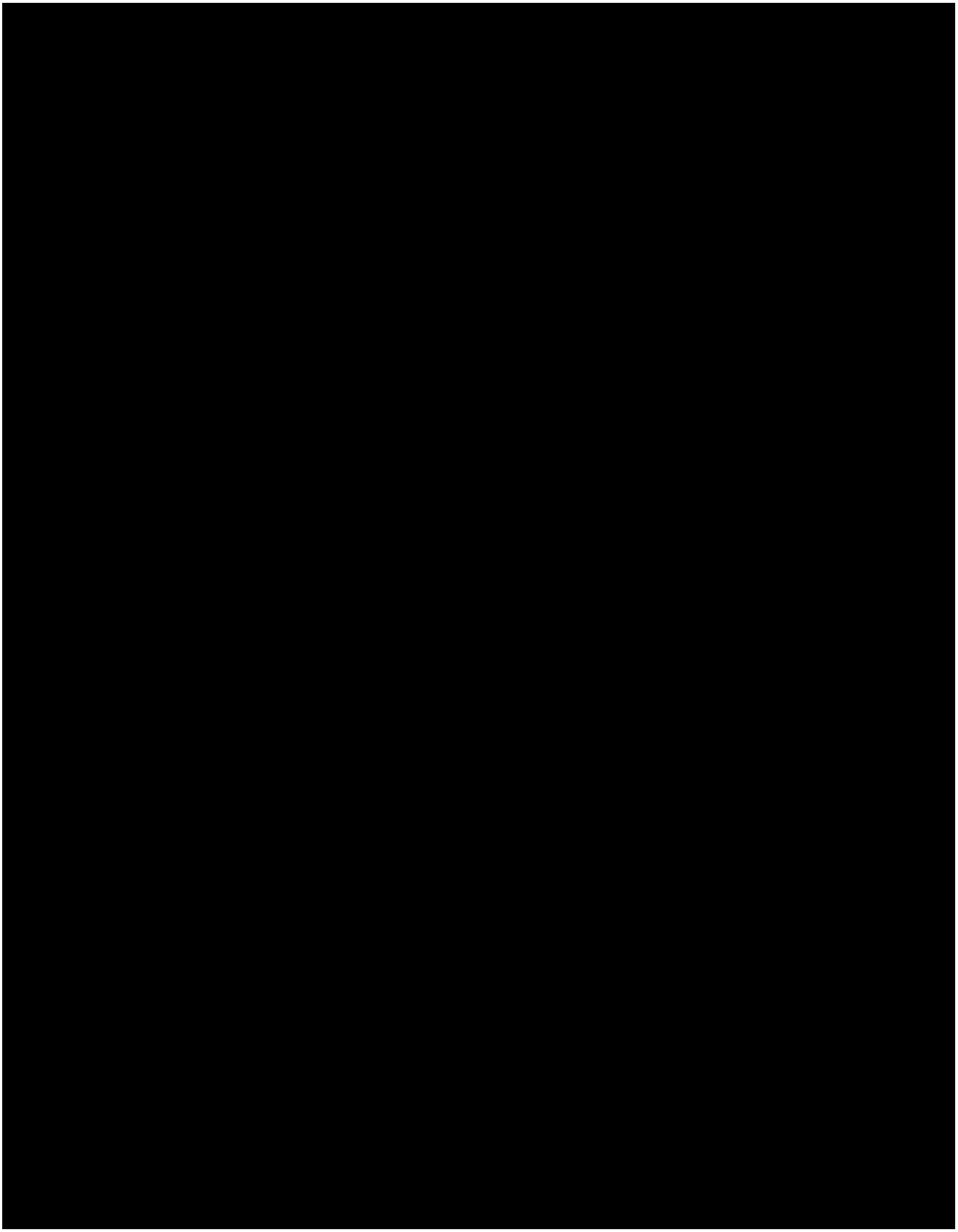
EOL of the [redacted] was announced September 30, 2017. The [redacted] will be replaced with [redacted] This timing is fortuitous as ngORCA will enjoy a bank card processing unit that meets PCI-PTS v4.x specifications , other inprovemens and a long life expectancy.

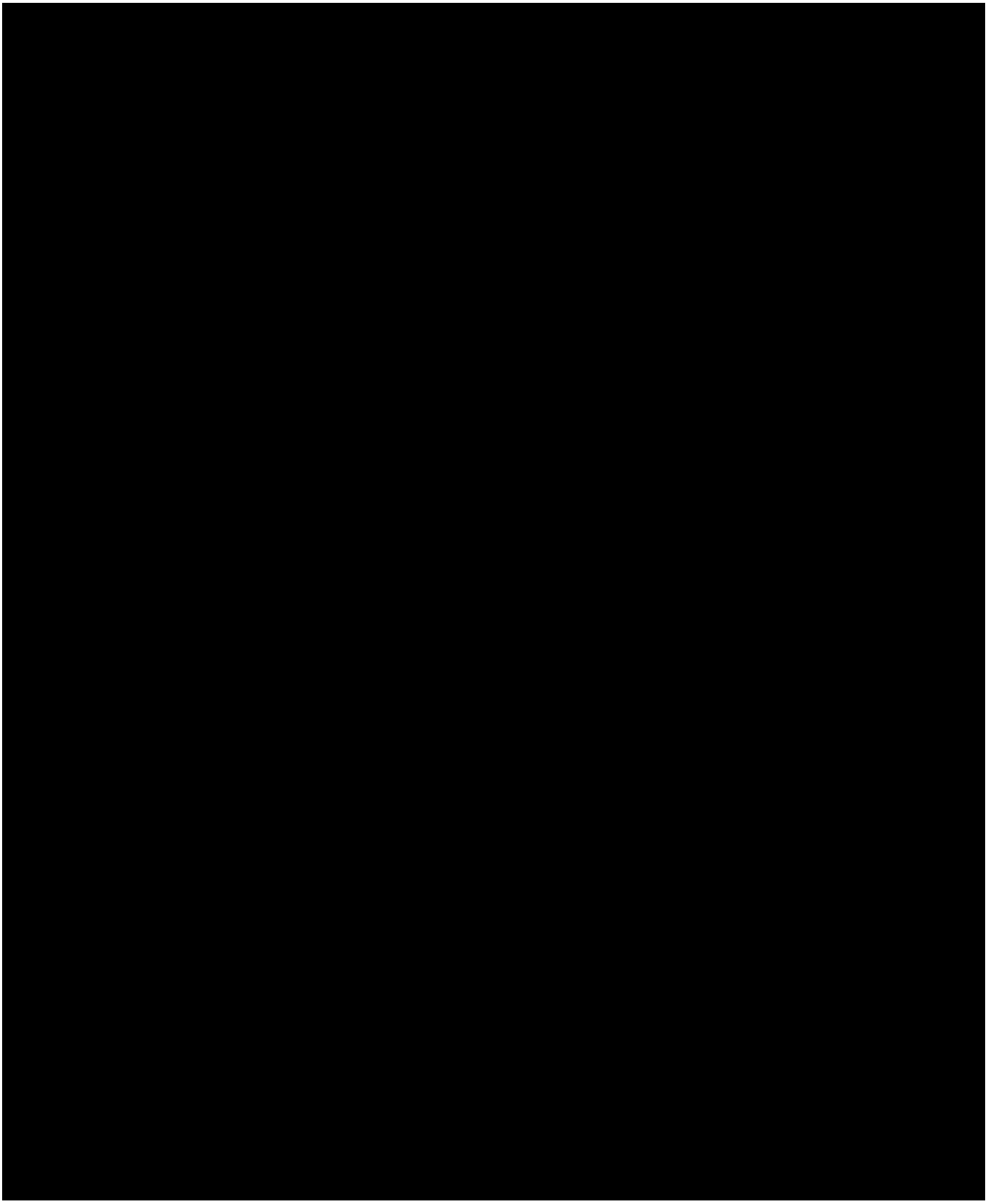


Bank Card Processing Unit

1.6.4.1.12 Customer Service Terminal – Receipt Printing

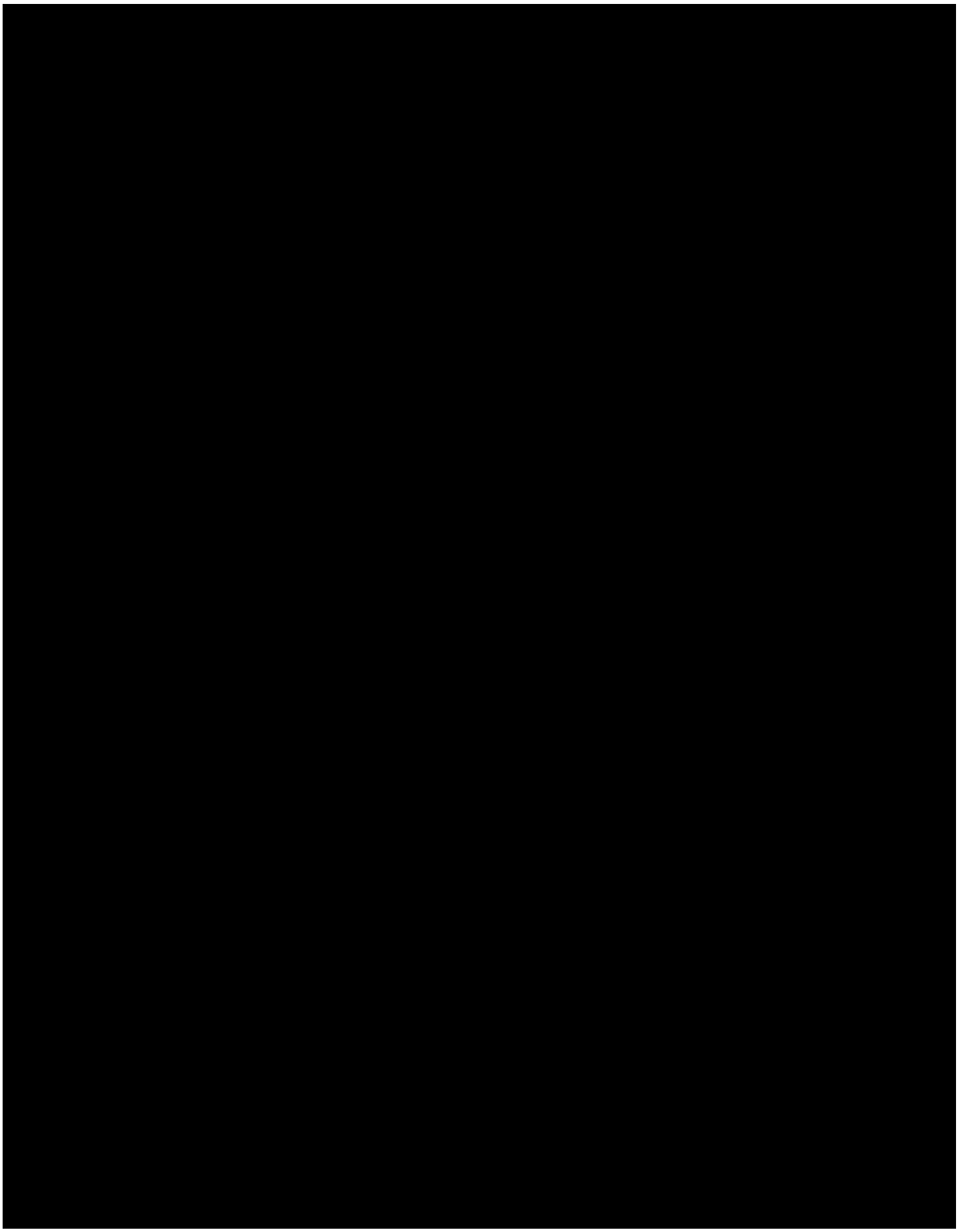
The [redacted] Receipt Printer is included as part of the Customer Service Terminal peripheral for receipt printing and check validation for traditional customer service office and mail center deployments. The [redacted] a high-performance multifunction printer with fast receipt printing, drop-in validation for deposit slips, checks, cashier checks and batch tickets, high-resolution graphics, superior slip handling, the highest reliability in its class and the industry's leading MICR accuracy.

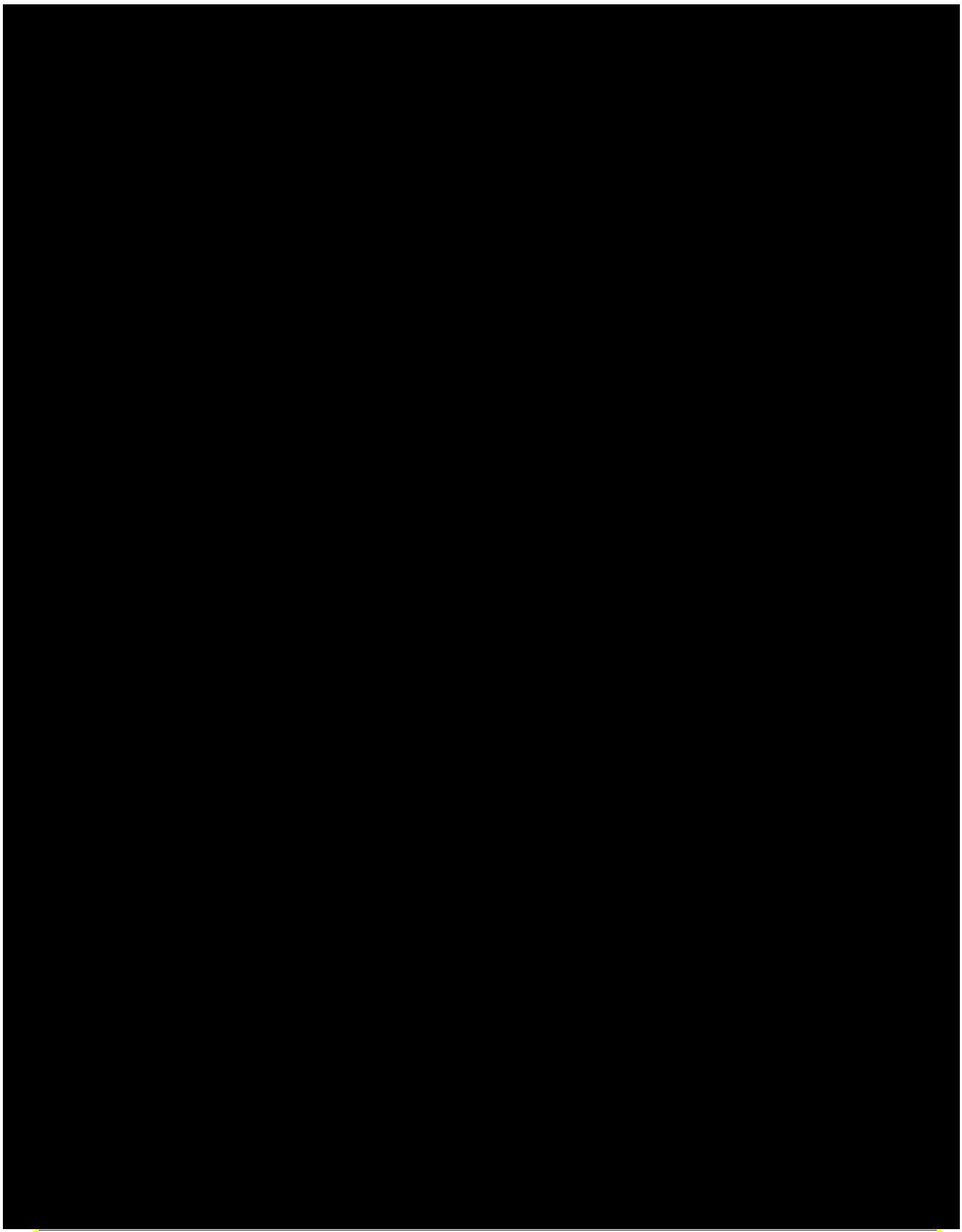


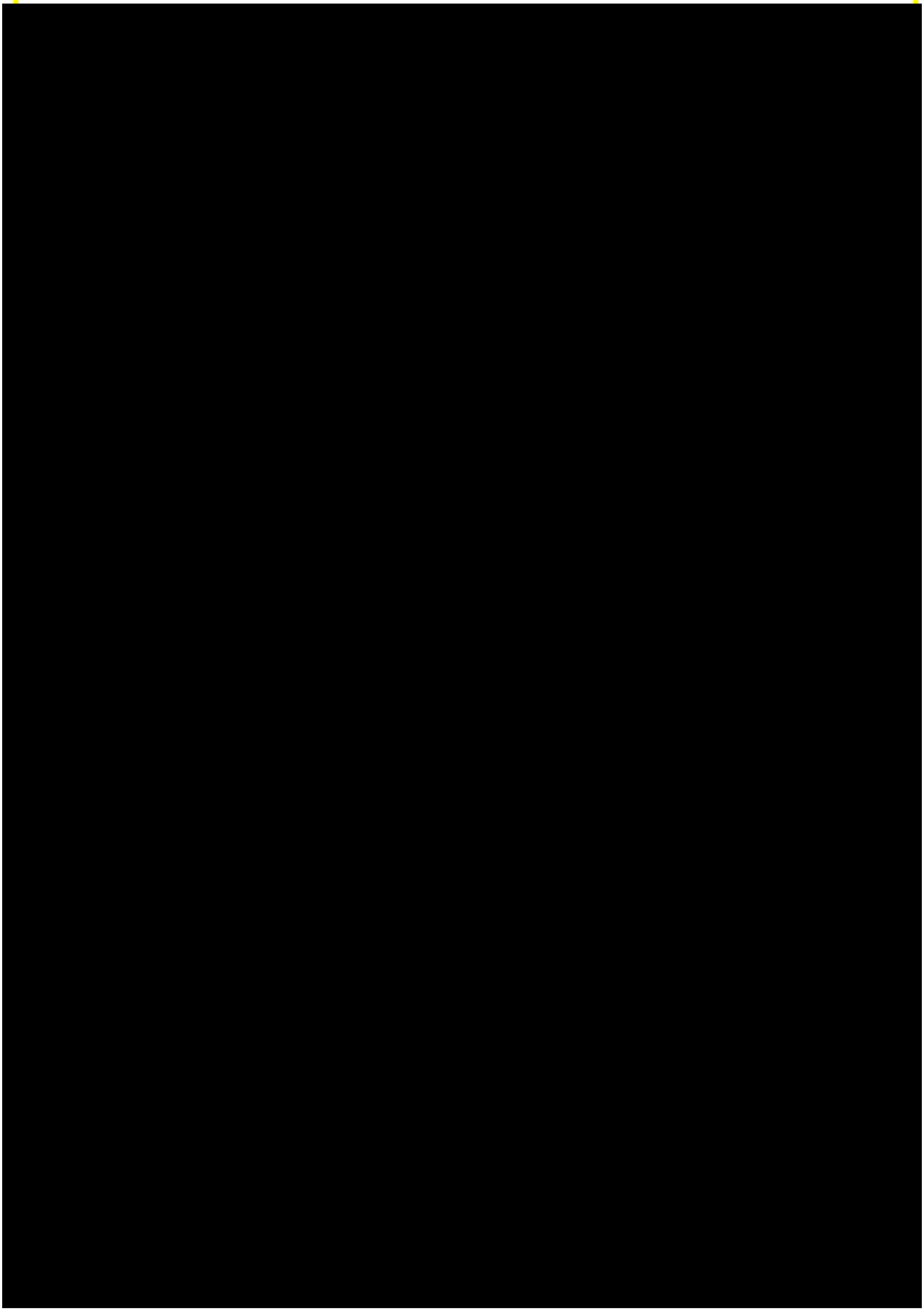


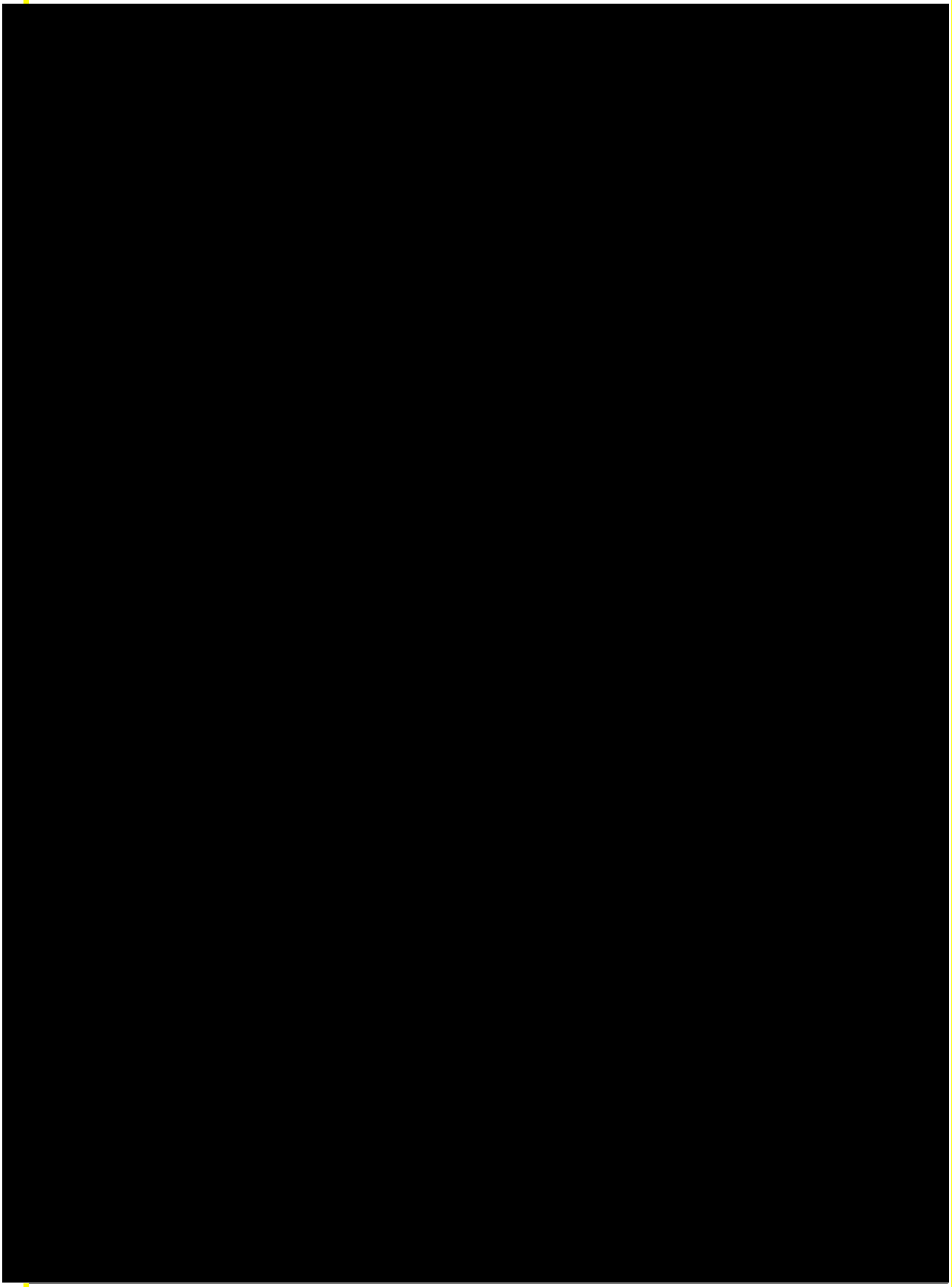
1.6.4.1.13 Customer Service Terminal – Mobile Receipt Printing

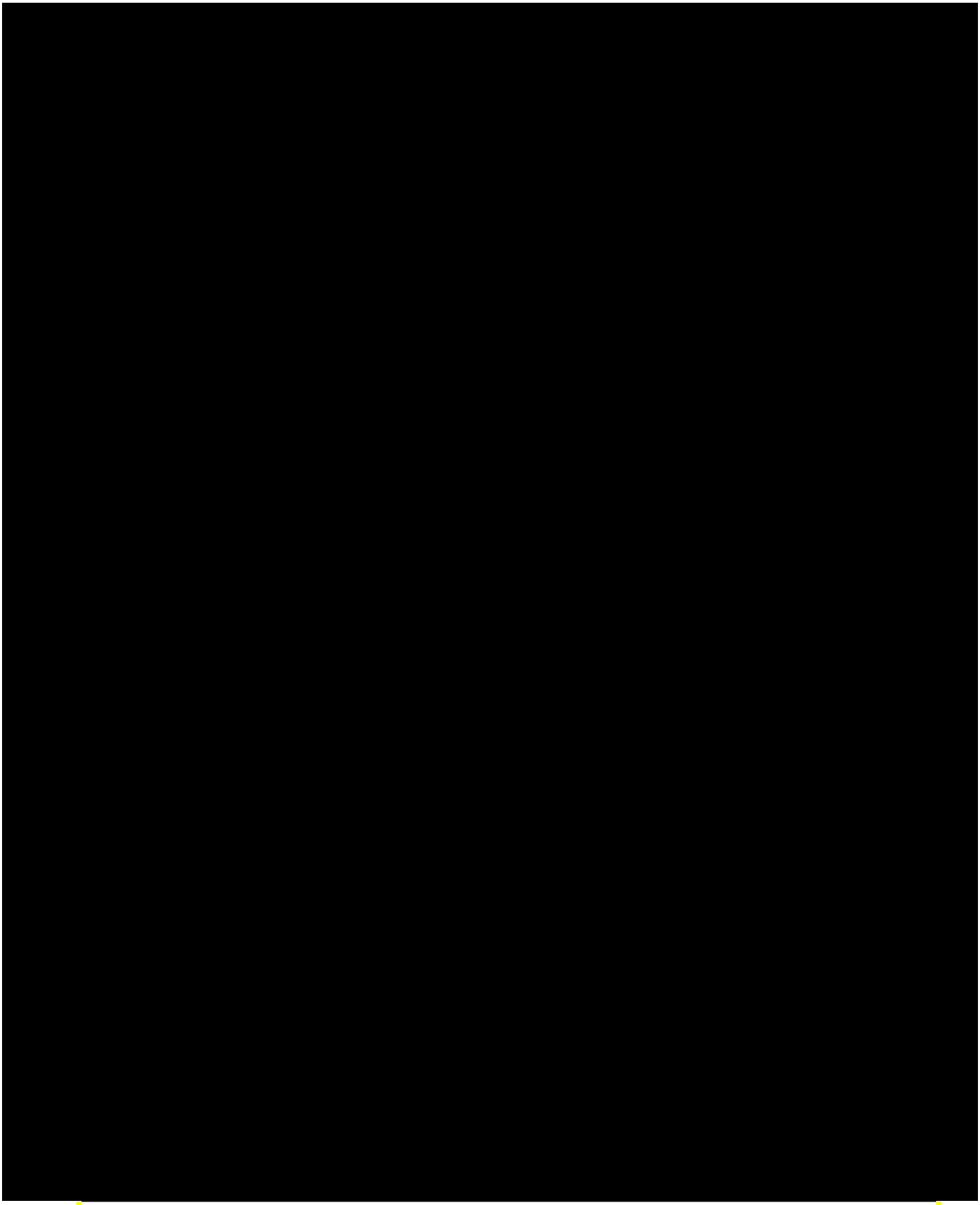
The agencies indicated that a ruggedized, mobile receipt printer capable of being carried on a belt or carrying case would be an ideal solution for the special events. To address this desire, INIT has included the IP54 [redacted] with power adapter/charger and carrying case. The direct-thermal technology receipt printer has broad system compatibility, bluetooth support, external battery and carrying case accessories.

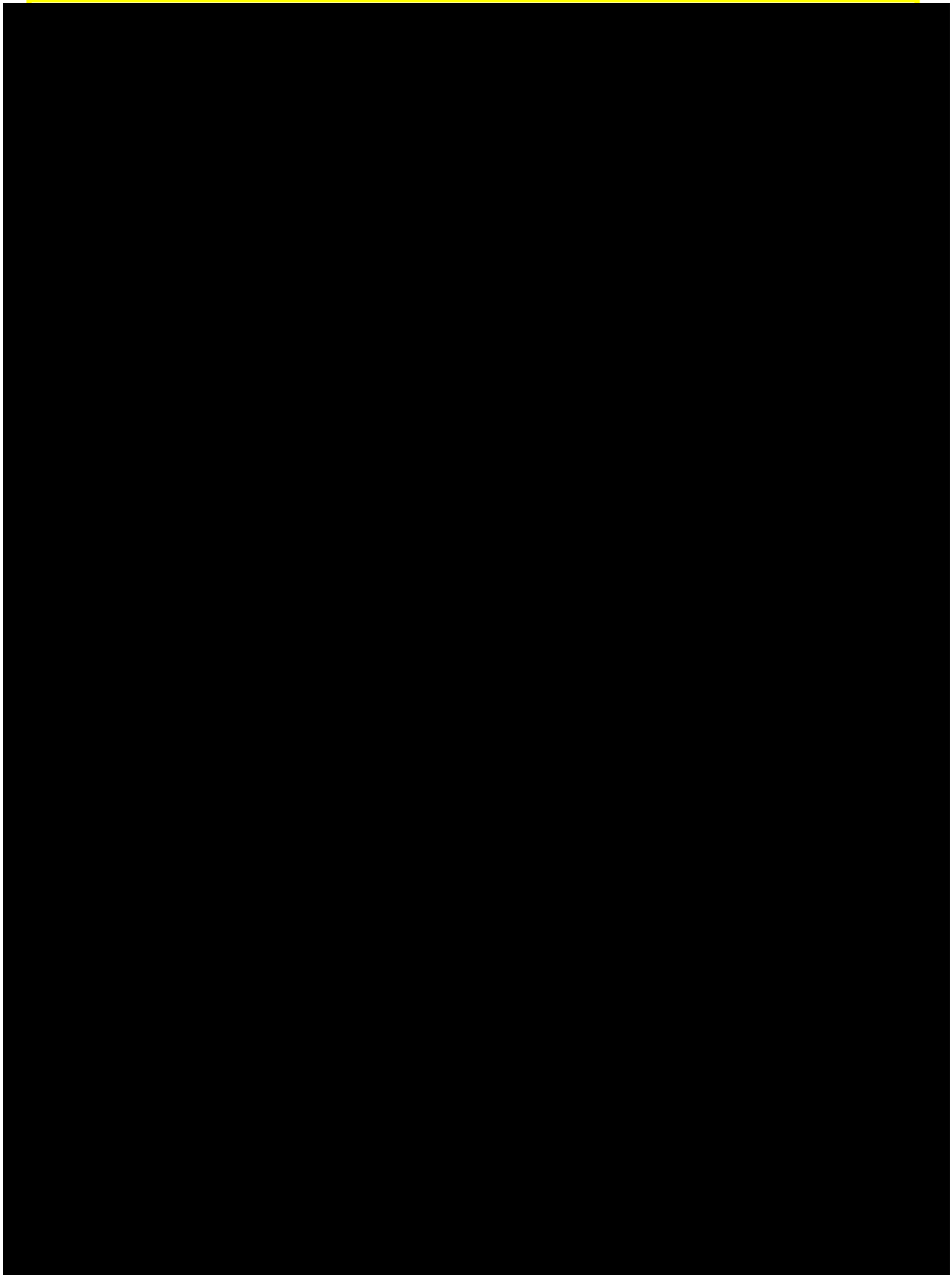












1.6.4.1.14 EU Smart Card Printing/Encoding

The ORCA agencies has asked for a EU card reader's with a hopper of 250 cards. INIT is not fully complying with this requirement yet feel we are offer a solution more suited to the three different use cases required, the Mail centers, Customer Service Offices and outreach programs.

The brand selected is Fargo. We have selected Fargo printers for three reasons. First, we have experience with these printers and they have served our customers and INIT well. Second, in discussions with the two distributors we are working with, both highly recommend Fargo printers for their quality and reliability. Third, by standardizing on FARGO, the agencies will enjoy one source for consumable that are compatable with all three printers offered.

For the Mail Centers, we have chosen the The HID FARGO HDP8500 ID Card Printer and Encoder. This is a "production" quality printer designed for heavy use. It's 400 card hopper will allow more cards to be printed without reloading the hoppers for improved efficiency.

For the CSO's, we are offer the HID FARGO HDP5600 ID Card Printer and Encoder. This printer, although does not meet the 250 card hopper requirement, is lower cost and will serve the agencies well. We have calculated 5 minutes to issue a card then in a 7.5 hour day, they would issue 90 cards. Assuming that 5 minutes is aggressive and even with longer hours there is no way a customer service representative 200 cards a day making a 250 card hopper no more efficient than the 200 card hopper. We envision the procedure would be to reload at the beginning of each day.

For your outreach program, the size and weight of the HDP5600 is an issue so we have selected the HID FARGO DTC1250e as a smaller and lighter card printer. This printer comes in at 7.5 pounds, more than half the weight of the HDP5600. It's dimensions are 13.7" x 8.8" x 7.9" slightly smaller than the HDP5600. Carrying cases are available.

For comparison, a "portable" card printer is available from Pronto. The Magicard Pronto printer offers easy-to-use, hand-fed card printing for on-demand printing. However, this printer weighs more (9.7 lbs) than the HDP5600 and is only slightly smaller at 8.4'' x 9.1'' x 10.6'. INIT stands behind our choice of the HDP5600.

Please see the sections below for more detailed descriptions of each printer offered.

1.6.4.1.14.1 Customer Service Terminal - CSO – EU Smart Card Printing/Encoding

The [redacted] Card Printer and Encoder is a cost-effective and reliable solution that features a high resolution 600 dpi printing option for superior text and image quality and a 200 card hopper. The reverse transfer technology provides full bleed capability.. As requested in the price sheet, INIT has included a 1:1 printer to CSO ratio for a total of 15 devices. Some cost savings opportunities may exist through deployment in a one-to-many configuration using an unpriced print server.

[redacted]

1.6.4.1.14.2 Customer Service Terminal – Mail Center – EU Smart Card Printing/Encoding

The [redacted] Card Printer and Encoder is the larger size 'sibling' to the previously identified HDP5600. With similar feature sets to the [redacted] a higher transaction rate and larger card hopper of 400 cards. As requested in the price sheet, INIT has included a total of 14 printers for use in the Mail Center locations; however, recommends evaluating this requirement for several reasons. Cost savings can be achieved if there is the

capability of sharing a single printer among several Mail Center terminals. Further, HID has recommended handling large volume requirements with multiple smaller [redacted] instead of single large-volume models. Standardizing on one type of printer would ease deployment and maintenance costs, standardize parts and components, and simplify replacement if and when necessary.

[redacted]

1.6.4.1.14.3 Customer Service Terminal - Mobile – EU Smart Card Printing/Encoding

INIT has include the [redacted] as a smaller card printer to be used for the mobile CST operations based on the agencies note about desiring a more compact option for mobile usage. When card-printers are reduced to a certain size, the extent of the technology and capability are also reduced. While INIT considers the [redacted] superior printer in it's class based on speed, quality and ease of use, it is a different class of printer then the proposed solutions for both CSO and Mail Center. As such, there is an expected difference in speed and quality when leveraging this class of device, and INIT recommends the agency confirm its desire to prioritize size over product consistency. The [redacted] is a single side, 300dpi, edge-to-edge printer with a 100 card hopper. INIT has included 12 of these devices as identified in the price sheet.

[redacted]

1.6.4.1.15 Customer Service Terminal – Uninterruptible Power Supply

[redacted] will be provided for the Customer Service Operations and Mail Room deployments as required by the RFP. While the UPS can provide protection and limited uptime for some of the Customer Service Terminals and its peripherals, the built-in battery of the HP EliteBook laptops may make additional UPS' unnecessary.

1.6.4.1.16 Customer Service Terminal – USB HUB

[redacted] included to ensure enough USB connections and power for the variety of USB devices, printers, and peripherals included for the Customer Service Terminal.

1.6.4.1.17 Customer Service Terminal – Communications

Communications to the Customer Service Terminal will be through either the wired or wireless interface of the HP EliteBook laptop.

1.6.4.2 Software and Operations

INIT's VarioCSW is comprehensive for in-person customer support and as a POS. INIT proposes the VarioCSW to be used for Customer Service Offices (CSOs), remote field applications, and the mail centers for order fulfillment. The call center will use the Salesforce CRM application.

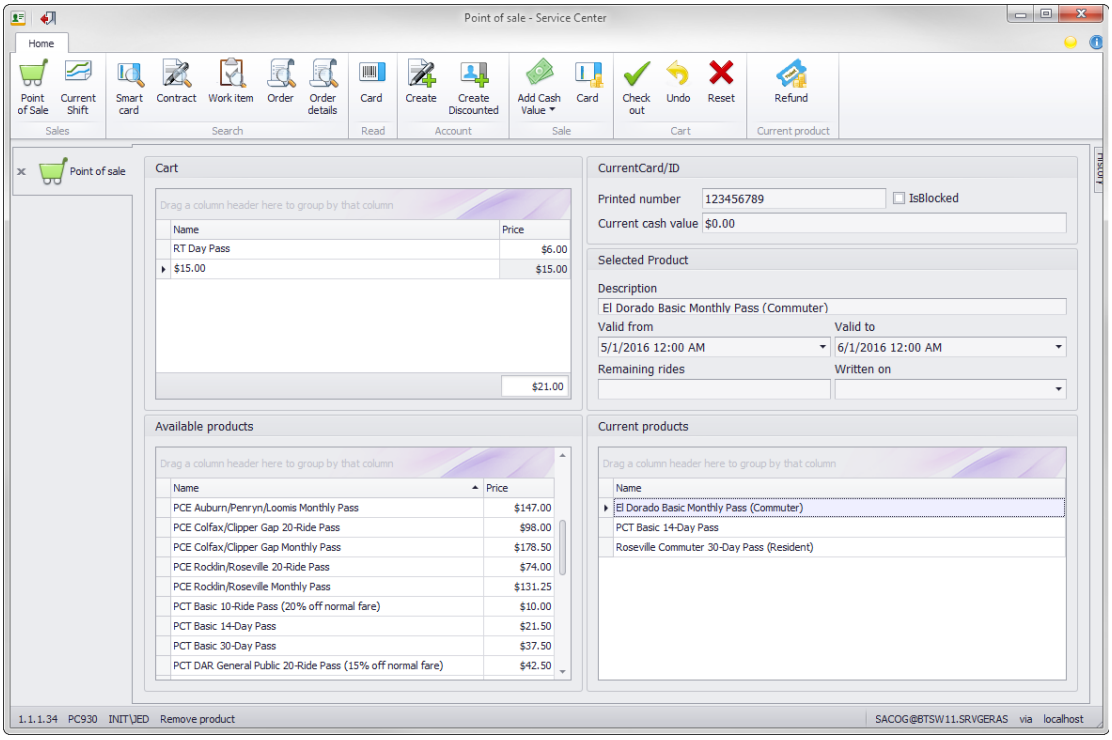
1.6.4.2.1 VarioCSW Overview

The core functionality includes:

- Selling all supported fare media to customers
- Loading and selling products and stored to transit accounts
- Query transit accounts based on diverse criteria (active, inactive, blocked, fare category etc.)
- Register and unregister transit accounts to/from customer accounts
- Generate transit account stored value adjustments
- View transit accounts transaction history
- View sales transaction and adjustment history
- Read and edit account information
- Generate fare payment cancellations/reversals
- Transfer value between transit accounts
- Blocking and un-blocking transit accounts (fare media)

- Viewing transaction and product loading history
- Configure/Add auto-load function for transit accounts and set the funding sources
- Generate sales transaction refunds
- Reading smartcards and display account information
- Replacement of closed loop fare media (associate the new card with the background customer account)
- Refunding transit accounts (refund maybe pending for a configurable number of days to allow all transaction to be processed)
- Processing smartcard orders (from the website or call center)
- Printing smartcards (with personalization)
- Adding or removing smartcard products or values

The screenshot below shows the main view of the VarioCSW POS software.



Point of Sale View of the CSW

In addition to selling ORCA products, VarioCSW has the capability to sell non-ORCA products like paper-based ticket books and other merchandise. Those products would need to be setup in the Tariff Management application before they can be sold.

The non-ORCA products can be serialized or non-serialized. If serialized products are sold the serial number may be entered during the sales process. This serial number is then attached to the sales details so that it can be used for further reporting

To provide an attractive looking POS interface for ngORCA, Anthro-Tech will review the current design and make suggestions for improvements.

1.6.4.2.2 Anti-Virus

The customer service terminal will be configured with ESET Endpoint Protection providing anti-virus, anti-malware, network access protection, botnet protection, and exploit blockers. Updates, configurations and monitoring is managed centrally by the ESET Remote Administrator deployed in the back office.

1.6.4.2.3 Security

1.6.4.2.4 User Interface

The MOBILEvario CSW is not a web portal, but a native application which uses MOBILEvario's APIs via HTTPS instead of direct database access. This means that the applications communication with the background system is web based, but the application itself runs natively on the workstation. This enables the workstation to be connected to diverse hardware such as cash drawers, barcode readers, payment terminals and cameras and printers.

The VarioCSW is a native application so that it can use the attached hardware (payment terminal, camera, scanner, card printer, ticket printer, card reader etc.) Applications running in web browsers do not have access to the PC's filesystem or hardware interfaces due to security issues. This is a fundamental restriction or feature of web browsers. Otherwise, a web page could steal one's personal files, install viruses or do other kind of harm. VarioCSW however uses the best of the both worlds, it uses the MOBILEvarios web based open architecture APIs and runs natively in order to access the hardware and assure the security of the device.

The CSW has two main views, the Point of Sale view to be used at the front counter to sell cards, products and cash value and the Call Center view to support customer service in a call center environment.

If the front-office service person requires access to more advanced CRM capability, they can use a button in the CSW user interface. CSW will have a button for a quick access to the corresponing user account in the Salesforce interface.

VarioCSW requires an online connection to the MOBILEvario APIs in order to sell products.

1.6.4.2.4.1 Point of Sale

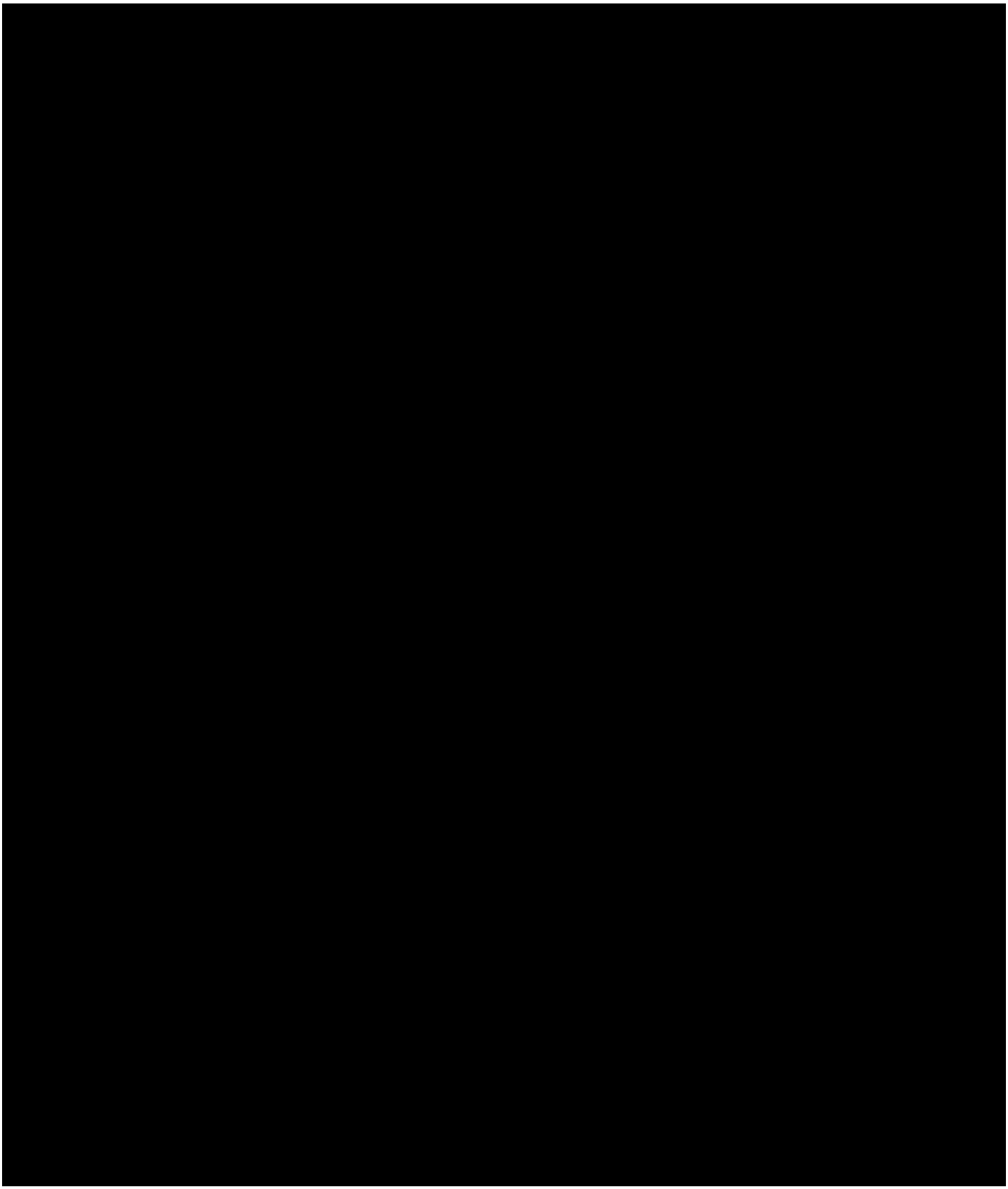
The Point of Sale view is designed to quickly sell products, passes and cash value loads in a customer service counter environment.

The point of Sales window is the main interface to perform sales to the customer in a fast and efficient manner. The Sale area consists of the Cart and the Available Products. The Available Products display a list of all items, which can be sold in the current context. Selecting an item will add the item into the Cart. The Cart collects all items of the current sale, so that they can be processed on block. The 'check out' completes the current sale. The Cash up dialog is displayed and further selections are provided to complete the payment (e.g. select split payments). Once the payment is completed, a receipt will be printed.

1.6.4.2.5 VarioCSW for Customer Support

Salesforce is used in the Call Centers and other necessary locations for customer support. VarioCSW also contains a Call Center View, but this is not relevant for ngORCA. Salesforce is described in chapter 1.8.3.

1.6.5 INIT's Product Development Philosophy and Roadmap



[redacted]

1.7 INIT's User Friendly and Intuitive Website and Mobile Applications

Specifically for Website and Mobile Application (Scope of Work Section 5):

a. Provide your proposed subcontractor's development methodology for the following items:

i. Customer account website

ii. Content management system

iii. Customer mobile app

iv. Agency mobile apps

b. Provide previously designed website URLs and credentials to websites developed by the proposed provider.

c. Describe how the proposed UI/UX solution provider will design a common user experience across multiple platforms.

d. Provide a draft licensing agreement(s) for items in this section.

For the externally sourced applications, INIT is proposing:

- [redacted]
  - [redacted]
- [redacted]
  - [redacted]
- [redacted]
  - [redacted]

1.7.1 Marathon's Proven AFC Websites

[redacted]

1.7.1.1 [redacted] AFC Website Development Methodology

[redacted]

[redacted]

- Defined Requirements and expectations
- Defined Work Plans, with estimated hours, costs, and Phase milestones

- Defined Deliverables, by Phase
- Defined client Review and Acceptance procedures
- Scope Control through a defined Change Management procedure
- Defined Risk Management procedures
- Regularly scheduled Project Status Review Meetings with the INIT project manager and Agencies
- Written Weekly Project Status Reports, stating project actual performance versus the plan, identified risks and remediation plans, pending Change Requests, and Open Issues impacting the project
- Consistent emphasis on client Involvement throughout the project – client involvement is an essential component in all of Marathon's work. Marathon takes great care to ensure that important stakeholders are involved in the project and their input is included
- Effective Knowledge Transfer to client's staff

1.7.1.1.1 Management Plan

A [redacted] web portal project consists of the following phases: Analysis, Design, Development, Testing, and Deployment. Quality is built into each phase of a web portal project through close client collaboration, approved deliverables, and testing. Below is a description of each phase and how it contributes to producing a superb solution.

1.7.1.1.1.1 Analysis

In the Analysis phase [redacted] will work closely with INIT, INIT's UI/UX partner (Anthro-Tech), and the Agencies to validate the web portal requirements. The result of this analysis will include the detail output as defined by Anthro-Tech and a detailed Requirement Specification for which Marathon will define the build against. This document records the feature requests and how the web portal meets those requirements. This is accomplished in the following sections:

- **Requirements** – this section records each requirement that pertains to the web portal. Each requirement is mapped to a web portal feature or page that satisfies the requirement
- **Pages** – this section documents the global web portal features and each page required to meet client's requirements. Each page description includes a set of "ability to" statements and a list of use cases required to implement those "ability to" statements. Also, each item in this section is linked to a Test Case that ensures every "ability to" statement is met

- **Use Cases** – this section documents each use case. The use case is a process flow that includes how the web portal interacts with the INIT MOBILEvario application and Agencies' chosen payment gateway

Finally, the Requirement Specification remains a working document throughout project execution and is kept up to date so there is always a clear understanding on what the web portal will include.

1.7.1.1.1.2 Design

INIT's UI/UX partner, Anthro-Tech, will guide the Agencies through a user-centered design process. As an output for this process and efforts, Marathon will produce the following design deliverables specific to the web portal:

- Style Tiles
- Site Map
- Wireframe / Mock-ups for each page

1.7.1.1.1.3 Development

[redacted]Development phase combines the work done in Analysis and Design to build out the web portal pages. Specifically, the Marathon Developer's use the UX/UI-approved Design Mock-ups and Requirement Specification to guide their work. Page development goes as follows:

1. Application set-up:
    a. Set-up Umbraco content management system
    b. Set-up Development environment. Use the web portal base to save implementation time
2. Page Building:
    a. Create pages in accordance with approved designs and requirement specification
    b. Customize web portal base to meet unique client requirements
3. Internal Testing – there are four steps of internal testing:
    a. Design –validate page matches approved design
    b. Cross-Browser and Device – validate page works according to design
    c. Functional – validate the page meets the functional requirements

d. ADA – validate the page meets WCAG 2.0 level AA standards for accessibility compliance

4. Rework and Issue Resolution – correct issues identified in Internal Testing

1.7.1.1.1.4 Testing

This Testing phase corresponds to the web portal Factory Acceptance Test (FAT). In this phase INIT and the Agencies will use the Marathon Test Plan and Test Cases to validate the application meets the requirements. FAT process includes the following:

1. Build Test Plan and Test Cases. Map Test Cases to client requirements via the Requirement Specification
2. Setup the Test Environment and Deploy Applications
3. Review testing process with INIT and the Agencies
4. Commence Testing:
   a. Marathon, INIT, and the Agencies execute Test Cases and record issues
   b. INIT, the Agencies, and Marathon review and triage issues. Categorize the issues into the groups fix, defer, and new requirement
   c. Marathon resolves assigned issues and updates application
   d. INIT and the Agencies verify issues are resolved
5. FAT is complete when all Test Cases have been executed and passed. A Test Case is passed when all assigned issues are resolved and approved by the Agencies

The above process is completed for each page and system required to deliver the portal requirements.

1.7.1.1.1.5 Deployment

After FAT there are several more phases of deployment and testing before the overall transit solution is deemed ready for the public. These testing phases are integration tests that include the INIT systems and the web portal. Also, these tests may include the introduction of end-users/customers in the later phases as defined as part of the user-centered design approach with Anthro-Tech. But each of these tests mirror the same process described in the Testing Phase.

During this stage, Marathon will plan the test cases, configure the environment, deploy the application, run the tests, record any issues, and correct issues and update the software.

1.7.1.2 [redacted] Live AFC Websites

[redacted] has designed, developed, and deployed the fare collection portals listed below with URLs and user credentials. Each Agency was delivered both a customer web portal and an institution web portal.

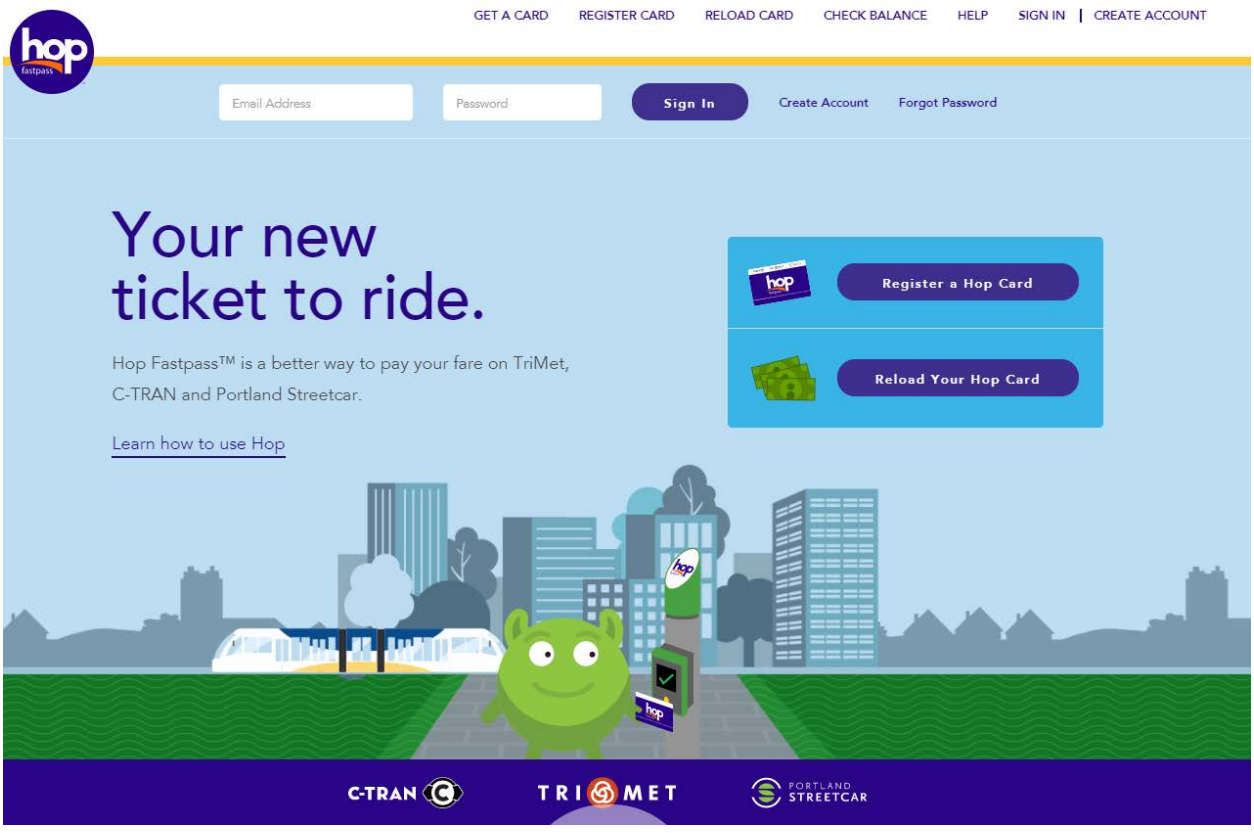
To provide the agencies with greater control and flexibility in editing and managing the content of their websites, the portals were developed using the Umbraco Content Management System (CMS). The following information summarizes the key capabilities of Umbraco.

- Security
    - Built on the Microsoft.NET and SQL Server Platform, a global standard for application development
    - Granular user permissions - You have full control over your users permissions to content and actions, removing the risk of user-based errors
    - Umbraco core team uses parameterized queries to prevent SQL injection
    - Every 6 months the Umbraco core team utilizes a security firm to do a penetration test
    - Any 3rd party security/penetration test reports are handled seriously by the Umbraco core team
- Usability
    - Powerful editing capabilities – editors are empowered to do more with intuitive editing tools, media management, responsive views and approval workflows to send content live
    - Media Management – your editors become designers with robust media capabilities of file management, easy drag-drop media insertion and responsive cropping, right inside the Umbraco back office
- Flexibility
    - Painless Integration – use the fully extensive API to seamlessly integrate Umbraco with any 3rd party service
    - The admin is built using AngularJS making it easy to customize. This means it doesn't require any .NET code. All the libraries are included so only code required for the control and custom HTML need to be written
    - Fully customizable data-types give complete control over the structuring of page types

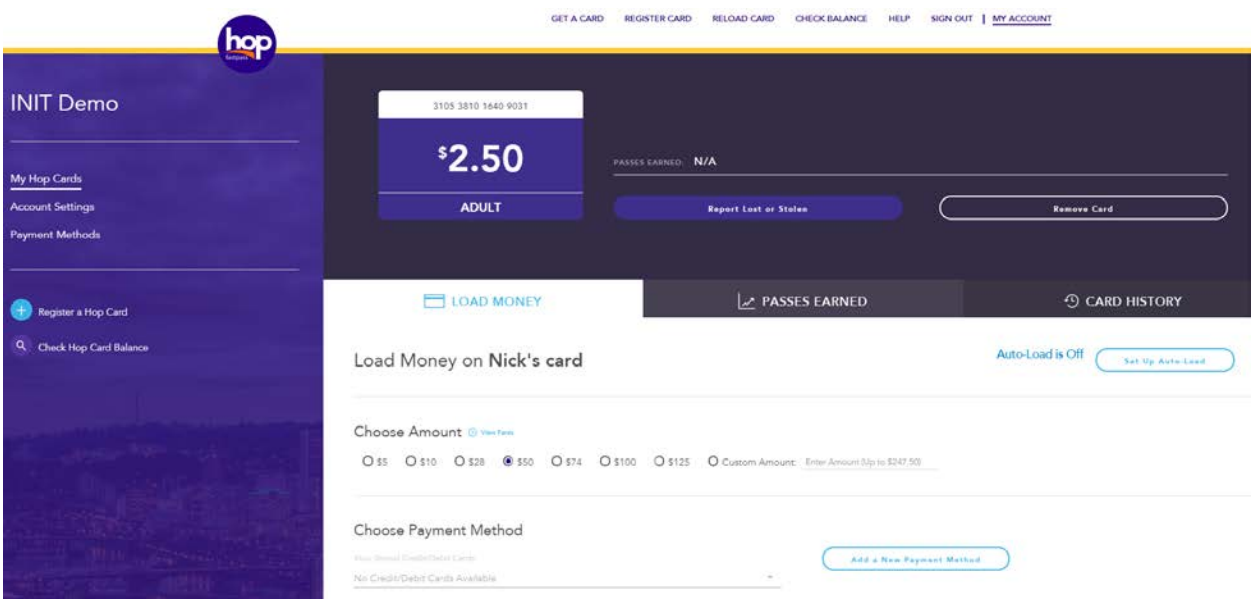
- Scalability
    - [redacted] both traditional and cloud architectures
    - [redacted] can be used for small, simple websites to large enterprise sites
    - Can be configured within a load balanced environment

Further, the websites were built to be ADA and Section 508 compliant. The web portals meet the Web Content Accessibility Guidelines (WCAG) to ensure the content of the websites are accessible to all site visitors including those with disabilities. The target for the web portals is WCAG 2.0 level AA standards for accessibility compliance. This means web portals will be compliant with the World Wide Web Consortium (W3C) Level A and Level AA standards. Validating the standards were met was accomplished by performing iterative internal testing using accessibility auditing tools for automated testing during development. Further, manual testing was performed to ensure a thorough accessibility review.

The web portals are built on a reusable code base that enables Marathon to deliver a robust solution in less time. The features described in the *INIT Customer Fare Collection Web Portal Technical Description* and the *INIT Institution Fare Collection Web Portal Technical Description* represents the core application which can be extended to meet additional client requirements.



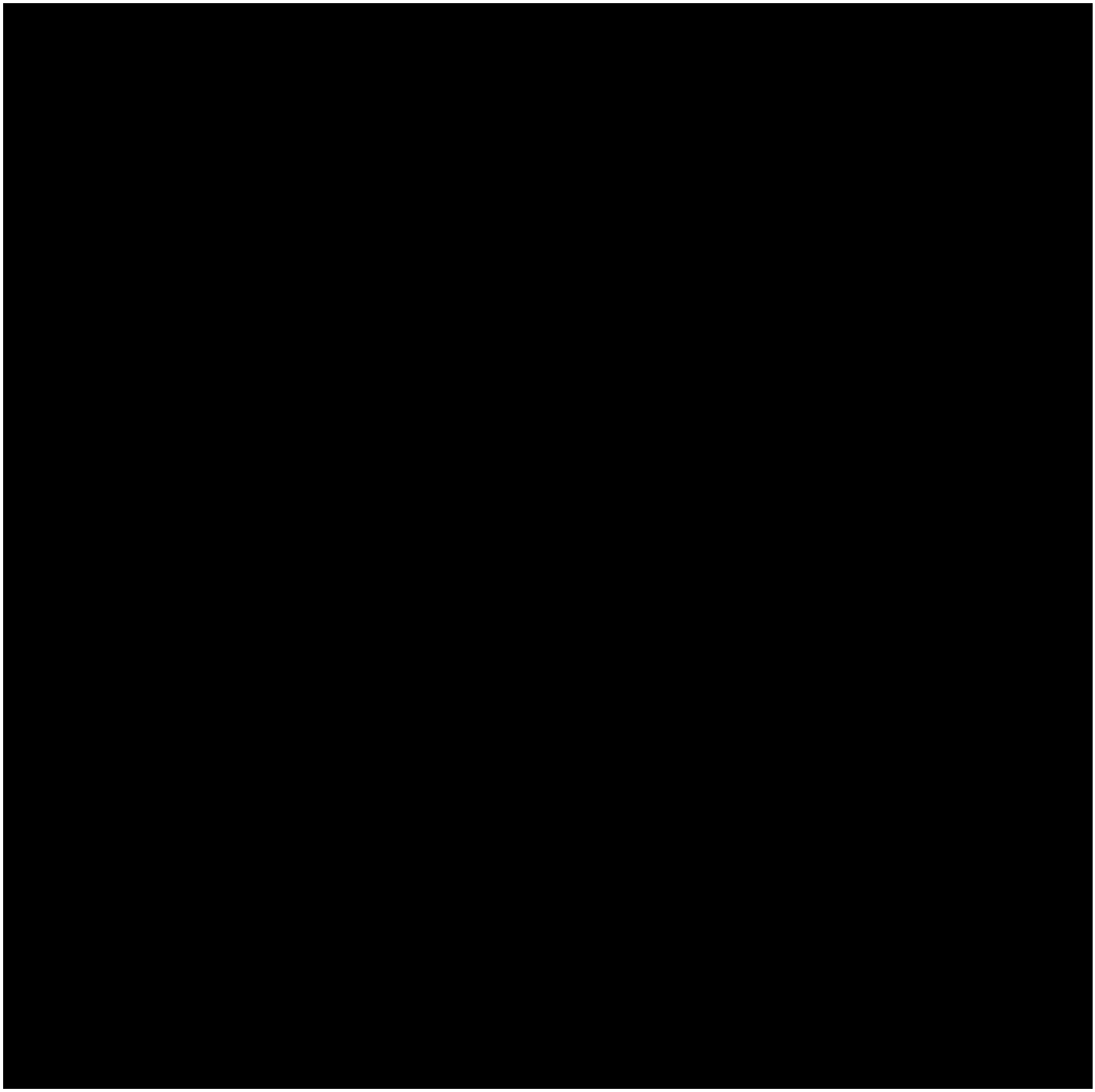
Example HOP Fastpass website – Home Page



Example HOP Fastpass website – Account overview

Fare Collection Portals

1. Portland, OR
   Customer Website: https://myhopcard.com/
   Institution Website: Please contact INIT or TriMet for a demo of the institutional website



2. Grand Rapids, MI
   Customer Website:
   - Username:
   - Password:
   -

3. Tampa, FL
   Customer Website:

4. Honolulu, HI
   Customer Website:
   -

- [redacted]

Institution Website: [redacted]

[redacted]!

1.7.2 Bytemark's Proven Mobile AFC Apps

Founded in 2011, Bytemark is an international provider of fare collection technology employing over 90 talented individuals globally located in offices in New York, Seattle, Toronto, the UK, Australia, and India. Bytemark's core offering is a comprehensive suite of products that digitize transit passes, tickets and fare media in a variety of innovative ways. Purchase of these fare products by transit riders is simple and instantaneous by means of web-based and smartphone-based purchasing experiences. Agencies are provided with powerful fare validation solutions, and cloud-based access to a full-suite management portal to manage and report on their operation.

1.7.2.1 Core Services and Products Produced

1.7.2.1.1 Mobile Applications

We build *native* apps for iOS and Android operating systems. Unlike other providers, we do not use port code using an automated development environment ensuring that our apps are enhanced for the user experience.

- Feature Rich: Purchase, Activation, Profile Management, Information Tools
- Off-the-shelf base package capable of customization
- Agency specific branding

1.7.2.1.2 Focused on the User Experience

Systems defined with a refined purchase process and intuitive User Interface that makes purchasing as simple as possible. User sign-in and registration are facilitated through social sign-ins that allows users to sign-in with existing accounts from Facebook and Google+. Payment card credentials (such as credit, debit, stored value) are registered once by the user and securely stored on account for future use. Following strict security policies, account numbers are never stored on the device itself.

1.7.2.1.3 Accessibility Features

Mobile applications designed with accessibility in mind that comply with industry standards. Native accessibility features, and where supported, that include voice-over compliance on all screens and instructions in place of visual tutorials. Support for legally blind users is also incorporated into the solution and offers the most user-friendly experience possible.

1.7.2.1.4 Scalable Cloud Architecture

Our cloud hosted solution provides clients with security, flexibility. and scalability.

- Amazon Web Services (AWS)
- Multiple Data Centers
- Geographic Redundancy

1.7.2.1.5 Security & PCI Compliance

We understand that security is of the utmost important to the agency and its customers. That's why our system is a PCI Level 1 certified provider and a Visa and MasterCard network approved merchant services provider.

- PCI Level 1 Certified
- Any data that is considered personal or proprietary is encrypted with military-strength cryptography when stored or transmitted.

1.7.2.2 Proven and Ready

Bytemark's mobile ticketing technology and applications are proven solutions, with mobile ticketing systems operating in:

- King County Metro - Seattle, WA
- Sound Transit – Seattle, WA
- Seattle Streetcar – Seattle, WA
- King County Water Taxi – Seattle, WA
- Seattle Monorail – Seattle, WA
- New York Waterway - New York, NY
- NYC Ferry – New York, NY
- Capital Metropolitan Transportation Authority - Austin, TX
- Northern Indiana Commuter Transportation District - Chicago, IL
- Massachusetts Department of Transportation - Boston, MA
- Metrolinx - Union Pearson Express - Toronto, ON
- York Region Transit - York, ON
- Hillsborough Regional Transit Authority – Tampa Bay, FL

- One Ticket – Edinburgh, Scotland
- Sacramento Regional Transit – Sacramento, CA
- Metropolitan Atlanta Rapid Transit Authority – Atlanta, GA
- Des Moines Area Regional Transit Authority – Des Moines, IA

Along with our existing deployments, Bytemark and its subsidiaries are currently developing / deploying mobile ticketing systems for:

- The Rapid – Grand Rapids, MI
- Rhode Island Public Transit Authority (RIPTA) – Providence, RI
- Rotterdamse Elektrische Tram (RET) – Rotterdam, Netherlands
- Warsaw Public Transport (ZTM) – Warsaw, Poland
- San Mateo County Transit District (SamTrans) – San Mateo, CA
- Nashville MTA — Nashville, TN
- Delaware Transit Corporation (DTC) —Wilmington, DE

1.7.2.3 Regional and Multi-Agency Solutions

Bytemark has extensive experience offering multi-agency shared mobile applications. In Seattle we are working with five individual agencies (King County Metro, Sound Transit, Seattle Streetcar, King County Water Taxi, and Seattle Monorail) participating in one unified mobile application. Each agency receives their own daily settlement in their bank account. Back offices are separate to allow each agency to manage their products, branding, and reporting.

Bytemark also provides an integrated mobile application in the State of Massachusetts for private bus operators in partnership with MassDOT. The BusPlus program incentives private bus operators to provide new regional transportation services to increase intercity and commuter transportation options available across the Commonwealth and New England.

The proposed mobile solution will take advantage of all the same ABT features as the physical ngORCA card. All transfers and revenue share will be handled by MobileVario.

1.7.2.4 Collaboration & Integration with INIT

Starting in 2013, Bytemark and INIT have delivered a series of joint fare-collection solutions. Most recently, INIT and Bytemark have collaborated on projects such as The Rapid mobile app in Grand Rapids, MI and also similarly with The Flamingo Fares app with Hillsborough Area Regional Transit Authority (HART) out of Tampa, FL to provide an account management app. In both projects Bytemark utilizes INIT's account-based system (MOBILEvario) as the ticketing and customer account backend. Additionally, these projects also utilized INIT's MOBILEvario to deliver tokenized fare media to the Bytemark mobile app that is represented as a QR code or

NFC payload. Through these deployments, Bytemark has successfully realized in-depth and service-proven integrations with INIT utilizing the MOBILEvario central back office and open API's. Through these efforts, together we have brought to market a proven solution of Bytemark mobile validation via INIT validators.

We believe our organizational and operational partnership has strengthened the mobile offering of both Bytemark and INIT. With over four (4) years of collaboration we have the capability to provide a best-in-class mobile ticketing application that integrates seamlessly with INIT's powerful back office. Bytemark and INIT have been contracted for the following joint deployments:

- Capital Metropolitan Transportation Authority — Austin, TX
- NYC Ferry —New York, NY
- The Rapid — Grand Rapids, MI
- Hillsborough Area Regional Transit Authority —Tampa Bay, FL
- Rhode Island Public Transit Authority — Providence, RI
- Nashville MTA — Nashville, TN

A. The proposal emphasizes experience with visual ticketing rather than the NFC mobile credential as stated in the SOW. The proposal fails to demonstrate an understanding of the relevant capabilities.

We understand that visual validation will not be utilized as part of this solution.

As noted in our revised submission, the NFC payload will be provisioned from the Init MOBILEvario Back Office and provisioned directly to the respective mobile wallet.

B. Concern that the proposal states the proposed solutions are in service as of today, i.e. Flamingo Fares Tampa Bay and The Rapid mobile app. The proof of concept approach cited on pg. 197 is not supported by Apple and will not be acceptable for the next gen ORCA program.

FlaminGo Fares is a multipart project. To clarify further, the first stage, a "fast track" standalone app was delivered by Bytemark and is live.

The Rapid Mobile app is stated as "In Development" under **Duration of Contract** on the previously provided Bytemark References.

ORCA is correct that the proof of concept approach cited as part of our previous NFC experience is not currently supported by Apple. We provided this not as a proposed solution but

under our Experience demonstrating our commitment to innovating on iOS. At the time, Apple provided us with the SDKs validate NFC Loyalty Cards on test validators. We couldn't have created this without Apple's assistance but ultimately, they decided against this approach for the transit market.

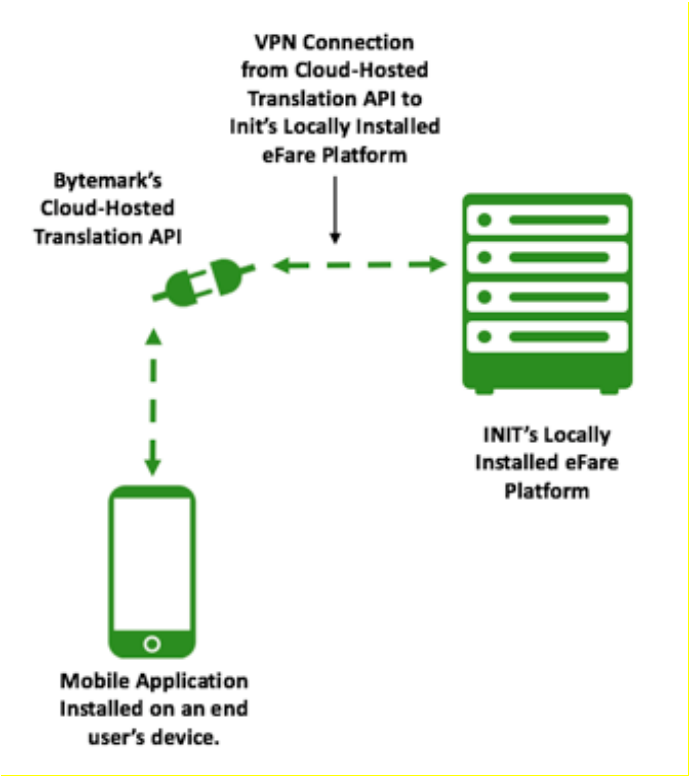
1.7.2.5 Unified Solution for ORCA

To provide ngORCA with a robust Customer Mobile App, the proposed solution is an integrated Bytemark and INIT deployment. The INIT MOBILEvario Back Office will provide the customer account management features, and the Bytemark developed mobile app will interface with INIT's MOBILEvario API's to enable these functions in the mobile app user interface. The required features will include a user's ability to manage account information, password and password reset, reloading of fare media, purchasing fare products and new fare media, provisioning NFC credentials, etc.

D. Proposal needs detailed information about the mechanics for use of the proposed mobile credential using Android (Google Pay) and iOS (Apple Pay). It appears that this section was authored by Bytemark, and it appears that there is a lack of understanding of the SOW Capability 5.2-13.

We recognize the feedback regarding account management and NFC provisioning. To clarify, the mobile application utilizes APIs from the Init MOBILEvario Back Office and is in essence, the INIT mobile solution provided by Bytemark. In the event the Region would like to procure the mobile app solution separately, significant development would need to be completed to replicate this existing integrated experience.

The following is a description and diagram that details of the path of communication between the mobile application and Init's platform. The Bytemark translation API communicates directly with the local installation of Init's platform via secure VPN connection. The VPN connection is maintained by both Bytemark and the party responsible for the upkeep of the onsite network environment.



For ngORCA, the INIT back office will be responsible for the delivery of account-based fare media to NFC-capable devices. For Google Pay, a "Save to Google Pay" button will be implemented in the mobile app to initiate the provisioning of fare media to the Google Pay app. The app will receive all information from the INIT back office to allow the user to sign into their Google account, authorize the provisioning of the transit card to their device, and have the fare media appear in their Google Pay app. When made available by Apple, we will deploy a unified approach for Apple Pay integration.

The Bytemark and INIT integration is completely built around an Account Based Ticketing (ABT) platform. The customer solution provides a passenger with the ability to manage multiple fare media accounts simultaneously. Whether it's adding funds or purchasing a product, changes are reflected in the ABT system immediately. Unlike an NFC top-up system, the passenger doesn't even need to have the physical ORCA card on them. For instance, a parent could manage their children's' accounts remotely without providing the children with their credit card number. The Customer App is completely cross-platform and does not rely on NFC hardware or software compatibility for managing physical media.

1.7.2.5.1 Experience with NFC Validation and Contactless Technology

Beginning in 2013, Bytemark has worked with NFC and Bluetooth technology as a method for fare validation. These solutions have encompassed both mobile generated fare media and custom validation solutions.

2013 - Bytemark delivered a proof-of-concept to Capital Metro Transit Authority in Austin, TX to present an NFC ticket in the CapMetro app and have it read by Bytemark's Merchant Mobile Handheld Validator. Android Host Card Emulation was used to emulate the ticket as a MiFare DESFire virtual card on only an Android device. Bytemark's Merchant Mobile Handheld Validator was integrated with a ISO/IEC 14443 Grabba attachment to read smartcards and NFC devices.

2014 to Present - Bytemark's Merchant Mobile Handheld Validator is currently used in the field today by CMTA to read and validate MiFare Classic cards. The Fare Enforcement App that we deployed validates third party fare media from GenFare including MiFare Classic contactless cards as well as existing magstripe tickets.

2017 - Bytemark developed a proof-of-concept utilizing the NFC Value Added Service (VAS) Protocol to create NFC tickets on an Apple iOS device. The VAS protocol is a standard for NFC virtual loyalty cards. A virtual card was stored in Apple Wallet and brought to the foreground upon coming in near contact with a NFC reader. A validator was developed in-house with a Feig reader to read the NFC virtual loyalty card and display the validation results. The proof-of-concept was implemented for exploratory and demonstration purposes.

1.7.2.5.2 Bluetooth Validation for FutureRailway-UK Rail and Safety Standards Board (RSSB)

Bytemark subsidiary, ByteToken developed a Bluetooth LE validation system as a proof of concept for the UK FutureRailway group with funding from the Rail Safety and Standards Board (RSSB). ByteToken delivered their AirGate solution, a hands-free validation system built for gated and ungated environments.

AirGate comprises the following components:

- BLE Beacons
- Antennas
- 3D Camera
- Controller Module

The BLE beacons and associated antenna array locate the position of the user relative to the gate line, a 3D camera tracks the user as they approach, and a controller application manages the interface between the software components of the system, as well as the fare gate. These components can be configured to suit the requirements of the environment in which they've been placed.

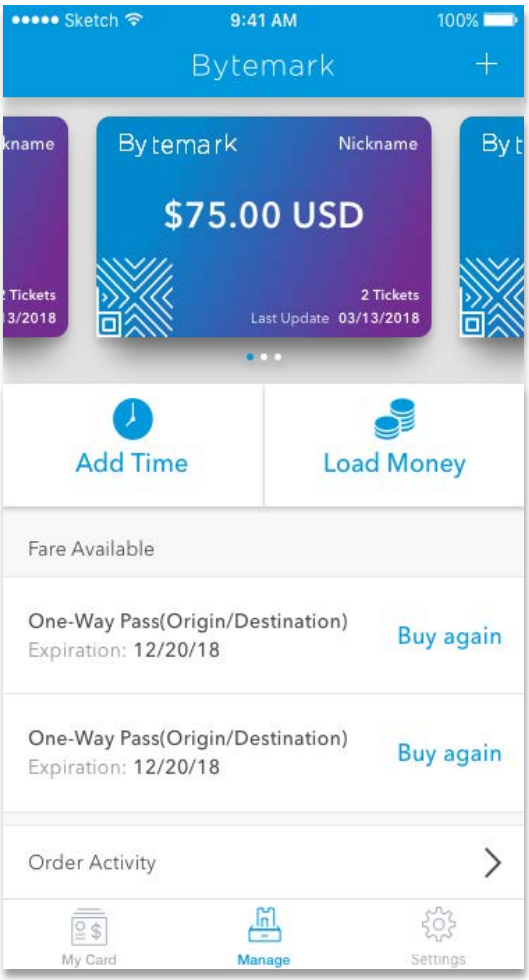
To produce the prototype, ByteToken partnered with Thales, leading international fare gate manufacturer, who upgraded their latest smart fare gate, the Dreamgate PG600, to support the AirGate Bluetooth functionality.

AirGate is easy to use. A passenger, simply downloads the ByteToken mobile app and uses this to purchase their travel rights, which are then stored on the mobile app. As they approach the fare gate to enter the transport network the app will, without user intervention, communicate with AirGate. Once the AirGate software has determined that the user has valid travel rights, a signal will be sent to the appropriate fare gate to open. This enables a hands-free approach to checking-in and out of the transport network, increasing user throughput as they no longer need to locate and present their ticket.

1.7.2.5.3 Customer Mobile Application (Account Management)

The Bytemark/INIT integrated app is a mobile application available for Android and iPhone that allows users with INIT e-fare customer accounts to use their mobile device as a virtual smart card that can be validated using an INIT PROXmobil scanner. Within the app, users can also manage their customer accounts by adding fare products or stored value to their mobile fare medium. In addition, customers can view and update the same account information through the customer website.

All data accessed by the Bytemark/INIT integrated mobile application is retrieved from and managed by INIT's platform.



Bytemark is uniquely positioned to develop and deploy a mobile ticketing application for ngORCA. Bytemark has worked directly with Sound Transit and King County Metro since 2016 as a mobile ticketing provider. Over 60,000 users have purchased passes on the *Transit Go Ticket* mobile application.

1.7.2.5.3.1 UX/UI Integration

Bytemark will work with INIT and INIT's UX/UI partner, Anthro-Tech, to develop a customized solution for ngORCA which meets the functional technical needs while also complimenting the common user interface elements that may arise. As Anthro-Tech will ensure a common user experience across all customer facing interfaces (Mobile App, Website, etc.), Bytemark will work through the functional requirements in an integral manner. Upon launch, customers will instantly recognize ORCA branding and feel comfortable knowing they are using the official ORCA app(s).

1.7.2.5.3.2 Native App Development

Bytemark is proud to offer native apps for iOS and Android operating systems. Native apps take advantage of operating system specific features and functions. Automated dev environments can accelerate the initial development of apps, but they use a lowest common denominator approach to app development, only supporting features that are on both iOS and Android and rarely support taking advantage of device capabilities that require native SDKs to access. Apps created in an automated dev environment will always be slower as they do not access libraries of the OS directly.

The security of native apps exceeds apps created by automated development environments. Non-native apps are more susceptible to "man in the middle" attacks and are easier to reverse engineer. When a major iOS or Android upgrade or security patch is released, automated dev environment tools need to be updated first before apps built with those tools can be updated or patched.

1.7.2.5.4 Mobile Application Functions

C. It is unclear what the proposed account management functions are, and how they would work for the customer. The proposed account management solution does not appear to meet the capabilities.

The proposed solution is to provide a unified account between the mobile app, web, and account-based cards. All accounts are managed on the unified MOBILEvario Back Office. In addition to using virtual fare media, all account management functions available via the consumer web site are available in the app.

The following is a list of a features functions end users will be able to perform through the integrated mobile application. These account management features are offered in the app via API's with the INIT MOBILEvario system.

Function	Notes
[redacted]	

[redacted]

1.7.2.5.4.1 Virtual Card Provisioning

[redacted]

1.7.2.5.4.2 Virtual Card Management

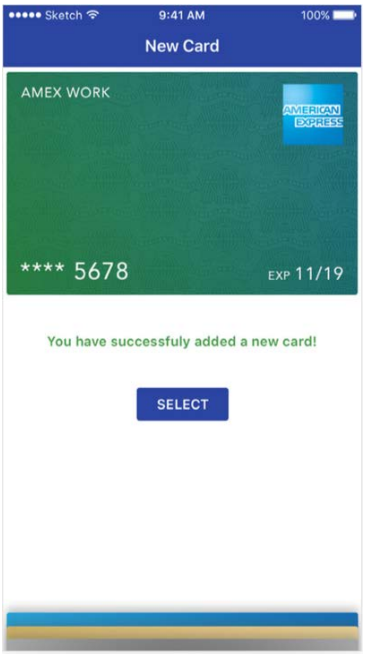
[redacted]

E. Proposed iOS solution references ""in the future"" and ""if applicable"" which is concerning since the SOW anticipates this functionality to be available at integration."

1.7.2.5.4.3 Registering & Linking Physical Fare Media

1.7.2.5.4.4 Purchase Process

A user can complete their purchase using a personal credit/debit card or by linking to a mobile "wallet". Once a customer enters a credit card it can be saved with a nickname such as "My Debit Card" or "Work AMEX" for easy reference for the user.Users will be able to purchase multiple fare products from multiple agencies in a single transaction. The user will also be able to add value to their virtual or physical fare media.



1.7.2.5.4.5 Split Purchases

For customers that may need to spread their monthly pass over multiple payment methods, we include the option to split a payment. The app interface allows customers to easily allocate funds across multiple payment methods.

1.7.2.5.4.6 Autoload & Subscriptions

Users will be able to create product or value-based Autoload for repurchasing fares or adding value. Products such as monthly pass can be re-purchased automatically the day after expiration. The customer is sent a confirmation email before the purchase to give them adequate time to modify or cancel the Autoload. The INIT system allows the user to designate primary and secondary funding sources.

1.7.2.5.4.7 Notifications

Notifications may be displayed in multiple ways within the mobile app. The app's home screen may be configured to display important travel alerts and notifications.

Notifications can be used to raise consumers' awareness to any changes in the operator's regular operations and suggest alternative routes if necessary. Providing riders with notifications allows them to make the best decision and ease their experience when problems occur.

Restrictions to notifications can be tied to in-app, email, or customers may elect to opt-out completely. Also available are notifications for operator or relevant area news as well as special offers (if available).

1.7.2.5.4.8 More Information' Feature

More information allows the agency to include links to additional services and agency websites. Common links agencies include:

- Contact Us
- Customer Support information
- Call Center Hours
- Lost and Found Information
- Mobile App Tutorial
- FAQ's
- Terms of Service
- Rider Surveys
- Agency Website
- Route Maps, Schedules, Trip Planning Tools (can also be integrated more fully into the app)

- Agency Social Media

1.7.2.5.4.9 Settings and Profile Management

Within the settings screen users are given full access to their profile and are provided the information tools they need to successfully use the mobile ticketing application. Settings are customizable on an agency-by-agency basis.

Users have full access to their account and profile details. Users can update their profile directly in the mobile application. This includes: changing and resetting password, adding payment methods, modifying notification settings, purchase history, and account sign-out options.

Customers will have the ability to reset their password. On the log-in screen the customer may select the Forgot Password button. A reset password link will be emailed to the address on the account with instructions. Customers can also contact Customer Service representatives for assistance. User's will also be able to report their fare media lost or stolen. Reporting their fare media lost or stolen will then deactivate that fare media and allow the user to transfer the balance.

1.7.2.5.4.10 Order History

For customer's records, reference and quick reordering of past trips, a full history can be displayed in the mobile app. The customer can tap any entry to view the complete record for the transaction or to quickly repeat the purchase. A downloadable record will be made available to users.

1.7.2.5.4.11 Initiating Customer Service Requests

Multiple methods of contacting customer service will be provided within the mobile application. A direct phone number will be provided and a pre-defined customer request form which stipulates the reason for the inquiry, the inquiry itself, and the customer's contact information. Customer service inquiries can be stored in MOBILEvario and for the purposes of this bid populate the ORCA Salesforce CRM.

The INIT system allows users to initiate an opt-out refund. This process can be automated or at the discretion of the agency. Optionally, it can require administrative approval prior to refunds being issued.

1.7.2.5.4.12 Passenger Information Tools

The integration of real-time passenger information tools is vital to the customer experience and is a primary driver of mobile ticketing adoption. The application may take advantage of operator-provided web services including real time bus locations and schedule listings. Other information that can be incorporated includes: next departing bus information, delays, and alerts

that go beyond the typical trip planner to bring the most relevant information to a user as soon as they enter the application.

We can integrate schedule information for trip planning purposes in a format that customers have become accustomed to with Google Maps and similar planning tools. By overlaying route and station information on an interactive map, customers can see an overview of the transit system, or zoom in on specific routes and stations. By choosing origin and destination customers can even see the next departure times for that route. Geolocation is utilized if the user chooses to share their location. Location data is used to find the nearest station and to show real time bus locations if provided.

Additionally, the app can be configured to link to multiple third-party trip planning tools, which can be defined by ngORCA. We will work to make those tools configurable, so the user can choose a preferred planner.

1.7.2.5.4.13 Language Support

The mobile apps will undergo an internationalization process and be built to support multiple languages. We do ask clients to provide translations of their own content such as FAQs or supplemental information. The language in the application will match the language default on the mobile OS. If the language is not supported, the app will default to English.

Content supplied directly from the back office, such as fare products would need to be translated by the INIT system. Although, we do not recommend translating fare product titles.

1.7.2.5.5 Accessibility – ADA Compliance

We believe it is important to highlight Accessibility features as part of the Core System for our passenger facing solutions. Bytemark is committed to developing transportation software that can be utilized by all segments of the international communities we serve. There are 100s of millions of aging adults and persons living with disabilities globally, and transportation is essential to increased productivity and independent living.

Bytemark's Accessibility guidelines are based on Section 508 of the Rehabilitation Act of 1973 as amended 1998, and the World Wide Web Consortium's (W3C) Web Content Accessibility Guidelines version 2.0 guidelines at the AA level (WCAG 2.0 AA). Additionally, we conform to international guidelines, such as the European Accessibility Act and Accessibility for Ontarians with Disabilities Act; while also upholding US State and Local Electronic Information Technology ("EIT") mandates for vendors contracting in business with government funded agencies.

ADA Federal Compliance

- New Federal compliance requirements for mobile applications are in effect as of January 17, 2017
- Federal compliance requirements for mobile applications will be enforced starting January 18, 2018

From inclusive product design and usability features, to our developers utilizing the latest techniques for the Web and Mobile Accessible coding, with thorough review and Quality Assurance testing, Bytemark has defined a multi-step Accessibility implementation for all our products.

1.7.2.5.5.1 Highlights of Bytemark's Accessibility commitment

Operating system (OS) based implementation for screen reader usage for our iOS and Android applications.

- Color and Contrast
- Dynamic text and responsiveness
- Language and Content
- Navigation, Focus and Error Handling
    - Interface designed for consistency across screens
    - No Focus Traps
    - System auto-reads non-actionable yet important info: Expiration Date/Time
    - Labels have been substituted for text on screen

Web Accessibility formulary including specialized components for specialized products using AngularJS and WordPress.

- Animation functionality and compliance for our proprietary V3 tickets
- Development of a Corporate Accessibility policy integrated with the Corporate Product Roadmap
- Comprehensive Quality Assurance manual and automated testing
- Developing user testing and research sessions; as well as full participation with the Accessibility community and professional sectors worldwide.
- In an enduring commitment to corporate responsibility and sustainability, Bytemark is poised as the industry leader in these initiatives.

1.7.2.5.6 System Security

Bytemark was formed out of a former consulting company focused on mobile payments. From that experience, we have focused on three tenants:

- Secure customer data
- Secure payments
- Secure tickets

Bytemark's focus on secure ticketing is demonstrated by our patent portfolio which focuses on securing tickets via visual, electronic, and contactless methods. Our issued patent on visual ticketing encompasses 34 claims for validating a computerized ticket.

1.7.2.5.6.1 Restricted Access

Only a limited group of administrators with our company can access production environments on a need-to-know basis. All individuals with such access undergo background checks, must be thoroughly trusted, and must acknowledge in writing the importance of securing the system's data, why the data needs to be secured, and the ramifications of any leak, compromise, or breach.

1.7.2.5.6.2 Mobile Payment Security

No personal information—particularly payment card information—is stored within the mobile applications. Bytemark's proven methods of protecting Personally Identifiable Information (PII) ensure that the card payment information and other personally identifiable data is handled in a secure manner and may not be compromised during processing or during storage. All communication between the mobile applications and the back office are secured over SSL channels and is monitored at all times for security breaches or unusual activity.

1.7.2.5.6.3 In-app Error Tracking

Mobile application monitoring software, Crashlytics, is used to send alerts to our development teams about potential issues that arise in production. Crashlytics is used by numerous top mobile app development companies to monitor when crashes occur as well as what the root cause of the crash. Crashlytics provides deep and actionable insights, even the exact line of code the app crashed on. We use Crashlytics real-time analytics to quickly address issues as they arise.

Crash Reporting — It will record every single crash and its stack trace

Crash Logs — when a user causes a crash in-app, all the information about the crash is sent to Crashlytics's servers and provided to our developers

Crashes are monitored and their cause recorded. If a specific crash occurs for a large subset of users the issue can be addressed before it becomes something users have a large-scale complaint about.

Crashlytics is part of the mobile toolset we use to constantly monitor how users are using the app. Bytemark engages in an extensive QA and customer feedback process to monitor User Experience flow, customer retention, repeat usage, where customers stop using the app and whether the customer encounters a technical issue that is specific to them or part of what could be a subset of usage problems.

This data is quickly translated by our support team to our developers for analysis, repair and submission to the QA team. We aim to deliver constant improvements on our consumer facing apps and the backend infrastructure as the feedback is provided to us. Bytemark's platform is dynamic and constantly improving based on new customer requests, the latest security threats and improvements in technology solutions for the end user. System improvements are paid for by recurring maintenance & support costs, new feature requests and customizations will be considered a change order.

On the whole, Bytemark constantly strives to improve our platform in meaningful ways that ensure our customers have software that does encounter issues of obsolescence. With software delivered to consumer devices that are changing every few months with new mobile operating systems and new functionality, it is insufficient to deliver a piece of software and assume its function for the next 5-10 years with only minimal or minor updates – as has been common in ticket vending.

Bytemark's platform is dynamic and always improving as part of our administrative responsibilities because we feel mobile-driven ticketing solutions will drive the transportation industry over the next decade. This can only happen with a platform that is routinely reviewed and updated to meet evolving consumer market expectations of what an app does on their mobile device.

1.7.2.5.7 Hosting & Uptime

The Bytemark Platform is a PCI/ISO-compliant, three tiered, load balanced, and auto-scaling system. These segments are divided by functionality, with redundancy across data centers. Amazon Web Services (AWS) provides us with an unprecedented toolbox to provide scalability not only locally but globally through Amazon's network operations centers spread around the world. Scaling procedures and network architecture is reviewed bi-monthly to identify performance bottlenecks and to ensure that load is being distributed effectively.

A key component of the AWS platforms that we utilize are load balancers. Load balancers can automatically distribute incoming traffic across our multiple API pool of server instances. They scale automatically to provide the amount of load balancing capacity needed in response to the actual incoming app traffic. Load balancers also provide fault tolerance by automatically rerouting traffic away from unhealthy server instances in the event of software instability or issues on the underlying hardware. The load balancers will restore traffic back to those instances

automatically when they come back online. Multiple API instances can be allocated based on the amount of incoming traffic as well.

1.7.2.5.8 Bytemark's Project Management Methodology

The Project Manager, and lead technical resource have the overall authority and responsibility for managing and executing this project per the appropriate parameters. Project Management Body of Knowledge (PMBOK) methodology is heavily employed throughout the project lifecycle. This includes full implementation of the practices of: risk management, project scheduling, issue identification, status reporting, change control, resource planning, communication planning and other industry practices to successfully bring projects to completion.

The project team will consist of our personnel from the development group, PMO and testing group. The project manager will work with all resources to perform project planning. All project and subsidiary management plans will be reviewed and approved by the project sponsor. The project sponsor will also make all funding decisions. Any delegation of approval authority to the project manager and systems architect should be done in writing and be signed by both the project sponsor and project manager. Tool usage will range from traditional task tracking software, Gantt chart creation, Risk Register creation and monitoring software.

A dedicated Project Manager will be responsible for providing timely project updates, reports and serve as central contact person for all project related activity. All project related documentation will be readily available to the Agency and their partners. Documents will be stored in a secure but shared workspace and will have appropriate versioning. Documents will be produced in widely accessible format.

1.7.2.5.8.1 Project Kickoff

Prior to an onsite kickoff meeting, Bytemark in partnership with INIT and Anthro-Tech will conduct onboarding evaluation to aid in jumpstarting the project. The onboarding evaluation is meant to gather basic information that will be discussed during the onsite assessment. Key members of the Bytemark staff shall kickoff the project by meeting with key stakeholders. The focus of this meeting will be to review the scope of the project as well as to provide Bytemark with the agency's long-term vision and goals. We will review the onboarding evaluation and complete any outstanding items with the appropriate agency departments. A successful project kickoff is one of the most vital stages of the project and it is important all stakeholders are available and participate.

Bytemark in partnership with INIT will also go through a fit-gap analysis to determine where business requirements align with existing platform functionality. The RFP scope and the compliance matrix shall serve as the basis of the fit-gap review to determine what components need to be customized to meet the ORCA's needs. Efforts will be made to make alternative

recommendations where necessary to meet business requirements utilizing existing functionality or features.

1.7.2.5.8.2 System Implementation Plan

An implementation plan will be put in place during the Startup Phase of the project, here is a high-level sample implementation plan:

Upon Notice to Proceed, Bytemark will begin preparations for the project including planning out staffing levels and incorporating ORCA's anticipated development into our project development cycle.

1) Before kickoff, Bytemark will conduct an onboarding evaluation to aid in jumpstarting the project
2) Bytemark will conduct a project Kick Off Meeting with the project's key stakeholders. At this time, we will review the scope of the Project as well as review long-term goals for the agency. Together we shall review the onboarding document and complete any outstanding items
3) Bytemark will work with Anthro-Tech and stakeholders in the design process
4) Bytemark will quickly take the information provided during the design phase to create prototypes and testable features
5) Bytemark will develop an iOS and Android apps with appropriate branding, interface requirements, and functionality
6) Bytemark will conduct system integration with INIT's MOBILEvario system
7) Bytemark, in partnership with INIT will train agency staff on all facets of the system required to fully test mobile functionality
8) Bytemark will coordinate with ORCA staff to carry out internal testing of the apps
9) Bytemark will work with ORCA staff to coordinate public testing of the apps (if required)
10) Bytemark will launch the apps to the public

Throughout the project, Bytemark will gather feedback from all stakeholders to refine processes and our systems.

1.7.2.5.8.3 Approach to Completing Work on Time

The project Coordinator is responsible for resource management across the portfolio of projects. The Project Coordinator and Project Manager will work together to ensure that the appropriate resources will be assigned accordingly to the project, in order to meet agreed deadlines and deliverables.

The common adage that everything takes longer than you think rings especially true for large projects with multiple vendors. There will always be a wide range of goals and to pursue all of them will take considerable resources by us *and* inside the agency – project management, QA,

stakeholders input and so on. It is easy to underestimate internal resources that are required that may pull staff away from their already burdened schedules.

With the release of a mobile ticketing app, the agency will have a very powerful and flexible tool for engaging with passengers that internal staff will be excited to tap into. There will be internal pressure to advance individual agendas to add features and modifications to the base contract. One lesson is to focus on the original scope to ensure that it is completed on time and within budget. Shifting priorities and seemingly "minor" change orders can stack up and disrupt the original schedule.

1.7.2.5.8.4 Change Management Plan

The following steps comprise Bytemark, Inc.'s change control process for all projects and will be utilized on the project:

- Identify the need for a change (Any Stakeholder)
- Requestor will submit a formal change request in writing to the project manager
- Log change in the change request register (Project Manager)
- The project manager will maintain a log of all change requests for the duration of the project
- Conduct an evaluation of the change (Project Manager, Project Team, Requestor)
- The project manager will conduct an evaluation of the impact of the change to cost, risk, schedule, and scope
- Submit change request to Project Sponsor
- If a change is approved by the Project Sponsor, the project manager will update and re-baseline project documentation as necessary as well as ensure any changes are communicated to the team and stakeholders

Bytemark shall perform, but is not limited to, the following technical services under change orders or task requests:

- Provide requested training of agency personnel
- We will submit a customized training plan for any specific training a task order will indicate a necessity for
- Extensions to functionality
- Assistance in the selection of alternative components and or software to those originally provided for the Platform
- Modifications to the look and feel of the customer application

1.7.2.5.8.5 Risk Management

An emphasis on Risk and Roadblock Management provides assurance that our organization can create and implement an effective plan to prevent losses or reduce the impact if a loss occurs. A good risk and roadblock management plan includes strategies and techniques for recognizing and correcting these threats, solutions for both preventing and solving bad situations, and indicates financial opportunities. Issues and potential roadblock are evaluated, mitigated against and plans communicated.

The Project Manager will determine what action should be taken for each risk as it is brought to attention through weekly team meetings and database reports. The Agency Project Manager shall determine whether to keep the risk, delegate responsibility, or transfer the risk responsibility up the project organization chain. The Project Manager, if necessary, may transfer a risk(s) to external organization if that organization is best suited to handle the risk.

1.7.2.5.8.6 Quality Management / Test Plan

All members of our project team will play a role in quality management that is executed in conjunction with Test Planning. It is imperative that the team ensures that work is completed at an adequate level of quality from individual work packages to the final project deliverable. The following are the quality roles and responsibilities for the project:

- The Project Manager is responsible for approving all quality standards for the project. The Project Manager will review all project tasks and deliverables to ensure compliance with established and approved quality standards. The Project Sponsor will sign off on the final acceptance of the project deliverable.
- The Project Manager will work with the project's quality specialists to establish acceptable quality standards. The Project Manager is also responsible for communicating and tracking all quality standards to the project team and stakeholders.
- The Quality Specialists are responsible for working with the Project Manager to develop and implement the Test Plan, which informs Quality Assurance. Quality Specialists will recommend tools and methodologies for tracking quality and standards to establish acceptable quality levels. The Quality Specialists will create and maintain reports from QA testing that will be delivered to project stakeholders.
- All stakeholders will be responsible for assisting the Project Manager and Quality Specialists in the establishment of acceptable quality standards. They will also work to ensure that all quality standards are met and communicate any concerns regarding quality to the Project Manager.

Quality control for the project will utilize tools and methodologies for ensuring that all project deliverables comply with approved quality standards. The Quality Specialists will assist the

Project Manager in verifying that all quality standards are met for each deliverable. If any changes are proposed and approved by the Project Sponsor, the Project Manager is responsible for communicating the changes to the project team and updating all project plans and documentation.

1.7.2.5.8.7 Resources & Ability to Deliver for Next Generation ORCA

Bytemark has continued its commitment to servicing clients in the Puget Sound Region and the West Coast more broadly by establishing a satellite office in Seattle. We have recently hired a full-time project manager who is based in Seattle (Adela Sebestova, resume attached). Max Letaconnoux, who managed the *Transit Go Ticket* mobile application deployment and is the lead Project Manager for all Bytemark INIT integrations will continue to manage the project for Next Generation ORCA. Adela will provide onsite support as needed.

1.7.2.5.9 Additional Project References

Additional references for our *Transit Go Ticket* mobile app deployment and ability to deliver solutions for ORCA:

[redacted] Manager, Customer Communications & Services. King County Metro Transit Division

Email: [redacted]

Phone: [redacted]

[redacted]: Business & Finance Officer. King County Metro Transit Division

Email: [redacted]

Phone: [redacted]

[redacted]: Transit Chief - Customer Services & Fare Media Sales. King County Metro Transit Division

Email: [redacted]

Phone: [redacted]

[redacted] Director IBI Group. Lead consultant for TGT Project.

Email: [redacted]

[redacted]

1.7.2.5.10 [redacted], Seattle Based Project Manager

[redacted]

1.7.2.6 Commitment to Innovation – Bytemark & Siemens Mobility

Siemens AG is a global powerhouse focusing on the areas of electrification, automation and digitalization. Siemens has approximately 348,000 employees in more than 200 countries. In fiscal 2016, it generated revenues of $88.1 billion. Siemens' Mobility Division develops new intelligent mobility solutions to increase the availability of infrastructure, optimize throughput and improve passenger experience.

As of November 2017, Bytemark is a Siemens Mobility company. The Siemens Mobility team provides us with a tremendous group of industry experts in the fields of fare collection, real time information systems, and transit management software

Bytemark has won the following industry awards:

- Ticketing Technology of the Year in 2017 from Transport Ticketing Global
- Best Ticketing Solution of 2016 by Juniper Research
- 2014 Best of Texas award in the Best Mobile/Wireless Project Category for its mobile ticketing deployment for Austin's Capital Metropolitan Transportation Authority.

1.7.2.6.1 Technical Flexibility

Bytemark's mobility solutions strive to be a technology & system agnostic solution that can integrate into existing fare collection and transit ITS systems. One of our greatest strengths is our experience integrating with a diverse set of vendors including Trapeze, Genfare, Xerox-Conduent, INIT, Kapsch, and Thales. No other mobile ticketing company has integrated with as many third-party fare collection vendors as Bytemark.

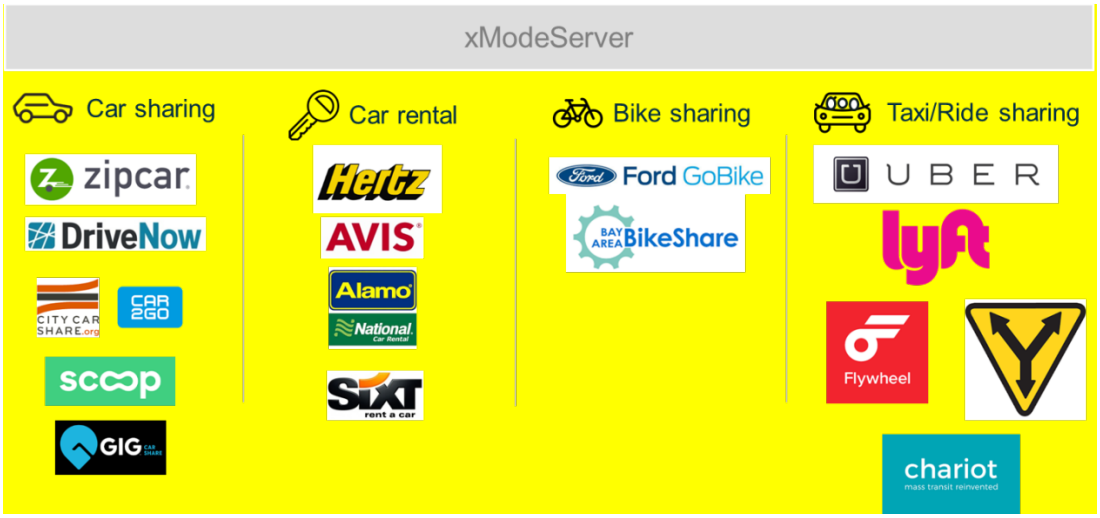
1.7.2.6.2 Siemens Mobility Deployments in North America: Bytemark and HaCon

HaCon creates and develops high-quality software solutions for traffic, transport and logistics. HaCon has established itself as a leading player for planning, scheduling and information solution and was acquired by Siemens in 2017. They have over 30 years of experience and a dedicated team of 270+ IT and transport planning specialists. In 2015, the Massachusetts Institute of Technology (MIT) honored HaCon as one of the "50 Smartest Companies" worldwide. HaCon's timetable information system helps millions of passengers stay up to date on their connections. Combining different means of public and private transport, HaCon's journey planners handle over 100 million requests per day, providing multimodal transport information in more than 25 countries.

Bytemark and HaCon have deployed combined mobile ticketing and trip planning solutions to clients since 2016. Together we have provided our clients best of breed mobility solutions that offer seamless intermodal trip planning and ticketing. Bytemark and HaCon have developed or are developing joint solutions for Austin's Capital Metro (CMTA), New York City Ferry, Des Moines Area Regional Transit (DART), and San Mateo County Transit District (SamTrans).

1.7.2.6.3 Integrations with Third Party Mobility Provider

The Siemens Mobility Platform has already successfully integrated with a large number of shared mobility providers, like Uber and Car2Go, see picture below:



Services can be integrated for:

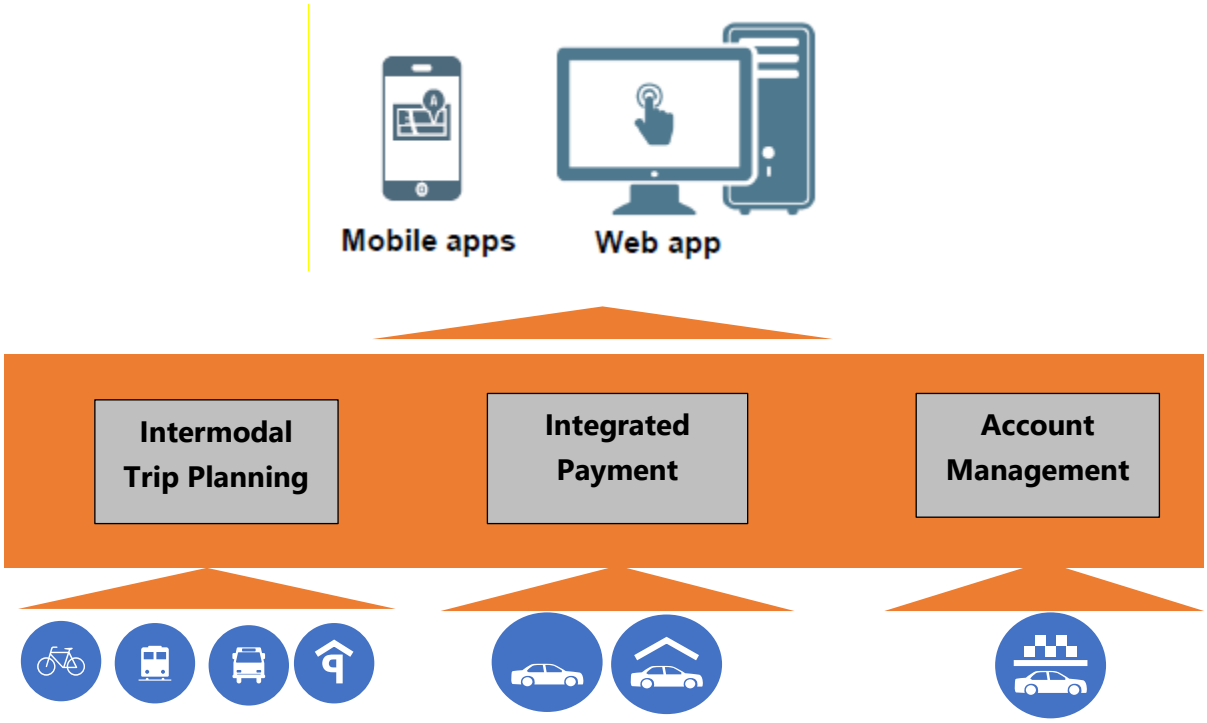
- Fare information and ticketing
- Estimated fare calculations
- Advanced mobility services like routing for walking, bike or car and car/bike sharing, carpooling or Park & Ride

1.7.2.6.4 Mobility as a Service Architecture

The Mobility Platform consists of three primary systems.

- Intermodal Trip Planning
- Integrated Payments
- Account Management

Bytemark and HaCon are delivering a transit centric MaaS Platform. The difficulty in any such MaaS offering is not so much in the technical implementation but in brokering agreements between disparate vendors. Mobility providers will all offer payment and account management systems with preference for their own services. Intermodal trip planning is the most technically challenging but easiest to get buy-in from multiple providers.

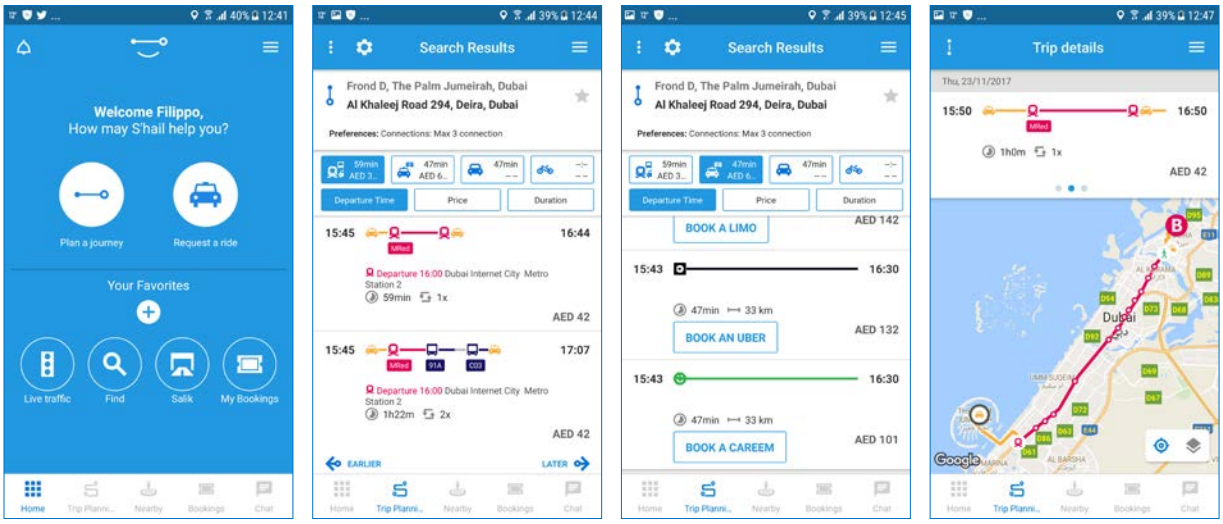


In both Dubai and Switzerland Siemens Mobility has deployed advanced integrated mobility solutions. Please see case-studies on the following pages for more information.

1.7.2.6.4.1 Siemens Mobility – Global Innovation: S'hail – Dubai

The S'hail app for Dubai offers multiple modes of travel including bus, train, taxi, Uber, Careem. Routing options are provided for a large network a transit types:

- 79 metros
- 3000 buses
- 9500 taxis
- 11 trams
- 5 ferries
- 1 mono rail



We provided the intermodal trip planner, payment and tarrif engine for Dubai's transit network, Roads and Transport Authority.

The S'hail app features:

- Unbiased, objective routing options
- Intermodal routing: taxis are used in combination with metro and buses to cover first / last mile
- Direct interface with travelers
- Direct access to a large base of mobility data

1.7.2.6.4.2 Siemens Mobility – Global Innovation: Swiss SBB

We have delivered an integrated mobility application for Swiss Federal Railways (SBB). The mobile application provides a front-end that allows users to trip-plan and book services from transit, bikeshare, and car share services.

Integrated, Intermodal App

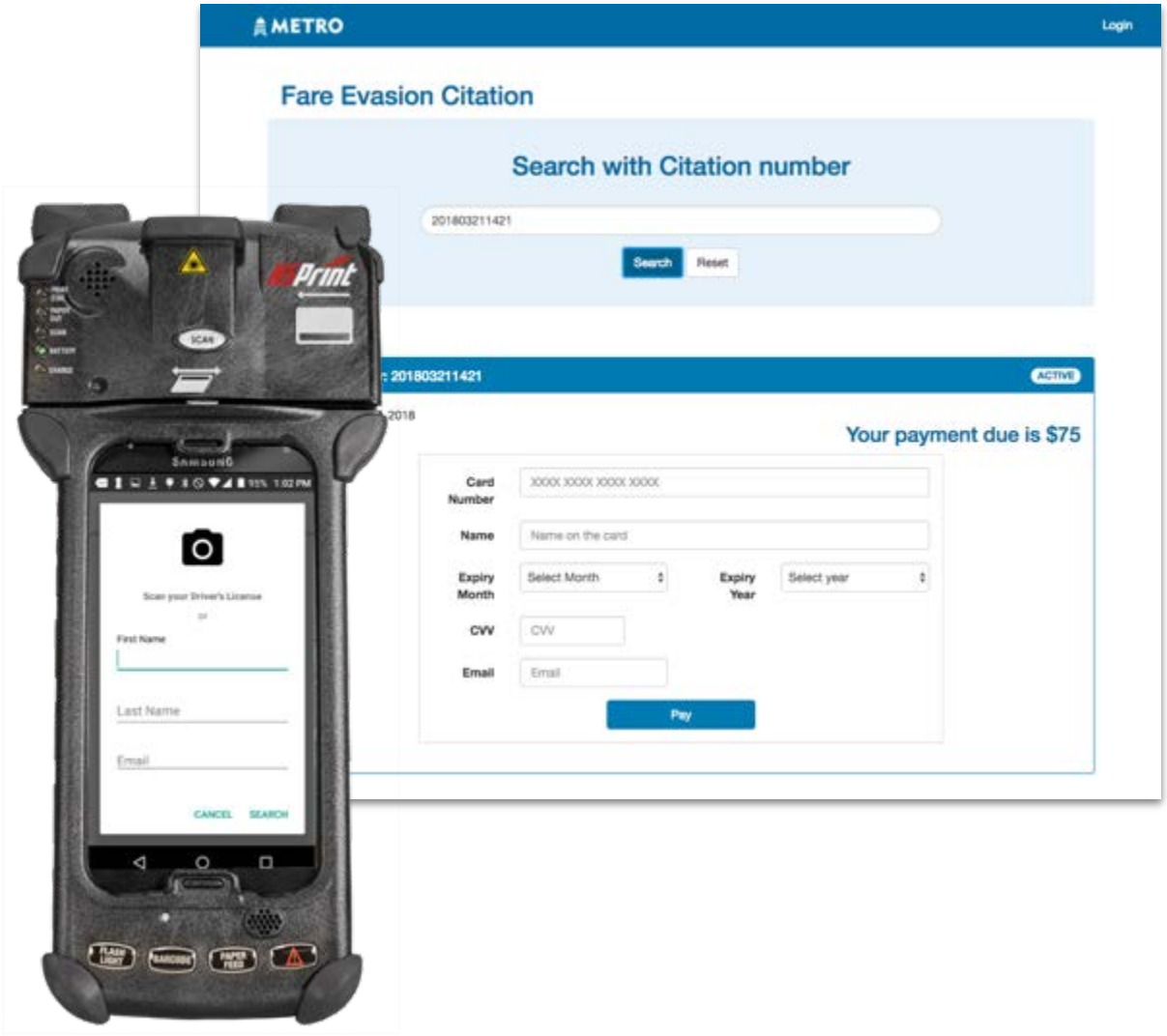
- ***Transit (Train, bus, metro, trams) Plan Data, accessibility, occupancy, booking confirmation***
- ***P+Rail: location, prices, booking confirmation***

- ***Car-sharing Availability, locations, car type, price, booking***
- ***Taxi Availability, price***
- ***Bike-sharing Location, availability, price***

1.7.2.6.5 Bytemark – New Products

1.7.2.6.5.1 Fare Evasion Enhancements

- Web portal for paying citations
- Validate City of Austin, Travis County, and Austin Community College tickets, and UT Austin IDs
- New handheld hardware with printer
- Magstripe, barcode, and Smartcard validation
- Back office enhancements



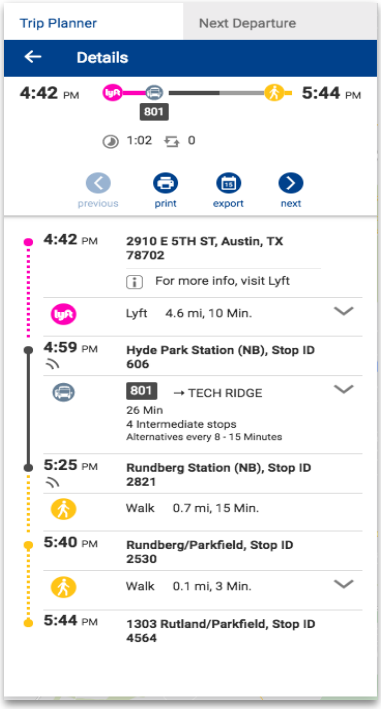
1.7.2.6.5.2 Merchant Mobile: Point-of-Sale

- Bytemark Merchant Mobile POS features:
  - Order entry
  - Payment acceptance

- Advanced Mobile Payment 8200
  - Chip cards
  - Apple Pay and Google Pay
  - Contactless
  - Magstripe cards
  - PA-DSS certified
  - EMV certified
  - Built-in Printer
  - Smartcard reader
  - Barcode scanning

1.7.2.6.5.3 Multi-Modal Trip Planner Enhancements

- **Multi-Modal** trip planner that combines ridehail, bus, train, and bikeshares
- **Uber** and **Lyft** trip planning
- **Tier 2 Hacon Support** located in Austin



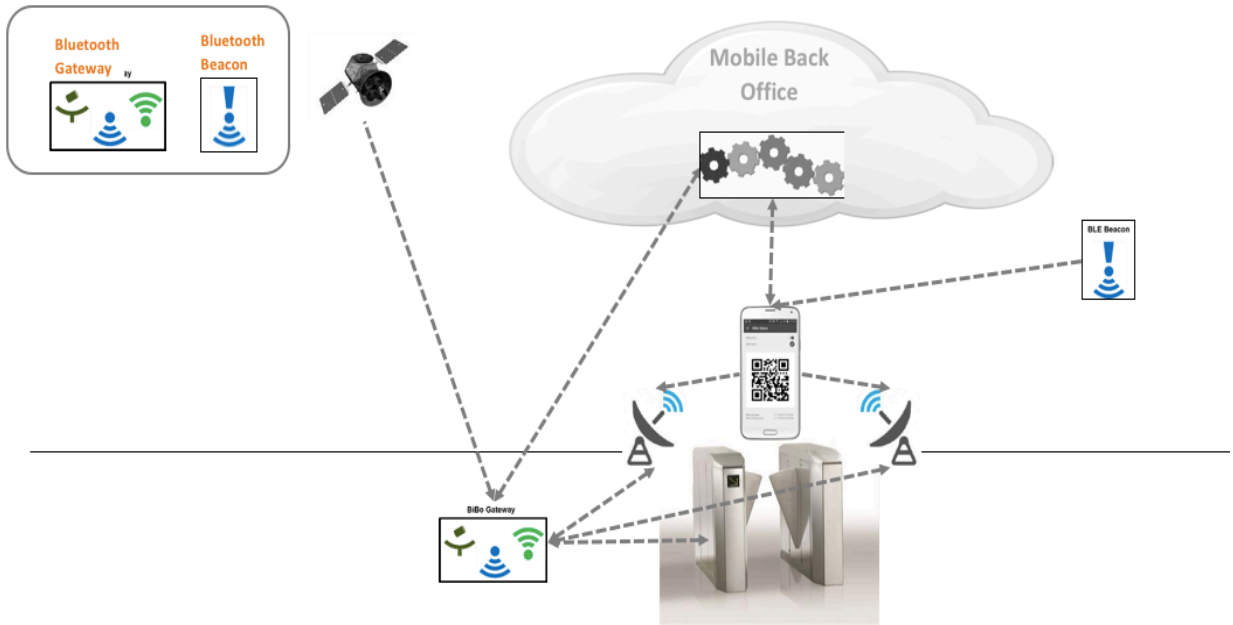
1.7.2.6.5.4 Airgate: Hands-Free Faregate

Bytemark's Walk-In Walk-Out solution is "hands-free" validation through existing ticket barriers rather than doing away with the barrier altogether. The "AirGate" solution radically simplifies the validation process by automation. Bluetooth beacons wake up the customer device and app as they enter the station, presenting valid tickets to the screen for activation or the purchase screen in the case they don't have any valid tickets.

Bluetooth antennae in front of and above the ticket barrier then monitor the approaching customer and data exchanges determine whether the customer has a valid ticket or not. A 3D imaging camera also determines whether they are the only person in the gate lane or not.

Once the customer has arrived in front of the flap barrier the "AirGate" system sends a command signal to the gate for it to remain in the open position for the customer or to close in the case of an invalid customer. This can also operate in reverse where the barrier is normally closed if desired.

- Walk-in Walk-out validation system
- Keep your phone in your pocket
- Uses Bluetooth for location tracking
- Bolt-on system
- Winner of "Ticketing Technology of the Year" at the 2018 Transport Ticketing Global Awards in London



1.7.3 [redacted] Mobile AFC Apps

[redacted]

INIT will approach the design of the apps in partnership with Anthro-Tech and the efforts undertaken to define and establish a common UI/UX interface for ngORCA.

Both agency apps (Inspection and Validation) will use the Android OS. The apps will be managed using a Mobile Device Management system (see chapter 1.8.1.9.12).

The NFC capability of the Android phones that are used for the inspection and validation app will be used to read the closed loop cards and the Google virtual cards. If there is a use to read 2d barcodes (fallback scenario for Apple virtual cards), [redacted] uses commercial 2d barcode libraries to enable a state of the art experience when scanning barcodes.

[redacted]

- [redacted]
- [redacted]
- [redacted]

1.7.4 INIT's Agency Focused, Cost-Effective Licensing Agreements

The mobile applications and websites supplied by these subcontractors will be licensed to Sound Transit in the same manner as other INIT supplied software. described in the ORCA Commercials & Legal Items "INTELLECTUAL PROPERTY PROVISIONS" section of Systems General Conditions.

1.8 INIT's Back office: Open-Architecture and Interchangeable Modular Applications

Specifically for Back Office (Scope of Work Section 6):

a. Describe in detail each component of the proposed back office including details such as:

i. *System hardware*

ii. *Interfaces*

iii. *Operating system*

iv. *Databases*

v. *Applications software*

vi. *Supported functionality*

b. *Identify any proprietary hardware, interfaces or software utilized, indicate whether industry standard equivalents are available, and if so, describe the benefits justifying use of the proprietary product.*

c. *Considering the information provided in Scope of Work Section 6.3, explain in detail the reasoning for choosing the proposed CRM solution including why other solutions were not proposed. For example, if you are proposing a CRM solution that does not leverage another agency's existing CRM application, explain why the agency's existing CRM software was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions.*

d. *Considering the information provided in Scope of Work Section 6.7, explain in detail the reasoning for choosing the proposed financial management solution including why other solutions were not proposed. For example, if you are proposing a financial management solution that does not leverage another agency's existing financial management application, explain why the agency's existing financial management application was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions.*

e. *Describe in detail the proposed systems for providing the full range of services including:*

i. *Monitoring and management of field devices*

ii. *Authorization of payments, debit and credit networks*

iii. *Data collection from devices*

iv. *Timely and accurate transaction processing*

v. *Clearing and settlement between participants*

vi. *Third-party billing and funds collection*

vii. *Financial reconciliation*

viii. *System management and monitoring*

ix. *Indicate which applications and functions are already operational, and which have to be developed. Also, indicate which applications have been purchased from industry vendors and which have been or will be developed on a proprietary basis.*

f. *Describe the proposed reporting system and the types of reports that will be provided to meet the system needs including KPIs, device health, and asset inventory reporting.*

g. *Describe how the agencies will be able to generate custom reports using provided data and*

standard report generator tools.

INIT's back office system is comprised of MOBILEvario (which provides the fare collection specific functions), and Commercial-Off-The-Shelf (COTS) systems – such as, the Customer Relationship Management (CRM) and Financial Management Application (FMA). This section related to the back office generally follows the order of the Scope of Work Section 6, Back Office Applications.

The information requested above in 8.e.i-ix is addressed in the associated subsystem (for instance, subsection i, "Monitoring and Management of Field Devices", is included in the System Manager section (i.e., Section 1.8.5).

1.8.1 System Hardware

The proposed Fare Collection System requires a robust network and information technology infrastructure to provide system availability and performance expected by consumers. The infrastructure and systems proposed below meet or exceed functional requirements while considering agency provided constraints and assumptions. While INIT is confident that the hardware and software proposed below meet requirements; INIT recognizes the rapid pace of technological advances between initial concept and design review may introduce desirable modifications. Further, the duration of the contract ensures technological advancement whose impact and inclusion cannot be estimated. INIT intends to provide the current available technologies, software and components within the offered price framework that meet the system requirements. Further changes and modifications may be necessary due to product obsolescence, incorrect assumptions, or additional constraints added by the agency. Iterative, collaborative design modifications can be made with the input of the ORCA agencies' during design specification and review phase.

1.8.1.1 Concept of Operations

The next generation ORCA information technology back office design consists of a highly available server, network and storage infrastructure built on enterprise class hardware located in two separate data centers in the Downtown Seattle and Tukwila area and a third, out-of-region data backup location. INIT recommends locating both operating datacenters within the ORCA operating region to provide extremely low-latency options between all agency networks and the back office infrastructure. Further benefits extend to consumers as response times dependent on latency-variable cellular networks. With two local datacenters connected by a low-latency network, INIT recommends a hybrid approach to business continuity and disaster recovery by combining load balancing, data replication, and failover capabilities into a resilient and flexible infrastructure.

The proposed back office servers are configured in a highly available virtual cluster providing high availability, performance and redundancy. The capacity and capability of the server and storage infrastructure is duplicated at the secondary site. Redundant networking load balancers, gateways and switches allow for the highly available, stretched cluster between these two separate datacenters. This allows for the parallel operations of external back office applications such as customer facing websites, vehicle facing services and other API services. Standalone systems and databases operate at a single datacenter with fluid migration or failover to the secondary datacenter. Connectivity between the agencies networks and the back office locations can be accomplished through a variety of wide area connection options including carrier grade options [redacted].

While a multi-datacenter strategy provides premium disaster avoidance and resilience, additional data protection is required to ensure against data loss in the unfortunate and rare event of a regional disaster. This is accomplished through backup technology built specifically to support a virtual infrastructure and move it to a secondary, geographically different location. This strategy supports the data-protection 3-2-1 rule ensuring, 3 copies of the data, 2 different storage types and 1 offsite copy. Data and virtual machine image backups will be performed at one of the Seattle locations, compressed, de-duplicated and copied to the primary site and replicated to the secondary site after being compressed and de-duplicated. This level of data protection ensures recoverability following a disaster which requires recovery or data discovery from a previous point in time.

All hardware and software required includes support and warranty throughout the duration of the contract and hardware refresh and/or upgrades have been included at regular intervals throughout the duration of the expected operational period.

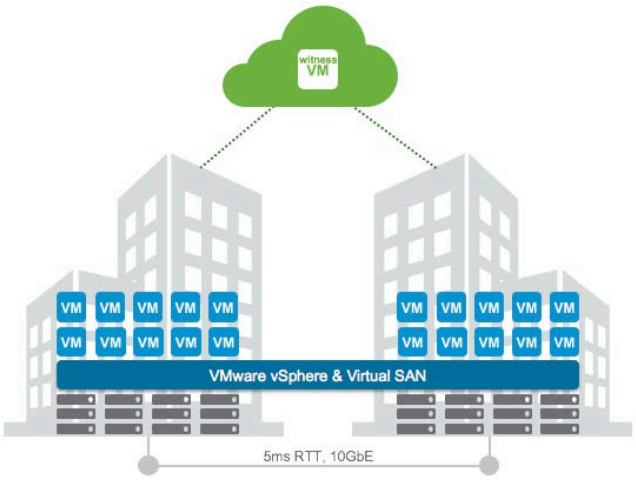
1.8.1.2 Servers

The physical servers providing the compute resources of the multi-site, virtual cluster supporting all back office operations are Dell PowerEdge R740, with dual Intel Xeon Gold 5118, 12 core processors and 256GB of RAM. VMware will be installed and run from 2 redundant, 64GB SD Cards. Further enterprise class redundancy extends to dual, hot-plug power supplies, redundant storage controllers, and redundant network connections. The specific number of host servers and their final configurations will be determined during design review based on resource requirements and available technology available during the implementation phase.

The physical servers providing the compute resources for the testing facility environment and out-of-region data backup locations are Dell PowerEdge R730xd, with dual Intel Xeon, 8 core processors and 128 GB of RAM. VMware will be installed and run from local storage comprised of a combination of SSD and NL-SAS drives providing enough capacity to run all virtual machines or store the off-site data.

1.8.1.3 Storage

Enterprise class storage using industry standard RAID and Hot Spare drive capacities is configured in a stretched storage configuration across both datacenters. A stretched storage cluster is implemented in specific hosting scenarios when downtime is not acceptable and application owners look to infrastructure solutions to provide disaster avoidance and recoverability generally unavailable at any other technology layer. While specific storage consideration and design will not occur until design review, stretched cluster, replication and redundancy configurations provided by hardware such as the HPE 3PAR 8200 or VMware vSAN technology will be used to create the highly available back-end storage, accessible from either primary or secondary datacenters. Using tiered storage strategies combining solid state drives (SSD) and near-line SAS (NL-SAS) drives, the stretched storage solution provides the right performance and reliability of the back-end storage, to whichever virtual machine or application needs it, wherever that service happens to be running. Capacities are configured in a way that a failure of a drive, server, array, or site, will not impact the availability of the customer facing back office, and will automatically triage any affected stand-alone virtual machines to surviving resource hosts. This effectively creates a self-healing storage strategy capable of automatically responding to and triaging traditional availability-limiting events.



Storage

1.8.1.4 Network

Enterprise class networking services for data and storage networking is provided by Cisco Nexus 3000 10GB switches deployed in high available pairs in both back office datacenters. The Cisco Nexus 3K device family are high-performance, high-density 10Gbe data center switches running Cisco's NX-OS providing both layer 2 and layer 3 switching and routing capabilities at ultra-low latencies. As dedicated and fully managed devices, the Nexus switches provide single-tenant

networking with enterprise class features enabling the multi-site routing and failover between the datacenters.

1.8.1.5 Firewall

Firewall and gateway security is provided by a highly available pair of Cisco ASA 5515X firewalls. Cisco, the leading manufacturer of enterprise-class networking equipment, has extended the ASA firewall product line beyond traditional layer 3 firewalling, introducing next generation features such as integrated intrusion prevention capabilities. Each datacenter site receives a pair of CISCO ASA devices configured in an active/standby configuration.

1.8.1.7 Operating System

INIT's back office infrastructure servers leverage Microsoft Windows Server 2016. Windows Server offers a proven enterprise class datacenter platform that can scale to run the largest workloads. Windows Server will provide the operating system, file management, security, directory services, and DNS services to the INIT applications and supporting infrastructure. INIT licenses Windows Datacenter Server allowing for unlimited virtual machines and virtual machine migrations throughout the infrastructure.

1.8.1.8 Databases

INIT's back office infrastructure is built on enterprise class database technology from Oracle (Oracle Enterprise Edition) which provides services for the storage, organization and retrieval of data. Oracle is a premier relational database system underlying critical databases around the world. INIT implements Oracle within a virtualized environment which provides improved capacity, availability, flexibility, scalability and recoverability for the system.

Capacity and Performance - Database capacities are scalable and flexible and provided by the underlying enterprise-class storage which is designed for high-performance and high availability through redundant drives and storage processors.

Security – [redacted]

High Availability – [redacted]

Flexibility – Implementing Oracle within the virtual environment allows for high flexibility of resource allocation as well as creating either permanent, temporary or ad-hoc test environments from production resources. The Shareplex solution can also be used to provide improved flexibility of data access by facilitating transaction level data replication to test environments, data warehouse environments, or other non-production, database instances.

Scalability – Implementing Oracle within the virtual environment allows INIT to scale database size and performance based on observed need. Allocating additional resources is both simplistic and quick, allowing for efficient allocation of resources on demand instead of allocating and dedicating unused resources up front.

Recoverability - In addition to the high availability and recoverability provided by Quest Shareplex, a virtualized Oracle instance also allows for quick and efficient backup and recovery. Leveraging virtualization specific backup technologies, the Oracle database is capable of being backed-up on an aggressive schedule to a separate off-site storage location. These quick, non-production impacting backups provide an additional layer of protection ensuring that any catastrophic loss of system will have a minimal impact to data loss.

1.8.1.9 Back Office Applications Software

The following chapter focuses on the back-office application software.

1.8.1.9.1 Microsoft Windows Server

Servers will be equipped with Microsoft Windows Server 2016. Windows Server offers a proven enterprise class datacenter platform that can scale to run the largest workloads. Windows Server will provide the operating system, file management, security, directory services, and DNS services to the INIT applications and supporting infrastructure.

1.8.1.9.2 [redacted]

[redacted]

1.8.1.9.3 VMware vSphere Enterprise Plus 6.5

VMware is a leader in virtualized infrastructure solutions and has been widely adopted across both large and small IT infrastructures. VMware abstracts server hardware resources and makes them shareable among the virtual machines that comprise the Fare Collection system. This helps decrease application downtime through efficient scheduling of resources, capacity optimization, workload isolation, and data protection. VMware is a key component of providing highly available, resilient, self-healing private cloud architecture.

VMware's High Availability (HA) clustering reduces the cost and complexity of traditional clustering solutions while providing cost-effective failover protection against hardware and operating system outages. HA is used to reactively, but automatically restart a failed VM on a surviving host. VMware's vMotion live workload migration tool allows moving an entire virtual machine from one physical machine to another without downtime. This seamless migration transfers the virtual machines active memory and precise execution state between physical hosts.

VMware vCenter provides centralized management of virtualized resources including hosts, storage and networks. It provides unified management of all hosts and VMs from a single console and aggregates performance monitoring of clusters, hosts, and VMs. The management console provides key performance indicators, predictive analytics, performance management and capacity analysis. vCenter is a key component of VMware's core feature set and its management features are available through a web browser. INIT intends to deploy vCenter Server with VMware's purpose built VCSA appliance in a High Availability configuration.

1.8.1.9.4 [redacted]

[redacted]

1.8.1.9.5

1.8.1.9.6

[redacted]

1.8.1.9.7 [redacted]

[redacted]

1.8.1.9.8 Solarwinds Network Performance Manager (NPM)

SolarWinds NPM is an essential component of the monitoring infrastructure. NPM provides network mapping, management, performance metrics and fault management for the network devices and connectivity required for system service delivery. Additional capacity forecasting and trend reporting provide actionable, proactive information allowing engineers to prevent network issues from impacting service delivery. Integrated with both SAM and DPA, SolarWinds NPM is critical to the ongoing operation of the Fare Collection system infrastructure.

1.8.1.9.9 Solarwinds Server Application Manager (SAM)

SolarWinds SAM is the primary server monitoring, analysis and fault management software for the ongoing support and optimization of the virtual machines. SAM monitors availability, response time, CPU, memory, and disk usage and includes capacity planning and metrics to assure proactive notification of potential capacity problems. SolarWinds SAM is part of SolarWinds Orion and integrates with both NPM and DPA.

1.8.1.9.10 Solarwinds Database Performance Analyzer (DPA)

SolarWinds DPA for Oracle provides a database performance monitoring and management tool used for visibility into the supporting system databases. Insight into database response time, system health, trend analysis and specific analysis of concerns of running virtualized databases, DPA provides INIT IT and Development staff the tools necessary to optimize and ensure the

databases are running effectively. SolarWinds DPA is part of SolarWinds Orion and integrates with both NPM and SAM.

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[redacted]

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[redacted]

1.8.2 MOBILEvario – INIT's Service-proven AFC-specific Back Office Applications

MOBILEvario is a powerful back office system, which is (among other features) an accounting and payment administration system.

MOBILEvario covers the traditional administration applications for revenue management (sales control and the keeping of accounts), fare management (products and matrices), seller media, user accounts, clearing house functions, personnel administration, various reports and access control.

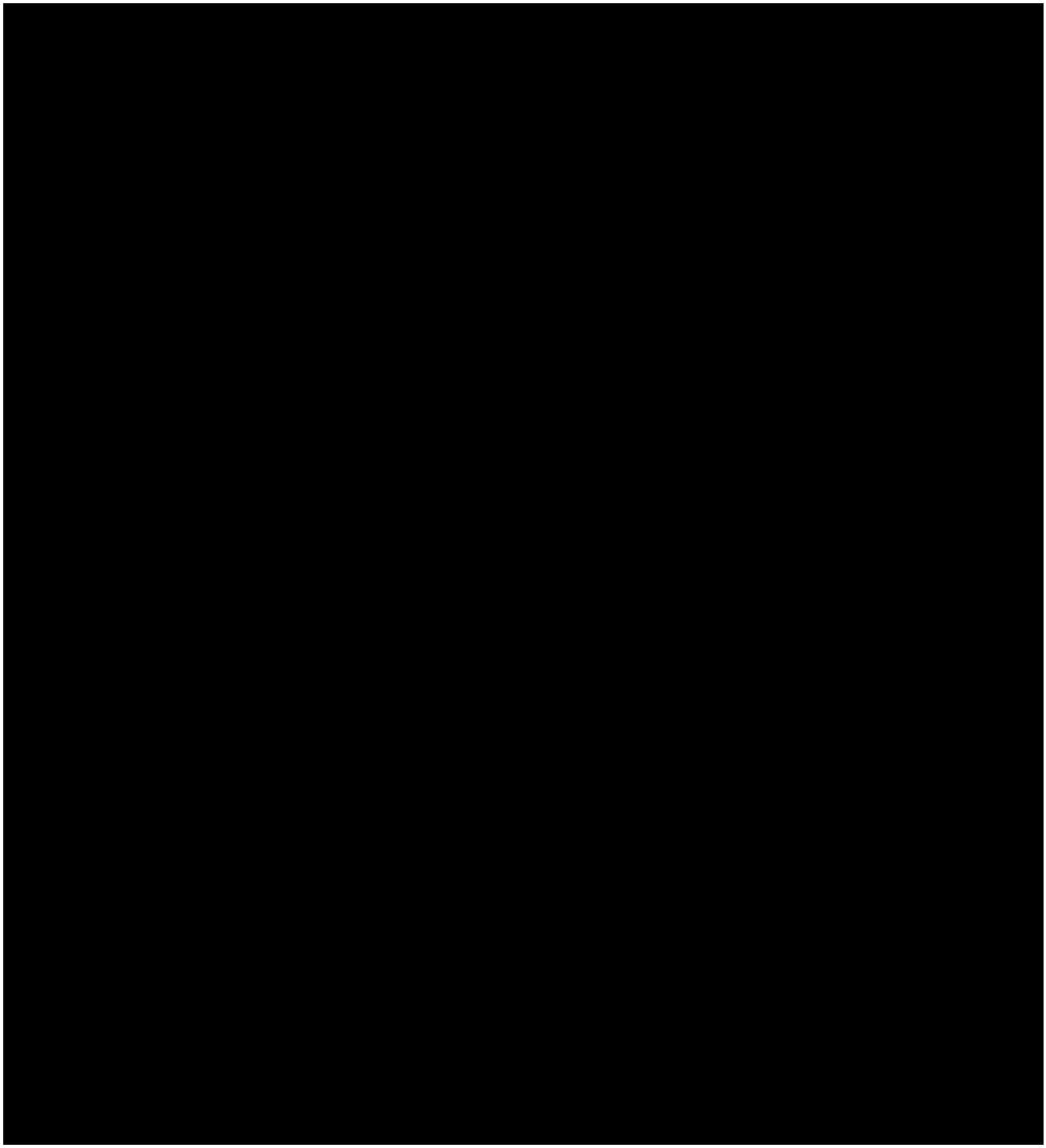
All tabular representations can be exported in a variety of formats so that the ORCA Agencies can use this data in additional third-party software packages.

The modular architecture of the system results in future orientation and flexibility, resulting in investment certainty.

The following figure shows the main components of MOBILEvario central system on a very general level.

1.8.2.1 INIT's Service-proven Open Architecture APIs for Communications with the Back Office

A core aspect of INIT's account based systems is the use of Application Programming Interfaces (API). The RESTful (Representational State Transfer) APIs provide an open architecture that supports vendor independence and streamlines integration with other payment channels. The APIs provide functionality for any 3rd party devices and networks to sell and validate fares. The client devices or customer interfaces all use INIT's APIs to sell and validate fares.



OVS and API Server are both REST API Servers that together provide the ATP functionality. OVS is optimized for fast response times to serve hat validators, while the API server provides the more higher-level APIs to manage transit and customer accounts.

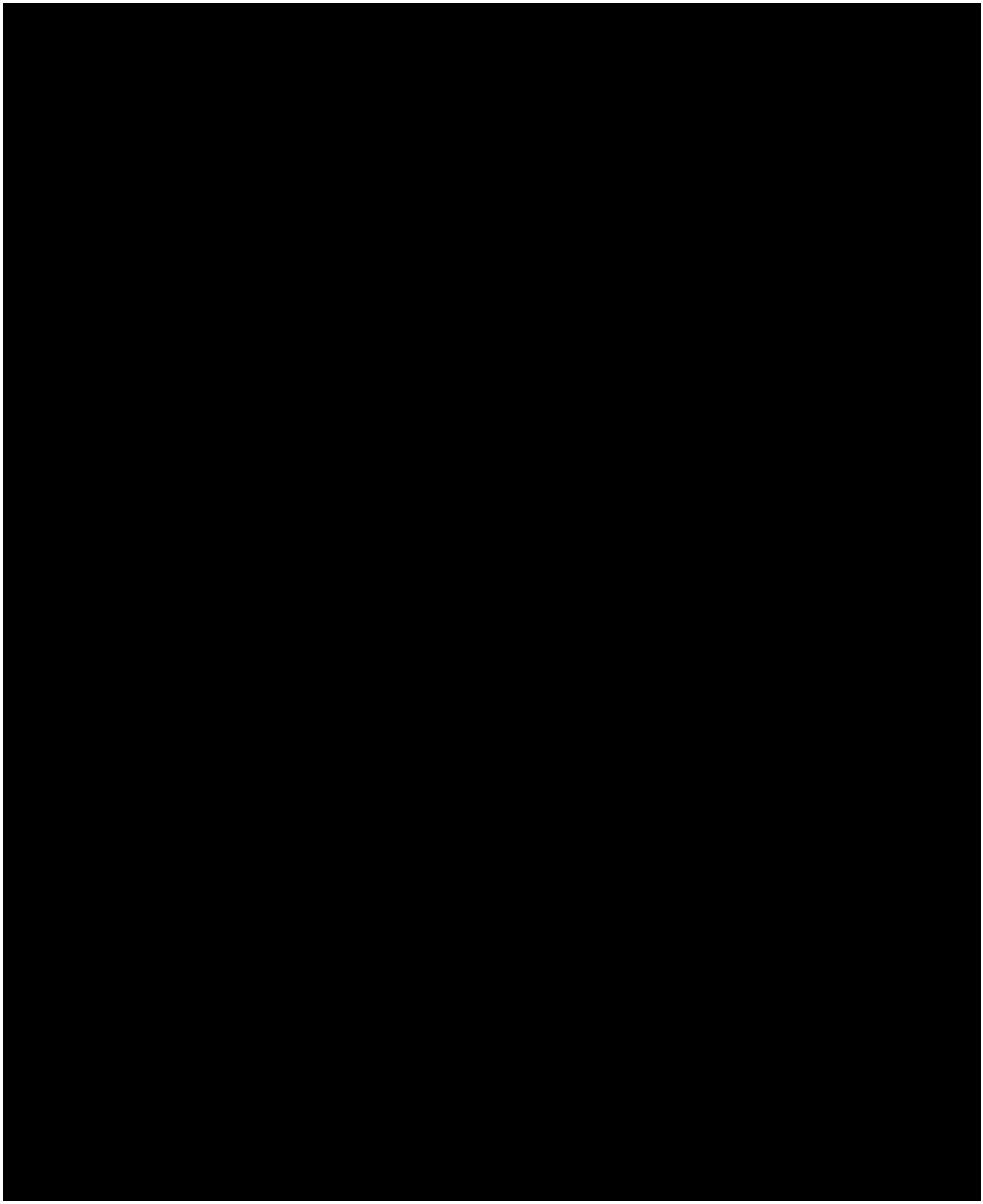
Testing facilities allow the next generation ORCA team or Third Party Vendors to design and test their solutions. This protects Agencies' valuable investment for many years to come as it allows them to enhance the system autonomously.

The APIs provide a standard and easily understandable interface to the proposed system. These APIs demonstrate the open architecture of the system. The APIs provide the next generation ORCA Agencies full flexibility to integrate 3rd party sales and fare validation solutions if desired in the future. The following table lists some of the main APIs of MOBILEvario.

Specification	Description
Product API	API is tasked with product related operations. This API is mainly used to block certain products or set-up and auto-load for a product
Fare Distribution API	(or Sales API) API for selling fare products and adding stored value on transit accounts. All sales clients that add products or stored value to the transit accounts use this API. This includes Website, CRM, CST, Retail Sales Network, etc.
Fare Payment API	(or Validation API) API used by platform and vehicle validators for real-time fare validation and stored value usage
Fare Inspection API	API used by fare inspection devices to check if a given fare media has a valid transit product
Transit Account Management API	API used by POS devices, web portals and CRM system to list transactions do value adjustments etc.
Customer Account Management API	API used by web portals and CRM system to manage registered users
Cardholder API	API used to query and modify data maintained on cardholders
Device Management API	API for remotely managing and monitoring devices in the City system

1.8.2.2 Online Validation (Account-based Transaction Processing)

[redacted]



[redacted]

1.8.2.3 Fare Table Management

With MOBILEvario's Tariff Management Application, the next generation ORCA project would have a very strong tariff management tool that fulfills all current and future project needs. One of the core principles when designing INITs backend application is to provide the customer with full configurability of the product that is purchased. Tariff Management is the best example for this principle. With Tariff Management the region will be able to manage all fare products, all transfer rules, capping pots, accounting rules and many other business rules of the system. Changing those parameters is easy and does not require any system changes.

INIT evaluated the business rules of the current ORCA system and only sees minor adjustments needed to the current Tariff Management implementation. Those minor adjustment are related to the PugetPass product.

Our engineering team already evaluated what changes are needed to implement the PugetPass in the INIT system. PugetPass products will be managed the same way than all other products, with the difference that there will be an extra attribute that will hold the 'PugetPass value' (e.g. $1.50). When the product is used, the system will allow all rides that are valued lower than the 'PugetPass value'. For fare payments with a higher dollar amount than the 'PugetPass value' the system will automatically charge the respective upcharge / extra charge. INIT is familiar with upcharges and uses this in several projects.

Other ORCA specific programs like the Business Passport program can be implemented without any development modifications of the system.

[redacted]

INIT is very familiar with complex tariff structures like the ORCA tariff. INIT implemented multiple projects with 8+ agencies and very complex tariff structures (e.g. complete state of Bavaria, Sacramento).

All products can be configured to be only available on a specific route or only during specific times (e.g. peak fares).

1.8.2.3.1 Overview of functionality

To ensure the next generation ORCA project can utilize all business rules necessary to support enforcement of each unique fare policy, the Fare Management (FM) module creates, edits, and manages all products and fare data. The FM module includes but is not limited to the following functions:

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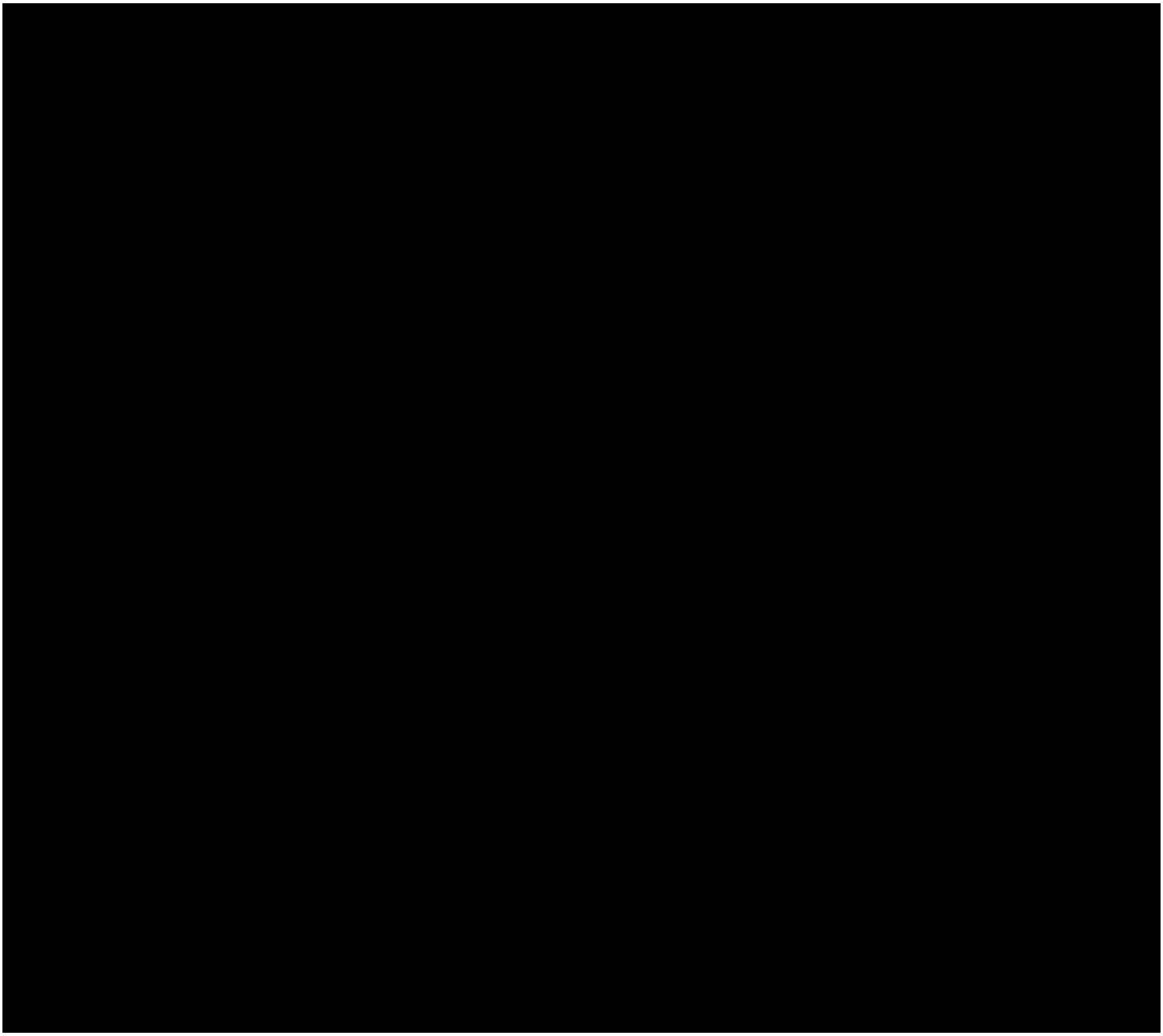
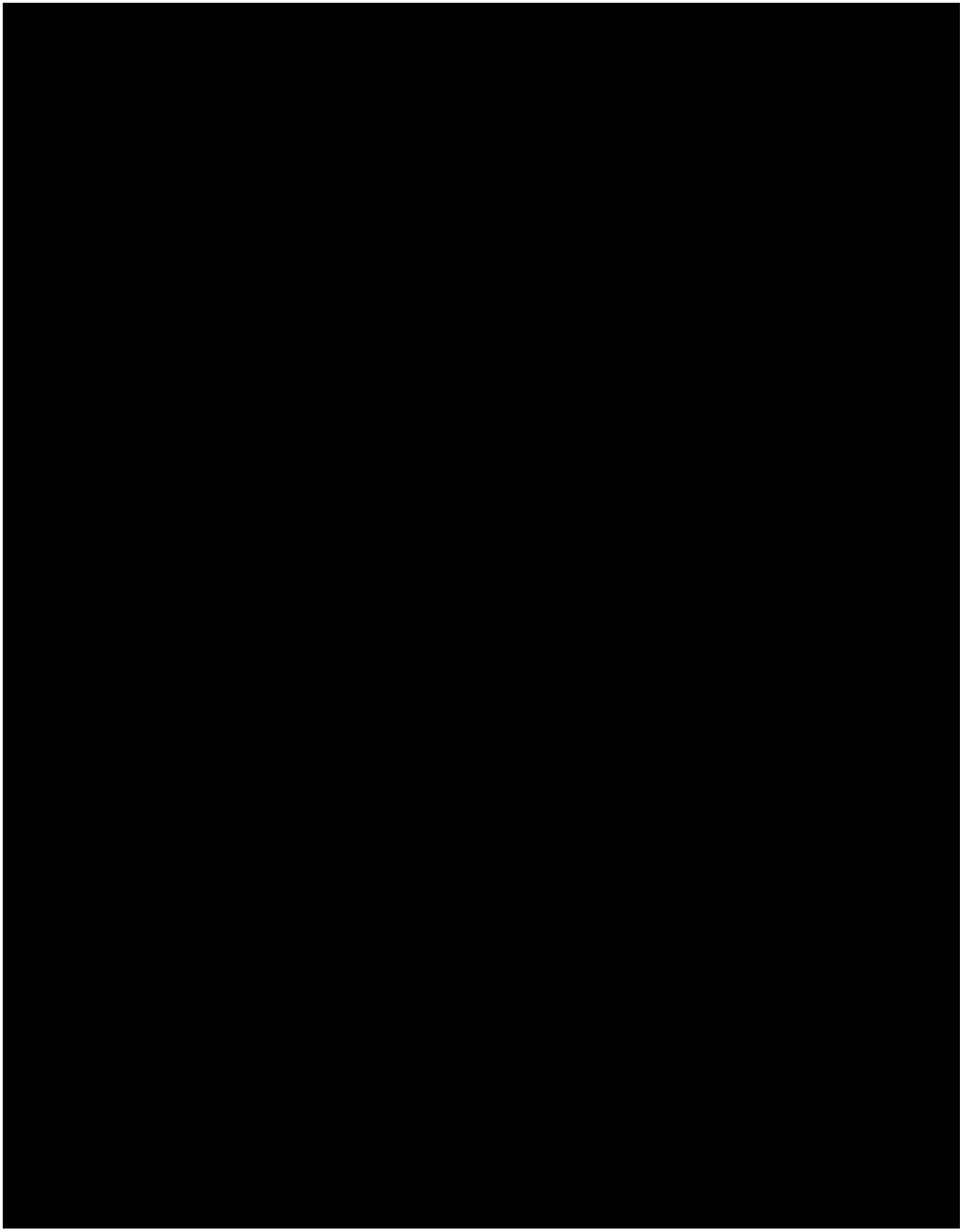
1.8.2.3.2 Example for a Configuration Change



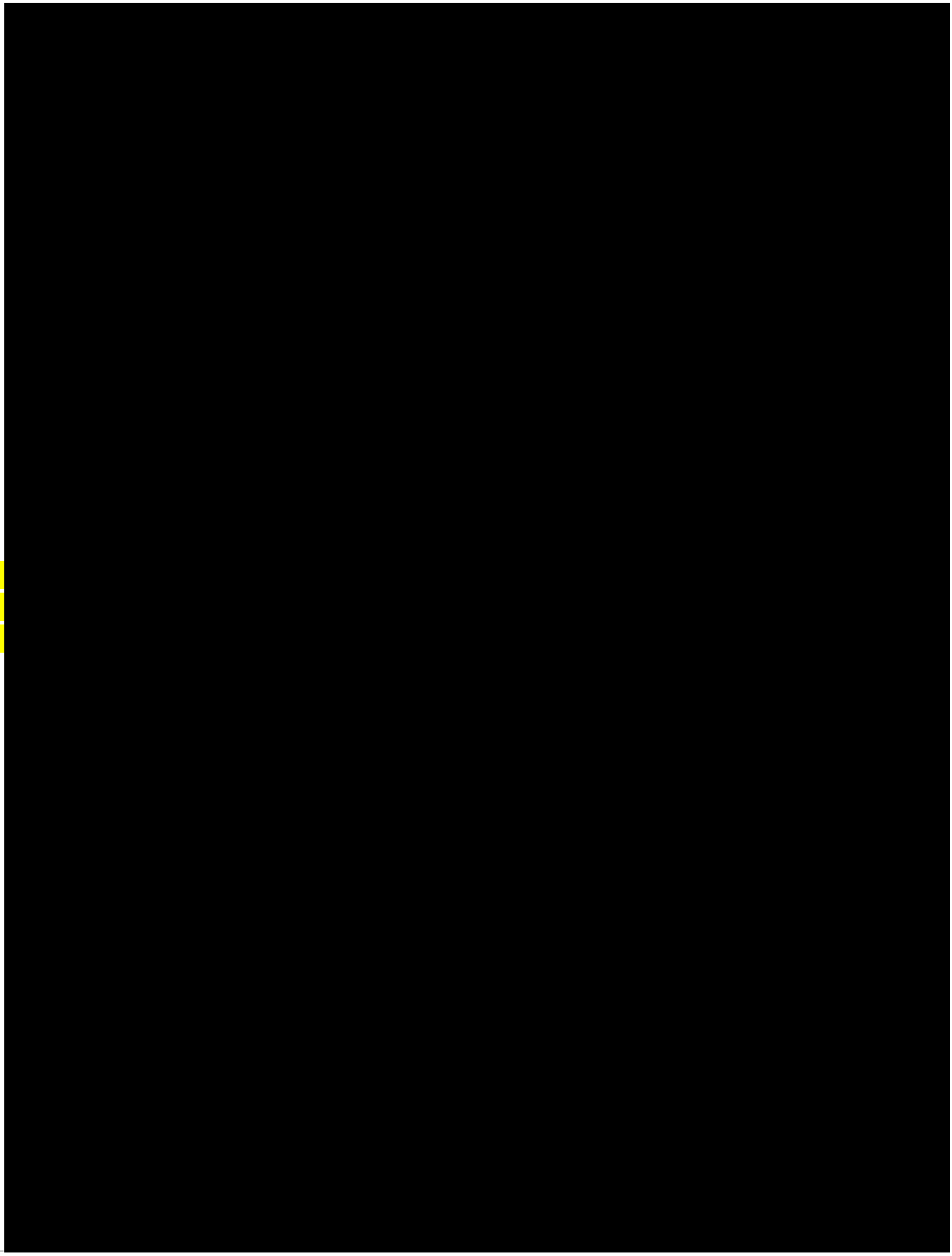
1.8.2.3.3 Matrix Editor (MX)



1.8.2.4 System Administration

The MOBILEvario Admin Tool is used to administrate all central and general settings of the MOBILEvario system. Generally, the main functions of the Admin Tool are:

- User Administration (defining users, groups and their access rights)
- System Parameter configuration (configuring the values of the operational and policy parameters of the system)



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1.8.2.5 Revenue Management

MOBILEvario Revenue Management provides a user interface to filter, group and list transactions based on sales channel, device, sales person etc. While Revenue Management is not an accounting tool, it is a very useful module for troubleshooting and producing ad-hoc reports and data exports from the production database. It is an invaluable tool when performing validity checks.

With Revenue Management, it is possible to review sales data and perform statistical evaluations in real time. The sales data originates from the integrated distribution channels: Web sites, Validators, Mobile App, etc. Individual transactions and summary data are readily accessible by channel, vehicle, and even by the specific processing devices. Results can be printed or exported for use in other applications as needed.

Revenue Management provides Sales control and Debtor (Distribution channel) Account Management. This is essential for tracking accounts and collections for 3rd party sales channels like a local convenience store. You can define maximum credit allowances for each entity and track their performance. Here you can also block sales should they not honor their responsibilities (e.g. bad debtors).

The sales control module provides various functions to display and control sales data for each agency.

All sales records include the sales channel as well as values, date/time, locations and other pertinent information for reporting and analytical needs. Sales Accounting is handled by MOBILEvario's accounting module.

Each agency only has access to the sales data provided by their service or sales points. A set of specific users may be granted access rights to see all transactions in the system. We would expect this to be an oversight committee of the next generation ORCA project.

1.8.2.6 System Parameter Management/Configuration Management

All device parameters are managed in the MOBILEvario Parameter Management tool on a regional or agency specific level. Those parameters are e.g. the passback time of the validators or specific parameters like the time until the device shuts down once the vehicle is turned off.

MOBILEvario Parameter Management is a web-based tool and enables modifying predefined system parameters and thresholds as well as assigning and transmitting them to the necessary devices.

1.8.2.7 Master Data Management

1.8.2.8 Sales Personnel Management

Master Data Management is needed to import bus stop/line names and numbers. Sales Personnel Management (aka. Debtor Management) is not relevant for ngORCA.

Removed chapter 1.8.2.8 Sales Personnel Managementl details.

1.8.2.9 Form Designer

The MOBILEvario Form Designer enables configuring the layout of forms for smartcards, customer emails and reports. Following screenshot shows the main elements of the user interface:

(1) Toolbar and window name, indicating the currently opened form and the name of the application, (2) Tab bar, (3) Form list, (4) Report explorer and field list, (5) Toolbox, (6) Variable work area, (7) Property grid, (8) Group and sort.

The form designer enables you to configure e-mails and smartcards which are available as predefined templates. The following predefined templates are available:

Template	Use	Description
Account related mail	E-mail	
Autoload related mail	E-mail	

Template	Use	Description
		[redacted]
Cardholder related mail	E-mail	
Contract related mail	E-mail	
Default receipt	Sales receipt	
New card	Customer cards	
New report	Any	
Order related mail	E-mail	
Smartcard related mail	E-mail	

1.8.2.10 Revenue Processing System

Card/FareMedia Inventory management is described in chapter 1.8.6

The following chapter focuses on the Revenue Processing System.

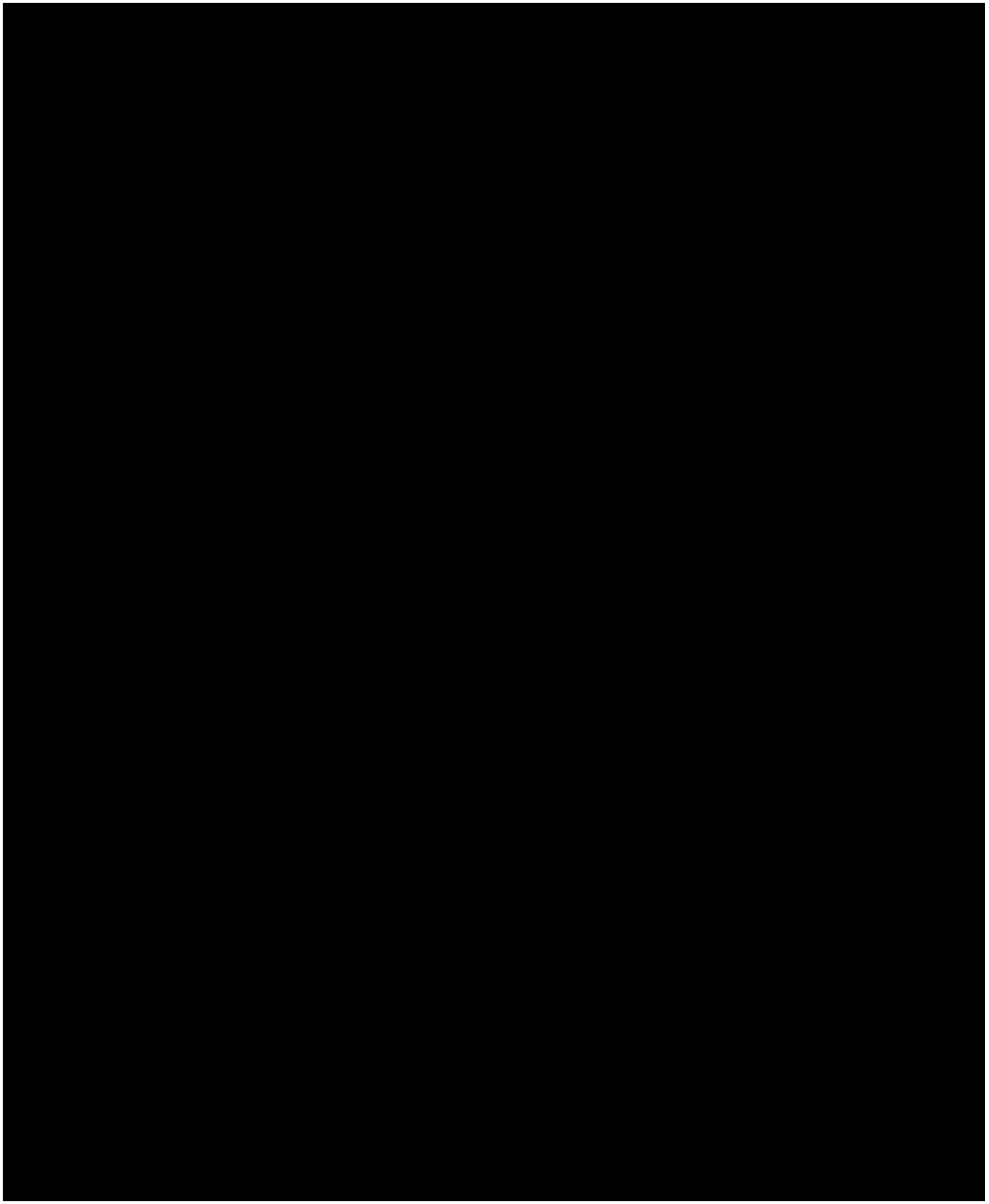
1.8.2.10.1 Revenue Recognition and Apportionment

The following diagram provides a high level overview of the steps and accounts involved in the revenue management and reconciliation process:

1.

transactions are processed. We recommend manual verification before the transactions are cleared.

[redacted]



[redacted]

1.8.2.10.2 ngORCA Revenue Apportionment

INIT will adapt the current ORCA revenue apportionment rules to the process described above. The revenue recognition and apportionment will be a daily procedure that will run after the operation day. Revenue for the stored value usage is recognized and apportioned on daily basis. Revenue for the Passes is recognized and apportioned after the product expiry. This applies for both, calendar month based and "active from purchase/first-tap" based passes.

[redacted]

[redacted]

1.8.3 Customer-Service Focused CRM

Considering the information provided in Scope of Work Section 6.3, explain in detail the reasoning for choosing the proposed CRM solution including why other solutions were not proposed. For example, if you are proposing a CRM solution that does not leverage another agency's existing CRM application, explain why the agency's existing CRM software was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions.

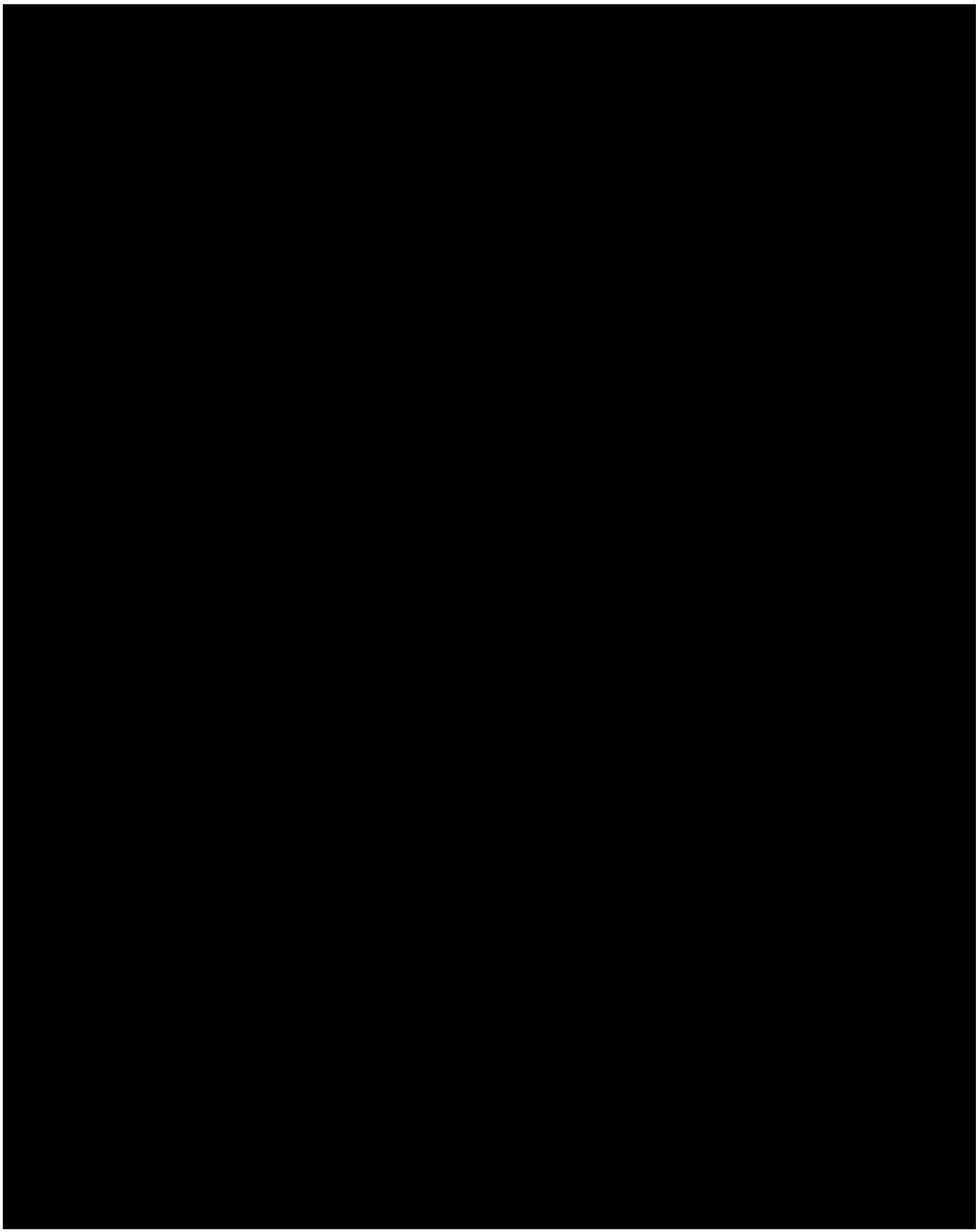
INIT evaluated the following COTS CRM solutions for next generation ORCA:

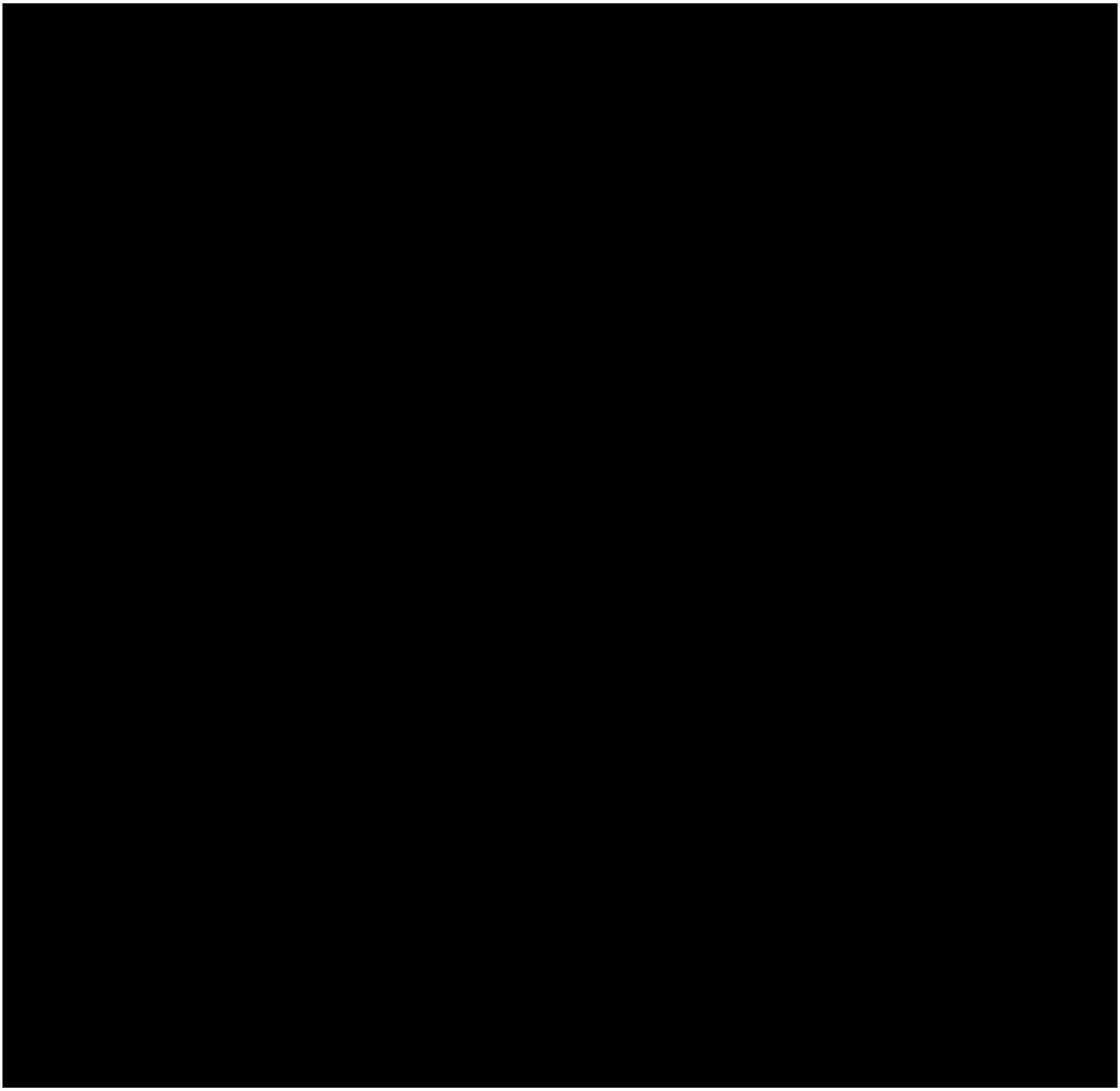
- [redacted]

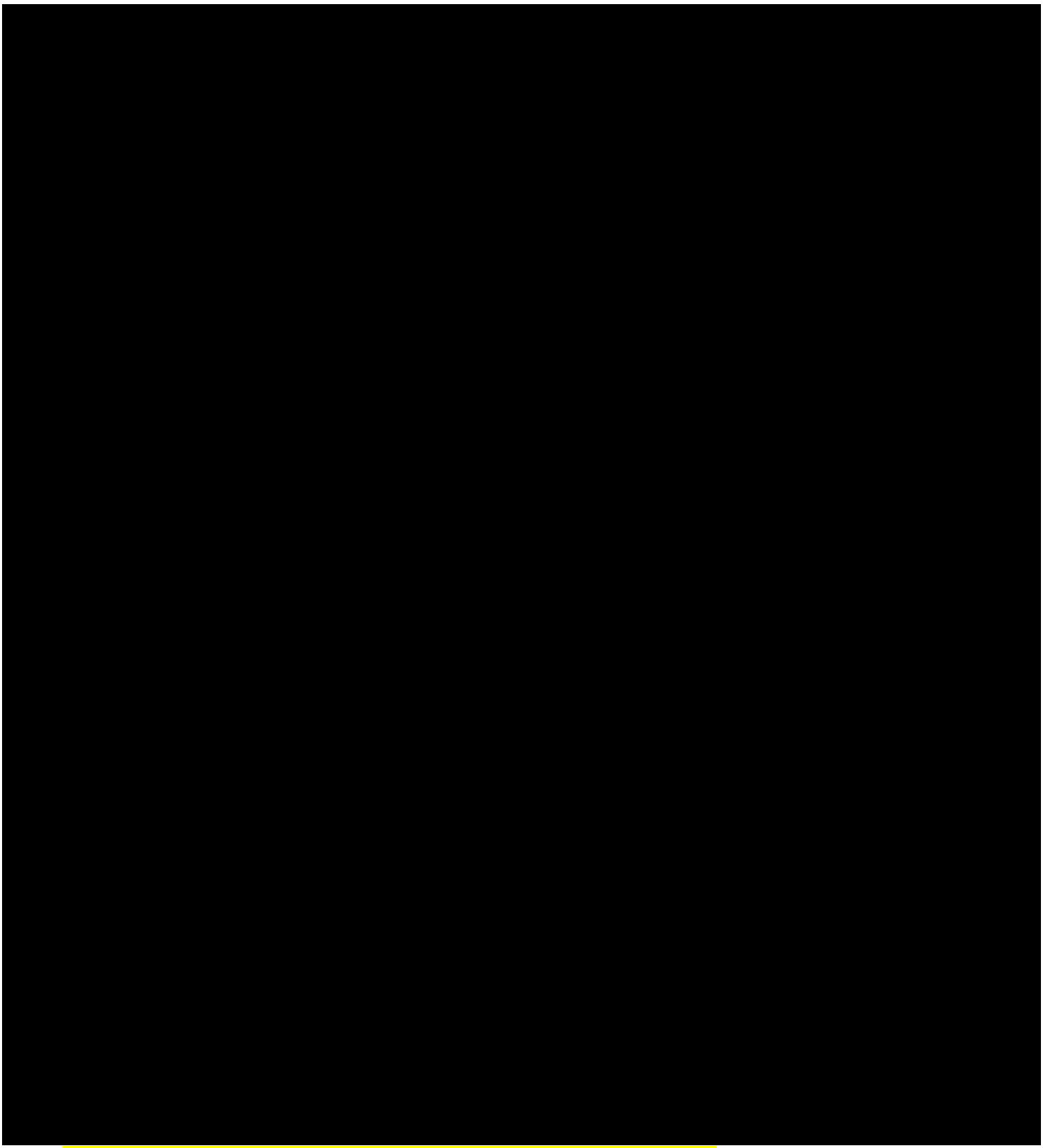
INIT recommends, and has included as part of its main offer, the use of a cloud based, Software as a Service (SaaS) [redacted] solution because it fully meets the requirements in the Scope of Work Section 6.3 and is rated number one by several independent software research firms – including, Gartner, Forester, and Software Advice, which states that:

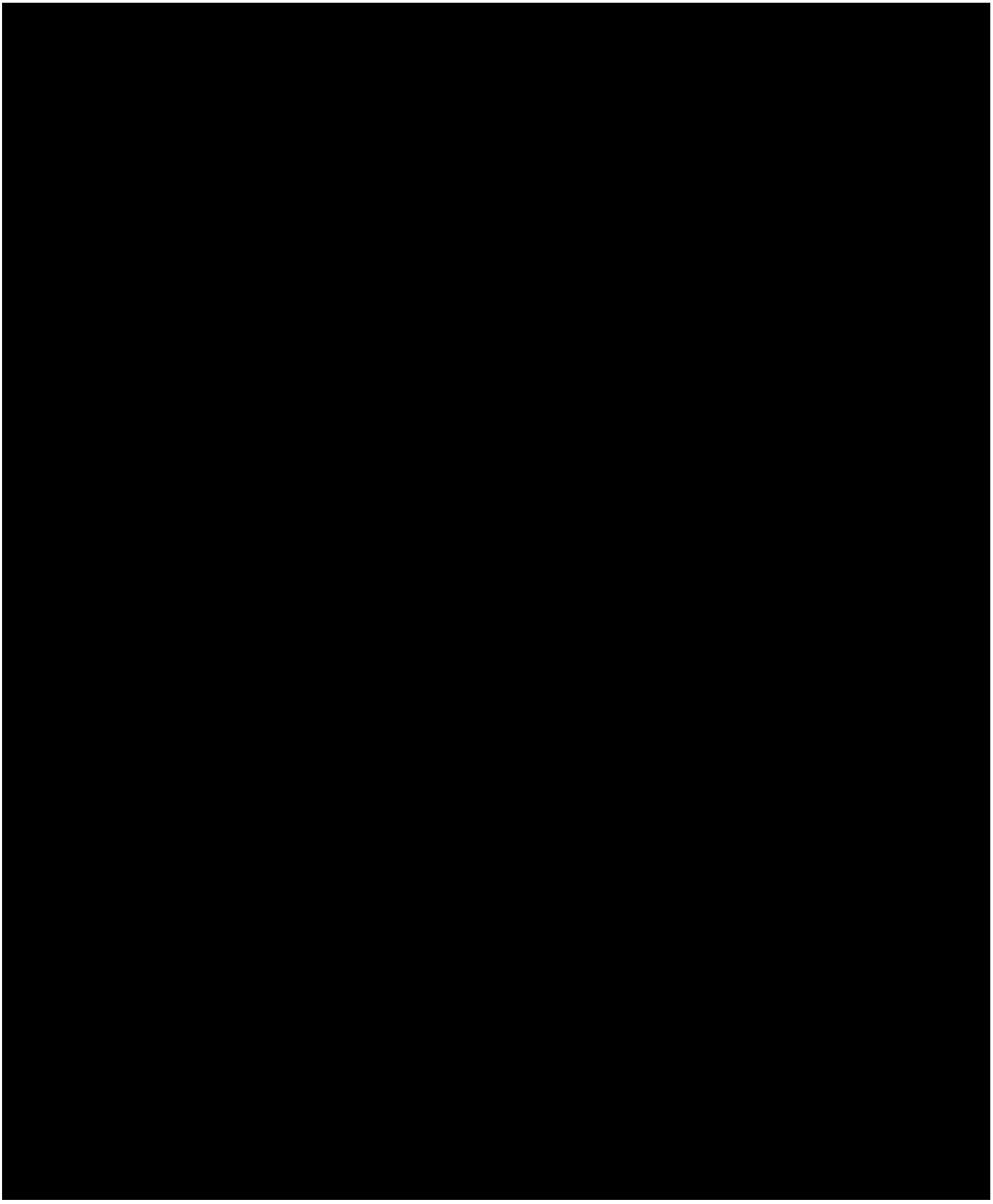
- [redacted] is more highly recommended by customers (79% vs. 51%)
- Customers rate S[redacted] ease of use higher than Dynamics
- Customers rate [redacted] customer support higher than Dynamics

[redacted]









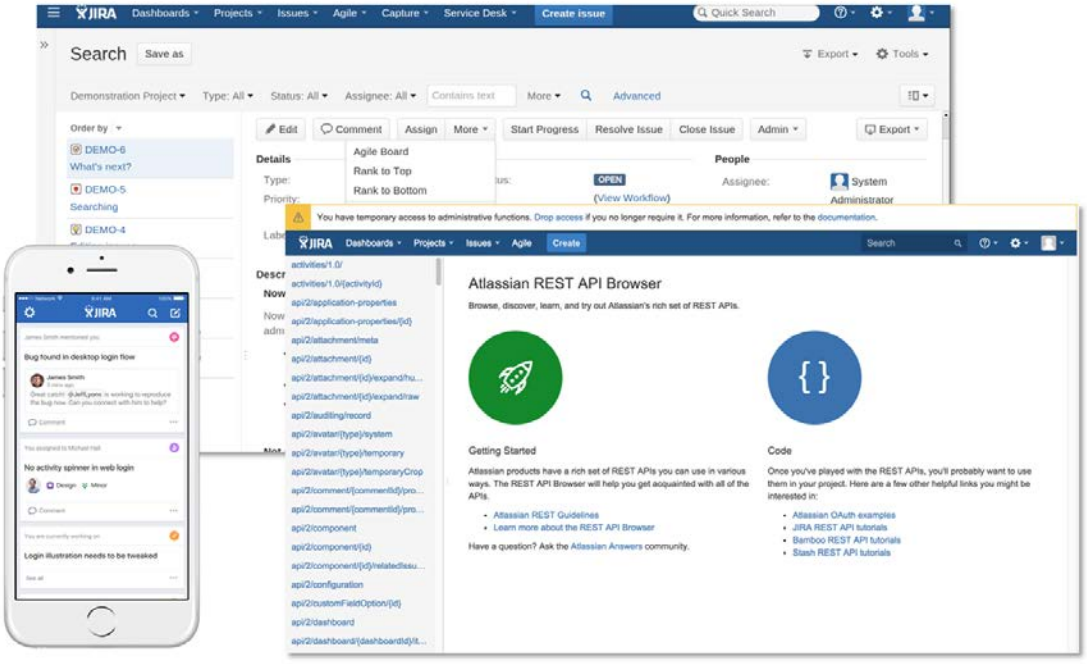
[redacted]

1.8.4 Asset Incident Management (AIM) Application

[redacted]

1.8.4.1 Incident Management (JIRA)

INIT proposes to use JIRA for the incident management application for its status as industry leader in incident management and its wide adoption in world-class companies across many industries. Jira is currently implemented company-wide at INIT for issue management. INIT also successfully uses Jira in projects where customers can issue tickets directly in their project specific Jira instances. The key to effective incident management is a process that records, categorizes, prioritizes, responds and resolves. JIRA provides the framework for capturing the details required for each step of the process as well as the workflow to move the process along effectively. Combined with good documentation and automated inventory and status', JIRA combines the people, process and technology required to manage the inevitable incidents.



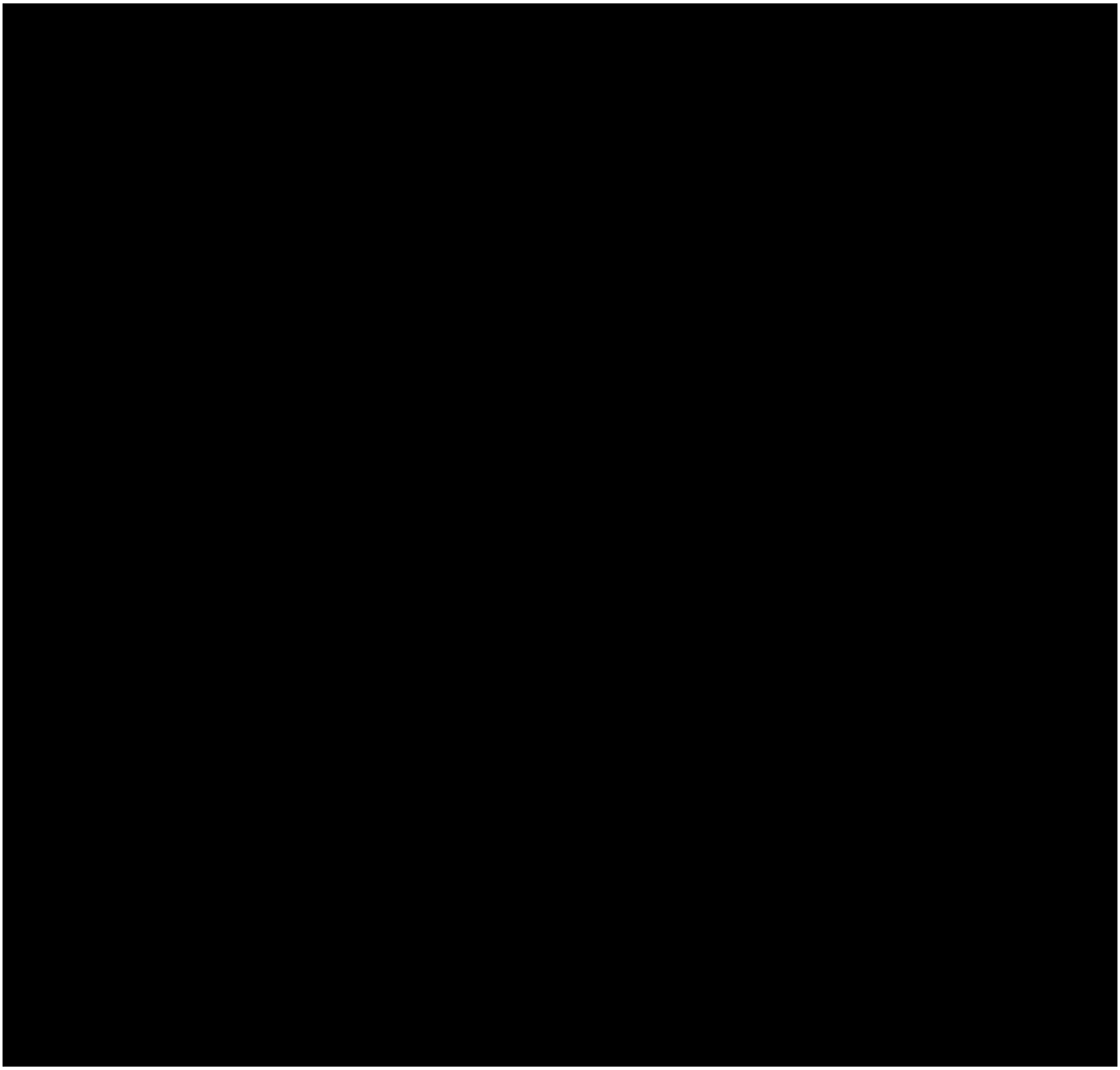
Incident Management

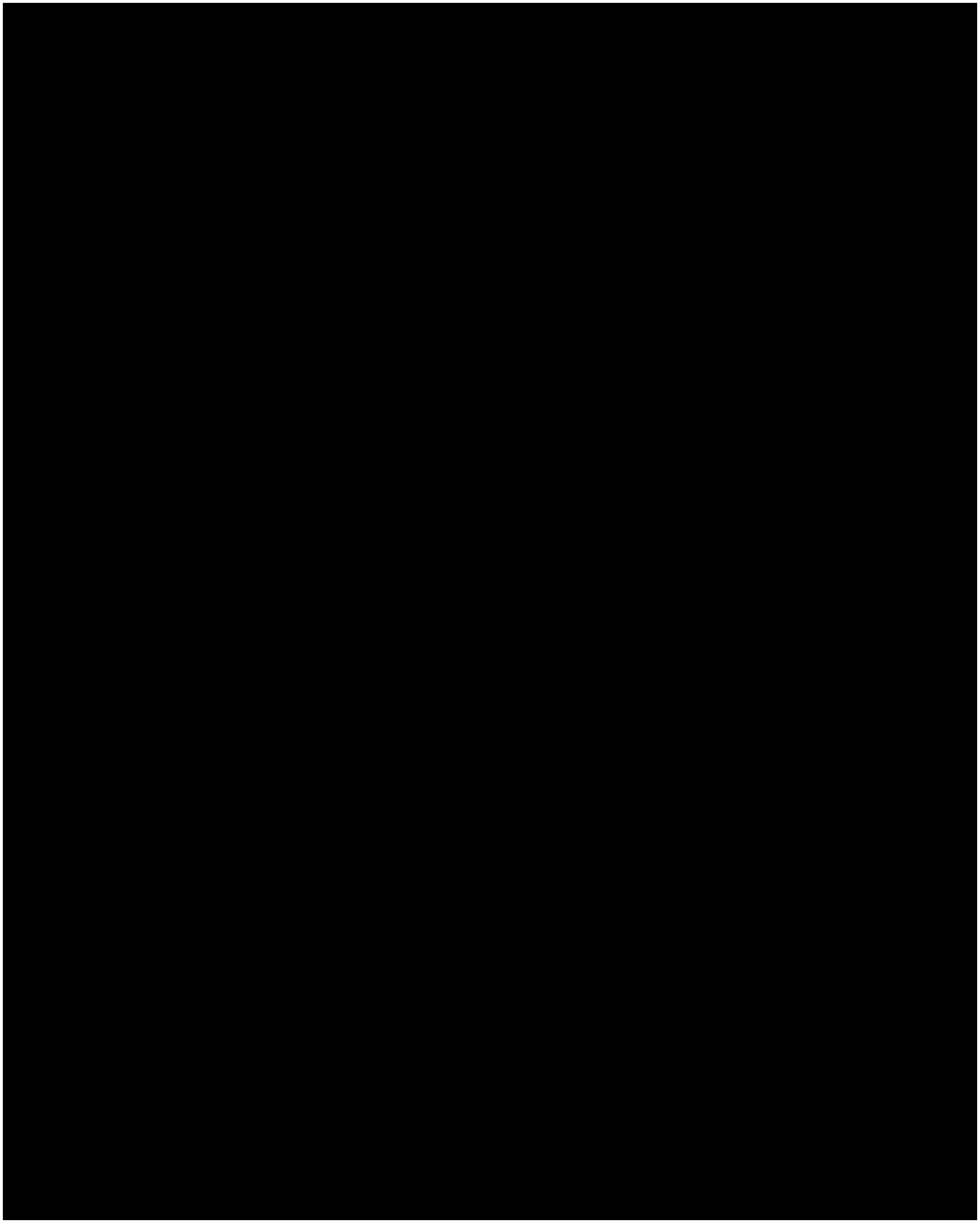
Together with the Insight asset management software, the two modules also provide an asset incident management with superior usability and scalability. Benefits for the next generation ORCA system:

- Industry standard incident management system with proven track record
- Large customer base with excellent references including many public transport agencies
- Excellent open API support - perfect addition to INITs open architecture model.
- Low risk solution since INIT is already deploying Jira internally and externally
- Excellent configurability for workflows
- Easily understandable user interface with drag'n'drop functionality for workflows.
- Many extension modules available in the Atlassian market place ("app store")
- Mobile clients available in Android and Apple stores

1.8.4.2 Asset Management [redacted]

[redacted]





[redacted]

1.8.5 System Manager - Automatic System Monitoring

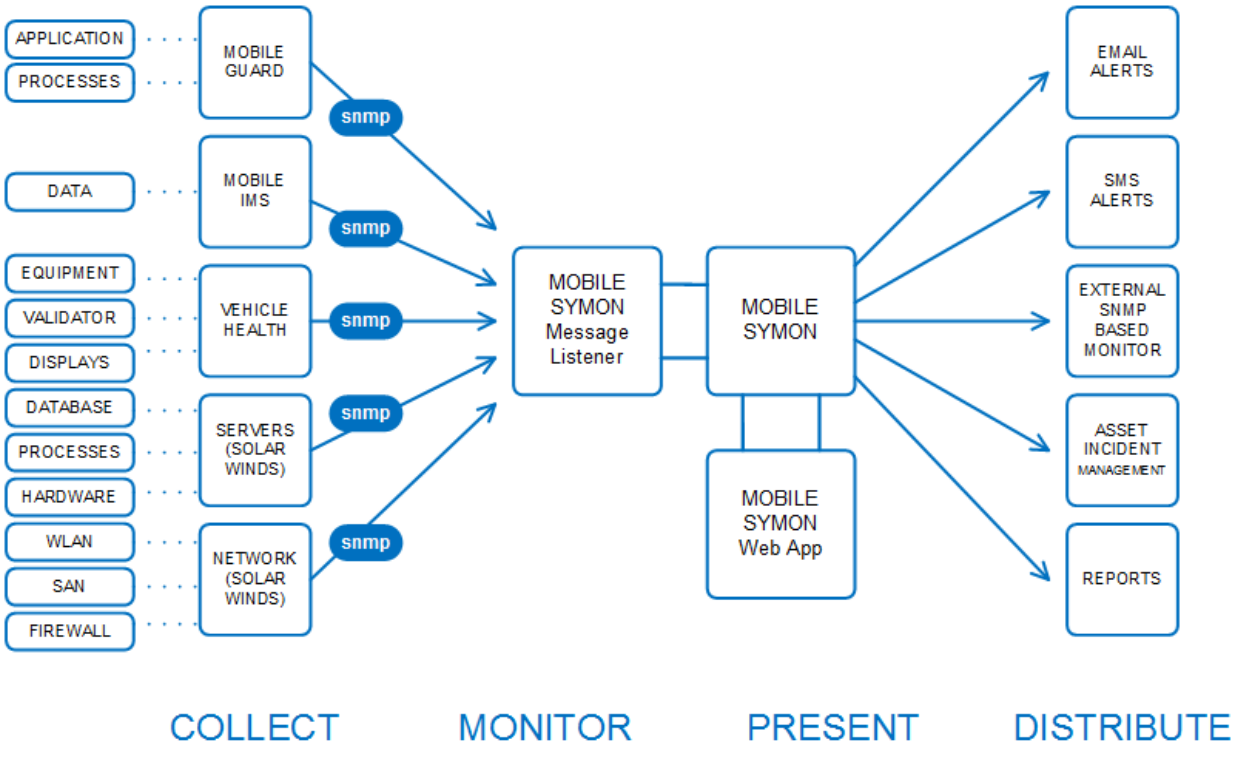
INIT's System Manager, MOBILEsymon is a service proven web-based, systems monitoring application which provides system monitoring, dashboards, reporting, and alarms for system assets and performance tracking. MOBILEsymon is a sophisticated monitoring system which provides real time status information and alerts for the AFC system including:

- Backend hardware
- Backend software and databases
- Wayside Validators
- Vehicle hardware
- Frontend software system components

MOBILEsymon works in conjunction with other system monitoring tools including INIT's MOBILEguard process monitor and SolarWinds Network Performance Monitor to provide a single pane of glass for asset status. MOBILEsymon collects, monitors, presents and distributes the consolidated data to next generation ORCA agencies. By defining alarm conditions and actions, the responsible persons will be notified of potential system issues via established email or optional SMS distribution groups so that corrective actions may be taken. In addition to the web-based dashboards, MOBILEsymon can also distribute information to several external sources including existing customer-owned network management systems and with the Asset Incident Management system through API integration.

As shown in the diagram below, MOBILEsymon acts as both a receiver and distributor of information including from MOBILEguard. Both MOBILEguard and MOBILEsymon have configurable alerts. Other monitoring systems such as SolarWinds can also forward SNMP based information for inclusion in MOBILEsymon which can distribute it to a variety of endpoints. Distributing to an existing monitoring system already in use by the Region should not pose any significant difficulties; however, the technology, methodology and network connectivity required may add additional efforts or costs.

INIT's brower base MOBILEsymon was first deployed in 2012 enjoyed by twenty (20) of our customers.



MOBILEsymon

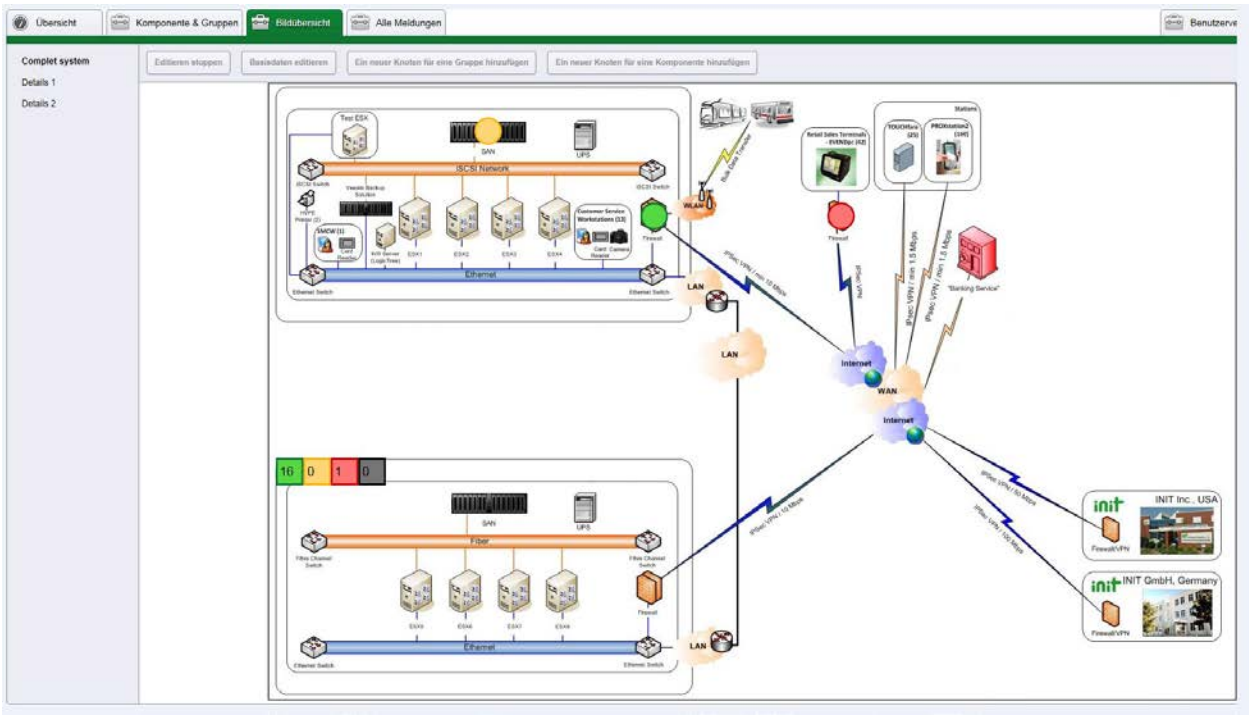
1.8.5.1 Dashboard

The dashboard is a configurable page which gives an overview of the monitored systems status, messages and status changes. Available are a System and a User dashboard.

System dashboard Provides an overview of system groups. The system dashboard can only be adjusted by the administrator.

User dashboard Each user can create several dashboards for his/her responsibility area. For each group different widgets can be added and their position changed. The system can be configured to only alert certain users.

MOBILEsymon dashboard with intuitive KPI's



MOBILEsymon's graphical dashboard shows VM status at a glance

1.8.5.2 Automatic alerts

To manage issues in real-time, a user configures automatic notification about status changes to be sent via e-mail and/or ORCA provided SMS service. The user assigns alerts to be issued when certain conditions are met. If the condition is satisfied, the action(s) will be carried out.

1.8.5.3 Components & Groups View

In the Components & Groups view, the user can access all visible components. Components can be combined into groups and one component can be part of several groups.

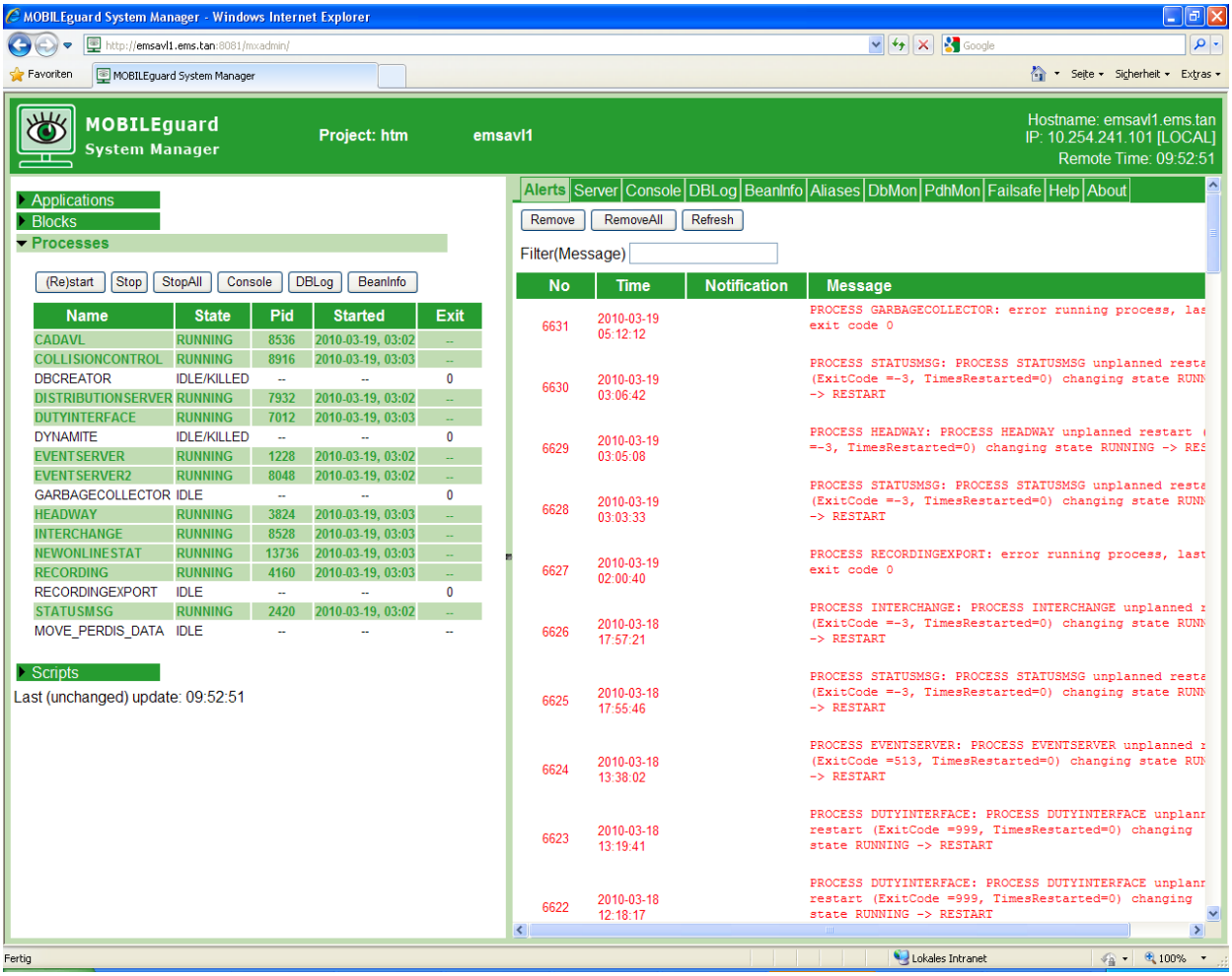
1.8.5.4 MOBILEguard

MOBILEguard monitors and controls the ITCS databases, the ITCS processes, the hosts and the file systems. The application is accessed via a standard web browser making it available to any user with user privileges. MOBILEguard is based on the Java JMX (Java Management Extension) and can therefore be managed through all JMX enabled tools or accessed via RMI (Remote Method Invocation).

MOBILEguard includes the following features:

Database monitoring	The online databases are constantly monitored. In case a database requires more space, a volume is automatically added and an alarm is generated. In the case of database problems, an alarm is generated.
Process control	Java applications are monitored, started and stopped automatically. If problems are detected, an alarm is generated. In the case of a crash, the Java machine is automatically restarted. Online monitoring of live data communication is possible with the ability to manually restart an

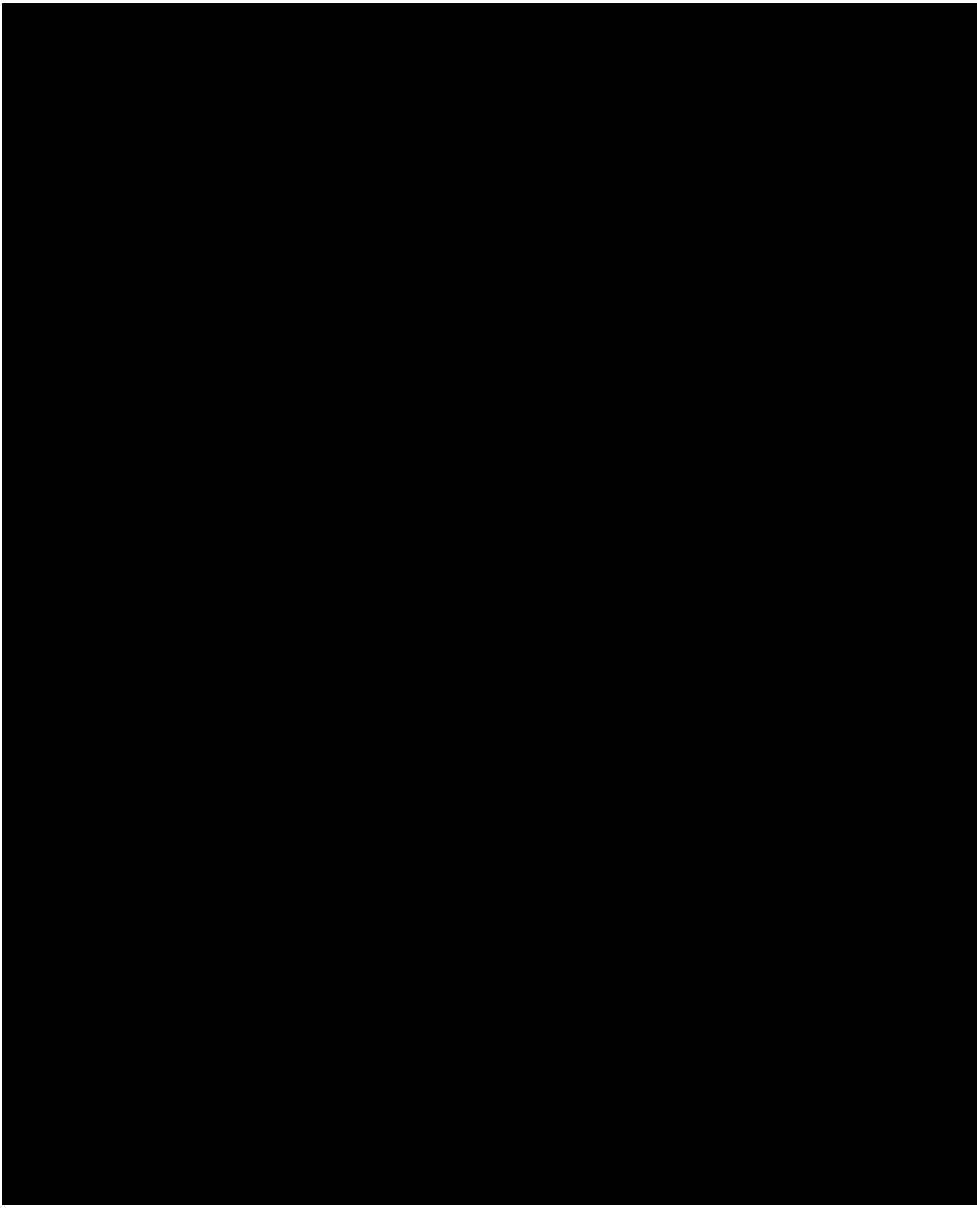
	application.
Host monitoring	Using Peer To Peer technology, MOBILEguard will automatically check the heartbeat of all other services encountered in the network. If a service fails, e.g., a server is down, an alarm is generated. An alarm is generated when the server returns.
File System monitoring	Specified storage devices are monitored. In case a device is not accessible or in case a device may become full, an alarm is generated. Predefined directories are checked for file activity. If log files are not written to within a defined period, an alarm is generated. Old log files and database backups are automatically deleted according to ORCA defined requirements.
Alarm management	Using Peer-2-Peer technology, alarms can be distributed to all MOBILEguard services on the network. Alarms can be configured to be forwarded via e-mail, SMS as well as being sent to MOBILEsymon.



MOBILEguard's Dashboard

1.8.6 Fare Media Management Application

The MOBILEvario suite has a web-based module called Card Inventory Management. This module has a proven track record, having worked very effectively on all of our AFC systems. The tool provides full inventory functionality to control all fare media inventory.



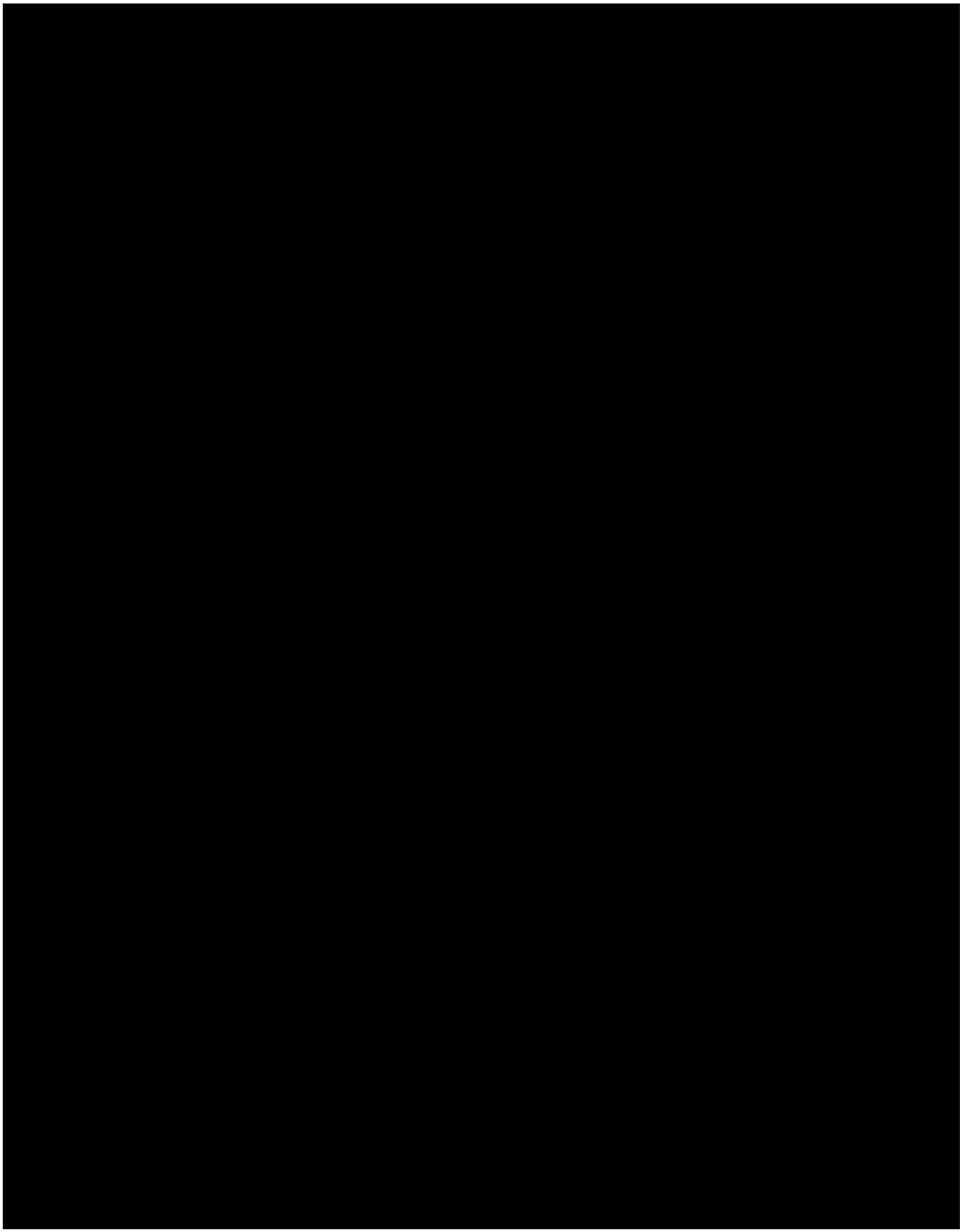
1.8.7 Best Value Financial Management Application

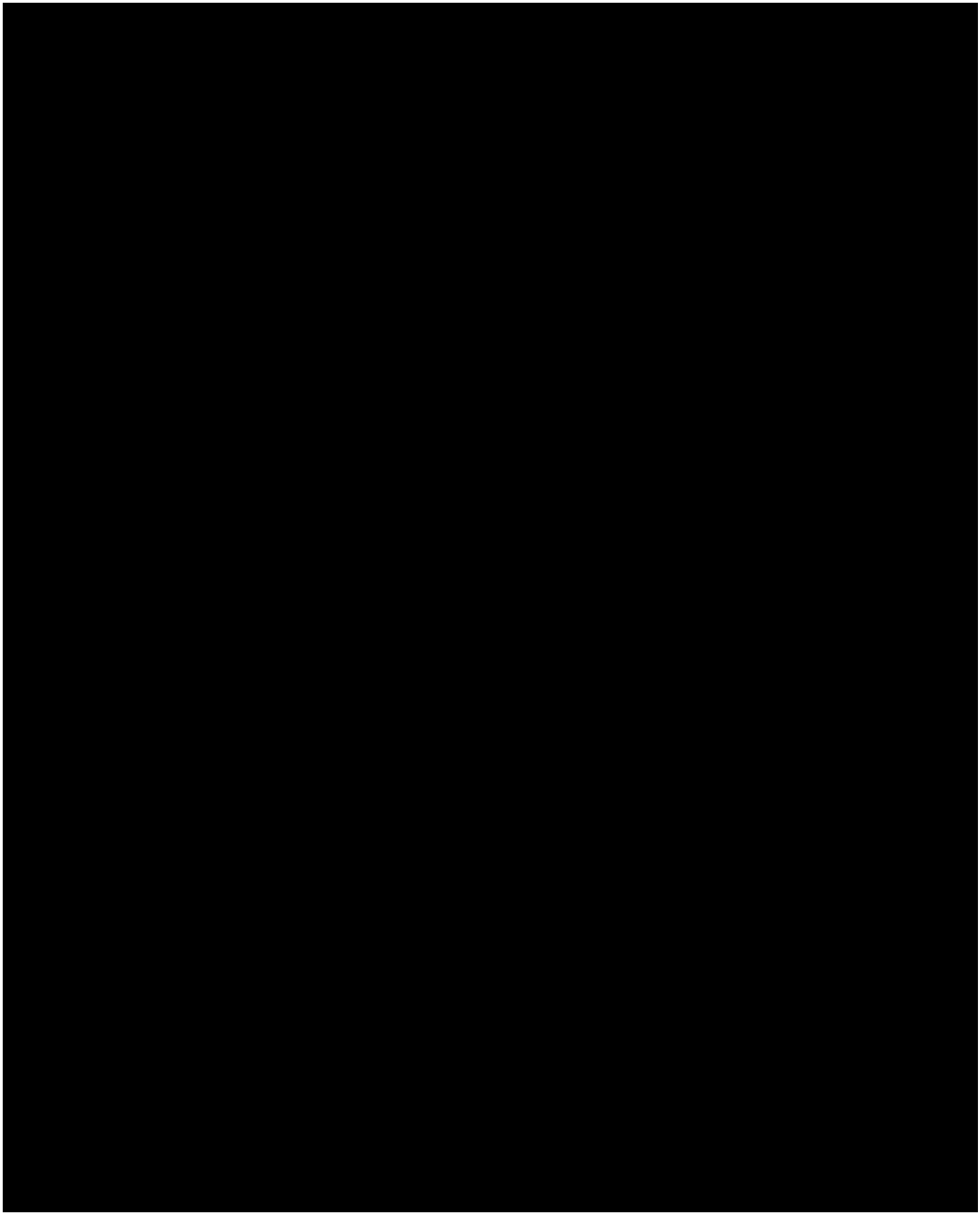
Considering the information provided in Scope of Work Section 6.7, explain in detail the reasoning for choosing the proposed financial management solution including why other solutions were not proposed. For example, if you are proposing a financial management solution that does not leverage another agency's existing financial management application, explain why the agency's existing financial management application was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions.

INIT evaluated three COTS applications for the Financial Management Application for next generation ORCA system:

1. [redacted]

[redacted]





1.8.7.1 Financial Modules / General Ledger

The General Ledger is the core accounting application that receives the following transactions from the INIT MOBILEvario revenue system:

- Sales transactions (typically Fare Products (deferred revenue) or rider optional product sales
- Payment transactions from the full range of payment sources including Cash, Credit/Debit cards and other electronic payment methods
- Earned Revenue entries (daily transactions where deferred d revenue is converted to earned revenue)
- Reconciliation transactions where credit/debit card transactions or retail network transactions are reconciled and amounts are moved from "Credit card receivables" or "Cash in Transit" accounts to "Cash in Bank" accounts as the money is actually received

1.8.7.2 Accounts Receivable & Order Entry / Billing Module

These modules are used for Institutional customers who provide full or partial transit subsidies to their employees or patrons and who require an invoice (monthly or annually) for the institutional products they purchase. The Accounts Receivable module will additionally prepare monthly statements of outstanding balances and will monitor credit limits established for each institutional customer.

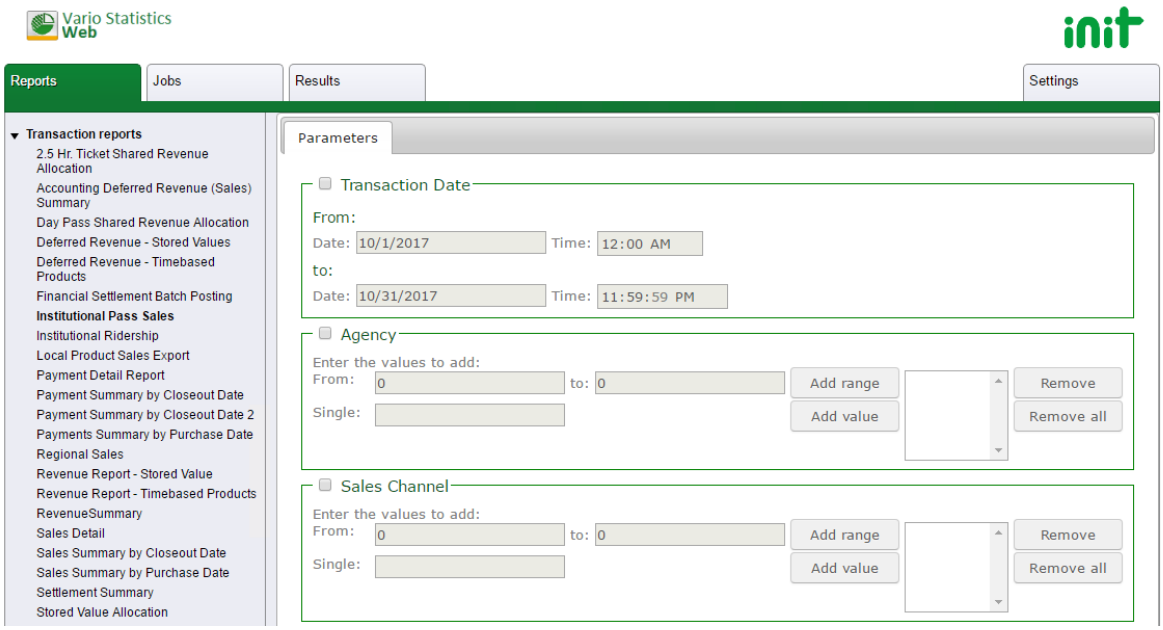
[redacted]

1.8.7.5 Payment Reconciliation

1.8.7.6 Financial Reporting and Query Module - VASAweb System Reporting

INIT's tool to provide access to customized and canned reports is called VASAweb. The web-based tool makes it easy to run, schedule, view and download reports in all standard formats like Microsoft Excel.

Customized filters can be applied to all reports so that they can be run for a specific date range or for a specific agency. The underlying technology for VASAweb is Crystal Reports. All Crystal Reports can be integrated into VASAweb.



VASAweb Reporting tool

1.8.8 Central Payment Application

As part of the MOBILEvario product suite, INIT is providing a central payment application to process all credit card and ACH payments. The central payment application is using APIs to connect to all devices that need to initiate payments. The central payment application is used for all internal payment initiations (e.g. for autoloads) too.

The most important factor when designing the central payment application is to keep PCI scope in mind. INIT has a unique approach to keep the PCI scope of the system as low as possible. To achieve this, credit card information is encrypted on the device side or is directly entered on the banks server (hosted page solution). In addition, credit card information is never stored in the system.

1.8.8.1 Payment Gateway

In order to provide reliable, flexible and versatile 100% PCI compliant payments, INIT recommends use of the CreditCall payment gateway. The credit call gateway provides the P2P encryption and tokenization and serves as the payment interface for both card not present (CNP) and card present (CP) payments.

With CreditCall as a Payment Gateway, INIT could implement Open Payment functionality on the validators in Phase 1, without additional costs.

INIT's understanding is that the Payment Gateway and all transaction costs are not part of this scope of work. INIT will provide a Central Payment Application that connects to a Payment

Gateway. INIT prefers to use CreditCall as the Payment Gateway, but the INIT Central Payment Application could work with other Payment Gateways too.

1.8.9 Configuration & Change Management Application

INIT proposes Atlassian's JIRA Service Desk with Bitbucket, which is a COTS SaaS solution, for the next generation ORCA Configuration and Change Management Application. The use of this solution offers significant advantages, for example:

- Utilization of the system administration applications (i.e., Asset Incident Management, issue management, and configuration and change management) on a single Atlassian platform, with a single user interface / user experience and easily shared data
- INIT is very experienced using Jira. INIT currently uses JIRA for issue management and change management on all its customer projects (well over 100)

The Atlassian IT Service Desk template comes with a change management workflow. This workflow ensures that change requests are recorded, assessed, approved, and implement in a tracked way. We recommend starting with our default workflow and adapt it to the project's business needs. The IT Service Desk template connects certain requests to a change workflow. We set up the workflow to complement the following change management process. Use the workflow to transition change request records alongside these ITIL recommended activities:

- Reviews
- Planning
- Approvals
- Implementations

The JIRA service desk provides a default change management workflow that can then be adapted to the ORCA requirements during the system design phase.

1.8.10 Performance Reporting

INIT utilizes Crystal Reports for its underlying reporting platform. INIT will provide following canned KPI reports on a monthly basis starting at SAT:

- Device reliability
- Device accuracy
- Device availability
- Back office accuracy

- Back office availability
- Server authorization rate
- Maintenance response times

The reports will include tables and graphical charts showing the current and historical performance of each device or system under measurement. The reports will include a calculation of credits to be assessed in the current month based on current and prior performance. The System will allow the Agencies to run, view and download reports. Additionally, INIT has budgeted 100 hours for agency-specific modification of canned reports.

---

i For next gen ORCA, the definition of 'users' of the system is inclusive of both Agency operators and administrators as well as patrons/customers so this would include public transit riders, business customers who manage public transportation benefits, agency operators and administrators, bus drivers, fare inspectors and other people who are interfacing with next gen ORCA systems.

INIT's Proven Methodology and Approach to Implementation and Operation and Maintenance Services

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

Resubmittal June 8, 2018

The Future of Mobility

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The sections listed below contain trade secret information that provides a business advantage to INIT over competitors. These sections are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

CONFIDENTIAL SECTIONS:

2.2 The INIT Team Organizational Chart

2.3 INIT's Highly Qualified and Experienced Key Personnel

2.4 INIT's Key Personnel are Available and Accessible

2.5.2 Implementation Services

2.6 INIT's Proven Transition Methodology and Approach

2.7 Operational knowledge transfer and excellence through effective O&M manuals

2.8 INIT's Experienced and Proven Risk Management Approach

2.9 Discuss any special considerations or challenges

2.10 An Achievable Project Schedule

2.12 INIT's Partnership with ROOT for Effective Operation and Maintenance

2.14 INIT's Sample Disaster Recovery Plan

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2 Methodology & Approach to Implementation and Operations & Maintenance

As a global leader in transportation innovation and technology, we believe you will find INIT's combination of service-proven implementation, technology and user experience design, as well as our industry leading secure, open, extensible system architecture to be advantageous in meeting the needs of ngORCA. Equally important is our success in creating and delivering an experienced, collaborative, and agile project management methodology; ensuring that our team's focus on the critical factors of overall project success are always at the forefront.

With legacy ORCA nearing end-of-life, schedule and focus on the core requirements are essential in order to deliver a modernized, customer-focused, secure system with cost-efficiencies as well as minimal disruption of the current operation Puget Sound riders have come to enjoy and expect. As the System Integrator (SI) for several of our fare collection projects, we believe INIT is equipped to do just that.

The pace with which technology moves in today's competitive environments is often faster than people do or are prepared for. As such, in addition to our Research and Development group, we have built into our Project Teams the capacity to build a robust focus on helping our customers translate technological visions into real-time benefits for their patrons.

Changes in technology are inevitable; this is why we have built-in flexibility as part of our overall system architecture with user experience at the forefront. INIT's vast experience in partnering and collaborating with technology experts and vendors in their given field(s) and integrating them as part of the overall solution further expands the capacity for us to accommodate changes that arise. We will work with the Agencies to identify areas in which configuration or implementation changes are the most cost-effective with an eye specific to risk mitigation.

With over 30 years of experience in driving transit innovations, it is clear that both transit and technology are our passion. Pointedly, rather than wait for technology to change and drive our business, we seek to be part of that passion and drive and deliver the change with our customer in a manner that is mutually beneficial for the customer and their patrons.

INIT is poised to deliver for ngORCA an innovative, seamless, extensible, and accessible customer-centric solution.

2.1 INIT's Capability Conformance - Matrix Tab 1

INIT's Capability Conformance Matrix can be found in the Appendix.

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2.2 INIT's Evolving Maturity to Deliver Complex Projects

INIT has made numerous strategic and tactical changes to our business over the past few years in an effort to increase our ability to meet the evolving needs of our customers. We acknowledge a past that was reflective of a company transitioning from a startup mentality to a mature organization. Now in our 35th year of business, INIT can demonstrate significantly increased capacity, capabilities, and consistency in our products and projects. Much of this stems from INIT's evolution from being a single-source ITS provider to that of a true Systems Integrator, acknowledging the fact that all of our Customers have requirements for multiple solutions which require seamless integration to perform effectively across the enterprise. Some of these changes include:

- Establishing Seattle as a Regional office with Senior Management presence
- Adding significantly to our PM capabilities and capacities
- All INIT PMs are either PMI certified (PMP or CAPM), or on a path to earn it
- Dedicating lead System Engineers to projects, so that technical leadership is both committed and consistent
- Adding to our Systems Engineering teams, including a new college hire program
- Adding sales staff in the region, so that we can respond more quickly to customer change requests
- Hiring staff with backgrounds in system integration and complex deployments
- Hiring an INIT training manager and engaging 3rd party training firms to bring a more sophisticated training strategy
- Internal knowledge sharing groups specific to fare collection projects
- Adding Executive Project Sponsors in Karlsruhe to ensure projects have resources and priority to meet schedule, budget, and quality requirements
- Providing for consistency of staff, with a goal of maintaining PM and SE consistency throughout a project

These strategic changes have allowed INIT to better handle ever evolving projects, including multiple projects of the same type (CAD/AVL, Fare Collection, APC, etc.). In fact, it makes it a strength of ours as we can leverage lessons, resources, and experience across the company. Over the past year, we were able to publicly launch two fare collection systems as well as continue development on three more. This is certainly proof that these changes have had a positive effect on INIT and our Projects.

Several additional changes are planned which will benefit the ngORCA project:

- Establishing a Seattle Development Center so that software development activities can be done in the region including coordination with our Karlsruhe Development Teams (see next section regarding Dublin, Ireland)
- Adding the role of Technical Writer to INIT's Project Team

Overall, we are an evolving organization working on ways to gain effectiveness and efficiency while maintaining a commitment to meet our customer's expectations. This evolution will never truly be complete and will reflect the changing needs of public transit worldwide.

2.3 Planning for Future Projects

INIT's success in recent fare collection projects has brought about the need to grow our technical and project management capacities. Currently, INIT is recruiting for additional senior level resources as well as some college hires to train under them. We expect to add a significant number of resources nationwide, and while they aren't planned to directly be on this project, we do expect them to impact our overall efficiency and effectiveness, as well as mitigate the risk of losing a key project team member from the ngORCA team.

We have also recently opened an INIT Development Center in Dublin, Ireland with its own management and development team. The goal is to grow this group to approximately 20 full time developers focused mainly on our core fare collection products and projects. This center should be open and functioning in June 2018. We are likewise very excited to use this project to start our Seattle Development center. This will leverage our current expertise in fare collection systems as well as the region's rich and innovative talent pool in software development.

2.4 The INIT Team Organizational Chart

INIT's approach to project oversight is very similar to the ORCA organizational structure. We have identified INIT Executive Sponsors and an internal Steering Committee. Our hope is to form

an integrated group of Executive Sponsors and a Steering Committee working toward common goals.

The Sponsors and Committee shall maintain a broad and consistent oversight of the Project. The Steering Committee shall ensure that the project retains the required visibility and attention throughout its duration. The Committee shall be apprised by the other Project Team members on a regular basis of the project's status—and shall intervene only when a matter is escalated to them directly, or when they see causation or action required to maintain the overall expectations of the project.

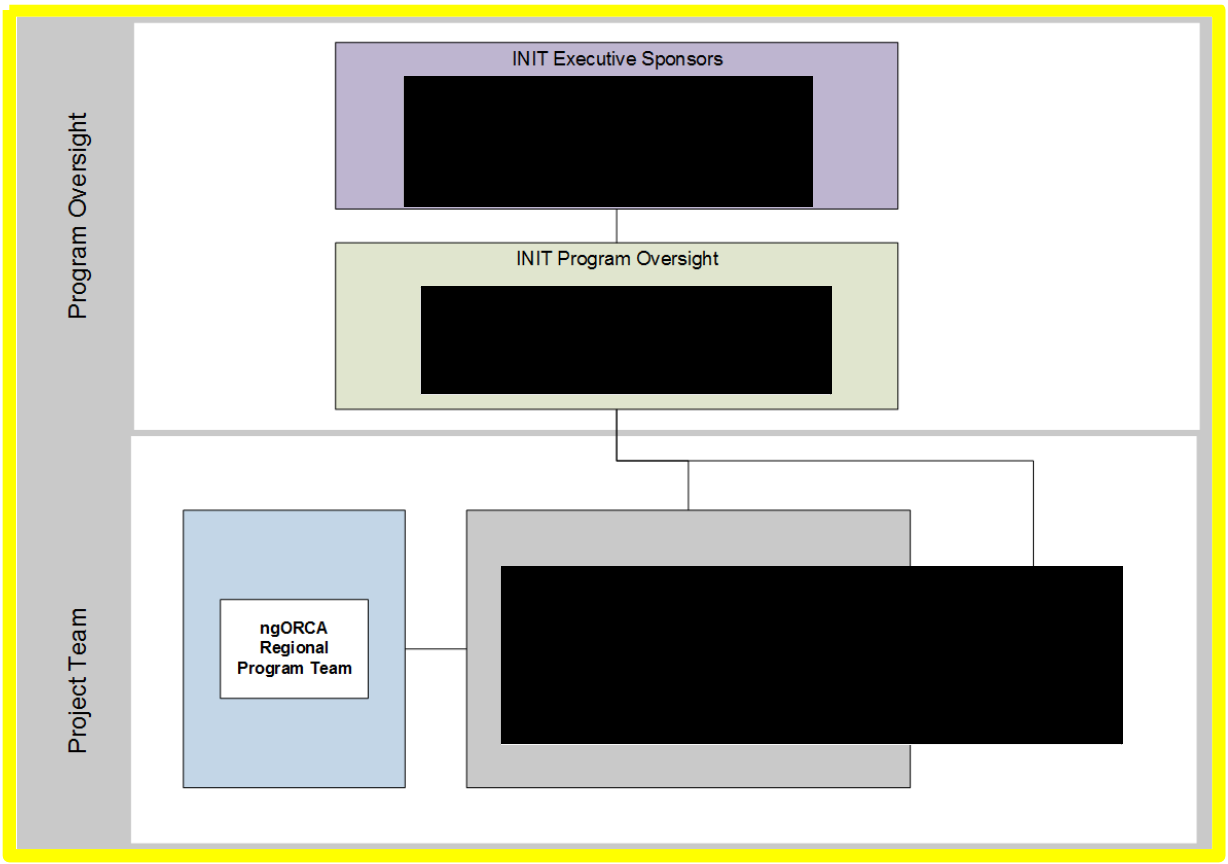

Figure – INIT Program and Project Teams

The INIT Project Management Team, comprised of INIT's Project Manager and Lead Engineer, are proactive, determined and innovative professionals who align the principles of Project Management set forth by the Project Management Institute (PMI), while ensuring the on-time delivery of INIT's high-quality projects.

INIT will be responsible for assigning all necessary resources to meet its obligations under the ngORCA contract. As a central component of this effort, INIT has assigned to the Project a team of highly qualified personnel having the management skills and technical expertise to work with

the ngORCA team in a professional and highly responsive manner. INIT shall provide the team with the lines of communication and authority required to ensure that INIT's obligations are completed expeditiously using its most qualified personnel. As this is a project driven by schedule constraints, legacy system approaching end-of-life and new stations and locations opening, INIT's Project Manager will be the primary advocate internally with INIT. Additionally, the Project Manager will have monthly project reviews with the INIT sponsor with which schedule will be of the utmost importance. At any point should risk to schedule become apparent the sponsor will alert and escalate to the INIT Executive Board.

The following organization chart has been developed to provide the ngORCA team with a comprehensive overview of the INIT organization, project controls, planning methods, and schedule.

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2.5 INIT's Highly Qualified and Experienced Key Personnel

Table 2-1 - INIT's Highly Qualified and Experienced Key Personnel

Name	Description of Key Individuals' level of involvement in the project	% on this project	% of time in Seattle	% of working hours onsite
[redacted]				

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Name	Description of Key Individuals' level of involvement in the project	% on this project	% of time in Seattle	% of working hours onsite
[redacted]				

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Name	Description of Key Individuals' level of involvement in the project	% on this project	% of time in Seattle	% of working hours onsite
[redacted]				

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2.6 INIT's Key Personnel are Available and Accessible

Table 2-1 lists INIT's highly qualified personnel assigned to the ngORCA project and details their percentage commitment and expected time in Seattle. This team is empowered with both the authority and the open lines of communication necessary to collaborate with ORCA's Project Team to ensure that obligations are met without negative impact to the Agencies or their customers.

Regarding the definitions in Table 1-1, percentage on the project relates to total hours per year dedicated to project activities. "Percentage of time" in Seattle is the estimated percentage time the resource will physically be in Seattle. What is not detailed is the percentage of project time the resource will be at a Sound Transit location or INIT's offices (a short 5-minute walk away from each other). Ideally, we will be able to have a project office located in Sound Transit's offices so that the combined ST regional and INIT teams can work most collaboratively. We have attempted to show this in column titled "% of time onsite". However, we understand that may not be an option due to space considerations. In any regard, INIT is highly flexible and looking forward to working in a way that is most collaborative, most effective, and most efficient.

In addition to the Project Team, INIT proposes an Executive Steering Committee be assigned to the Project. This Committee is comprised of Executives, the Customer and INIT. The Committee maintains a broad and consistent oversight of the project and ensures that the project receives visibility and attention throughout its duration. The Steering Committee is informed on a regular basis of the project's status and intervenes when necessary to maintain the velocity and expectations of the project.

2.7 INIT's Experienced Methodology and Approach to Implementation Services

2.7.1 Explanation of Section Numbering

In this section we provide our response detailing INIT's methodology and approach to the Implementation Services specified in the ngORCA Scope of Work (SOW), Section 2. For ease of comparative review and evaluation, in order to maintain a one-to-one numbering sequence between this section 2.5 and the SOW Section 2, we have advanced the section numbers in this document. In so doing please note INIT's first sub-section reference below of 2.5.2.1 has the third and fourth integer corresponding with the SOW Section 2.1. For the sections that follow, the third and fourth integers will increase accordingly so that they map to the SOW sections that follow (e.g. 2.5.2.2 equates to SOW Section 2.2 Design Review & Approvals).

2.7.2 Implementation Services

2.7.2.1 Project Management

Nothing is more important to INIT than having satisfied customers. We achieve this by working in close cooperation with our customers and partners; strictly adhering to our ethics. Our corporate culture is linked to our ethical guidelines which we proudly publish on our website. These ethical guidelines build the framework of our daily actions and commitment to quality.

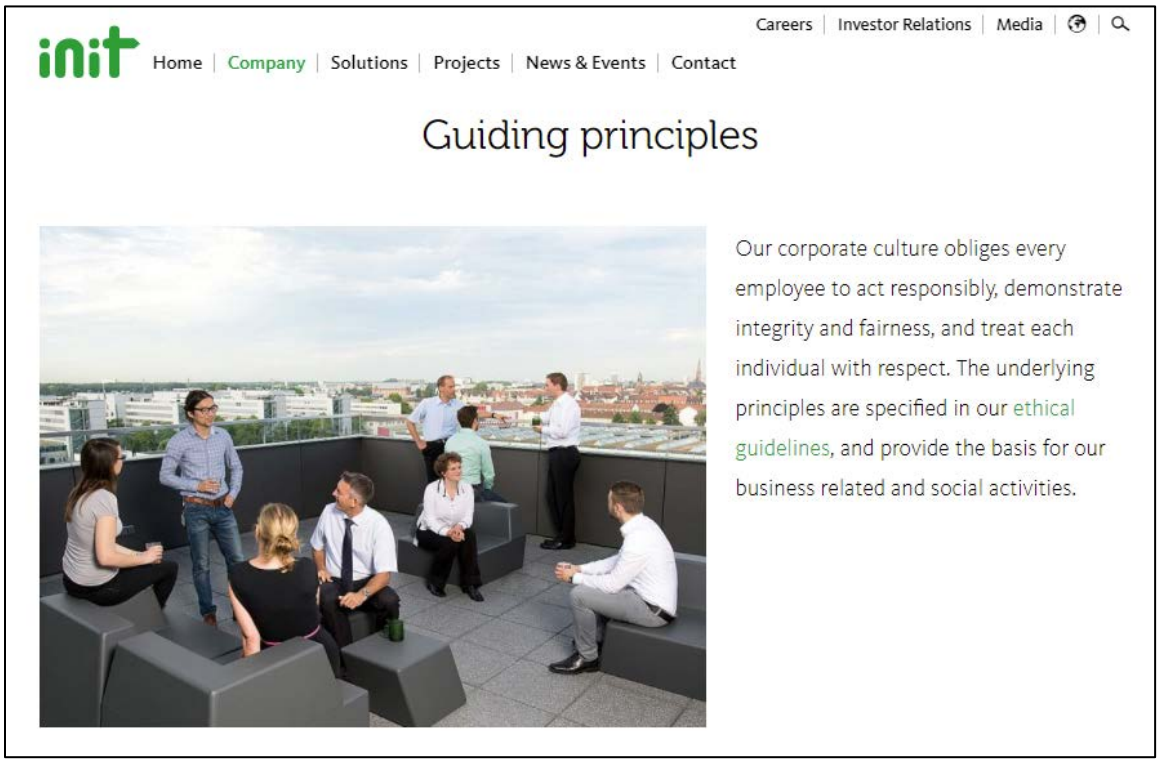

Figure 2-1: INIT Corporate Website

INIT's methodology and approach to planning, execution, tracking, and reporting of all tasks will begin with a sound Project Management Plan (PMP). The PMP will include the baseline for setting up, carrying out, monitoring, and delivering all the elements associated with project deliverables. This methodology, based upon the Project Management Body of Knowledge (PMBOK) augmented with INIT's years of experience deploying complex AFC systems has proven to be successful in our past performance on other projects. The Project Management Plan, also identifies and designates critical communications between various project partners, including essential customer, contractor (prime and subcontractor), as well as any external communication links. Our PMP includes a collection of formal detailed documents, clear communications channels, task lists, target start and end dates, budget overview, and a list of required resources. It also introduces our risk management methodology, which helps to identify the potential

challenges, and threats, by recognizing, exposing, and mitigating risks impeding successful timely execution of the project. Our approach will also convey to ngORCA transit agencies that we clearly understand the Agencies goals, objectives, and requirements as set forth in the RFP.

2.7.2.1.1 Project Manager & Lead Engineer

INIT is a proven industry leader in designing and delivering high-quality solutions for our public transit partners and INIT's Project Management Methodology is integral part of our success. The INIT Project Management Team, comprised of proactive, determined and innovative professionals, align the principles of Project Management set forth by the Project Management Institute (PMI), while ensuring the on-time delivery of INIT's high-quality projects.

INIT's Project Executive, [redacted] INIT's West Coast Regional Director and possesses over twenty years of systems experience–including significant experience on system implementation and large-scale system migrations. [redacted] has overseen two successful fare collection launches while with INIT and with that, understands how to support the Project Team and navigate the internal INIT teams to support with any escalation. Specific to ngORCA, [redacted] will support [redacted] in the overall schedule advocacy. [redacted] is also located in Seattle and will be there for the entire duration of the Project, from the Project Kick-off through Final Acceptance.

INIT's Lead Engineer, [redacted] is a Senior Systems Engineer with eight (8) years of electronic fare collection experience. [redacted] was recently the Lead Engineer for INIT on our [redacted] the proposed ORCA system is based on. These systems involve multiple points of open integration with third party systems and devices. [redacted] will be responsible for all technical aspects of the project and have all INIT's project engineers report directly to him.

INIT's Lead Project Manager, [redacted], is a Senior Project Manager at INIT with ten (10) years of fare collection experience. Prior to her time with INIT, [redacted] was able to gain insight and knowledge of the Agency's working group and also the legacy ORCA system during its initial implementation.

During her tenure with [redacted]

2.7.2.1.2 Project Meetings

INIT understands the importance of effective communication and realizes that it is a key factor in successful project delivery for large-scale complex projects such as ngORCA. As such, we strongly agree with ORCA's requirement for regular project meetings and frequent and direct communications. To conduct project meetings efficiently, INIT provides an agenda prior to each meeting and meeting minutes (including action items) following each meeting.

As part of the initial planning for ngORCA, INIT proposes the following meetings as critical to successful and engaged communication:

- Project Kick-off
- Weekly coordination / status meeting
- Monthly progress review meeting
- Phase transition / planning meeting
- Ad-hoc technical and administrative meetings

While in total, the quantity of meetings planned for this project may seem high, it is important to note that the target audience for each will vary. Taking this approach ensures that stakeholders across the spectrum have appropriate engagement and status knowledge opportunities based on their level of engagement with the project. As you'll see, some meetings are meant at a higher level which are designed more for informative purposes, while others are meant to be decision drivers or detail level discussions. However, meetings in general are typically open to a broad range of stakeholders which allows flexibility for optional attendance (e.g. an Agency CEO may not be required for weekly project meetings but may want them in their calendar to attend and listen in on occasion). Provided below is additional information about each meeting as well as to whom the intended audience is proposed.

Project Kick-off

Target Audience: Project Teams and Key Stakeholders

Attendees: INIT Core Project Team, ngORCA Core Project Team, Consultant Team and Key Stakeholders

INIT will conduct the ngORCA Project Kick-off meeting no later than 14 calendar days after Notice to Proceed (NTP). Additionally, in parallel to the planning and coordination of the ngORCA Project Kick-off, INIT will launch an Internal Project Kick-off with all INIT Project Team members (including all key project management and engineering personnel) to outline the project plan, begin scheduling internal technical and planning meetings, validate task assignments, and so forth so as to ensure preparation for adherence to the near-term project deliverables for a timely and effective start.

The ngORCA Project Kick-off with the ORCA's key stakeholders will set the stage for project communications, ensuring an understanding of the scope and schedule of the project, and the expectations and responsibilities of all parties.

The meeting will occur once and at a time and location mutually agreeable by the parties. The content of the meeting will include at minimum, the following agenda items:

- Introduction of key ORCA and INIT personnel
- Review of the project roles and responsibilities
- Review of INIT's scope of work

- Presentation of the draft project baseline schedule and near terms planning activities
- Identification of risks and project concerns
- Propose initial meeting dates and time for recurring meetings

Weekly Coordination and Status Meeting

Target Audience: Project Teams

Attendees: INIT Project Manager and Lead System Engineer, ngORCA Core Project Team, Consultant Team

Optional: Key Stakeholders, INIT SMEs

Effective project communications are enabled by Weekly Coordination and Status Meetings. These meetings facilitate the coordination of project activities, provide status of project schedule and other deliverables that are due or may become due, as well as provide a forum for decisions that must be made prior to the next Monthly Progress Review Meeting.

INIT will prepare and submit an agenda two (2) business days prior to the meeting. INIT's lead project staff (e.g. Project Manager and System Engineer) will be in attendance in person while other designated personnel may attend (either in person or remotely based on location) based on the pre-determined need outlined in the agenda.

INIT will document minutes during the meeting and submit to ORCA via email for review three (3) business days following each meeting for review and notation of any changes needed.

Meeting agenda, minutes, and action logs will be saved to the collaboration site for ease of access.

Monthly Progress Review Meeting

Target Audience: Executive / Steering Committee, Key Stakeholders

Attendees: INIT Project Manager and Lead System Engineer, ngORCA Core Project Team, ngORCA Leadership Team(s)

Optional: Key Stakeholders, INIT SMEs, INIT Leadership

INIT will conduct an executive-level in-person Monthly Progress Review Meeting at a designated ORCA location through the lifecycle of the project. If required, additional video or teleconference meetings can be scheduled.

In preparation for this review INIT will submit the agenda and a Monthly Progress Report five (5) business days prior to the meeting. This report will provide a high-level overview of progress of the overall project from the previous calendar month.

Content will include such items as:

- Minutes of prior meetings
- Project schedule updates
- CDRL content, submittal list and schedule
- Action item log and Master Issues List
- Progress and issues arising since last meeting
- Sequence of critical work and manufacturing schedule
- Budget, milestone and invoice status
- Corrective actions to maintain schedule
- Assessment, review and update of:
    - Engineering, manufacturing and quality control
    - Safety Assurance Program
    - Risk Plan and Risk Register
- Other priorities that require immediate attention

INIT will document minutes (including action items) for all monthly Progress Review Meetings and submit to ORCA three (3) business days following each meeting.

Phase Transition Planning Meeting

Target Audience: Project Management Teams

Attendees: INIT Project Manager and Lead System Engineer, ngORCA Project Manager, Consultant Team, ngORCA SME/Technical Team

Optional: INIT SMEs, ngORCA Core Project Team, ngORCA SMEs

In the project schedule INIT has detailed several key milestones which represent various phases of the overall program delivery. As preparation for the next phase (e.g. design to development, project to operations) INIT will coordinate and schedule transition meetings to evaluate and discuss the key deliverables, schedule, and other information specific to the pending work.

This is a project level in-person, small group meeting with key personnel from both INIT and the Agencies who are critical to the planning and oversight of the upcoming activities.

Ad-hoc Technical and Administrative Meetings

Target Audience: TBC by Host

Attendees: INIT Project Manager, Lead System Engineer, or topic SME, Agency SME(s)

Optional: TBD by Host

To facilitate ongoing discussions to address various elements of the project delivery, additional ad-hoc meetings may be necessary to mitigate schedule impacts or to discuss technical matters between subject matter experts. The nature of these meetings is defined by scheduling party and may result in a 1:1 attendance up to a large group or audience.

2.7.2.1.3 Project Management Plan

The Project Management Plan will serve as the key document to plan, execute and control the project. It will provide the following elements:

- Organization chart identifying key project personnel and contact information
- Master program schedule, identifying key program milestones and activities
- Schedule for all project design and manufacturing elements that require agency approval
- Project meeting schedule
- Methodology to control program schedule, scope, cost, and risk
- Project risk management processes and risk register, including identified project risks and actions required to mitigate them
- Transition and change management processes and procedures
- Safety processes and procedures
- Quality assurance processes and procedures to ensure that the requirements of the contract are being met
- Subcontractor management and communications
- Document and Master Issues List (MIL) control processes and procedures, including version and traceability controls
- Configuration management processes and procedures for all submittals and subsequent revisions

The content of the Project Management Plan as well as its responsibilities are ultimately owned and led by the Project Manager. However, the Lead System Engineer and INIT Project Team will be collectively responsible for ensuring adherence to the guidelines or processes defined and agreed.

For example, the Project Manager will organize and facilitate the scope of work and commercial agreements for the INIT subcontractors. In so doing the Project Manager has taken the necessary steps to align the scope of the ngORCA work with that of the subcontract (as applicable) as well as any relevant commercial terms that are appropriate (e.g. Agency approval, prevailing wage, security, etc.). Following that the Project Manager will engage the INIT SME and

coordinate handover for execution of the project plan as defined in the subcontractor's scope of work. The Project Manager and INIT SME will communicate regularly on status, progress, risk, etc. Should no concerns arise, and the work is carried out according the project plan then no intervention is undertaken by the Project Manager. However, in the event issues arise the Project Manager is informed, and the appropriate escalation path is undertaken based on the nature of the issue.

As project work is carried out the INIT SMEs and Core Project Team will routinely monitor and manage the scope and processes. All issues or concerns will be escalated to the project leadership team for decision making or issue resolution.

The INIT Core Project Team will have routine weekly internal meetings to track and manage the execution of the work and the Project Manager will validate these efforts are carried out according to the processes and methods as defined in the Project Management Plan. Additionally, the Project Manager will report to the Executive Steering Committee once per quarter to report and track the same.

2.7.2.1.3.1 Master Schedule

The proposed preliminary master program schedule, covers all project activities and milestones for the duration of the contract includes:

- Work item description
- The work item sequence, showing successor and predecessor relationships
- Work item duration
- Critical path of work completion

During the project initiation and delivery, Amy Gardner, the INIT Project Manager, will be the schedule advocate for the project. Additionally, due to the time critical nature of this project, Amy will work closely with the INIT Executive Sponsors to ensure timely escalation for risk mitigation should the need arise. [redacted], Regional Director of Western Operations, will champion the schedule from the executive leadership side.

If INIT is the successful proposer, INIT will add the narrative explanation of the work involved and the basis for estimated time duration as part of the PMP.

The preliminary master program schedule indicates tasks that ORCA is responsible for, and the version that would be submitted as part of the PMP would identify the task breakdown between INIT and the subcontractors.

The detailed master program schedule is created and maintained in Gantt format using Microsoft Project. To provide a solid project plan, INIT has, in some cases, added slack as

provision for additional challenges or unforeseen events. INIT has also assumed that all design submittals require resubmittal, should ORCA add additional design changes after receiving the initial design packages or further clarification become required.

INIT has included an electronic version of the preliminary master program schedule on the USB flash drive delivered with each proposal. The initial version is shown in *Section 2.12 An Achievable Project Schedule* below.

2.7.2.1.3.2 Scope Management

The Scope Management Plan as part of the PMP and ensures scope is both well-defined and in line with the contracts requirements. This plan will be the foundation for all necessary change management discussions and change orders.

The content of the Scope Management Plan will provide the process description for the scope verification, and scope control of the ngORCA Project. The plan documents the scope management approach, roles and responsibilities as they pertain to project scope, scope definition, verification and control measures, scope change control and the project's work breakdown structure.

INIT utilizes Scope Management as a set of processes to ensure the Project Team identifies and performs all of the tasks required to complete the project as defined in the Contract and the Technical Specifications while excluding work that is out of scope and updating the scope baseline as an output of the Change Management Plan. The Scope Management Plan details how the project scope is defined, developed, and verified. The plan clearly defines who is responsible for managing the project's scope and acts as a guide for managing and controlling the scope.

Project scope management typically includes a five-step process of requirements collection, scope definition, creation of a work breakdown structure (WBS), scope verification, and scope control. INIT understands that the Agencies completed the requirements collection and scope definition as part of this RFP. Upon Contract award and Notice to Proceed, INIT would then responsibility for the remaining steps which include 1) creation of a Work Breakdown Structure (WBS), 2) scope verification; and 3) scope control.

2.7.2.1.3.3 Requirements Traceability Matrix

As part of the Scope Management Plan, INIT will develop and include a Requirements Traceability Matrix (RTM). Historically, the RTM has been a Microsoft Excel spreadsheet created and maintained by INIT. In using Excel, INIT has been able to easily modify or edit content based on the stage of the project as well as share it with multiple parties without the concern of

custom-software or access rights and privileges. However, in consideration of the size and complexity of the ngORCA project, INIT will look to use a cloud-based online software tool such as Visure Requirement.

From their website, Visure is known for:

Process-Driven Requirements Engineering

Visure Requirements becomes the process backbone representing all requirement-related artefacts.

Visure Requirements becomes the process backbone, managing all requirement related information (like requirements, tests, change requests, risks, etc.), their relationships and their interactions with the users. It helps standardize and enforce the defined processes across the organization, formalize a common requirements specification structure and handle changes throughout the lifecycle.

Requirements lifecycle coverage

Your Requirements Management Process in one single tool.

Visure Requirements is a state-of-the-art Requirements Engineering tool specifically designed to provide an integral support to the complete Requirement process including Requirements capture, analysis, specification, validation and verification, traceability, management and reuse.

User orientation

Simplify and help users focus on what they should be doing!

Visure Requirements is a fully customizable tool that allows administrators providing users with views to perform each of their specific tasks like: traceability, impact analysis, requirements creation, validation, specification, etc. User will be accessing only to the information they need to work with and with the options they need.

Administrators are able to configure the available menus, toolbars, columns, buttons, etc.

Collaboration

Several Roles working at the same time over the same elements.

Visure Requirements is meant to be a multiuser tool allowing several users to work with the very same set of requirements at the same time keeping traces and reports about every change with a complete versioning system.

Integrations

Visure Requirements allows users to keep using their own tools, while keeping

everything centralized.

Visure Requirements provides a versatile Integration Platform which can be used to integrate with third party, commercial or proprietary, tools to extend the change impact analysis features to elements out of the scope of Visure Requirements.

Reusability

From simple requirements reuse to product families support!

Through Visure Requirements reusability, that allows sharing requirements and other artefacts like tests or uses cases along with their traces through different projects[j1] , users are able to easily create product families -that share a core of common requirements-, set of standards requirements or even full features along with their tests and use cases. Additionally, reusability is far beyond copy paste as it is possible to keep a reference to the original project, and being updated through the changes performed in the original elements (if needed).

The RTM serves as a cross-reference, which links each requirement and deliverable with the applicable System Design Document(s) / ORCA Program Document and test procedures. The RTM is updated throughout the project and utilized during design, implementation, test and project close out.

Please note the Visure Data Sheet as follows:

www.visuresolutions.com

visure requirements

Requirements Lifecycle Management

Need to take control of your requirements specifications?

Pressure increases to deliver quality products on time and within budget. Software and systems development is experiencing an exponential growth in complexity while processes are becoming more iterative to reduce time-to-market and cost but at the same time guarantee the highest level of quality.

One tool for the complete requirements lifecycle

Visure Requirements is a flexible and complete requirements engineering solution to help organizations increase the quality of their products and collaborate more effectively by supporting requirements capture, analysis, specification, validation and verification, management and reuse.

Benefits

Systems Engineers:
"I can take control of my requirements specification, providing a better response to changes, and reuse existing assets."

Product and Project Managers:
"Visure Requirements allows me to reduce development time and provide a faster delivery while reducing rework."

Quality Managers:
"Managing test cases and tracking coverage improves the quality of our deliverables."

Flexible process support

Visure Requirements becomes the process backbone, managing all requirement related information, their relationships and their interactions with the users. It helps standardize and enforce the defined processes across the organization, formalize a common requirements specification structure and handle changes throughout the lifecycle.

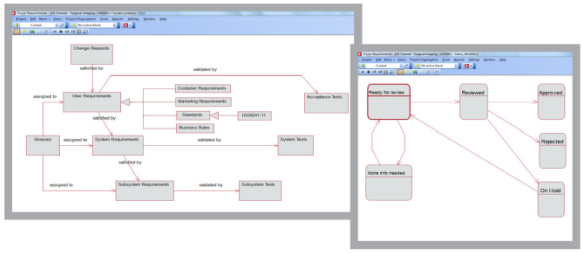

Image 1: Graphical requirements structure

Structure

Multidimensional structures in Visure Requirements allow organizing requirements tailored to various project needs. Whether it is based on project phases, requirement types, requirements documents, reuse approaches, etc: in a single source of truth each who can define multiple ways of organizing requirements and combine those structures into one meta-model.

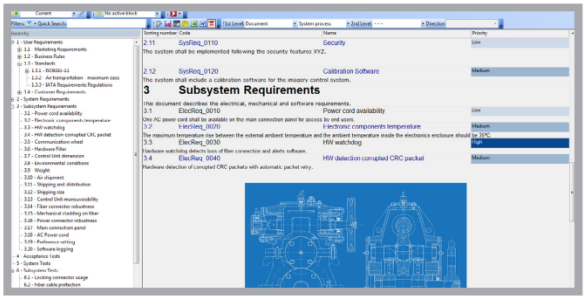

Image 2: Requirements document view

Quality

Visure Requirements helps avoid pitfalls and mitigate risks each step of the way, from writing better requirements and prioritizing needs to providing the industry's best change impact analysis capabilities.

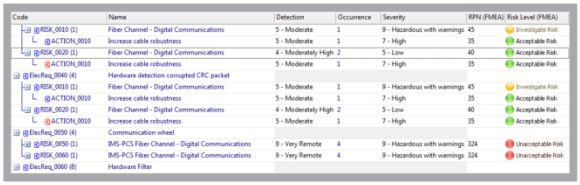

Image 3: Risk Mitigation

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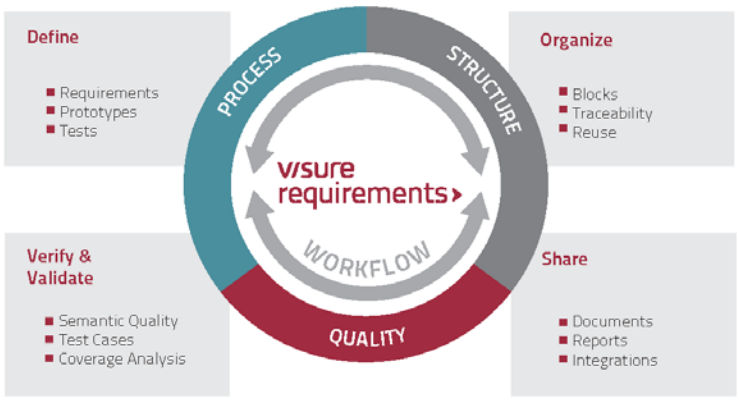
Requirements Lifecycle Management

Visure Requirements allows to define the Project structure composed of all manner of atifacts: Glossaries, Change Requests, Requirements, Test Cases and the relations between them.



Feature list

Requirements Elicitation	Manual and automatic requirements capture from different sources
Requirements Capture	Modeling of the Problem Domain model to understand the problem
Requirements Management	User oriented management for attributes, workflows, traceability, filters and views
Requirements Traceability	Complete traceability end-to-end
Semantic Analysis	Perform a semantic analysis over the requirements
Verification and Acceptance Tests	Definition of acceptance tests and fit-criteria
Report Generation	Powerful reporting of project information dashboards
Product lines and variants support	Establish a variant and product line management process
Reusability Support	Support the simple reuse of non-functional requirements and tests as well as complex processes for Product families and variants
Requirements Version Control	Complete Version Management for all requirements-related information
Project Management	Project and product organization
Integrations with other Tools	Interoperability with most popular design, test, project, user management tools, and open APIs and PluginSDK for customization

Quotes

Banco Espírito Santo
- Paula Brandão

"Thanks to the quality of Visure Requirements, ESI has automated its Requirements with the objective of facilitating the everyday life of its employees."

KUKA Laboratories GmbH
- Dipl.-Ing. Sascha Kolb

"With versatile products such as KUKA robots, there are many demands from different sources, e.g. externally from customers, in the areas of industrial manufacturing and medical technology, laws, standards and guidelines, and internal demands with respect to the development of such strategies and risk analysis. This diversity requires a systematic review and bundling of technical requirements for the product as well as the processes involved. Visure Requirements is a powerful tool that supports this."

Contact

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INIT utilizes a RTM to map the requirements specified in the contract to specific deliverables. It provides bi-directional traceability between the contract and design documentation, allowing users to determine the origin of each requirement and track that each contract requirement has been fulfilled. It is accomplished by examining the ORCA contract for all requirements and entering them into a Requirements Traceability Matrix (RTM) template. The Project Team then reviews and assigns the responsibility of each requirement and distributes the RTM to appropriate parties. By completing the RTM, the goal is to:

- Fully understand the requirements
- Improve the quality of the product currently being developed
- Ensure that all requirements will be met
- Facilitate change management, especially changes that may impact cost and/or schedule

All Changes will also be added to the RTM and the work carried out as part of the Change Management Plan processes.

2.7.2.1.3.4 Cost Management

The Cost Management Plan is part of the PMP and describes the framework, tools and processes INIT uses to monitor and control the project budget and manage costs throughout the project lifecycle as well as outlining the process for approving changes that affect cost and identify who has the authority to approve those changes. It will also outline the format and metrics for how project costs are measured, reported, and controlled.

There are several factors that will comprise the overall project budget as well as performance metrics to evaluate progress; these will be further elaborated as part of the Cost Management Plan. In general, the Program Manager will be responsible for managing and reporting on the budget for the duration of the project.

Costs will be managed based on the Control Accounts outlined as part of the Work Breakdown Structure (WBS). INIT will utilize Earned Value Management calculations as the means and methods to measure, report, and control project costs. As a general approach, the following calculations are preferred:

- Schedule Variance (SV)
- Cost Variance (CV)
- Schedule Performance Index (SPI)
- Cost Performance Index (CPI)

Cost and schedule variances will be tracked and monitored for adherence to stated thresholds.

2.7.2.1.3.5 Risk Management

INIT will provide a PMP that includes a risk management plan to control project costs, maintain project schedule, and improve project performance.

The Risk Management Plan is an integral part of risk management for the overall project. Effective project planning requires identification and assessment of risks, and the actions necessary to mitigate the risks. As part of the Risk Management Plan, INIT will undertake the requisite planning activities involved in establishing the infrastructure to support effective risk management. The primary activities are:

- Establish the risk management organization and assign roles and responsibilities
- Evaluate the capability and availability of project staff to perform risk assessment to determine whether additional resources are required
- Plan an initial assessment and periodic monitoring/audits. The periodic audits are proactively aligned with key project checkpoints where audits uncover the highest severity risks

The Project Team (INIT and ORCA personnel) works closely to identify members of the Risk and Issue Management team that is responsible for risk management. The teams will be identified by key functional areas. In some cases INIT may have more than one resource per functional area or circumstances where one resource is vital to multiple areas. The key INIT personnel that will lead these teams are as follows:

- Project

[redacted]

- Design

[redacted]

- Installation
    - Back Office – David Page, David Steigleiter
    - Front Office – Jim Stamateou

Table 2-2 provides risk management roles and responsibilities that will be updated with ORCA during the development of the project management plan.

Table 2-2 - Risk Management Roles and Responsibilities

Role Names	Role Definitions
Project Manager	• Drives the risk management process for the entire project with early start • Participates in risk identification, mitigation, and tracking progress • Accepts or rejects the level of risk for the project • Updates the risk register
Project Team	• Performs the risk management process for the project • All members of Project Team will be encouraged to convey any risks they identify
Risk Identification Process Team	• Provides input to the process for identifying risks • Includes representatives of all affected groups involved in the project (including the Project Team, Steering Committee, Joint Management Committee, organization management, etc.), as well as any others expected to have insight into risks for this project (such as Internal Audit, and/or external reviewers)

To facilitate documenting and tracking risks, INIT will establish and update the ngORCA Risk Register. The Risk Register is a pre-formatted form designed for the identification and tracking of project risks. All project risks are cumulatively recorded and tracked using this form. On this form, a risk will have an assignee who is responsible for defining the actions necessary to manage the risk. Accordingly, the assignee will be responsible for the required actions as defined or agreed in the risk register.

Risks can be identified at any time and reported by any member of the Risk Management Team, the Project Teams, or stakeholder groups throughout the project lifecycle. Additionally, for the ngORCA project, the INIT Project Manager will regularly review the project as an additional project risk mitigation effort; identifying potential risk factors and providing counter-measures to deal with identified risks. These additional reviews are performed on a weekly basis, and jointly with ORCA and the Risk and Issue Management Team monthly. Identified risks and counter-measures are noted within the associated meeting minutes and recorded in the project's risk register.

2.7.2.1.3.6 Change Management

The Change Management Plan is part of the PMP and will describe how INIT and the Agencies will manage and control changes to the existing system baseline. This plan will describe how a Request for Change (RFC) is initiated, approved, and processed.

INIT utilizes a formal change control system as part of its overall quality and control processes. In so doing, changes are introduced, discussed, and approved in a controlled and coordinated manner prior to implementation. This method and approach reduces risk, ensures planned changes are fully scoped with an assessment and impact analysis thereby limiting the introduction of defects or faults within the system or unnecessarily causing impact to the project schedule.

While any Project Team member can make a suggestion for a change, a formal Request for Change must be submitted by the Agency designee so that INIT is clear on the intent and build the requisite proposal. Once a formal request has been made, INIT will be responsible for managing and administering the change control activities including updating the change log and keeping the Agencies up to do on progress. These activities will encompass formal control and approval of changes to documentation, drawings and diagrams, hardware, or software; all requested changes will be managed in a central configuration management database.

2.7.2.1.3.7 Safety Assurance

INIT's Project Management Plan will include the Safety Assurance Plan. This plan identifies all safety processes and procedures to identify safety risks, the responsible party for managing the risks, and all corresponding mitigation plans.

INIT's Safety Engineer [redacted] will oversee the project delivery from a safety perspective. The Safety Engineer documents, reviews and approves all system safety analyses to insure hazards are adequately identified and their impact is eliminated or controlled. Jim will validate that INIT's staff and its subcontractors have received the requisite training applicable to needs of the project and that the training is in conformance with the applicable standards, rules, codes, and regulations. In effort to ensure compliance the Safety Engineer will perform periodic audits and report the findings to the Program Manager.

2.7.2.1.3.8 Quality Assurance & Control

To ensure a high level of quality on a consistent basis, INIT has implemented a certified Quality Management System that adheres to the ISO 9001 global standard. INIT has maintained an active ISO 9001 certification since 1997. INIT is responsible for the quality of its products and work, as well as that of its subcontractors. Issues with quality experienced at a project level are tracked and managed by the INIT Project Manager. Items specific to manufacturer concerns or OEM products are escalated through the INIT Logistics and Procurement manager.

The dedication of the INIT team in providing quality products and exemplary customer service is fully supported by the company's Mission, Business Principles, Quality Principles and Quality Strategy as follows:

Mission

We support transit companies in their task to shift the growth in traffic to public means of transport. Innovative solutions make bus and rail more efficient, user friendly and thus more competitive compared to individual transport.

Business Principles

- Our products meet the highest quality standards and offer long-lasting value
- Our company satisfies real needs
- Quality is the responsibility of all employees
- Quality management is a prime responsibility of our Management Team
- Honesty and reliability are an integral part of our company and a deeply rooted tradition
- Protecting the environment is a priority for us

Quality Principles

- Our performance fills our customers with enthusiasm
- Our products and services offer high levels of performance and impeccable quality
- The benefit to the public transit agency and its passengers is our focus
- Our capable and creative employees master the transit industry challenges of the 21st century through their own capabilities and continuous job training
- Continually increase market share through successful implementations and satisfied customers

Quality Strategy

We reach higher levels of quality through:

- Including a Quality Control Engineer, [redacted], to provide reviews and analysis outside of the Project Team itself. He will report to [redacted] for the project, and manage items such as systemic reviews, failure analysis reports, etc. These will be reported on during normal project reviews and when issues arise that need additional analysis.
- Close cooperation and constant communication with customers and partners
- Standardization of services and products
- Continuous efficiency control and improvement of processes

- Individual quality objectives for our employees
- Promoting training and further education of employees
- Excellent working environment and the latest tools
- Appreciation of special efforts

INIT understands the importance of quality in all aspects of the project. Ultimately it is the quality of INIT's products and services that will allow ORCA to perform the critical functions that are essential to day-to-day operations of the ORCA service. Upon request, INIT will gladly provide a more detailed description of our Quality Assurance and Management Process, including a thorough explanation of INIT's ISO process.

2.7.2.1.3.9 Subcontractor Management

INIT reviews subcontractor's performance history, quality control processes, safety controls, financials and references to ensure subcontractors will be able to meet performance criteria and deliver per schedule. Where special skills or processes are required, INIT reviews subcontractor training and certification records to ensure their personnel are qualified to perform these functions.

The PMP includes a Subcontractor Management Plan that identifies all subcontractors and the tasks they have been tasked to perform. As with the general content of the PMP, it is the responsibility of the Project Manager to monitor and control the Subcontract Management Plan. Further, the Subcontractor Management Plan provides an overview of INIT's approach to working with suppliers and subcontractors. All subcontractors on the ngORCA project are subject to the reporting and performance criteria outlined in this program.

This plan also includes the procedures for organizing and communicating with subcontractors, including the sections of the technical specification in their scope of work they are performing. They are also contracted with the expectation of adhering to the project schedule in the context of the overall project implementation. INIT's subcontractors are available for all required meetings, as indicated in their schedule, and other meetings that may require their attendance.

The Subcontractor Management Plan will also detail the associated Disadvantaged Business Enterprises (DBEs), the tasks they have been selected to perform, and the revenues associated with that DBE throughout the project lifecycle.

As noted above, INIT will ensure subcontractors are informed of all applicable requirements in the specification and that appropriate engineering and project management tools are utilized for coordination and communication. Any plans, specifications, drawings, schedules and documents relevant to any subcontractor's portion of the work will be shared. The proprietary

nature of any Agency or INIT intellectual property will be protected by a requirement for a Non-Disclosure Agreement whenever appropriate.

The following communications and reports will be required of all subcontractors:

- Provide at weekly and/or monthly status reports as agreed;
- Provide frequent updates, as agreed in writing, during critical project phases such as equipment installations or testing;
- Attend safety orientations, pre-job meetings or kick-off meetings provided by INIT prior to any work beginning; and
- When appropriate, participate in ad-hoc technical or troubleshooting meetings and discussions.

The Subcontractor Management Plan will also include the process and procedures, including risk mitigation or recovery strategies, required to replace subcontractors should it become necessary at any point during the life of the project.

Establishment and Negotiation of third-party software licensing:

2.7.2.1.3.10 Communications Management & Document Control

This Communications Management and Document Control Plan is part of the PMP and will describe the framework for controlling project communications for the ngORCA project as well as outlining the document repository and system used to file all project documents that are formal in nature.

Communications is one of the most critical aspects of a project. To ensure a high quality of communication throughout the delivery of this project, INIT subscribes to a general list of goals as follows:

- Easy exchange of information through informal communications
- Documentation of formal communication (major issues, resolutions and/or agreements)
- High quality, reliable tracking, and easy access to high quality, reliable tracking, and easy access to formal and informal project documents

Communications will be of the highest priority in executing this project. Project communications includes meetings, reporting, tracking action items, issue resolution and so forth. The purpose of Communication Management is to identify the types and frequency of communications specific stakeholders should receive and who should respond as well as how said communications should be delivered. As the ngORCA project is comprised of varying levels of stakeholders, establishing a clear and effective plan will be central to ensuring appropriate, measured, and timely response as well as successfully distributing project information and status.

At the onset of the Project, INIT suggests the following methods for communications:

- **Monthly Reports** - an executive level report will be provided on a monthly basis from the start of and through the conclusion of the project. This report will include high level progress information for the previous months activities, risks, contract / scope modifications, and schedule.
- **Meeting Minutes** - detailed minutes and actions will be drafted using Microsoft Word and Excel for each scheduled/planned meeting with the Project Team (e.g. weekly meetings, design reviews, etc.) and distributed to attendees; additionally, for ad-hoc meetings, minutes will be recorded and provided to meeting attendees, format may vary based on the nature of the meeting.
- **Email** – regular communications are maintained by email and exercised by the Project Team; first paths of escalation are also provided by email for informative purposes
- **Letter Correspondence** – formal communications are reserved for purposes of specific approval, informative matters, escalation, or other similar matters (e.g. approval of a new subcontractor)

Communication Management will include, but not be limited to, processing, design reviews, team meetings, submittals, correspondence, sharing of critical project management plan components, such as risk, QA/QC, scope control and the general involvement of ORCA review/approval persons. The processes of Communication Management that will be deployed include the following:

- **Communication Planning** – Identify the stakeholders, determine the information and communication needs, expectations and resolve the issues

- **Project Structure** – Published project organization structure, responsibilities and escalation paths
- **Status Reporting** – Collecting and distributing status reporting information available to project stakeholders in a timely manner
- **Meetings** – Planning and publish project meeting schedules with the ORCA, Subcontractors, INIT and other stakeholders

As part of the Document Control process, INIT will set up and administer a collaboration website as a project resource for document storage and sharing including sub folders to address the various needs of the project (e.g. design reviews, operation manuals, installation guides, etc.). During the design review INIT will create a Document Control Sheet (DCS) using Microsoft Excel. This sheet will be used to track the creation and submission of all required documents (e.g. CDRLs) throughout the project lifecycle. This sheet will include the ID#, document title, version number, last approved iteration / date (e.g. FDR), owner, and other pertinent information as it becomes available (e.g. comment regarding additional update needed pending a future Change Order).

The DCS is managed and maintained by the INIT Project Manager and Lead Engineer. As noted in the section below INIT will also track and manage a Master Issues List (MIL). The MIL will be created for each design or iterative phase of the project using Microsoft Excel. When comments are received, they are allocated to the associated SME for review and are addressed based on the phase of the project lifecycle. If for example, comments are received as part of a formal design review, such a Final Design Review (FDR), INIT's responses and suggestions for addressing the comments are collated from each SME by the Project Manager. Responses and suggestions are then peer reviewed by an appropriate technical or subject-specific resource prior to finalization. Thereafter, the vetted responses and suggestions are then resubmitted to the Agencies in accordance with the procedure and process as defined by the design review CDRL.

Due to the magnitude of this effort, INIT enlists the support and engagement of the SMEs, an appropriate peer review, and Project Management oversight. INIT will often hold internal workshops to further discuss and evaluate the nature of the comment.

Comments or questions are documented in MIL so that they can be tracked from initiation to closure. Comments may only be closed via Agency confirmation. Further, where applicable the change control and scope control processes may overlap as a result of the discussions or actions identified in the MIL. During this time INIT's Project Manager may add items to the Change Control tracking sheet in order to address the MIL; however, based on the outcome of the MIL

and the specific actions, an item could then be removed from the Change Control Tracking sheet (e.g. change in scope opted to not be pursued).

Additionally, the MIL will be maintained on the collaboration site so that all Agencies can access it at any time. Further, the Agencies can, collectively or individually, also add items during the project meeting(s) or by emailing the project manager.

2.7.2.1.3.11 Master Issues List

The INIT Project Team maintains a log of all identified items that require action through the time of project completion. The Master Issue List (MIL) is used as a status tool for all project meetings. No action item shall be assigned to ORCA without prior notification and concurrence. Each action item in the log contains:

- Item Number
- Action Required
- Description
- Assigned Responsible Party (individual and firm)
- Origin Reference (correspondence number, meeting, conference call, etc.)
- Requesting Party
- Date Opened
- Original Due Date
- Current Due Date
- Status (Open / closed / in progress / deferred, etc.)
- Date Closed
- Progress Notes and History of Activity

The MIL will be updated by INIT, and made available on an unlimited basis, via our issue tracking tools with read/write access for Agency designees.

2.7.2.1.4 Change Control

INIT's change control process will follow our Change Control Plan as defined in the PMP which includes all INIT and subcontractor-supplied equipment and software.

During the design phases INIT will detail and document the low-level requirements necessary to carry out the work associated. In some instances, an iterative and agile approach can be

undertaken to as to ensure the lowest level of detail is clear as well as time allocated for usability testing and validation to be incorporated where applicable.

Based on the maturity of the design and schedule dependencies, INIT will make suggestions for design freeze to the Agencies for consideration. Upon mutual agreement and clear understanding of all dependent factors a date or dates will be selected to reflect a point in time when the system design is substantially complete, and the Change Control process initiated.

2.7.2.1.4.1 Change Control Process

The Change Control Plan will identify how INIT will receive, record, document, and monitor changes to the scope baseline. Included will be procedures for identifying, documenting, requesting and approving a change. Those steps are outlined at a high level as follows:

- Initiating request by ORCA or INIT designee
- Receipt and acknowledgement by INIT
- INIT adds request to issue management system and assigns to INIT Lead Engineer
- Technical clarification, schedule and impact assessment by INIT
- Scope evaluation, configuration items affected or needing to be updated, and level of effort estimations by INIT
- Issue request updated and assigned to INIT sales
- INIT sales builds detailed proposal and submits for review
- ORCA review, decision to either move forward with change or discard
- If approved, ORCA issues a change order which is executed by both parties; if discarded, INIT closes request in issue management system and maintains the proposal as part of the project documents on the collaboration site
- If change order issued, INIT creates a new issue ticket to track the work and then updates the scope, schedule, and cost baselines as well as the Requirements Traceability Matrix and any system test documentation
- Work is carried out in accordance with the agreed change and monitored and tracked in the issue management system

The regional test facility will be made available to facilitate agency validation testing. However, if the change is requested prior to certain integration phases of the project, validation testing will be carried out in accordance with the relevant test cycle. Once integration testing is underway and the regional test facility online, all changes will be validated in the regional test facility. INIT suggests that the Agency designee validate the change once INIT has performed the pre-

validation testing and is able to ensure the change works as expected. Following Agency validation, the change is then progressed through the change control process to the deployment operations process. If said process is in the production deployment phase, the work is validated in production as well.

At a high level, implementing a change and tracking through the issue management tool INIT will utilize the following status flows (note, the status can move through each step at varying intervals based on the dependent factors present):

Status	Description
New	The ticket was created and processing must be confirmed by INIT
Investigating	The processing of the ticket has been started
Need Information	Agencies to provide additional information or take some type of action before the ticket can be processed further by INIT
Deferred	Handling of the ticket was postponed
Resolved	A solution has been provided and INIT considers the issue closed
Closed	The solution was delivered and the Agencies agree the issue is closed
Review Required	Review team to discuss the issue and help resolve/reconcile any differences in opinions as to the issue or solution being delivered or address any open questions stipulated
Ready for Delivery	A solution is ready to be delivered to the ORCA designated system
Approved for Test System	Customer agrees with the solution and approves the delivery to the ORCA regional test facility
Resolved in Test System	A solution has been delivered to the ORCA regional test facility
Approved for Production	The Agencies have tested the solution and approve delivery to the production system (if applicable)

As noted above, only the Agency designee can close work items in the issue tracking system. Changes introduced by a subcontractor will also follow the above workflow; however, additional documentation may be required for test validation.

The test system deployment process will differ from the production system deployment process as the production deployment exposes the system and its users to more risk just by its very nature. In light of that, INIT proposes, as part of this plan, the introduction of a Change Control Board (CCB) comprised of a short list of INIT and Agency representatives. This is a subset of the

Project Team comprised of, at a minimum, the ngORCA Program Manager, INIT's lead PM, and INIT's Lead Engineer. The goal of this group is to consider changes without the entire Project Team and consider issues related to schedule, cost, and quality. It is the expectation that there will be really good ideas that are considered as part of this project but not envisioned at the start and we want to track them as ideas to be considered after the system is live. Generally speaking, key stakeholders should be involved; however, a clear structure of representatives and designation should be discussed and agreed as part of the design review. In all cases, changes must be mutually agreed to by Sound Transit and INIT.

As part of the Weekly Progress and Status Review Meetings, the INIT Project Manager will keep and maintain a change control log for changes requested, irrespective of their formality. As part of that, INIT will disseminate detailed status updates and next steps for formal requests in process. Additionally, as part of the monthly progress report INIT will also summarize the requests for change and change order status including noting those recently approved.

2.7.2.1.4.2 Hardware & Software Versioning

Version Control is critical to the success of the project. INIT's Version Control plan as defined in our Project Management Plan will maintain version number, revision history, author/developer, and reason for the change.

All software and project documents will be assigned a unique transmittal number, which INIT will assign consecutively while maintaining a correspondence index.

All database scripts added to the database will have a clear versioning number assigned so that any database changes are trackable.

Different hardware versions are clearly defined on the serial number label on every device.

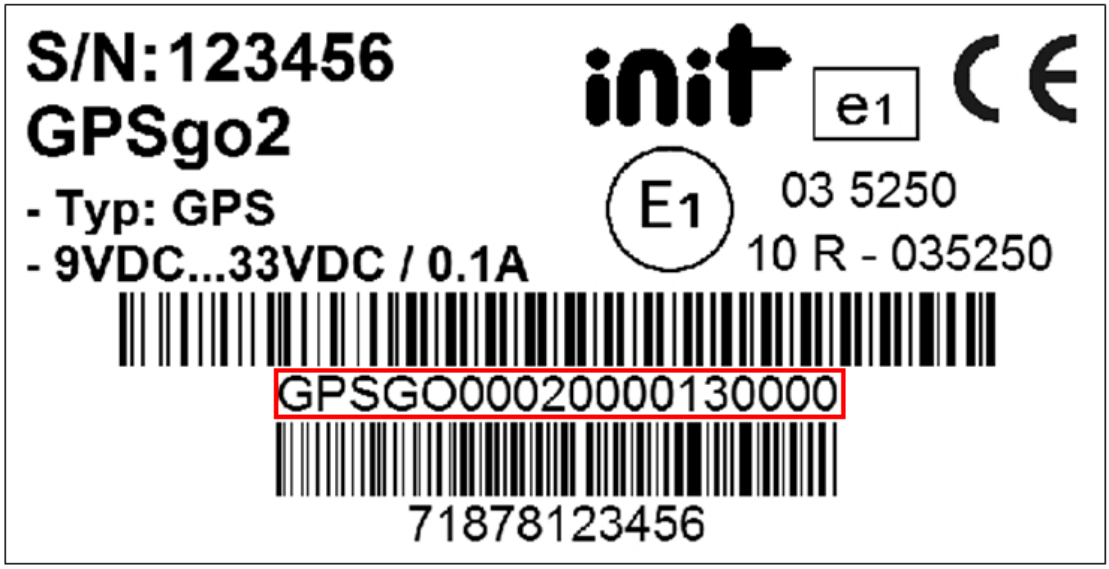


Figure 2-2: Serial number label with hardware version highlighted

2.7.2.1.4.3 Component Identification

The ngORCA system implementation will include deployment of several thousand units of equipment to meet the system interface needs at each Agency as well as to address region-wide equipment and with that installation, support, and maintenance needs spanning the Puget Sound region. To ensure successful tracking and identification of each unit of equipment, INIT will development an Equipment and Component Identification and Labeling Plan.

Each item of equipment, regardless of the manufacturer will be labeled at minimum with the supplier's name, part number, and serial number. Note however that INIT does not supply Electronic Serial Numbers (ESNs) for its equipment. Because there will be multiple suppliers and Original Equipment Manufacturers (OEM), the label itself will vary in appearance.

Every device will be labeled in duplicate. One label will be visible from outside and easily accessible for auditing purposes and one label will be hidden (e.g. on the back of the validator between the device and the mounting plate).

Coordination and tracking of each item of equipment is managed with AIM. For importing the data into AIM, the Agencies will be supplied with a MS Excel spreadsheet outlining the equipment being delivered. Additionally, the Agencies will receive an updated MS Excel spreadsheet together with the delivery of additional or spare components.

In the event a device requires repair, replacement, or analysis, these identifiers will be used in the ngORCA AIM System to ensure appropriate tracking and history information is maintained.

For units of equipment where production runs are performed simultaneously, the label will provide a sequential series of serial numbers. If production runs are broken out there will be similar number styles or format; however, a break in the number sequence will likely occur. As an example, if unit X has a run of five devices they could be identified using the following serial number pattern: X1231, X1232, X1233, X1234, and X1235. If at a later date another two (2) devices are ordered, the sequence could be adjusted to the following: X3231 and X3232. The differentiating element in this hypothetical example is the second integer, changing from a one (1) to a three (3) to account for the gap in the manufacturing run.

2.7.2.1.4.4 Issue Management

JIRA is a flexible and scalable Issue Tracking System provided by Atlassian. Starting with the first project delivery, the JIRA Ticket Tracking System will be set up and accessible for the member agencies to enter any occurring issues. Issues can be reported by email/ phone and will be entered into the JIRA Ticket Tracking System by INIT personnel OR directly into the JIRA system by the agencies. The JIRA Ticket Tracking System generates a specific ticket number, in which issues are tracked to completion.

When a project is completed, the project moves into a maintenance support phase, in which issues are handled by the helpdesk. The JIRA Ticket Tracking System will also be used during this maintenance support phase.

As an integral part of customer support and our Quality Management system, INIT uses JIRA as our issue tracking system for the reporting, investigation, and remediation of incidents as described below.

All issues are assigned to a person responsible for managing corrective action who will then involve the appropriate team members. JIRA workflows tailored to the identified issue help manage the process by defining and tracking the issue through its various steps to resolution. Typical workflows include gathering information, identifying root cause, and creating a plan with action due dates. All activities are captured in JIRA and email alerts are sent automatically to stakeholders.

Overviews of all project issues and the associated corrective actions are clearly indicated on various dashboards in JIRA to track progress.

After System Acceptance, the project moves into the warranty and support phase where the JIRA Ticket Tracking System will also be used.

2.7.2.1.4.4.1 Create an Issue

The "Create Issue" dialog is shown below. In this example, a new feature has been requested. The workflow associated with this new feature will include approvals, estimates, design reviews, incorporation into the traceability matrix, documentation updates, quality gates, agency approval and more. This form will be customized to the ngORCA members' preferences.

2.7.2.1.4.4.2 Issue Tracking Workflow

A sample Issue Tracking Workflow is shown below. The ngORCA actual workflows will be customized to meet your needs. After the issue is created and assigned to a team leader, it

undergoes an information gathering process. The result may be that the root cause is identified and the team begins to work on the resolution. In the testing phase or even once considered resolved, it may be determined that more information, engineering and testing is required. It is even possible that circumstances in the field warrant the issue to be reopened. Less critical issues may be postponed but will remain in the system to be tracked until resolved. Whatever the path, JIRA tracks the progress with reports identifying how long an issue has been open and what activities have occurred. ngORCA stakeholders will have access to the system to track and monitor progress.

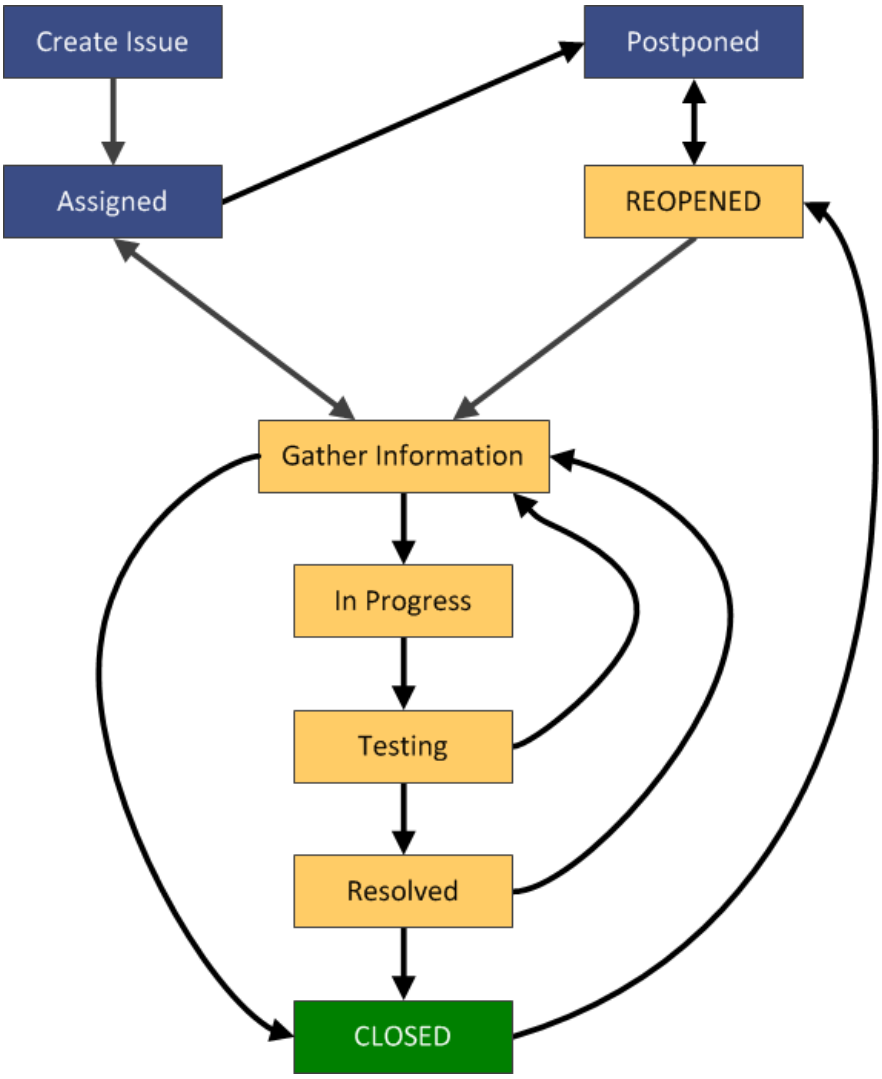


Figure 2-4: Example JIRA Workflow

2.7.2.1.4.4.3 JIRA Issue Details

Shown below is a typical issue dashboard. This issue was a concern about how the backend system will react during the Disaster Recovery system, System Check. As you can see, this was a subtask of the Disaster Recovery (DR) system check and assigned to the TOND team.

Users can add comments, change the issue, add drawings, attach documents and more.

Figure 2-5: Issue Details - Top half

Below, the activity tabs show [redacted] made a comment as he researched the issue. The switchover worked just fine and the issue was closed.

More features are shown in this section broken out from the right side of the screen.

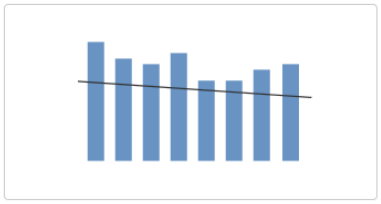
Starting at the top you can see how the data can be exported as XML, WORD and printable format.

Created by [redacted] assigned to Raja, this issue has 2 watchers. The two individuals signed up as watchers and receive emails whenever activity occurs. Authorized ORCA personnel, can click on the field and add themselves as watchers. They can also review the history and contribute with comments.

The date the issue was created, last updated and resolved is also provided.

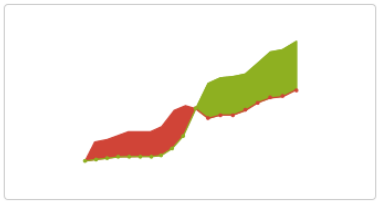
2.7.2.1.4.4.4 Reports

JIRA provides built in reports useful for analyzing trends and status.



Average Age Report

Shows the average age of unresolved issues for a project or filter. This helps you see whether your backlog is being kept up to date.



Created vs. Resolved Issues Report

Maps created issues versus resolved issues over a period of time. This can help you understand whether your overall backlog is growing or shrinking.

Pie Chart Report

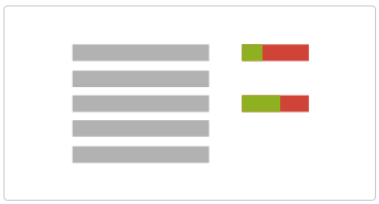
Shows a pie chart of issues for a project/filter grouped by a specified field. This helps you see the breakdown of a set of issues, at a glance.

Recently Created Issues Report

Shows the number of issues created over a period of time for a project/filter, and how many were resolved. This helps you understand if your team is keeping up with incoming work.

Resolution Time Report

Shows the length of time taken to resolve a set of issues for a project/filter. This helps you identify trends and incidents that you can investigate further.



Single Level Group By Report

Shows issues grouped by a particular field for a filter. This helps you group search results by a field and see the overall status of each group.

As seen below, the ngORCA JIRA Issue Tracking system can include the reports listed. Custom reports can be easily defined and saved. All reports are exportable to spreadsheet compatible files, PDF and printable.

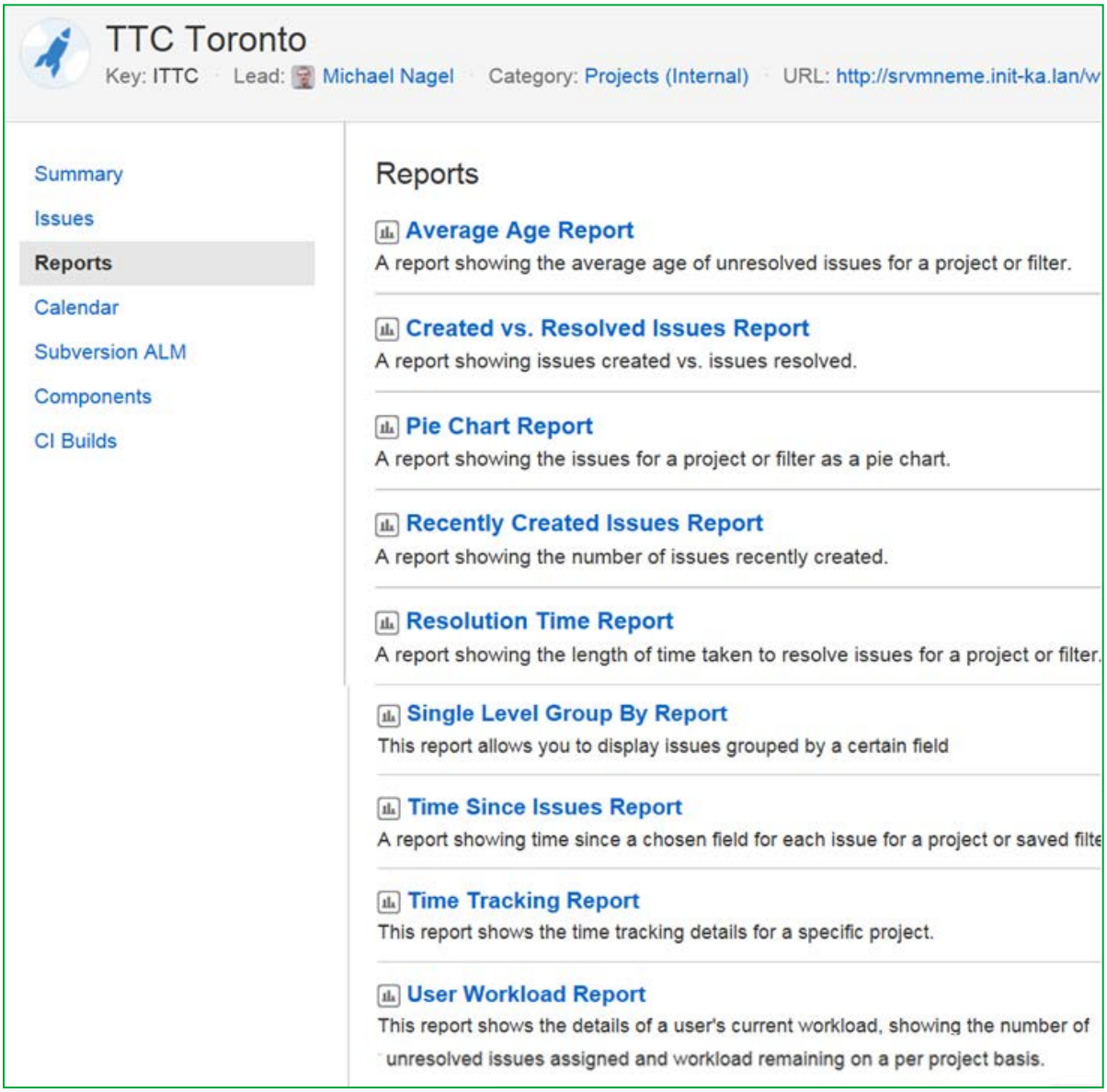


Figure 2-7: JIRA Report List

2.7.2.2 Design Reviews & Approvals

INIT's project management and technical team possess extensive experience in the design of complex, large-scale account-based fare collection systems. Additionally, INIT has partnered with a UX/UI firm to help ensure oversight and implementation of common design practices and guiding principles for key user interface elements.

While time-intensive for many stakeholders, INIT has found that a comprehensive design review process is one of the keys to mitigating overall project risk. As part of this process we will address all functional and technical requirements, review possible scope changes or other

considerations, identify unknown risks, and maintain a clear path of the schedule's requirements and dependencies.

The first phase of the ngORCA project is comprised of three specific design reviews: Conceptual (CDR), Preliminary (PDR), and Final (FDR). These formal design reviews will include the review of System Design Documentation, hardware samples, and functional software demonstrations of INIT's existing comparative systems or prototypes. While these appear to be laid out linearly, the various components of the system where these designs apply will proceed at their own individual pace. This will allow for some items to develop over time along with the design of UI/UX.

To appropriately progress the design of the system and to limit risk to the overall project schedule, INIT proposes to allow the documentation to run in parallel paths. For the purposes of simplicity at the start, INIT proposes to submit its design documentation in two packages; the first will be inclusive of system design documents that are further progressed based on INIT's existing implementations that are in similar scope to ngORCA whereas the second package is meant to allow for additional time for newer areas of the proposed system or for the occurrence of information gathering sessions (e.g. installation, training, etc.) with the Agencies for inclusion in the reference documentation.

At each stage the Agencies will formally approve INIT's proposed design before moving to the next phase of its evolution; however, due to the parsing of the system design packages, different documents may progress sooner than others. In so doing, INIT will validate that the ngORCA system elements are on track to meeting the technical, functional, and operational adequacy requirements of design and that the approach undertaken will sufficiently track against the requirements of the Scope Baseline as stated for delivery in the project schedule. Additionally, by progressing design that can be achieved in earlier stages, development efforts may also be initiated without additional or unnecessary risk.

In addition to submitting all the specified materials during the design phases, INIT will also submit a Requirements Traceability Matrix (RTM). The RTM will outline how the design is addressed in each of the specified requirements. The RTM will also serve as a risk mitigation tool by ensuring that all the requirements addressed during the design phase are documented and made part of each next phase of the project lifecycle.

2.7.2.2.1 General Requirements

Managing a balance of cost, risk, change, and schedule can be quite challenging. However, addressing and engaging in a thorough and robust design process ensures that all such factors are transparent, known, and documented.

The Design Review Plan will be written with the intention of meeting both the design needs of each particular phase(s) of the project as well as taking into consideration the relative maturity of the subject of the specific document area and the design phase it is being reviewed. In some instances, certain elements will be more advanced than others whereas some may require more clarification in a given design phase then initially planned.

Regardless, in order to successfully move through the design review phase INIT's plan will focus on both quality and efficiency so as to best maximize the project schedule while also adhering to the technical, functional, and program requirements as set forth in the SOW.

The first iteration of the Design Review Plan will be provided within 30 days of NTP and, outline in more detail the format for how the various design review stages will occur. As part of that, INIT will define which documents will include subsequent demonstrations or prototype reviews as part of the stated design review phase.

For tracking and management purposes INIT will provide and maintain a document control tracking sheet. This sheet will outline the design review package for each phase (which is to be submitted not less than 21 calendar days prior to any review meeting); denote the requisite documents, their submission / review / approval state, and the state of approval in the specific design phase. Where applicable INIT will also provide estimates on the level of completion of the document in order to be considered for design approval and also needed for work initiation. Additionally, following review the Agencies will then in turn provide INIT with the first iteration of the design review MIL, documenting any questions, comments, concerns, or requests for clarification.

One of the key documents to be addressed as part of this process is the first iteration of the ORCA Business Rules as this document details the relevant fare structures, revenue sharing and apportionment tied to system launch. The final fare structure configuration will be documented and approved within 120 days of integration testing of the applicable components.

Starting at NTP, as part of each design review stage INIT proposes the parties plan and engage in a series of in-person requirements gathering and design meetings with a frequency appropriate to the subject and resources associated. In some instances, routine SME meetings will be established and carried out through the design phases. INIT proposes the following groups are initiated at a minimum following NTP and discussed as part of the kick-off:

- Training
- Field Services / Equipment Installation
- UI/UX
- Transition
- Inspection and Testing

Additionally, INIT also proposes that the parties engage in in-person design review workshops per phase at the Agency's meeting location. To foster the iterative design needed for the schedule, INIT proposes a series of workshops across the design phase to accommodate functional area needs and personnel schedules which may take 3-6 weeks per phase. As part of this design review, INIT supports all stakeholder groups' participation. The specific structure of the workshops will be detailed further in the design review plan.

For a period of 1-2 week's within the design workshop window, INIT will bring additional technical resources (e.g. hardware and software engineers) from other locations outside of our Seattle office, to participate (including vendors where applicable) and engage in "deep-dive" discussions. Taking this approach also extends the capacity for direct small group discussions, brainstorming and other technical clarification methods, as well as address design concerns or considerations in real-time.

As a sample format for CDR, please consider the following high level approach:

- Week 1: Equipment installation, IT Architecture, Transition
- Week 2: UI/UX and Training
- Week 3: Back Office Applications, Testing and Transition
- Week 4: Back Office Applications, Integration

From that high level approach we would then begin to list the relevenant CDRLs within each week and see how the overall load and resourcing works out; what vendors are needed, which Agency personnel are required, and what additional technical resources from external INIT locations. For example, for week 2 might require INIT IT resources from Chesapeake, VA while week's 4 and 5 may require our back office development SMEs. Based on those needs we would coordinate travel and schedules accordingly.

INIT believes that a combination of these design approach discussions will ensure frequent and routine engagement where possible while also providing the Agencies with direct access to our engineers for critical decision making and clarification. Where possible, INIT can also supplement the in-person/on-site meetings with follow on tele/web-conferencing as needed or required.

During each phase INIT will strive to ensure feedback is heard, logged, and addressed by all those impacted. In so doing we believe we can both mitigate the need for rework as an outcome of unclear and/or undocumented requirements or business needs and as such avoid missing detail that might otherwise not be known until implementation - which becomes more costly as time in the project has progressed. It is expected that each document will undergo various iterations within each design phase. If the design document packages are revised as required they will be resubmitted within 14 days of completion of the design review meetings.

Those discussions points, issues identified, and decisions made will be documented and addressed during the specified design meetings where possible in the MIL. Residual issues will continue to be tracked in the MIL and actively worked until resolved during future iterations of the design review process. The Agencies will be responsible for final closure of all logged issues in the MIL. Following successful closure of identified issues, the review package can be made available for Agency approval.

2.7.2.2.2 Conceptual Design Review

The Conceptual Design Review (CDR) will meet the objectives outlined in the RFP of familiarizing the ORCA agencies with the proposed system design. As CDR occurs in the very early stages of the project, certain documents will require the design review workshop in order to detail certain sections of the submittal documents. Such sections will be referenced with placeholders.

Following the submission of CDR, the Agencies will have 21 calendar days to review and comment on each specific document prior to the occurrence of the design workshop. Agency comments will be tracked in the Master Issues List (MIL) which is uploaded to the ngORCA project collaboration site where the Agencies can review at their convenience. In so doing the Agencies can further guide as appropriate the progress and structure of the design approach.

INIT and the Agencies will participate in CDR workshops, at Agency-designated facilities. During these workshops INIT will have onsite relevant subject matter experts (SMEs). The aim of the workshop will be to have clear direction and understanding of the necessary next steps for the Preliminary Design Review (PDR) submission as well as identify any gaps, actions, next steps needed to close out the CDR phase.

2.7.2.2.3 Preliminary Design Review

Following the CDR approvals INIT will begin the planning and delivery of the system documentation necessary for the Preliminary Design Review (PDR) phase.

For the PDR submission INIT will continue to update all relevant documents and include responses to Agency comments from the MIL to ensure all areas of concern, question, or revision are included and/or addressed from CDR to the extent practicable. Additionally, updates made to the PDR documentation will be done with the intent to provide approximately 75% of the systems design.

Following INIT's submission of PDR documentation the Agencies will again have time to review each submittal and comment as appropriate. INIT and the Agencies will schedule a second workshop in support of PDR, to be held at Agency-designated facilities. During this workshop INIT will bring relevant subject matter experts (SMEs) including but not limited to INIT resources

and key personnel, INIT subcontractors, or other vendors supplying portions of the ngORCA integration.

INIT will provide the following during the PDR:

- Specifications for all proposed equipment
- Narrative descriptions of the major systems and subsystems
- System block diagrams identifying all interfaces between system components, including external systems that will not be provided by the INIT but will interface with the system
- Responsibilities and schedule for completion of detailed system interface definitions
- Software designs, including software block diagrams for key system components
- INIT's understanding of the intended operations and maintenance environment
- Master schedule to review and discuss primary milestones and risks
- Customer and operator user interface specifications, flow charts, and messages for all Contractor-supplied devices and systems, including accommodations for all boundary and error conditions
- Interface and communication specifications for all internal and external system interfaces
- Specifications for all configuration control systems
- Specifications for access control systems supporting back office operations;
- Requirements traceability matrix

Prior to the PDR, INIT will conduct site visits, station inspections, and additional requirements analysis activities as needed to further advance the system design documentation.

As with CDR updates for PDR, following the PDR workshop INIT will review the document MIL's and update the necessary materials accordingly and in preparation for FDR. Ideally, the framework and necessary steps for FDR at this stage will become clearer and requirements tied closely to the build phase planning.

2.7.2.2.4 Final Design Review

To prepare for FDR, the narrower requirements may necessitate sub groups to continue to break off so that clear outcomes and use cases can be illustrated in between the design review formal workshops. The FDR workshop will be scheduled to follow the FDR submittal, for the review and confirmation of the systems intended design.

The requirements of this review will be INITs provision of the final design updates and that all comments, questions, or clarifications from the MIL's provided by the Agencies are addressed and all action items closed out and validation that the UX/UI principles and guidelines have been adhered to.

During this final formal design workshop INIT will bring relevant subject matter experts (SMEs) including but not limited to INIT key personnel, subcontractors, or other vendors critical to the eFare integration. The FDR meetings will seek to close as many gaps as possible, clarify the last requirements necessary for the system's final design and set the framework for development, procurement, fabrication, installation, testing, training, implementation, and deployment.

Activities of the FDR will include the following:

- Schedule compliance review and discussion of variances or delays
- Assembly drawings for all INIT-supplied devices, down to the Lowest Level Replaceable Unit (LLRU)
- Electrical schematic drawings for all INIT-supplied devices
- Preliminary "as-built" drawings and prototypes for all device mounting configurations
- Final system architecture drawings
- Detailed software specifications for all back-office systems with software module descriptions in a narrative format and data flow diagrams to the lowest level of decomposition
- Detailed specifications for all application programming interfaces (APIs) supporting frontend and back office operations
- Detailed specifications for all system transaction formats
- Detailed descriptions of all message formats and data elements for device and system events and alarms
- Interface control documentation for all systems and subsystems
- Complete data dictionary and detailed database design documentation, including all tables, views, and materialized views for all database schemas in the system, in electronic format (e.g., ER Studio)
- Documentation of database programming features including, but not limited to; queries, query formats, triggers, jobs, functions, and procedures
- Requirements traceability matrix
- Installation plan

INIT has found greater success with collaborative communication during meetings and documentation revisions thereafter being submitted to the Agencies as opposed to ongoing back and forth without personal engagement. However, if after review, the material does not meet the stated requirements of FDR completion and additional comments or clarification are necessary, INIT will continue the resubmittal process until ratification is achieved.

2.7.2.3 Installation & Transition

Integrated within INIT's program management plan is the transition and change management plan. The transition section of this plan describes how the old system will be transitioned to the new system; including all operations for ORCA, the public and all external stakeholders. Included in the plan are risk mitigation procedures for the transition process, including any additional equipment and/or staffing requirements for ORCA.

2.7.2.3.1 Installation & Transition Strategy

Essential for a seamless transition for customers from the customer's legacy ORCA system to the next generation ORCA system is a rapid transition period where mixed validators (legacy and new generation) operate concurrently within the system. To achieve this, INIT plans to perform detailed prototyping of every unique vehicle make/model/type and unique platform validator type far in advance to the fleet installation to ensure that for each installation type, the new validator mounting, and cabling are considered. The outcome of the prototyping will be detailed installation plans for each installation type.

Due to the limited space available, INIT proposes reinstalling the legacy validator after prototyping is complete. During the prototyping of a vehicle type, the vehicle will be out of service. For this reason INIT plans to quickly reinstall the legacy validator. This will allow INIT to preorder all parts and cables needed for the fleet installation without expanding the timeframe of operating with mixed validators in the system.

2.7.2.3.1.1 Onboard Validator Coach Installations

INIT has reviewed the existing on-board validator installation locations for the legacy validators and is confident that the existing installation brackets/stanchions can be reused. This will make the installation process very easy and time efficient.

For all coach installs, INIT will mobilize 10 technicians (5 two-member teams). For coach installations where it is possible to reuse existing cabling the manpower and estimated times are:

- Validator & DDU installs: 2-member team, 2.5 hours/vehicle
- Validator only installs: As requested, KCM and CT maintenance will perform these installs

For coach installations where new cabling is required, the manpower and estimated times are:

- Validator & DDU installs: 2-member team, 4.5 hours/vehicle
    - Validator only installs: As requested, KCM and CT maintenance will perform these install

2.7.2.3.1.2 Platform Wayside Validator Installations

INIT is planning to install new masts/mounts but would reuse the existing infrastructure where possible to avoid complicated and time-consuming installation of floor anchors etc.

For wayside validator installations where the existing infrastructure can be reused, INIT will mobilize 10 technicians (10 one-member teams). Manpower estimates are below:

- Replace mounting poles utilizing existing anchoring, reuse existing cabling and install validator 1-member team, 3 hours/wayside

Wayside validator installations where the existing infrastructure cannot be reused will need to be evaluated case-by-case to determine whether a one or two-man team will be required and what additional resources will be required.

2.7.2.3.1.3 Vending Machine Installations

INIT is planning to re-use the existing infrastructure where possible to avoid complicated and time-consuming installation of floor anchors etc. INIT proposes to install the platform validators and the Vending Machines in parallel.

For Vending Machine installations, INIT will mobilize 10 technicians (5 two-member teams). Manpower estimates are below:

- Utilize existing anchoring, reuse existing cabling and install vending machine, 2-member team, 8 hours/wayside

2.7.2.3.1.4 Customer Service Terminal Installations

Installation of the customer service center may be completed within one weekend to avoid having different systems running concurrently.

2.7.2.3.1.5 Driver Display Unit Installations

ngORCA DDU installations will be included in the on-coach installations for: Everett Transit, Kitsap Transit & Pierce transit and will be performed by the SI.

Community Transit and King County Metro will both have Single Sign-on, integrating their existing CAD/AVL and ngORCA functions into their INIT-provided MDT.

- Community Transit will complete their fleet upgrade to the INIT MDT by June 2019, in time for the ngORCA integration.
- King County Metro will incorporate their INIT MDT upgrade with the validator. Installations will be performed by KCM maintenance.

Since both Community Transit and King County Metro use similar INIT on-board equipment and MDTs, INIT can provide both agencies Single Sign-on leveraging existing installed equipment. In both cases, a separate DDU to control eFare will not be required.

Site surveys and installation plans per vehicle type will be provided by INIT.

2.7.2.3.2 Phased Back-Office Parallel Transition

2.7.2.3.3 General Installation and Transition Needs

2.7.2.3.4 Installation & Transition Plan

2.7.2.3.5 Site Surveys

The ngORCA agency provides data on the correct operation of all power and signal cables, switches and routers, etc. they are providing. During the site inspection, plans for ingress and egress of the installations are determined.

Initial vehicle, station, terminal, and wayside platform surveys will be completed as a part of the design review process. As part of FDR, INIT will submit the installation details and specifications for all equipment installations for agency review and approval.

Pre-inspection activities include testing existing systems, to which INIT must interface, as well as recording damage or other existing conditions prior to equipment installation. During pre-inspection, INIT identifies any modifications or additional provisions needed for installation of the System equipment and related system components but will work as much as possible within the limits of intended location.

INIT performs detailed site surveys and inspection for, all vehicle types, back office install locations, wayside install locations, and Customer Service Terminal locations, to document the procedures of each installation type required.

Using the information provided in the RFP Appendix #1, we determined the different vehicle types that each agency has. From this we can estimate the following number of vehicle site surveys that would be required:

	King	Pierce	Kitsap	Everett	Comm	Sound

	Couny Metro	Transit	Transit	Transit	unity Transit	Transit
Vehicle Types	10	7	6	4	8	13

The vehicle information in the proposal appendix is intended as an initial estimate of the number of site surveys that would need to be performed, the actual number of prototypes needed will be determined during the site surveys. Our experience tells us that roughly half of the surveyed vehicles would need to be prototyped. This would lead to a total of 24 prototype vehicles for all agencies.

Wayside surveys will indicate variability in installations across agencies. To assist, agencies will be asked to provide:

- Schematics from each agency on communication, power and networking details
- Location names and addresses
- Different types of Mast or mounting configurations per location
- Determine level of waste/recycling for each decommissioned wayside
- Determine level of concrete work

Vending machine surveys will indicate variability in installations across agencies. To assist, agencies will be asked to provide:

- Schematics from each agency on communication, power and networking details
- Location names and addresses
- Existing Vending Machine make, model & specifications
- Decommissioning instructions for Existing Vending Machines
- Clearing out cash
- Special decommissioning procedures
- Floating time for all transactions to settle
- Mounting schematics
- Disposal

Agency CST location surveys will indicate variability in installations across agencies. To assist, agencies will be asked to provide:

- Schematics from each agency on communication, power and networking details
- Location names and addresses

- Different types of mounting configurations per location
- Determine level of waste/recycling for each decommissioned customer service terminal

2.7.2.3.6 Prototype Installations

Per the installation plan, INIT performs a prototype installation of the field devices in each of the different field environments in which the equipment will be installed, including a prototype installation of all bus equipment for each vehicle type. At this point, INIT has assumed three different station types requiring prototype installations. The prototype installations remain in service for at least one (1) week to ensure the integrity of the installation design.

2.7.2.3.7 Onsite Work Requirements

All INIT employees and subcontractors, working within operating rail stations, platforms, and rights-of-way, will comply with applicable rail safety and operations rules and regulations. All personnel engaged in Installation activities will have attended ngORCA's safety training and will be dressed appropriately. INIT will deliver and execute the safety access plan for all onsite work. Safe access will be afforded to construction equipment, vehicles, and personnel in accordance with ngORCA policies and OSHA regulations. All access plans will be submitted to the Agency for review and approval. INIT is responsible for compliance with all Regulatory requirements applicable to the design, construction, Installation, and testing, including the application and granting of all applicable permits. Additionally, INIT shall comply to the individual training requirements of each site location as shown in Table 2-4.

2.7.2.3.8 Installation Procedures

INIT will submit installation procedures unique to each agency for all hardware and software to be installed, in accordance with the approved installation plan, agency rules, and guidelines.

These procedures will include an installation procedures manual for each agency. The procedures will detail how any modifications made to agency-owned facilities and equipment as a part of equipment installations will be sealed and corrected in order to preserve the integrity of the infrastructure.

2.7.2.3.9 Shop As-built Drawings

INIT will submit shop drawings used in its manufacturing and assembly facilities to fabricate, assemble, and/or install components of the system. This is true for items manufactured from raw materials, items purchased as raw materials, or items purchased in ready-to-use condition. Shop drawings and their projected delivery dates are noted on the master program schedule.

Part of the work necessary to define the drawings will include site visits and surveys; INIT will coordinate and work with the Agencies, at each of their designated locations or facilities to ensure we understand the scope of the work involved. During this time INIT will make inquiries regarding the Agency's processes and gather available existing information to understand the specific nuances of each element of the installation efforts. Additionally, during this time INIT may also share information pertaining to the methods or efforts engaged, how information will be conveyed in the drawings and other similar informational materials or instructions.

No work indicated by any shop drawings will be commenced until drawings have been marked as "Approved" or "Approved as Noted." INIT will document each device installation in the form of an as-built drawing. The as-built documentation will identify equipment location information, wiring connections, and all additional information needed to maintain the newly installed infrastructure. All drawings will contain dimensions, physical details, connections, and other information pertinent to system diagnostics, maintenance and troubleshooting. Where applicable, the substance and detail contained in the drawing as well as how to review and manage the index will be provided as part of the system maintenance training.

For each set of as-built drawings, the Program needs the SI to submit prior to final acceptance:

- One (1) copy on electronic media, in a format approved by the Agencies
- One (1) reproducible CAD-generated hardcopy

A master index of drawings is submitted to ngORCA agency, clearly indicating the organization of the shop and as-built drawings, listed by drawing number. The master drawing index also provides cross-references to related drawings, and the hierarchy of all drawings and drawing layers.

2.7.2.4 Testing

INIT employs a rigorous test regimen to ensure that all assets delivered to the ngORCA agencies are fully functional upon initial delivery. This establishes the foundation for reliable system performance and high availability. We use that experience to deliver a test plan to the ngORCA agencies to fully demonstrate compliance with the requirements. INIT plans, performs, and documents all tests to proof the design of all components and subsystems, and the integrated system as a whole.

Once a piece of software is ready it will go through a series of test steps. At the time of the system integration phases, following the scripted tests each release thereafter will include a two-part test approach, functional tests and regression tests. The functional test will validate the quality of the proposed change while the regression tests will ensure the continuity of system performance is unchanged. Once INIT has performed these tests and can validate the quality of

the release, the testing is then available for the Agencies. Each system component will have a subset of regression tests and accompanied by an assortment of system-wide regression tests. Taking this approach ensures the integrity of the affected component and also overall system health. Additionally, if during the scripted tests occurring as part of the test phases noted below a failure occurs, the retest once the corrective action has been implanted will include both a functional test as well as component level regression tests. In some cases, later in the project, when a fix is introduced, depending on the nature of the fix, further integration-based regressions tests may be required to ensure no breaking changes have been introduced.

The project testing will occur in three (3) distinct test phases, functional, integration, and acceptance testing. During the functional test, INIT or the relevant vendor, will demonstrate that each system component is able to meet the requirements as stated in the scope of work, as independent elements – this includes the relevant environmental and compliance test of physical equipment. During this first phase there will be several independent test cycles occurring for the different parts of the system and at different times. Additionally, during this test phase usability testing to validate the user-centered design approach undertaken with the UI/UX efforts will also occur. Following each system components completion of the functional test there will be important information and low-level detail gathered and brought forward in preparation for the integration testing.

As noted, the functional testing will occur at varying intervals based on the readiness of the components. Once through the functional test and readying for the integration tests, there will be less variance though still some. However, by the time of the integrated field test, the majority of these components must be available and integrated in order to appropriately perform the test. The websites and mobile apps will continue usability testing iterations up through the final implementation. Additionally, during this test phase the system will undergo load testing, stress testing, and/or failover testing for the different elements of the system. The integration test will ultimately indicate the successful functionality and performance capability of the system.

Once the Pilot Test has been completed successfully, the system will move into the acceptance test phase. During this time the system is live and in peak usage; in this state the system is intended to demonstrate its capability in meeting the stated performance requirements over a fixed duration. Upon achievement and completion of any open points remaining, the project will be complete and ready to move to operations and maintenance.

2.7.2.4.1 General Requirements

INIT will not begin any portion of system testing until all prerequisites have been successfully completed and approved in writing by the ngORCA agencies. While all testing phases will be completed in their entirety for each phase of deployment, the packages or content included in

certain test phases will be broken out into smaller subsets. This breakout allows INIT to more aptly progress various pieces of the system by allowing them to progress at different paces based on their relative maturity and the effort needed. Taking this approach INIT can stave off unnecessary delays or down-time that would come as the result of waiting for all system components to be ready at the same time. Further, certain system components will be more complex or require varying levels of integration with multiple systems and as a result require more layers of a certain test phase. Progressing both the development and test phases in an agile and iterative fashion will help to mitigate schedule risk as well. However, no single test phase will be considered complete until all system components have entered and successfully passed that phase.

INIT will provide all labor and materials required for system testing, including fare media, payment cards, support services, and facilities required to stage, inspect and test all hardware and software being supplied. As part of the overall testing regime:

- INIT tests and verifies that they can successfully utilize the agency-provided communications networks for deployment of the system as designed.
- During all conducted tests, any and all hardware or software not passing inspection or test will be replaced, or otherwise corrected by INIT and retested.
- Prior to the start of any formal testing, INIT will conduct “dry-run” testing to identify and resolve any issues that arise before formal testing commences.
- Successful completion of each phase of testing will be subject to agency approval based on approved test criteria.

INIT will ensure that the Test Plan covers all inspections and tests to be performed, including those performed under the Quality Assurance plan. No tests will be performed until all the required prerequisites have been met. Test results will be submitted for review after completion. In the event corrective action or remediation is required prior to acceptance, INIT will coordinate and plan said activities in cooperation with the Agencies including schedule for installing fix in test, the required testing (component or integration-based regression tests), and the confirmation that the test has passed.

2.7.2.4.2 Test Documentation

In order to ensure continuity and consistency from design to test, INIT will develop the test documentation from the system design documents approved as part of the FDR. Using the design documents, INIT will detail each individual requirement and use case needed for test. Further test iterations will continue to build off the associated test plan so that there is

traceability of each test and outcome. Additionally, INIT will also utilize the Requirements Traceability Matrix and track the progress of the test cycles there.

As noted, INIT will prepare and submit to the ngORCA agencies detailed test procedures of each test. The procedures will be provided several weeks in advance of the test to allow for Agency review and comment or feedback to be received and incorporated prior to the test. These procedures will include the following:

- Information provided in the test plan (repeated)
- Mapping or references to the design documents and functional requirements related to the test
- Test methodology, including input and expected output
- Equipment and instrumentation to be used for testing
- Detailed breakdown of all hardware and software components under test
- Detailed test scripts
- On-line and off-line diagnostics
- Any related documentation (drawings, prints, supplier specifications, and recommendations)
- Forms for recording data, including fields for date, time, location, and name and signature of persons conducting or witnessing the test
- All other information required to monitor and manage the inspection and testing
- Name and signature of the person who prepared the test procedure

Additionally, the INIT team will submit the Test Plan which will identify the inspection and testing to be performed at for each test. We will ensure that information provided for each inspection and test includes the following requirements:

- Test title
- Reference to contract requirements section requiring the test
- Organization performing and responsible for the test
- Inspection/test location
- Test objectives
- Test pass/fail criteria
- Test schedule

- Test procedure submittal
- Test start date
- Test duration
- Test report/certification submittal

During the design review INIT will provide test samples used on previous projects to demonstrate the methods and process for documentation.

2.7.2.4.2.1 Inspection & Test Plan

INIT will submit a draft Inspection and Test Plan for the ngORCA agencies review and approval during the design reviews. The Inspection and Test Plan will provide the schedule, methodology, strategy, and planning in detail for each of the associated test phases as well as ancillary testing intended to be undertaken during the project delivery. The Inspection and Test Plan will detail the documentation, test procedures, scripts, and reports required for each phase (Factory, Integration, and Acceptance Testing).

The Inspection and Test Plan creation and management will be overseen by the Lead Engineer from INIT; however, the individual test scripts and procedures will be the responsibility of the individual developers and/or vendor SMEs. As with all documents, the test procedures and documentation provided by the developers or vendors will go through a peer review and evaluation prior to issuance to the Agencies. See below for a high-level matrix for how the plans are created and reviewed:

Test Topic	Author	Peer Review	Final Review
INIT Back Office Software Applications	INIT SME	Engineering Team Lead	Lead Engineer; Lead SW Engineer
INIT Back Office IT Architecture	INIT SME	INIT IT Director	Lead Engineer
INIT Failover and Load Testing	INIT SME	INIT IT Director	Lead Engineer; Lead SW Engineer
Customer Mobile App	Vendor SME	UI/UX Vendor; INIT Business Analyst	Lead Engineer; Lead SW Engineer
Customer Website	Vendor SME	UI/UX Vendor; INIT Business Analyst	Lead Engineer; Lead SW Engineer
Agency Fare Inspection and Validation Apps	Vendor SME	UI/UX Vendor; INIT Business Analyst	Lead Engineer; Lead SW Engineer

Prior to each individual test cycle (occurring within a test phase as detailed below), INIT will submit a test procedure providing a detailed outline indicating the sequence of each test, module being tested, where and when each test will take place, and the number of INIT-provided staff covering each test, including any vendors:

Test Phase 1: Factory Testing

1. First Article Configuration Inspection (FACI)
2. Factory Acceptance Test (FAT)
3. Production Acceptance Test (PAT)

Test Phase 2: Integration Testing

4. Functional Unit Testing (FUT)
5. System Integration Test (SIT)
6. Field Integration Test (FIT)
7. Pilot Test(s)

Test Phase 3: System Acceptance Testing

8. System Acceptance Test (SAT)
9. Final System Acceptance (FSA)

The Inspection and Test Plan will include the number and range of tests that will need to occur as well as the criteria for acceptance of each phase of testing. All performance measurement procedures and acceptance criteria, including the number and type of failures allowed in each phase of testing, will be in accordance with the requirements of the technical scope of work and subject to the ngORCA agencies review and approval.

The Inspection and Test Plan, in addition to the tests occurring in the above stated test phases will also include scope for volume or stress testing, for applicable devices, that simulates peak ridership and transaction volumes as required based on the projected ridership numbers provided by the Agencies during design review. The Inspection and Test Plan will also include detailed test scripts for each test case to be performed. Test scripts include test case setup instructions and preconditions, step-by-step instructions for performing the test, and expected results for each step. Embedded within the detailed inspection and test procedures are references to the design documents and functional requirements related to the test.

2.7.2.4.2.2 Integrated Delivery Testing

During the project implementation and project operations phase INIT will perform comprehensive testing for all software and services delivered.

The following represent a sample test approach. Detailed test procedures will be submitted for each delivery.

- For API deliveries
  - Before delivery, API calls are tested with java based scripting with customizable parameters to enhance the quality of testing
  - A use case based testing approach is used as a part of these scripts to simulate daily use cases. Here is an example:

- For device software deliveries
  - Scripted software testing is done to simulate use case based testing for the device software. Here is an example:

After the software is delivered to the test system, comprehensive testing is done in the test system to test possible use cases. Checklists are used to document the successful test result. This will include, but will not be limited to validator software, CRM, Ticket Vending Machine software, websites, and mobile apps, inspection apps to cover typical use cases of the respective devices, software applications and customer facing apps/website.

Once the software is approved and delivered to the production/live system, a similar set of tests are conducted in the production/live system in order to conclude the testing phase of the delivery.

2.7.2.4.2.3 Inspection & Test Procedures

As detailed in the Inspection and Test Plan, INIT will submit an Inspection and Test Procedure for each test in the stated test phases, subject to review and approval by the Agencies. Creation of each test procedure will be drafted by the responsible subject matter expert (SME) utilizing the most recent system design document approved by the Agencies.

Prior to each test, INIT will need to prepare the required test facility to ensure the appropriate equipment, database, configuration, and media are present and ready for test execution. To provide the Agencies with a clear understanding and outline of what is required, INIT will submit a software installation plan and test setup diagram for those tests not occurring at the Agencies local test facility and, a software installation plan and system configuration diagram for the agency test facility. These documents will be submitted as part of the procedures for the specific test phase or test itself as applicable.

Each test procedure submitted to the Agencies will include detail on the following:

- Test scripts for each test case to be performed as part of the test
- Setup instructions and preconditions
- Module reference (e.g. CRM, CST, Web Portal)
- System Design Document reference
- System Design Document section reference for the specific test case
- Responsible person for test execution
- Date of test execution
- Step-by-step instructions for performing the test
- Expected results for each test step
- Agency personnel present to witness the test

During the test, each test script will be classified as having either passed or failed; however, in some instances the test may be deferred by the Agency. Deferring a test is uncommon but may be required if for example the Agencies have requested additional time for final design requirements to be made (e.g. automated email because marketing has not yet finalized the copy for the email's content) but going forward with the test is critical to schedule adherence and, the test does not adversely impact or cause risk the progression to the next test phases.

In the event a test has failed, INIT will be required to initiate corrective action and/or remediation prior to requesting a retest. The scale and method of re-testing will be at the discretion of the Agencies once the corrective action has been implemented. For example, INIT may request to retest the single failure for a specific Agency designee or the Agency may request that the functional test of the failed item be undertaken along with a small sampling of additional tests to ensure breaking changes have not been introduced.

In addition to INIT's scripted tests, the Agencies may develop additional testing or test scenarios on an ad hoc basis during all phases of testing and have access to the test facilities, as available.

2.7.2.4.2.4 Inspection and Test Reports

To validate successful completion, INIT will submit a test report at the conclusion of each inspection and test performed. For continuity in the different test cycles, the test report will be derived from the test procedure. The primary changes to the test procedure will include the following data gathered and documented during the test:

- Test result (pass, fail, or defer)
- Agency designee witnessing and validating test performance
- Comments or actions (e.g. requests made during the test which modified or added to the predefined procedure)
- Changes required to the test setup
- Specific test data not previously included (e.g. card numbers, login credentials, etc.)

If any additional comments or other data are generated but not inherently specific to a test case, as part of this report INIT will also provide, copies of all data generated during the test. All transaction data generated during testing is submitted as part of the report, in Excel format to allow for simple storage and analysis by the ngORCA agencies.

An Inspection and Test Report may be updated after a retest to include the exception of the initial test, detailing explanatory information, failure descriptions, corrective action implemented, as well as a provision of all transaction data generated, detailed failure descriptions and resolution, modifications or repairs pertaining to the components or systems being tested, and any re-test results.

Inspection and Test Reports are delivered at the conclusion of each test within the associated test phase(s) for ngORCA agencies for review and approval. No test or phase of testing will be considered complete until the associated reports have been approved by the ngORCA agencies.

2.1.1.1.1.1 Test Waivers

INIT understands test waivers could be requested for components or subsystems that are substantially similar to previously tested components or subsystems, if agreed to by the Agencies. As INIT has some system components, similar to those intended for ngORCA, currently in operation as well as those that have most recently passed a series of factory tests for other projects, review and consideration of waiver options should be undertaken as this could more positively impact schedule constraints. To ensure timely review, INIT proposes that an initial review or discussion occur during the Conceptual Design Review phase. Actions or considerations of next steps can be further review or considered thereafter.

Irrespective of examples provided or broader conversations undertaken with the Agencies, it is clear specific testing requirements for each system component will be considered individually. Waivers issued, if any, will be done so on an individual test and component basis only. The Agencies reserve their right to not grant an additional waiver for any of the other tests or test phases pertaining to the component granted a waiver for a previous test.

For example, in the event that INIT was to be granted a waiver for environmental testing of the Validator, which occurs during FACI, INIT may not assume that the Agencies have granted a waiver of the Validator for the entirety of the FACI test. As such certain cycle or performance tests may be required if they were made part of FACI Inspection and Test Plan. Further, should the Validator be granted a waiver for the entirety of FACI, INIT may not assume that the Validator need to undergo FAT or PAT testing.

While applicable to the Factory Test phase, waivers are not appropriate for and as such will not be granted for integration or acceptance phase testing. The ngORCA design and implementation will be a unique system, as such, integration testing of each and every component in multi-staged environments is essential. Further, the performance metrics required of this unique and specific system cannot reasonably be replicated.

2.7.2.4.3 Agency Test Facility

INIT will provide the Agency Test Facility with no assumption that the facility will be located in any Agency facility. The test facility is included in the scope of this proposal. INIT will provide this facility built to specification as defined in the design phase of this project.

In order to appropriately test the functions, configuration, and integration of the ngORCA system, a local, accessible test facility for both Agency and INIT personnel is required. The provision of this test facility could be undertaken in a couple of different ways; however, INIT understands that the location and provision is our responsibility. Further, it is understood that the test facility will need to be available for agency access during normal business hours and, upon special request to the extent practicable, after hours, on weekends, or during holidays.

One location option would be something similar to what the Agencies have experienced with the current legacy system; hosted inside the offices of the vendor. While an independent location could potentially be identified, INIT believes this option to be cost-prohibitive and logistically challenging. The second option of test facility location could within an Agency office (e.g. Sound Transit) or building. As there are various considerations that can be made for either option, INIT has provided a few points and both pros and cons to each below.

INIT Office

If hosted in INIT's office in Seattle, INIT would first need to source a new office location as the current building is insufficient in size, there are no freight elevators, and there are likely some power accessibility limitations. However, if this is the preferred approach INIT would upon notification of contract award, need to undertake the necessary steps to identify new location options. The new office would aspire to be centrally located and be sufficient in size, power, accessibility, access to a freight elevator, secure requirements for access, and include the capacity for storage.

Positive aspects in taking this approach include the following:

- Agency agnostic
- Centrally located for the Region
- Limit risk to Agencies in the event the test facility is accessed by unauthorized personnel, an item of equipment or personal belongings are the subject of theft, or other similar risk

Some of the negative aspects could include:

- Access limited based on requiring an INIT representative be present; either an INIT staff person would need to be in the office at the date and time specified or the Lead Engineer or similar Project Team staff accompany the Agency; additionally, the building allows free access between the hours of 8AM to 5PM only
- Location remote to INIT Lead Engineer (as they are present in the offices of ST); if issues arise in the test facility, they will need to travel etc. in order to inspect the issue or support the resource in their test
- Location unknown and may require some travel for all Agencies; costs for parking or commutes also unknown

Agency Office

In order to consider there to be an option to host at an Agency facility, first and foremost there simply has to be the interest and then as important, logistically there must be the space available or to become available in the timeline it is required. And that use is in accordance with the long-term needs of ngORCA. That said, similar to the above, there are always pros and cons to consider; provided below is a summary of a few points.

Some positive considerations for hosting at an Agency location are:

- If at either Sound Transit or King County Metro, the location is central for the Region
- Access is agnostic of or not inherently limited by INIT (office) or INIT's attendance
- If at Sound Transit, the location is immediately accessible to the entire Project Team (ngORCA and INIT)
- If at Sound Transit, INIT's Lead Engineer is more readily available to support during a test
- If at Sound Transit, INIT's Lead Engineer can more easily demonstrate or train Agency staff should the need(s) arise
- Stringency of security is at the discretion and control of the Agencies
- Wireless network setup and access may be easier or more convenient

Some negative points that could arise if hosted at an Agency facility to consider are:

- As noted before, if a location is simply not available or not available for the duration of the need
- The location available may have power or space limitations; may not have a freight elevator
- Not Agency agnostic
- If not at Sound Transit of King County Metro, the location could be more remote than that which is desired or preferred
- An Agency may have access limitations for security reasons not otherwise present with INIT or at INIT offices
- In the event of theft, a security breach, or power outage, the hosting Agency may absorb more risk than palatable or even allowed from a policy perspective

Location specific considerations aside per the RFP, INIT will identify and provide a secure facility in Seattle at a location approved by the Agencies. As stated, the purpose of this facility is so that both the Agencies and INIT can test current system hardware, software, and perform integration and regression tests as needed or desired.

The test facility will be connected to the INIT back-office as described in Tab 1 "Technical Proposal of INIT's Account Based Open Architect System" of this proposal. Also, any media or test setup necessary to facilitate testing, including required labor or personnel, will be provided by INIT.

The test facility back-office will include hardware identical to the production system (but will not require redundancy), be equipped with the account-based transaction processor, and have the ability to connect directly to the merchant acquirer (or other processing entity) to fully test credit and debit transactions without processing transactions such that they will be reported by the processor.

The ngORCA equipment installed the test facility will include separate hardware and software replicating the Agency-specific system configuration, including any existing equipment (*e.g.*, CAD/AVL system, MAR, mobile device) that is integrated with the new System. It is noted however, that Washington State Ferries will maintain their own Wave2Go test facility separate from this system and as such is not required as part of the ngORCA test facility.

Based on the current understanding of the Agency-specific configuration, the test facility should include the equipment and software as noted below. However, it is important to denote that some equipment will need to be supplied by the Agency as it is not in scope to INIT:

Community Transit

- Onboard Validator
- Driver Display Unit
- Bus-in-the-Box
- Platform Validator
- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Everett Transit

- Onboard Validator
- Driver Display Unit

- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

King County Metro

- Onboard Validator
- Driver Display Unit
- Bus-in-the-Box
- Platform Validator
- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Kitsap Transit

- Onboard Validator
- Driver Display Unit
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Pierce Transit

- Onboard Validator
- Driver Display Unit
- Platform Validator

- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Sound Transit

- Onboard Validator
- Driver Display Unit
- Bus-in-the-Box
- Platform Validator
- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Washington State Ferries

- Validator or validation set up if required
- Driver Display Unit
- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

In addition to the above noted configurations and setup, INIT believes that Agency staff, INIT Project Team, and ngORCA personnel should also have reasonable access to a functional work space (table, chair, power, etc.) for recording test results or other ngORCA documentation, bathroom facilities, and also consideration of space for meal consumption or access to water for hydration. Additionally, and to be determined in the design review, some consideration of

additional equipment to facilitate witnessed tests should also be considered. For example, access to white boards or an easel with large note paper, telecommunications access or speaker system for remote participation, and a projector or similar Audio/Visual equipment or display screen.

During the project delivery test phases, following the Factory Test phase all testing thereafter will be performed locally on site. Specific to any lab tests, the expectation is that those tests be held in the Agency test facility. However, depending on the size of the audience witnessing the test, other temporary considerations could also be considered if necessary.

To facilitate some of the testing INIT would also like to suggest the Agencies consider the provision and configuration of legacy ORCA equipment as part of the Agency test facility. While some considerations or variation might need to be made with respect to management or maintenance, having both legacy and ngORCA equipment will help INIT to better perform or demonstrate the integration test phases prior to INIT becoming the system of record. This also in turn mitigates some of the unknown risk(s) of operating or transitioning of two separate systems. INIT understands that there are many factors to consider with such an approach. Should there be questions or further clarification needed, INIT will make the appropriate resources available for any further technical or logistical discussion.

With regard to test facility maintenance, INIT will be responsible for and provide all maintenance support for the equipment, systems, and interfaces through Final System Acceptance, and maintain the test facility software configuration throughout the terms of the warranty and software maintenance agreement for all devices and modules down to the Lowest Level Replaceable Unit (LLRU). INIT anticipates that most of these activities will be undertaken by the local Lead Engineer with support from the remote INIT IT and database support team.

2.7.2.4.4 Factory Testing

The Factory Testing test phase includes the following:

- First Article Configuration Inspection
- Factory Acceptance Test
- Production Acceptance Test

Each test associated with the Factory Testing phase will not be performed on site at either the Agencies facilities or the Agency test facility due to the nature of the tests themselves. The location detail and other relevant information pertaining to these tests will be identified in the Inspection and Test Plan.

To continue to drive the overall ngORCA program schedule, INIT does not anticipate that the Factory Testing occurs collectively for all system components. As such, we will not recommend the test cycle occur within a specified, single time frame. Rather, testing schedules and plans will be drafted in a manner which allows those components that are ready for test, occur without delay. However, the test itself will not be considered 'complete' until all tests and reports have been approved within the specified phase. For example, if the Validator has successfully passed the three test phases noted previously but the Driver Display Unit has yet to complete the FAT, INIT may not submit for approval neither the FAT or PAT and collectively, the Factory Test phase.

As there are multiple factors which will impact the pace with which each system component is tested, we are not able at this time to indicate timelines or specific dependencies. However, we will provide estimates and assumptions as part of the project schedule and plan to have more detailed discussions as part of the design review phase.

2.7.2.4.4.1 First Article Configuration Inspection

The First Article Configuration Inspection (FACI) testing is the first of three (3) tests in the Factory Test phase. Ultimately, the FACI intends to validate that the system hardware meets the specified configuration and quality requirements in accordance with the scope of work. To initiate the FACI, a provision of the first unit of equipment must be available of the first production units of system equipment. For ngORCA, this equipment includes the onboard validator and associated mounting hardware, wayside validators and associated mounting hardware, driver display units and mounting hardware, vending machines, customer service terminals, and back-office equipment and sub-systems. After the first article equipment has been produced, INIT uses the manufacturing drawings to check that all parts and the top assembly are produced per the manufacturing drawings.

Since the FACI test for each item of equipment must occur at the location of assembly, the FACI test schedule may include different test timelines. As part of the FACI, INIT will also provide the Agencies with the quality inspections performed and the results associated, whether performed by INIT or vendor.

FACI Test Prerequisites:

- INIT has delivered the FACI Test Procedures and they have been approved by the Agencies
- One production unit or prototype of each device type has been produced and is available at the test site
- A complete set of approved drawings of each device type is ready for the inspection

- Where applicable, a Bill of Material (BoM) will be provided
- Where applicable, a Buy America certificate will be provided

The FACI will be performed on a mechanical prototype or the first production item for each type of system equipment. The FACI will establish the baseline for hardware design and the quality of workmanship that shall be maintained throughout production. The test will verify that the devices comply with the approved drawings and design. In addition, INIT will perform manual quality tests to verify the results of the prototype production. The tests will cover for example the inspection of the voltages on the mainboard or the verification of the brightness sensors.

The equipment being inspected must meet 100% of the requirements of the manufacturing drawings and the FACI approved by the Agencies before the start of Production and Factory Acceptance Testing begins.

2.7.2.4.4.2 Factory Acceptance Test

Following INIT's successful completion of FACI, the test procedures for the Factory Acceptance Test (FAT) must be provided. As INIT has successfully performed FAT on every system delivered, we are confident in our ability to meet the ngORCA agencies requirements for the test. The components to be tested in FAT are from the first run of production units and are not modified prior to the test. In the event the design of the unit is changed, a retest to validate the equipment continue to meet the stated requirements will be required. FAT is conducted at either INIT's facility or a subcontractor's facility selected by INIT. The test setup, configuration, labor or other materials such as test equipment or fare media required for test execution will be provided by INIT.

The FAT is intended to verify that the system equipment to be produced meets the specified human factors, environmental and maintainability requirements defined in the technical specification. INIT performs these environmental tests to demonstrate compliance with the ngORCA agencies operating environment requirements. Maintainability testing demonstrates compliance with the ngORCA agencies maintainability requirements.

FAT Test Prerequisites:

- FACI successfully completed and accepted by the Agencies
- INIT has delivered a FAT test plan which has been approved by the Agencies
- All Test Waiver Requests delivered by INIT have been approved by the Agencies
- One production unit or prototype of each device type is available for testing

Human Factors Testing is designed to verify that the equipment to be produced for ngORCA meets the specified ergonomic requirements, ease of use, and ADA compliance. Test cases will include steps to test sight, hearing and touch elements of the equipment. To complete the Environmental Tests, INIT will provide documentation to confirm that the onboard validators, driver displays, vending machines, and relevant terminals or back-office equipment comply with the requirements of the SOW. For Maintainability Testing, INIT will confirm that devices and device components can be exchanged within the specified time-period. These tests will also cover ease of access, tools (special tools as needed) required and if applicable labeling and safety instructions of each device.

INIT is responsible to maintain reports of all tests conducted throughout FAT. The reports are submitted to the Agencies at conclusion of the FAT for review and approval. Results not meeting specified requirements are fully documented and explained, and a corrective action plan is submitted. In the event of test failure, once remediation has taken place and a re-test available, INIT will plan and coordinate with the Agencies.

Successful completion of FAT is a prerequisite for the manufacturing of production system components. INIT updates Production Acceptance Test (PAT) procedures based upon experience gained from previous testing and/or system component operation. Test procedures are expanded to focus on areas that prove to be, or have historically been, troublesome.

2.7.2.4.4.3 Production Acceptance Test

PAT represents the third and final stage of the Factory Test phase. INIT and its subcontractors perform Production Acceptance Test (PAT) on each system component as an integral part of the QA program prior to each shipment. Ultimately, the test(s) will verify that the metrics established during FACI and FAT are met for each produced unit and that INIT and its subcontractor certify each unit is produced to at least the same quality level as the unit presented for the FACI and FAT.

PAT Test Prerequisites

- FAT and FACI completed and accepted by the Agencies
- INIT has delivered a PAT test plan which has been approved by the Agencies

Successful completion of each PAT will verify that each system component contains the correct materials, are assembled properly, and function in accordance with the requirements of the SOW, prior to delivery to the Agency. At a minimum, the following functions are tested:

- General device operation and performance in all modes
- Data generation and transfer

- Alarms generation and transmittal
- User interface control and display

The ngORCA agencies may choose to observe, participate in, conduct, or repeat testing on any item to confirm the validity of INIT's test results. the ngORCA agencies may also perform, at their discretion, ad-hoc tests to ensure the quality of the system components. INIT will provide appropriate access to support ad-hoc testing, if required. Successful completion of a PAT is a prerequisite for installation of that equipment at the ngORCA agencies facilities.

2.7.2.4.5 Integration Testing

The Integration Testing test phase includes the following:

- Functional Unit Testing (FUT)
- System Integration Testing (SIT)
- Field Integration Test (FIT)
- Pilot Test(s)

The integration test phase is where the independent timelines and progression of system components need to start to come into alignment. Like a zipper, each test phase represents a further tightening of the system's schedule and completion; to the point where the FIT cannot complete until full alignment. Of additional note, during the integration testing all tests are to be performed either in the Agency test facility or within Agencies premises. Generally speaking, the FUT and SIT will consist primarily of lab-based tests and as such occur in the Agency test facility while the FIT test occurs as it sounds, in the field.

During the integration tests INIT will also undergo the required redundancy validation, system load and performance, and usability tests.

The vision with this test phase is to confirm the system components are able to operate and function in an integrated manner in accordance with the system requirements, the system can be validated as scalable and obsolescence resistant, and, in the end, is ready for live operation capable of providing end-users with a secure, reliable, and technology-thoughtful in design.

2.7.2.4.5.1 Functional Unit Testing

Where the Factory Test phase focused on the system hardware, the Integration Test phase looks more at the performance of the software meant to operate on the unit and then how the complete picture performs. During the Functional Unit Testing (FUT), INIT will first demonstrate the performance, function, and operation of the developed software. As this is the first stage of

the integration testing, this test is performed in a controlled laboratory environment where no changes or design scope are introduced. However, in the event of a design change or test failure, component-level regression testing will be performed after the formal test cycle.

Prior to test execution, INIT will provide for Agency approval the FUT test procedures. The test procedures will include step-by-step instructions of every test, including entry and exist criteria, and test location or specific configuration details in accordance with the stated requirements of the SOW and approved Inspection and Test Plan. Due to the volume of testing to occur, INIT anticipates testing to occur in groups, FUT-1, FUT-2, FUT-3 based on readiness and appropriateness for the test (e.g. Validator Hardware and Software must be ready in order to be in a test group; they should not be divided between FUT-1 and either FUT-2 or FUT-3). Based on our experience on other projects, we anticipate this testing to take approximately 3-4 weeks in total though divided over blocks of specified time for the test set up and configuration of the facility, the test execution, and then any follow up or ad hoc tests.

FUT Test Prerequisites

- Successful completion of Factory Testing
- Completed component-level software development
- Test bench including all system components delivered and installed in agency test facility
- FUT Test Procedures have been submitted and approved by the Agencies

FUT performance will occur on the first production equipment that has successfully passed Factory Acceptance Tests. Additionally, all software versions are those that have passed any required QA processes and is ready for revenue service. Interfaces between systems may be simulated if said interface(s) or back-office configuration is not ready for testing, for the purposes of the lab environment and the general nature of a lab-based test and phase of the project.

Testing of equipment functionality is intended to utilize the full range of fare media and fare structure prepared by the Agencies and approved as part of Final Design Review (FDR). This fare structure may include the fares for each Agency, plus inter-agency and regional fares and stored-value. Since all fare media to be used is provided by INIT. INIT will document and inventory the, its type and usage during testing. Where applicable this test data will be included in the test procedure and report.

Following the conclusion of FUT, including any sub-group FUT testing, INIT will draft and submit for Agency review and approval a detailed Test Report. Using the test procedure as the framework, INIT will indicate, among other things, the outcome of the test, remediation or corrective action needed to complete a test, date and token of personnel executing the test,

notes or comments regarding the test performance or script, and the next action, if any, required. Coupled with the Test Report will be any other relevant data, comments, discussions or decisions, relevant to the test occurrence.

The ngORCA agencies, at their discretion, may assign staff or representatives to witness and/or audit FUT testing their names and associated Agency or ngORCA project affiliation will be included as part of the test report data

The functionality of the test is meant to include equipment capabilities under normal operating conditions as well as equipment response to induced failures and other abnormal conditions. Each type of equipment shall undergo an independent test with results reported separately. To perform the test, sample data will be used representing the full spectrum of events and alarms.

Upon completion of the required transaction testing, INIT will undergo another set of cycle tests to demonstrate the equipment continues to be capable of operating under the environmental conditions specified in the technical specification. These environmental tests will be performed on the Onboard Validator, Driver Display Unit, Wayside Validator, and the Vending Machine. INIT suggests performing two sets of environmental cycle tests. The equipment temperature tests and the sunlight test. All other environmental tests cannot be performed in combination with the cycle test as the test setup will either compromise the environmental condition or will not follow safety requirements for the test personnel.

The temperature test will be performed by putting the equipment into the temperature chamber and bringing it to the temperature required in the technical specification. Once the temperature is reached, the equipment will be taken out of the chamber and then the tests will be performed. During testing, the CPU temperature will be watched and if the device temperature drops under 5°C of the original temperature, the device will be put back into the temperature chamber.

The sunlight test will be performed with a sunlight simulator. INIT will not use a third-party laboratory to perform the environmental cycle tests. The performed tests will be documented by video and photo.

INIT will provide the detailed Test Report to the Agencies for review and approval. The Test Report must certify that there were no failures or variables introduced during the test and that the performance is in accordance with the requirement in the SOW and FDR.

2.7.2.4.5.1.1 FUT Devices

The devices required as part of the scope of the FUT testing are as follows: onboard validators, driver display units, wayside validators, vending machines, and customer service terminals. As part of INIT's draft and submission of the FUT test procedures, each component and associated

test script will have pre-defined criteria or expected result in order to successfully pass. The specified structure and criteria will be reviewed and mutually agreed prior to test execution.

As part of the FUT, INIT will perform cycle tests on each item of equipment. As noted, the full scope will be as agreed with the Agencies. For reference, INIT has included samples of criteria for our project in Honolulu:

Validator & Driver Display:

- 8,000 transactions
- Validator will have a wired connection to background system
- Only Closed Loop cards will be used for testing
- Pass Back time will be disabled for the test
- Log File analysis of the Validator and Driver Display will prove the successful tap

To execute 8,000 transactions on an onboard validator, INIT will use a spinning wheel which simulates the tap of a customer. The fare media will be mounted to the wheel. While spinning, the cards will periodically enter the communication field of the reader and therefore creating a tap. INIT suggests the following configuration for the fare media and transit accounts linked to them:

- (2) Fare Media loaded with Stored Value
- (2) Fare Media loaded with a pass product

Every transaction will be shown simultaneously on the driver display. The PROXmobil3 uses an Ethernet port to communicate with the driver display. To analyze the successful taps, the recorded transactions will be written to several files on the device. INIT suggest splitting the 8,000 transactions in online and offline transaction to ensure both ways of validation.

Beside the audit register counts of the device, the test setting provides an external counter to track the expected number of card taps.

Vending Machines:

The cycle test for the TVMs will cover 8,000 transactions. INIT will perform manual tests which will cover:

Test Case	Number of Transactions	Description

Test Case	Number of Transactions	Description
Top Ups	2000	Spinning wheel to perform top up transactions. The payment for those transaction will be simulated.
Pass Loads	2000	Spinning wheel to perform load transactions. The payment for those transaction will be simulated.
Fare Media Sales	300	Scripted test that automatically issues a card from the dispenser.
View Account Status	700	Spinning wheel to perform an account lookup.
View Transaction History	1000	Spinning wheel to perform a lookup of the transaction history.
Text to Speech	70	Perform 10 TVM menu transactions per language.
Audio Jack	230	The TVM must automatically enable audio instructions when headphones are plugged into the audio jack.
Audio Button	200	Enable audio instructions when pushing the audio button.
Coin Acceptance	300	Test coin acceptor on a per accepted coin type basis.
Bill Acceptance	400	Test bill acceptor on a per accepted bill type basis.
Maintenance Tests	800	Exchange coin vault, exchange bill vault, exchange card dispenser magazine, load receipt paper.
Total	**8000**	

Customer Service Terminal:

INIT does not see a way of automating the Customer Service Terminal; therefore, unless we are able to identify a new solution, we suggest performing the tests manually.

2.7.2.4.5.1.2 FUT Back Office & Website

FUT testing for the back-office applications, mobile apps and website covers functionality of each component individually. INIT may use test data and may stimulate interfaces to other software component for FUT testing; each test must demonstrate 100% accuracy in performance of both data exchange(s) and display. The criteria to consider a test as 'pass', must not result in any failure or discrepancy to the agreed functionality as approved in the FDR or otherwise stated in the SOW.

2.7.2.4.5.2 System Integration Test

Once all system components have undergone and successfully completed the FUT, INIT can initiate the System Integration Test (SIT). This test will be performed in the lab, in a controlled non-production environment.

In order to adequately perform the SIT, all devices and system components must be available as defined in the SOW for launch; this includes the installation and configuration of the back office applications, web portal, retail network, agency-specific interfaces, onboard system integrations including CAD/AVL, Washington State Ferries field equipment, DARe, and also the availability of the updated Legacy ORCA back-office and incumbent vendor supplied updated software for validation integration. Further, the system will be provided with test data simulating the Agencies' databases for purposes of this test.

As part of the Inspection and Test Procedures, INIT will include the required test configuration(s), detailed test steps, entry and exit criteria, fare media required, and system integration components. Additionally, during this test phase INIT will being to coordinate with the Agencies on a regression test procedure for future integration test validation. Ultimately, a successful SIT will demonstrate the installed, integrated system is capable of performance and operation under test conditions.

In order to simulate this kind of performance, the test must include continuous testing across a pre-determined period of time (e.g. where the validator is online and performing validation test for three (3) days without disruption) whereby a prescribed quantity and type of transactions occur, across each device or unit type without failure.

Simulated transactions must occur on the onboard validators and driver displays, wayside validators, vending machines, mobile fare inspection app, mobile fare validation app, and customer service terminal. Each device must experience test validation using each specified fare media type and exercise the fare structure as provided and agreed by the Agencies during FDR.

It is important to note that while the testing nomenclature focuses a great deal on successful test execution, such successes will also be confirmed in the context of system failures, alarms, or

parameter violations. During these tests INIT will confirm the boundary conditions and parameters are met during the test that the appropriate alarms, warnings, alerts, etc. perform in accordance with the agreed design.

SIT Test Prerequisites

- Successful completion of FUT
- Back office system completely integrated into the Agencies network
- One complete test bench with at least one of each component type installed in the test lab

SIT will cover data transmission tests, system monitoring exercises, verification of accounting processes, payment transactions and database performance. Any software modifications will need to be approved by the Agency after the completion of SIT.

Load Testing

To simulate the proposed ngORCA system's peak volume plus the required 200% of peak volume as agreed during design review, the test data will be generated by automated scripts, executed by INIT. The type of data, number of accounts and associated transactions can be discussed and agreed as part of the Inspection and Test Plan during design review as well. To facilitate the discussion, INIT proposes the following for a load testing approach:

- The simulation will produce a steady load of usage and sales transactions
- The test goal is to verify that this load will not exceed any system component or lead to reduced response times for any participating sales channel
- The load is created by a scripted process that will call the online validation service and sales API functions
- The transactions will be exported to the accounting system according to the defined rules

Based on the determined, agreed active, frequently used cards in the system, the simulation will first fill the database over a course of time (e.g. 7 days) with accounts loaded with cash value, day passes and annual passes in a ratio in alignment of the figures relevant to the perceived load.

After the first predefined step noted, the simulation will keep creating cash and pass loads and new accounts over a period of time, however with reduced numbers. In addition to that the simulation will perform fare validations over an evenly distributed time over the course of a day for a defined period.

Disaster Recovery and Redundancy

During the FIT, INIT will draft and submit the plan for performing and demonstrating the Disaster Recovery Plan, including accuracy testing (required for INIT becoming the system of record) and accuracy testing between the AUT and relational database for the specified application and data storage location, as defined during design review as well as any individual system component failover / recovery redundancy measures. As part of the plan, the redundancy or recovery parameters will be predefined and agreed. This test will be a performance and implementation of that plan the specified parameters. Further, the testing will also demonstrate atomicity, consistency, isolation, and durability of the database.

Due to the time critical nature of the project, if during SIT any changes are made to the software, whether to address design change needs in Change Orders or as a result of remediation or corrective action undertaken by INIT or affiliated vendor, the system change will need to be reviewed, demonstrated, tested, and approved. In this stage, INIT recommends the introduction of a Change Control Board (CCB). While at the discretion of the Agencies, this practice lends a layer of oversight, ensuring risk is limited as project launch planning and occurrence is approaching.

During integration testing, each software change will first be delivered to the Agency test facility and be tested prior to deployment. As part of that initial planned delivery, INIT will discussed in advance with the Agencies and when the package is ready, INIT will provide a detailed software delivery paper and installation instructions. The delivery paper will include the tracking ID of the change, the nature of the change, personnel making the request, as well as any device specific information such as version, dates, file sizes, etc.

Successful completion of SIT is one of the critical path items in the overall program schedule; as such, once SIT is complete the ability to maintain system stability and predictability is essential. Procedurally, this means INIT or any vendor may not under any circumstances introduce a change, no matter its size, without prior written approval of the Agencies. Further, changes should be prioritized by level of need and urgency. Where possible, changes should be tabled for post-launch implementation.

2.7.2.4.5.3 Field Integration Test

In the absence of a detailed technical design discussion about the Field Integration Test (FIT), Pilot Test, and Transition Plan (parallel back-office approach), describing or defining them as independent elements poses several challenges and may lead to some confusion.

As stated in the SOW, to perform the FIT, the back-office needs to be up and operational, and all configuration and integration of the system components (all devices, back office applications,

website, retail network, interfaces, integrations including CAD/AVL, Washington State Ferries field equipment, DARe, the Legacy back office and all other aspects of the System) is complete and functional in what will become the production system.

To initiate the FIT, the necessary successive test steps (Pilot Test, INIT as system of record) need to also be clear and fully defined. During the FIT, INIT will demonstrate a production-like setting but can only test with simulated tests without otherwise impacting Agency accounting and reconciliation efforts because there is already a live production system. There may be some discussion with the Agencies around a fixed set of tests, using specified media, where somehow, we simulate production and process live/real transactions in advance of the formal Pilot Test, but cannot be detailed at this stage. As we cannot scrub the database, the lost revenue from the test is less of an issue but the Agencies ability to reconcile and deal with the output from an accounting perspective is unknown at this point and will likely place demand on those resources.

In the SOW, it is noted that the back-office system must be, "fully deployed and operational before the first validator can be operational in the field". However, once the back-office is operational, where or how any equipment can be deployed and connected in the field is unclear during the FIT test. The FIT test environment restricts how many devices can be installed because the INIT supplied equipment cannot yet accept production transactions without layers of complexity. Further, the tests must be controlled and constrained to predefined procedures and outcomes and as such cannot be widely accessed by the public without risk to muddying data integrity or test performance.

That said, INIT understands as well that there are new stations and services that will be built and 'ready for revenue service' prior to the successful completion of these test phases. To accommodate what might be needed there, INIT-supplied Vending Machines and validators, as well as what is defined as part of this test phase, there may be some equipment that is live and available to support this test. Albeit in a modified or restrictive fashion.

To perform FIT, there a subset of 'test' equipment that is installed in production but is restricted in access, must be available. To validate the integration, agreement on how the data is transmitted and processed, and agreed criteria for test completion or pass criteria must be defined in the test plan. Unlike the tests in the controlled lab environment, this test is more restrictive and yet of vital importance as we want to validate those same integration tests work as intended in a production state and where possible out of Agency facilities and locations.

Regardless of the constraints and the absence of specificity to offer for this test at the moment, we are confident that our discussions at a technical and project prioritization level with the Agencies can iron out how best to plan and execute the test. Ultimately, there are two key

drivers that need to be realized in this test; one, INIT's ability to perform a full system integration test in a production / production-like environment and two, INITs ability to successfully plan and test the Transition Plan and parallel back-office, in a brownfield environment prior to execution of the transition itself without otherwise negatively impacting the Agencies ability to collect and reconcile transactions or customers' ability to access and manage their ORCA experience.

One key point to note, should the Agencies preferred transition approach (parallel back-office) change during design review or other discussions, then what we propose will need to be adjusted or modified accordingly.

The above factors aside, INIT understands the general requirements of this test and will work with the Agencies during design review to define the plan and approach for successful execution. As part of that, in preparation of this test INIT will work with the Agencies to define the test procedures and scripts, test set-up and environment including exact locations or configurations, and the necessary entry / exit criteria which will be submitted prior to the test for Agency review and approval. We will estimate the test durations as well during design review; however, the exact proposed and agreed test procedure may be further defined as the specific nature of the test becomes more clear and imminent.

The test procedures will provide for the following categorical inclusions:

- Validation of the back-office configuration and operational readiness
- Installation checklists for equipment intended as part of the test
- Confirmation of data provisioning capable of simulating full operational load of the central system
- Schedule for continuous integration testing with systems online 24-hours per day
- Pre-determined, minimum quantity of transactions per system component (onboard validators, driver display units, wayside validators, vending machines, customer service terminals, fare inspection mobile app, fare validation mobile app)
- Pre-determined minimum quantity of transaction type and fare media type per system component
- Method for testing a pre-determined minimum quantity of transaction through the different user interface elements (CRM application, web portal, customer mobile app, and agency mobile apps)
- Method for testing all available functions of each different user interface element as stated in the previous bullet
- Validation that system alerts or other boundary conditions as defined are adhered to

- System redundancy and recovery validation
- Disaster Recovery Plan simulated demonstration
- Database accuracy validation; demonstrate accuracy between the AUT and relational database
- Atomicity, consistency, isolation, and durability of the database

Additionally, the test data, minimum data volume and transactions to demonstrate full operations load, and data transfer methods will be stated in the provided test procedure as well as the pass / fail criteria for each test.

Following successful completion of this test phase, it is INITs understanding that the next stages are the final validation steps available to ensure the planned transition from the legacy system to INIT as the system of record, and subsequently the soft launch of ngORCA, goes as planned. As such, the outcome of this test and the capability of determining the successful completion will largely be based on a combination of stringent factors. Subsequently, INIT recommends, following the completion and approval of the test, that the parties engage in a transition meeting and evaluate the test results and forthcoming tests to determine any risk mitigation or other strategies that may need to be deployed or administered. These are purely preventative or cautious considerations and not otherwise required.

2.7.2.4.5.4 Pilot Test(s)

Performance of the Pilot Test as defined poses a series of logistical challenges due to the brownfield nature of this project in general. The Pilot Test, which occurs following approved completion of the FIT test noted above and is the last test in the Integration Testing phase, requires the back-office system is up and running while the field equipment is required to be only partially installed or specifically limited to test-only access. The key distinction for the Pilot is that it needs to occur or validate in some respects, production or production-like environment while not interfering with legacy ORCA performance, transaction processing, or accounting and data reconciliation.

To achieve the Pilot Test to the extent possible INIT proposes a series of controlled, low-impact tests of the following system components, performed quite similar to that which would occur as part of the FIT. Test validation and connection to the back-office as well as data processing will need to be more clearly defined so that it can progress, in a limited fashion, beyond the controlled scripted test. To support the discussion in how to design this plan, INIT proposes for consideration the following test setup(s):

- Web Portal, specific test group with preset scripted test functions to perform for a final 'usability validation' test
- Fare Inspection and Validation Mobile Apps, loaded on a minimum defined number but at least one (1) per Agency that performs the function
- Customer Mobile App, loaded on a minimum defined number of devices and execute performance of a 'usability validation test'
- Customer Service Terminal, temporary set up at each Agency facility, outside of normal office hours
- Vehicle prototype, on either out of service or new buses not yet commissioned
- Vending Machine prototype, on a select station outside of high impact commute hours
- Wayside Validator prototype, on a lower impact platform and outside of high impact commute hours

INIT will work collaboratively with the Agencies to develop a Pilot Test Plan that accomplishes the needs of system testing in an installed basis within the chosen transition approach. Ultimately, the timing and agreed approach for the Transition Plan will govern how specifically the Pilot Test can occur and at what pace full system installation will need to undertake.

It is noted that following completion of the SIT and prior to the completion of the Pilot Test the system will enter a settling in period. During this time, INIT can proceed with the fleetwide system installation and the Agencies can perform their own ad hoc tests. However, in this same time frame, to achieve the transition plan (using the back-office parallel approach) as currently understood, INIT must become the system of record prior to the full fleet installation.

If INIT is not the system of record and system-wide installations are required, the INIT supplied equipment would not be able to 'speak' to the legacy back-office. As such, installations would be required in a side-by-side state and decommissioning of legacy equipment could not occur until the start of the SAT. Further, in this scenario the INIT installation would not be able to repurpose the existing installation materials driving up both cost and schedule as well as a potential unforeseen impact to ORCA riders.

Second to that, if the Agencies are performing ad hoc tests, the scope and data for the tests needs to be carefully coordinated and planned. While not intending to limit the Agencies test capability, if the system is not 'live' for ngORCA, similar to the previous integration phase, the same production-based constraints apply and need to be considered in the planning of such tests due to the reconciliation or settling action required.

While it may be that INIT's understanding of the test and Transition Plan are not in full alignment with the Agencies, it is important that in the absence of additional clarification, that INIT make clear the constraints we are seeing currently based on what we envision the system transition to look like for Agency consideration.

That understood, based on INIT's understanding of the Agencies preferred transition approach and the way in which the data should be handled we propose that the following occur:

- Pilot Test is approved
- During the Pilot INIT provides validation that it can reconcile the ngORCA back-office in preparation for the transition with that of the legacy ORCA system
- INIT becomes the system of record and all processing is now managed and handled by the INIT provided system (ngORCA is realized)
- System Settling In starts
- INIT and the Agencies begin the system-wide installation efforts
- The Agencies perform ad-hoc testing as desired

Upon completion of the above tasks starting with Pilot Test approval, once 80% or so of the system equipment has been installed and the system has been able to validate performance against the metrics provided for acceptance testing, the Integration Testing phase should be concluded and approved.

Notably, the percentage of installation completion should likely include full installation of all Customer Service Terminals and Vending Machines; however, since King Country Metro and Community Transit are performing their own installations, INIT cannot control the schedules of completion for both their onboard and wayside validation equipment. Conversely, both Agencies could complete their installation work in advance of INIT and as such, 100% of equipment is factored.

Currently, the possible variances are not possible to be determined at this point but if there are challenges to system-wide installations that INIT cannot control or impact, consideration to start the acceptance test should be reasonably undertaken.

2.7.2.4.6 System Acceptance Testing

The System Acceptance Testing test phase includes the following:

- System Acceptance Test
- Final System Acceptance

Once the Pilot Test has been approved and INIT becomes the system record, the acceptance testing can begin. INIT understand that in general, the SAT will be performed in the production environment with all components, subsystems, and third-party networks completely functional, operational, online, and in service; fundamentally the ngORCA system must be live.

As with each test phase, INIT will provide the requisite procedures and also test reports. In this case, the report will validate the test criteria and that it was met and the test passed based on the stated preconditions or metrics.

2.7.2.4.6.1 System Acceptance Test

The System Acceptance Test (SAT) is intended to validate the performance of the fully installed system as required for project completion. While intended to be complete as part of the final integration test phases, any existing functionality requiring deployment must be in place and the requisite tests approved, prior to the actual start of the SAT since the SAT serves to verify that the System and all provided equipment meet the performance requirements for project completion. INIT will be responsible for supporting all elements of SAT and as part of that will meet regularly with the Agencies to discuss progress, outcomes, and status of the test(s).

INIT's submission of the SAT Inspection and Test Plan will detail the system components, tests and data collection, and metrics intended to be validated as part of performance criteria. During the SAT, and as validated by the supplied test reports, the metrics must be adhered to; meeting or exceeding not less than the stated minimal performance standards. In the event INIT's performance of the SAT is sub-standard, as with the previous test phases, remedial action will take place and provided as part of the in-scope requirements to the project.

In the event INIT is unable to meet a performance metric during SAT, it is understood that the SAT duration may be extended until all performance requirements are met. The performance requirements and test durations will be those mutually agreed-upon with the Agencies and made part of the Inspection and Test Plan.

The INIT Proposed Project Schedule details a 60-day duration for the SAT test; however, an additional 60 days of slack have also been allocated in the event a stated metric has not passed in accordance with the agreed requirements. That said, should further failure events arise that extend the duration of the test component that slack duration may extend further as time is needed for the metric to be achieved.

2.7.2.4.6.2 Final System Acceptance

Achievement of Final System Acceptance (FSA) tends to comprise a combination of factors including initiation of the start of warranty if not done so already. Specific to the test phase, FSA

cannot be achieved without signed written agreement the SAT has been carried out successfully and approved by the Agencies.

While the SAT is often the primary driver of FSA due to the rigorous nature and system-wide validation that is undertaken as part of the test, there are often varying other factors that exist such as: sign off that all system equipment in scope to INIT has been installed, tested, and operational, equipment or spares and fare media have been delivered in accordance to the agreements set forth, training has been validated as delivered and approved, demonstration of the Disaster Recovery Plan has in fact been performed, validated, and approved, as well as any other system component delivery has been made in full.

INIT's creation and use of a Requirements Traceability Matrix (RTM), mapping the requirements through the design, build, and test phases, has been a useful tool in helping to organize and sign-off system acceptance.

In addition to the system validation points noted above, there are additional FSA-based activities that need to be undertaken to ensure full compliance with the overall project deliverables. Activities include but may not be limited to INIT's compliance against all contractual requirements (technical or otherwise), the required deposits to escrow have been made, and resolution or agreement to resolve for any open or outstanding issues to be made part of a software release have been agreed. It is important, with respect to the final point regarding software deliveries, that FSA completion not be unduly withheld for issues that are low priority or not otherwise made part of the SOW.

Following INIT's provision of validation that the above stated items have been met, INIT shall then submit for Agency approval a formal request for project completion or FSA. Upon completion, the Agencies will provide the associated certificate of completion.

2.7.2.5 Training

As an experienced integrator of Electronic Fare Collection and Computer Aided Dispatch systems for the transit industry, INIT understands the importance of training to the overall success of the project. Proper training allows ORCA staff and other stakeholders to fully understand the features of the new system, it's current benefits and how, as the agencies offer to the riding public increased operational efficiencies, the system will continue to provide increased rider convenience and satisfaction.

2.7.2.5.1 General Requirements

INIT will provide a comprehensive training plan and subsequent program that meets the training needs of the agencies. The training plan will emphasize modern, modular training delivered

across multiple environments. Our plan will define each course including: instructor credentials, course methodology and approach, class content, training aides, and evaluation criteria for the attendees.

The training program is designed with consideration of multiple and distinct target audiences, learning methods, and presentation techniques. Working with the ORCA team and key stakeholders from each member Agency, INIT will facilitate a series of specialized stakeholder interviews and coordination meetings to discuss critical business processes related to planning, operations and maintenance of tariff / fare collection activities. The business processes that emerge will be folded into the training materials to reflect end-to-end procedures that span multiple organizational units, member agencies, software/information system, operations and maintenance groups. We have found, in developing training for payment systems, that a business process may apply to more than one software application, and that a software application may be used by different organizational units within a single organization. Our training method is business process oriented to target role-based training.

Our approach ensures that the transitions between organizations and applications are accounted for including manual and hand-off requirements. Incorporating the end-to-end business processes in the training provides a clear and coherent view of each training participant's role within the ORCA program.

Figure 2-8: Modern, Modular Training delivered across Multiple Environments

The diagram above is intended to represent INIT's capabilities to provide quality training using multiple delivery methods including classroom instruction, written training manuals, Web based e-learning and Webinars. The selected method of instruction depends on the audience, logistics, customers preferences and other customer driven requirements.

INIT's approach to creating a comprehensive training program includes a combination of app-specific content (e.g. Validator Operations), functional role (Customer Service), and on-the-job or similar small demo or walk-throughs. At the start, we will approach the content and functional role training first; from there, we customize the method of delivery according to need. Taking this approach, we can ensure trainees have a solid understanding of the technology, equipment, and functions they will interface with or need to undertake as part of their job or role within the ngORCA system and its operation or service.

While each Agency is unique, as well as their roles and responsibilities, for the purposes of understanding INITs methodology for training, we have outlined a summary level of roles of a system similar to what ngORCA will entail. Taking this approach allows us to guide the understanding of the audience a little further, especially when reviewing the courses in the section below:

- **Vehicle Operator** – persons that will operate on-board equipment such as the validator and DDU; they will need knowledge of these specific components and may find benefit from seeing and learning about the Web Portal and Mobile App
- **Equipment Maintenance** – persons that will be responsible for the repair, maintenance, installation, decommissioning, monitoring activities of equipment; they will need knowledge of these processes and may find benefit in early participation in design discussions and also in learning about the vehicle operator targeted learning
- **Customer Service / Mail Center / Call Center** – groups of staff that provide direct customer service engagement whether in person or through push/pull actions (e.g. fulfillment at the Mail Center or phone support via the Call Center); they will need specific knowledge of the different applications (CRM, CST, Web Portal, Mobile Apps) but could also benefit from an understanding of the equipment functions
- **Finance** – persons responsible for the accounting and processing of system revenue, apportionment, settlement, and the various rules and integrations associated; key account-based functionality is critical, but an understanding of other applications may be beneficial as well (e.g. Web Portal)
- **Institutional Administrator** – persons that manage the large business, school, and/or social services accounts that provide transit benefits or other ridership opportunities for their constituents; integral knowledge of the CRM and the Institutional portion of the Web Portal are key while a common understanding similar to that of a customer service resource would also be valuable
- **System Administrator, Operations** – back office technical staff responsible for the overall system health and performance and will possess and integral knowledge of the

overall system architecture and configuration parameters; commonly engaged in the software deployments and testing a core knowledge of the specific system components is important to supplement their knowledge of the system

- **System Administrator, IT / Network / Database** – back office technical staff responsible for the overall system architecture, network infrastructure and connections, and database administration and health including uptime and disaster recovery; a detailed knowledge of the app installation and configuration is central to their role while a complimentary understanding of the application function is also very helpful
- **Integration Support / API Administrator** – during the project phase INIT will govern this role more dominantly; however, because an account-based system relies heavily on integration, a resource with in-depth knowledge of the APIs and integrations will prove valuable, especially in the event of future integration endeavors or opportunities
- **Fare Inspection** – persons responsible for validating fares region-wide will need a detailed understanding of the Fare Inspection App and the individual Agency policies that result in action thereafter; a supplementary understanding of fare payment methods and the means by which value and products can be acquired will also be helpful
- **Promotion and Marketing** – persons that will be responsible for the brand, awareness campaigns, and/or other advertising opportunities; while a common understanding of the customer interface points is important, a detailed knowledge is not inherently required. However, if persons in this group will be responsible for managing Web Portal content via the in-app CMS (Umbraco), a detailed understanding of the site and the CMS software is important. Similarly, they should have a detailed understanding of the Mobile App to ensure the common UI/UX interface efforts undertaken in design are maintained through operations

INIT suggests that the delivery of training starts with the classroom sessions for the most part. For those that may have difficulty attending, these sessions can be interactive online via a web-conferencing set up. For the external hardware, such as the wayside or onboard equipment, it will likely be proposed in two portions where the operator training is in a classroom while the maintenance and repair on-site. In taking this approach, we can optimize the content and delivery in a some-what controlled environment.

As trainees and teams have a more comprehensive understanding of the ngORCA system and Agency trainers attending the train-the-trainer courses have had the opportunity to deliver their Agency-specific courses, we will then take the next steps of soliciting and collating feedback. Through this approach we aim to identify the 'what was missed' items or gap analysis. In some cases, it may mean only that a refresher of the material is needed. As we gather this feedback INIT will then work with the Agencies on defining the next iteration of training which may entail

supplemental app-specific training, expansion of a use-case to include some additional information that may have been missed, or a hands-on walk through. While the need to more clearly identify the method, generally speaking these supplemental elements will be supported by an onsite system engineer from INIT or via e-learning as part of a web-conference.

When the transition and cutover to the live ngORCA system is nearer and the training need more sporadic, it is important to note that the INIT staff of engineers are on-site and available for questions, clarifications, or on-the-job training as well. These efforts may be less formal; however, INIT will continue to be a presence to ensure successful implementation of the system and knowledge transfer for successful Agency operation.

The design and development of the training program will be comprised of several INIT team members although the Training Plan itself will be led by [redacted] (an INIT subcontractor brought on specifically for ngORCA as a Business Analyst) [redacted] (INIT Technical Trainer and documentation specialist) specifically.

Utilizing her extensive background in facilitating meetings and analyzing business process needs [redacted] will head the requirements gathering, needs analysis discussions, and interviews with the Agencies. [redacted] brings an added layer of organizational and technical expertise having provided business analysis that is incorporated in planning, manuals or training materials for account-based payment systems (including financial systems, cash collection, operations / maintenance for bus, light and commuter rail, multiagency roles and responsibility, and cross organizational operations / maintenance).

With more than 20 years of combined experience in technical training and writing as well as an intricate knowledge and understanding of INIT systems, software and hardware, [redacted] will compliment [redacted] findings and apply the appropriate INIT-specific knowledge, source materials, lessons-learned, and be able to navigate the INIT environments and processes.

Combined both [redacted] identify with the INIT Project Team the appropriate resources necessary for course delivery. Instructors may include but are not limited to both [redacted] Additionally, it may be determined for INIT to source additional technical expertise to support some of the in-depth and extensive back office systems and administration courses.

2.7.2.5.2 Training Plan

The training program is initiated by INIT as part of the first design review following notice to proceed. This first draft of the Training Plan will outline INIT's suggested approach and methodology specific to ngORCA. Based on our experiences and in consideration of the specific technology and systems that will comprise ngORCA, we will propose the courses, materials, equipment and so forth as well as timing for when courses could occur. Our approach overall is to provide a training program that is solution specific and meets the needs of the Agencies.

As soon as we are able or as part of the first design Review (whichever comes first) INIT will begin to coordinate a series of meetings with Agency training SMEs or designees to discuss further the specific and unique needs of ngORCA. These discussions will occur collectively to ensure the needs of the region are clear as well as individually to cross-validate the unique or specific needs of the associated Agencies individually. From these discussions INIT will refine the Training Plan in an iterative manner until a robust, comprehensive program has been established with clear and concise deliverables.

As we initiate these first steps, INIT will look to address the broader ngORCA (regional) needs which we anticipate to generally speak to the collective group and core system elements. Once we have these requirements clearly outlined and established we will then take further steps to engage with each Agency individually and perform a gap analysis. In so doing we aim to ensure we have a foundational understanding of each Agency's unique needs so that we can validate with them the courses that have been established that will meet their needs and better tailor our delivery of the material so as to fill any gaps and/or ensure heightened concerns are fully addressed. In some instances, it may be more fluid to adapt a regional training course to include some additional detail to address the needs of an Agency whereas other instances may require other alternatives (e.g. on-the-job training after core training has been delivered for a more hands-on experience).

In these early stages INIT will suggest a rough timeline for when we believe the training should occur; however, we will not specifically detail the individual courses until they have been defined and agreed with the Agencies. We take this high-level approach at the start to both reduce confusion as well as ensure the Agencies are clear that we will find a time and date format that meets their specific business need(s). Once this information is available and agreed, the schedule as well as the plan will be updated. Generally speaking, we find that the Training Plan is best served as an evolving or living document.

INIT's training plan will incorporate an approach to distribute training to the Agencies directly from our experienced staff and from our major subcontractors. The training plan will meet the following core objectives:

- Training shall include course development, instructors, and all handouts, materials and classroom aids required to conduct the training
- Practical training on equipment shall occupy a significant portion of all training classes
- The training presentations and material shall be in English
- Instruction shall cover equipment familiarization and systems operation. The minimum training is that which is necessary to bring those employees designated to the level of proficiency required for performing their respective duties including:
    - Familiarization with the general system design concepts and features
    - Hands-on training using the actual system or simulators
    - The ability to recognize any transit specific alerts designed into the system
    - Thorough and clear demonstration of the use and operation of the on-board equipment
- Train-the-trainer Instruction shall prepare agency trainers for delivery of classroom and hands-on training, as required, using the relevant hardware and software
- Deliver instruction on the setup, operation, and configuration of the training equipment as required
- Ensure through testing or demonstration, that agency trainers and trainees have ability to perform each task associated with all system functionality. This is to be an objective for each task learned within each class

The INIT Training System provides trainers and trainees with all instructional material and equipment necessary to conduct training within their organization.

2.7.2.5.3 Training Materials and Equipment

To appropriately facilitate and complement the training course being delivered, INIT will supply the Agencies with a series of course materials as well as the requisite equipment and software to facilitate a hands-on experience during the training course. Both the material and equipment will be designed or provided with the appropriate level of Agency customization.

For example, to support the courses listed in the section below, INIT would draft and create the following operational manuals:

- Customer Account Management Mobile App Operations Manual
- ORCA Web Portal Operations Manual
- Customer Relationship Management (CRM) Operation Manual

- CRM Salesforce Integration Manual
- Point of Sale (POS) Operation Manual
- Customer Service Workstation (CSW) Operations Manual
- Finance - Sage Accounting Interface Manual
- Finance - INIT Accounting System Integration Manual
- Finance - Revenue Management Operation Manual
- Finance - VASA/Reports Operation Manual
- Fare Inspection Operation Manual
- Validator Operations Manual
- Driver Display (DDU) Operations Manual
- Ticket Vending Machine (TVM) Operations Manual
- Vehicle Equipment Maintenance and Repair Manual
- Wayside Equipment Maintenance Manual - Validator
- Wayside Equipment Maintenance Manual - TVM
- Tariff Management Operation Manual
- Master Data Management (MDM) Operation Manual
- Admin Tool Operation Manual
- Device Data Manager (DDM) Operation Manual
- Parameter Management Operation Manual
- Online Crypto Manager (OCM) Operation Manual
- Form Designer Operation Manual
- Asset Manager Operation Manual
- Card Inventory Operation Manual
- SAIT - Back Office Architecture Manual
- SAIT - Network Architecture Manual
- SAIT - Database Design and Operation Manual
- SAIT - CRM App Manual
- SAIT - Customer Mobile App Manual

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- SAIT - Web Portal Manual
- SAIT - Fare Inspection App Manual
- SAIT - Back Office Apps Manual

In addition to the manuals noted above, each classroom course will typically include a PowerPoint presentation as the means to navigate the material being addressed. The slides below are examples from a typical presentation during a classroom style training course (entire course not shown):

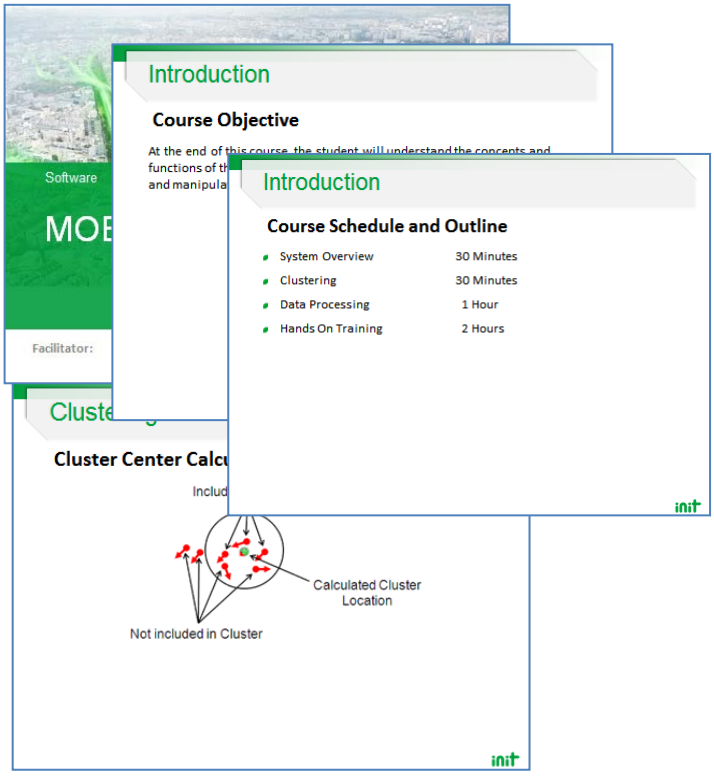

Figure 2-9: Sample User Training Materials

To further facilitate a classroom session, INIT will also provide guides for both the instructors and trainees. In some instances, quick reference guides will be provided as well but depends on the topic of the course and the usefulness a quick reference guide would provide.

Training equipment can either be utilized from other sources and returned or purchased solely for the needs of the training program. To deliver the courses as outlined below, the training in the classrooms will need to be equipped with computers capable of being loaded with the applicable software and peripherals, mobile devices such as tablets and smartphones, applicable fare inspection device or a smartphone capable of operating the fare inspection app, and also the various ngORCA system equipment such as smartcards, the validator, DDU, and vending

machine. Additionally, each onboard set up will need to be configured with a Bus-in-a-Box (BiB) to support Agency integrations between the validator and the DDU. However, due to the size and general footprint of the vending machine, the training itself can vary in its methods (e.g. onsite at a vending machine in the field or in the regional test facility).

To provide a brief outline and description of the various materials, including documentation and equipment, please note the table below.

Table 2-3: Instructional Materials Included

Training Materials	Description
Instructor Guides	The Instructor guide leads an instructor though a training class providing recommended verbiage and when to show each PowerPoint slide.
Power Point Presentations	The power point document is the primary presentation material for instruction. This document is matched directly to the Instructor guides.
Trainee Guides	The trainee guides leads the trainee or student (core user) through the training class. This guide shall be used as a compliment to hands-on and classroom training provided by instructor.
Hands On Training	Where applicable, INIT shall provide hands-on training on actual equipment or through the use of training equipment to simulate the actual behavior of the equipment for day-to-day operations.
Instructor Evaluation Sheet	INIT shall provide trainer evaluation comment sheet to assess the training course and preparedness of training instructor.
Operation Manuals	INIT shall provide copies of all user and training manuals as they pertain to the specific training class. One complete manual set per student shall be provided per course.
Quick Reference Guides	Where applicable, INIT shall provide quick reference guides for each training course. INIT intends to provide guides for specific areas of instruction related to specific user operations. INIT shall provide the quick reference

Training Materials	Description
	guides for the following groups of users: • Operators • Ticket Inspectors • Customer Service to include the Customer Mobile app, Vehicle Maintenance, VM Maintenance, and others based on the defined needs of the Agencies. Notably, some courses may not need a Quick Reference Guide due to the detailed nature of the topic (e.g. Finance and Accounting) and need for in depth and precise information or content to guide the user to the appropriate needs of their role.

2.7.2.5.4 Training Courses

As described above, INIT will undertake a multi-step process with the Agencies to design and draft the Training Plan; with flexibility to define the materials and equipment needed, identify the training staff, locations(s), courses, and schedule. In some cases, customized levels of Agency-specific needs can be accommodated; these efforts are done as needed to ensure the adequate and appropriate training of Agency staff. In effort to provide the Agencies with additional insight and to illustrate one example as to how INIT initiates and plans training, below is an outline of how we might approach 'Customer Service'.

Step One: **First draft of Training Plan**

The first draft of the training plan will detail our two-prong approach: first, suggest app-specific training for all Customer Service staff and second, suggest a manager-level of train-the-trainer functions course.

App-Specific Customer Service Courses

The app-specific courses will give trainees the hands-on experience of each system touch point (hardware and software) for their role; at the moment these courses would be the CST, CRM, and then a combined course of Web Portal and Customer Mobile App. This course is not designed for use cases or 'what if' type scenarios but rather to teach trainees the specific functions and actions of the software.

These are courses geared primarily for Customer Service staff members; however, they can also be helpful to marketing or promotional staff as well as system administrators. Irrespective of audience, these courses will be a pre-requisite for the function-specific course described below.

The updates to the Training Plan for the courses as noted above would then include the following detail:

- **Audience**: Customer Service Representatives and Customer Service Managers
- **Purpose**: provide customer service staff the necessary knowledge and understanding of the software, applications, and equipment they will use or that customers will encounter
- **Method**: Train-the-Trainer
- **Setting**: Classroom
- **Equipment**: at least one computer and mobile device per 2 persons, internet connection, access to apps (pre-loaded)
- **Materials**: Operations Manual, Instructor Guide, Student Guide, and a PowerPoint Presentation
- **Size**: 10-12 participant maximums

Function-Specific Customer Service Manager Course

Once users understand the various applications associated with the customer service functions, the next step is understanding at a macro level how a CSR can perform the functions of their job holistically.

This course will be designed with the Agencies and their input specifically; while INIT will endeavor to provide a broad range of use-cases for this course it is important to note that different Agencies could have some unique treatment of specific steps based on their standard operating procedures. Because of that, and the myriad of possible use case samples, we propose this course as a train-the-trainer and/or Customer Service Manager level training. Using this course as a foundation for managers can then allow Agencies to customize further either their material or course as needed to further address the nuances of their Agency or constituency.

For example, if a patron has lost their card and come into an Agency ticketing office for support it will be important that the Customer Service Representative understand what the patron may have done or experienced on the Web Portal or Mobile App and then will need to know the necessary actions to be performed on the CST or within the CRM. At an Agency customization level, they may want to add some additional points or steps to compliment that.

The updates to the Training Plan for the courses as noted above would then include the following detail:

- **Audience**: Customer Service Managers or Trainers
- **Purpose**: provide managers with the knowledge and understanding of how the applications are used in day-to-day operation as well as the skills and information necessary for them to train and manage their staff
- **Prerequisites**: CRM, CST, Websites, Mobile
- **Optional**: equipment specific courses (e.g. Validator Operations), System Overview
- **Method**: Train-the-Trainer
- **Setting**: Classroom
- **Equipment**: at least one computer and mobile device per 2 persons, internet connection, access to apps (pre-loaded)
- **Materials**: Process Guide, Instructor Guide, and a PowerPoint Presentation
- **Size**: 5-8 participant maximums

Step Two: **Requirements / Needs Analysis and Information Gathering**

Once the first draft of the Training Plan has been reviewed and evaluated by the Agencies, INIT would then look to engage in a series of meetings with the training-specific SMEs. During these discussions we would want to review the Agency feedback and discuss in an open forum, identify misses and revisions needed, common points of interest or concern, and so on. During these discussions INIT would hope to obtain the document-specific feedback and also understand more information such as:

- How many Agencies need this training / have a Customer Service office and/or staff
- How many Customer Service offices there are, locations
- How many Agency staff per office and in total
- Describe the role of the CSR in the context of your Agency
- Describe the role of the CRS in the context of ORCA for your Agency

Step Three: **Materials and Equipment Provisioning**

To facilitate the efforts associated with the preparation and delivery of these courses, we would propose the following equipment and materials be utilized:

- Operations Manual (app-specific) to describe the functions of the application
- Presentation for trainees to follow along with the course content
- Instructor Guide to provide the trainer with a flow of the course as well as key points to address or discuss
- Trainee Guide to provide the trainee with a flow of the course content and space for notes or questions
- Process Guide to describe functional examples and use cases or 'how to' scenarios for actions that require the use of more than one application and where applicable clear understanding of where the INIT-provided system ends and other Agency interfaces or procedures begin
- CST environment, mobile devices such as a tablet or smartphone, computer with the CRM software (if different from the CST environment)

In light of the above process and with our current understanding of the ngORCA system, below is a table of courses we believe are best suited to meet the needs of the Agencies. In this table we have organized it by target audience, provided the anticipated durations, identified a secondary audience, proposed quantity to be delivered, and what methods they should be delivered in.

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Table 2-4: Training Courses

[redacted]

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Table Legend / Definitions Key:

- ID = Course Indicator; INIT is suggesting a total of 18 unique course topics
- Course Description = General description of the course, under the following functional areas:
  - Customer Service
  - Finance
  - Fare Inspection
  - Equipment Operation
  - Equipment Maintenance
  - System Administration, Operations
  - System Administration, IT
- Dur = Duration of the class
- Prim Audience = INIT's recommendation of who the Primary Audience is; abbreviations as follows:
  - CS = Customer Service
  - IN = Institutional Programs
  - F = Finance
  - VO = Vehicle Operator
  - FI = Fare Inspector
  - EM = Equipment Maintenance
  - SAIT = System Administrator, IT
  - SAIN = System Administrator, Integration
  - SAO = System Administrator, Operations
- Sec Audience = INIT's recommendation of who the Secondary Audience is; these are often on a need to know but that the knowledge may be obtained in an alternate manner. Abbreviations are as noted above for the Prim Aud
- Number of classes = INIT's recommendation for the number of classes per course area. In areas where only one class is suggested, it is INIT's understanding that the Agency personnel for that course act as the central administrator of that function and as such a targeted / minimal (less than 10) audience. For courses where multiple sessions are

proposed the understanding is that INIT would deliver one applicable per Agency as would be the case for a course such as Vehicle Operations or a small subset for targeted audiences as might be the case for Customer Service. However, that total numbers can be increased or decreased based on the need or preference of the Agency.

- Method = the way in which INIT suggests the class take place
    - Direct = INIT will instruct the Agency personnel performing the function
    - TTT = Train-the-Trainer where INIT will instruct Agency trainers or other personnel who will in turn instruct additional Agency team(s)

2.7.2.5.5 Training Course Materials

2.7.2.5.6 Remote, Video and E-learning

In addition to meeting your core objectives as described above, INIT also offers remote, video based (online) and E-learning training services as shown in Figure x.x above. For trainees not able to attend classes personally, they can participate remotely via WebEx.

INIT also has experience developing video based and e-learning curriculum. Typically, we contract these services out to local companies (often DBE's) specializing in developing training programs.

Video Based Training typically involves capturing the instructor's video screen and two video photographers, one fixed and the other roaming. Next the video and audio will be post processed, incorporating screenshots and slides to create dynamic and engaging videos. Edited footage of video recordings will remove all non-relevant material, and include title captions, section separators, and cover and wrap-up animations. Graphic and text support to be provided in the videos will be shared with the ORCA agencies for approval prior to the start of the final post-production process. All footage will become the property of the ORCA agencies.

Interactive E-learning training can be developed using tools such as Articulate Storyline. Articulate Storyline is designed to deliver an ideal learner experience. The player hides sidebar menus and the browser while delivering mobile-friendly playback controls optimized for every screen size and orientation. Supported are touch screen interfaces so learners can swipe, drag, and pinch-to-zoom on tablets and mobile devices. The ORCA agencies will participate as Storyboards and voice-over scripts are developed.

Again, video based and E-learning curriculums are not a requirement of the RFP; however, INIT is happy to discuss providing these services.

2.7.2.6 Manuals

INIT will provide instruction manuals that describe and illustrate in detail how to manage, operate, and maintain the next gen ORCA System delivered under the contract. The manuals will include detailed documentation for all equipment, systems and software and will be submitted in hard copy and electronic formats as defined during design review. Sample manuals can be found on each USB flash drive that are submitted with each proposal copy and originals.

Most documentation will be provided in Microsoft Word while supplementary materials will also use such formats as Microsoft Excel, Visio, PowerPoint, and Adobe Acrobat. If sensitive information is included, INIT will indicate as such; however, no data or information will be encrypted. The file format will depend somewhat on the type of document; below is a general breakdown with a macro-view:

- Manuals and illustrated parts catalog(s) (PDF and Microsoft Word)
- Electrical Computer-Aided Design (CAD) (PDF)
- Schematic drawing(s) (PDF)

Some documentation may include Visio diagrams as imbedded images. The native files will be provided to the Agencies as either an exhibit or separate file.

2.7.2.6.1 Manual Content & Format

INIT understands the importance of well written precise documentation written in terms that are meaningful to users. Care will be taken to provide easily understood explanations and step-by-step instructions with cross-references to all drawings, diagrams and photographs.

The schedule and submission of the manuals as described below will be in accordance with the delivery requirements defined in the contract. Revision control of each manual will be recorded on a control list in the front of each document. The list will be updated with each revision and will show the date of each revision and the page reference. INIT will maintain all updates or revisions in the document control lists for each document. Prior to release to the Agencies, INIT will ensure each document has been peer reviewed by an appropriate technical level resource or professional technical writer to ensure the accuracy, completeness, and thoroughness of the content is obtained and relevant for Agency review and consideration.

Each manual provided will include a combination of tools to best communicate and where needed educate, the reader in all matters related to the material such that the Agencies will be able to operate, maintain, troubleshoot, diagnose, and perform repair of the system and its components elements. Such tools may include but are not limited to:

- Narrative text and descriptions
- Step-by-step procedures
- Illustrations, drawings, diagrams, images, or schematics
- Parts lists
- Troubleshooting guides
- Repair and replacement procedures

In many cases a document will use a combination of the above to provide the best possible explanation or instruction for the reader. Where this occurs, care will be taken to ensure cross-references are provided. For additional information related to the content specific to a functional area of the system, please refer to the Required Manuals section below.

While training courses will use the operator and maintenance manuals as a key source of education, supplemental materials specific for training such as instructor guides, student workbooks, presentations, or quick reference guides will be separate. Where applicable or in support of the readers understanding, references and cross-references will be provided.

The manuals will be concise and complete as possible ensuring that information gathered during installation and acceptance testing, and throughout the warranty and Software Maintenance Agreement (SMA) terms, will be incorporated into the manuals to be submitted to the Agencies.

As the different phases of the project continue, it is likely that revisions and other adjustment may be required of the documentation to reflect changes in or clarification of the actual implementation. In consideration of such circumstances, the information gathered from system installation activities, System Acceptance Testing, and the Warranty Period will be incorporated as needed to ensure appropriate reflection of the system.

2.7.2.6.2 Required Manuals

The system manuals that INIT will provide will be organized initially into high level categories in effort to guide its intention and/or user or audience. Those categories are: Functional Operation and User, Repair and Maintenance, Parts and Component Catalog(s), Special Tools, and Original Equipment Manufacturer (OEM).

Device and Software Manuals

Operating Instruction manuals are written with the intent to provide the reader clear and concise information on the form, function, and purpose of the given system component. The general outcome of each manual will be such that the reader has a core understanding of the

subject and is able to use it for the general purposes of their role. Collectively, the manuals INIT provides will ensure a complete understanding of:

- System equipment and associated peripherals
- Location, function, and operations of all controls and indicators
- Setup instructions, login, and shutdown procedures
- Troubleshooting, diagnostics, and isolation for the identification and repair of faults
- List of user messages, errors and descriptions

Operations manuals required for the ngORCA system include the equipment, systems, and integrations provided below.

Equipment:

- Onboard Validator
- Onboard Driver Display Unit
- Wayside Validator
- Vending Machine
- Customer Service Terminal and associated peripherals

Equipment Software / Applications:

- Validator Operations
- Driver Display Unit Operations
- Vending Machine Operations
- Fare Inspection and Validation App Operations

Preventative Maintenance manuals are provided in instances where proactive care and management of an item of equipment can help improve its performance and/or overall useful life. While not inherent to each item of equipment associated with ngORCA, INIT will identify items where preventative or periodic maintenance guidance are warranted.

Corrective / Field Maintenance manuals will be specific to the item(s) of equipment installed or in operation at an Agency location. Such items of equipment will include the onboard and wayside validators and driver displays, vending machines, customer service terminals.

To ensure the Agencies are equipped with the necessary knowledge and reference material, each manual will include:

- Troubleshooting guide providing errors and screens for common failures
- Common fault descriptions and best practices
- Unit swap instructions

Where necessary the Corrective / Field Maintenance manuals will expand detail on some functions and features of the equipment described in the Operations Manuals. The point and purpose is such that the user is able to become increasingly familiar with the micro detail necessary to perform the functions in their role. Such detail may include block diagrams or a list of error codes typical to a sub-component or assembly.

Each manual will provide sufficient detail to ensure appropriate and accurate diagnosis down to the lowest level replaceable unit (LLRU). The LLRU is known by the Contract as a complete assembly provided by INIT or an OEM supplier for spare parts.

Corrective / Field Maintenance manuals required for ngORCA include the following system equipment and components:

- Onboard Validator Corrective / Field Maintenance
- Wayside Validator Corrective / Field Maintenance
- Onboard Driver Display Unit Corrective / Field Maintenance
- Vending Machine Corrective / Field Maintenance
- Customer Service Terminal Corrective / Field Maintenance

As a component of field service and maintenance functions, the Agencies may encounter locations or vehicles in which equipment must be decommissioned (e.g. bus being retired, Customer Service office closure, etc.) or newly installed (e.g. new service, location, etc.). For new installations, a Site Survey will be performed and then an Installation Procedure provided. Decommissioning instructions will be provided as part of general field maintenance activities.

Shop Repair and Overhaul manuals will address the processes and steps in which equipment is unable to be returned to service in the field and must be either repaired in the workshop or replaced if repair is not possible. For these manuals INIT will provide the information related to the workshop repairs performed and the procedure for which they occur. For items that are COTS provided (e.g. CST perifpheral) and repair not possible, instructions or other information will be provided to support the replacement.

Parts manuals will be provided to outline the component parts and pieces of each unit of equipment, item numbers, manufacturer, and other similar information. The Parts manuals will

detail the unit of equipment and/or installation materials applied to, any Agency-specific information, location detail, etc.

Software and Programming manuals will be drafted to support a technician in performing the appropriate series of functions to return a unit of equipment to service or install a new one. This information includes all software and programming information required per unit of equipment. For example, onboard equipment would need to include information about the cable and e-prom as well as the validator in order to fully commission the validator or in the case of the CST, this may include software to be loaded, run commands, and testing of peripherals. Each manual will provide the needed catalog of instruction along with step by step guide for performing a stated task.

Software Source Code manuals will be provided in support of any non-proprietary related information. Additionally, the manuals will detail the items intended for Escrow as part of the source-code deposit required at Full System Acceptance.

API manuals will provide the suppliers that need to integrate with the the system using the APIs with the requisite information of the API specification, calls, data formats, system and security requirements. The API manuals will be written to support the following established APIs:

- Fare Payment
- Fare Inspection
- Central Payment Processing
- Transit Account Management
- System Management
- Fare Distribution
- Customer Account Management
- Onboard Integration

User and Field Maintenance Quick Reference Guides will be written to support the ability to perform a task or function central to a resource's job, role, or shift. Quick Reference Guides are not inherently limited in scope to any specific functional area nor specifically required for all functional areas. For example, a field technician may need a Quick Reference Guide for equipment swaps for each equipment type. Similarly, Quick Reference Guides may be required for each equipment type and unique to each Agency as their processes or procedures internally may require steps another Agency does not. Alternatively, there may be in depth functions associated with a System Administrator or Finance person where a Quick Reference Guide may be deemed insufficient as to be valuable.

OEM manuals we will be provided for items of equipment sourced from an alternate third party. For example, the card printer for the CST will be procured from a standard COTs provider and as such the user and maintenance information would be sourced from the manufacturer.

Back Office Manuals

The detailed operating instructions and procedures on the ngORCA System will be provided to the Agencies' System Administrators and IT personnel. These groups will be responsible for the operation and maintenance of the back office and its applications and system components.

All documentation provided will include functional and technical information relevant to the target audience ensuring the material is meaningful to the user. Each application program and its use will be explained along with step by step procedures detailing the configuration and parameter differences and the associated impact, if any, when they are changed or modified.

Administrator's Manual will be provided for the System Administrator or team(s) as applicable to the needs of the Region to inform on the system components, interfaces, suppliers, integrations, and other detail central to the system's overall design and implementation.

User's Manual will be provided to enable administrators and their teams to perform the various functions and configurations related to the central system. The following manuals will be provided for the back-office systems and configuration:

- Tariff Management
- Master Data Management
- Admin Tool
- Device Data Manager
- Parameter Management
- Online Crypto Manager
- Revenue Management
- Form Designer
- Asset Manager
- Card Inventory Management
- VASA Report Access and Management

Customer Relationship Management Application Operations Manual will be provided to enable the user to understand the form, function, and operation of the CRM. Detailed information on

user flows, data fields, functions, and operations will be provided as well as any information related to it's integration and support.

Asset Incident Management Application Operations Manual will detail the way in which assets are inventoried, monitored, and managed within the system. This includes all serialized assets such as a unit of equipment or piece of fare media. The manual will detail the way in which assets are defined, set up, and configured for monitoring and/or maintenance purposes including system alerts, alarms, errors, and so forth will be described along with the necessary troubleshooting and/or repair steps for recovery and reinstitution to typical operation. Furthermore, in the event a system restart or failure is required, the manuals will also provide sufficient information on the restart, reconfiguration, or other power-up tasks required. Additionally, the user will be instructed on the purposes and means for exporting data and log files, 'diagnostic data dumps', from the system. The documents to support maintenance of the back office are as follows:

- Software Maintenance
- Asset Management
- Incident Occurrence Notices
- Back Office Equipment and Systems Preventative Maintenance

System Manager Operations Manual is intended to detail the back-office infrastructure and network requirements of the system, including Agency-specific and central-system requirements. The System Manager Operations Manual will include information related to the architecture and application integrations of the system:

- Network Architecture
- Database Design and Architecture
- Disaster Recovery and Redundancy
- Failover and Data Load
- Customer Relationship Management Application
- Fare Inspection, Mobile Application
- Fare Validation, Mobile Application
- Customer Management, Mobile Application
- Web Portal Application

As more fully detailed system backup and redundancy and disaster recovery design, the process for backing up and cutting over to the Disaster Recovery System will require support and knowledge from all parties. The System Manager Operations Manual will however, provide the detailed procedures and step by step instructions for such occurrences. The cutover may take different forms depending on the root cause or scale of the occurrence.

Financial Management Application Operations Manual will detail the financial and accounting functions, processes and configuration. The manual will detail the Sage accounting interface integration, reporting, and daily, weekly, and/or monthly functions required to support the processing and settling of funds.

Field Media Management Application Operations Manual provides the way in which physical media is inventoried, moved between inventory locations, reconciled, ordered and other similar functions. Additionally, the manual will detail the different ways in which system equipment and interfaces will and can interact with all forms of media whether card present or not or physical media or not.

Software Source Code manuals will be provided in support of any non-proprietary related information. Additionally, the manuals will detail the items intended for Escrow as part of the source-code deposit required at Full System Acceptance.

OEM manuals are provided in support of the installed equipment, hardware, wiring, and applicable sub-assemblies, INIT will supply the Agencies with a parts and component catalog as well as a special tools catalog or list. Depending on the materials and sub or part document may be provided in compliment to the primary operations manual or cross-referenced (whichever is preferred by the Agencies).

In addition to the manuals noted above, INIT will also provide all available / complimentary documents which are in support of any OEM system component software, hardware, or integration. The format and structure will be determined as information or detail is available.

Support System Manuals

Once the system has been designed and implemented, support needs will be required at differing intervals based on the current state of the project. During the project implementation INIT will be responsible for carrying out and monitoring the management and maintenance of the system. Once the system is handed over to ROOT for the delivery of those management and maintenance functions, the Region will rely upon the knowledge gained from training and on-the-job support and the provision of documentation from INIT.

Operations and Maintenance Manual will detail the roles and responsibilities and related procedures between INIT and the Agencies in a manner so that it is clear the scope of the work

that is required of INIT and to which point there is hand-over or coordination with the Region. INIT will detail the INIT specific processes that are needed to be followed and to the extent practical denote any related Agency processes that may apply. The document will include the steps as needed for the duration of the maintenance period and be updated in the event of changes to the system or supporting infrastructure.

OEM Manuals will be used as supplied in the previous manual iterations in support of system equipment and components as described. Where applicable, OEM manuals will be replaced in the event of newly supported information or version changes.

Website Manuals

The website design is such that it is intended to serve multiple auidences in the Region including both end users, institutions, and Agency administrators. The complexity and detailed functional need requires a user manual be provided to cover each area.

Customer Website Design and Administration Manual will be provided to enable a detailed understanding of the form, function, and uses of the Customer Website. Information will be provided to ensure clarify of experience and feature capabilities based on the user; whether an end user as a single cardholder or Institution, Institutional administrator, Agency Institutional Program Administrator, ngORCA System Administrator, or Marketing and PR personnel.

Agency Mobile App Manuals

There will be two mobile Apps developed for ngORCA which provide two core support functions: Fare Inspection and Fare Validation.

Mobile Fare Inspection Application Design and Administration Manual will detail the design and function of the Inspection App. Detailed instructions on features and user stories will guide users through the purpose and intention of the app for inspection of media. App accessibility and device compatibility details will also be included.

Mobile Fare Validation Application Design and Administration Manual will provide the information and detail of the Validation (fare payment) App so that users understand the distinct purpose and different of user flows and needs between the Agency apps. App accessibility and device compatibility details will also be included.

Customer Mobile App Manual

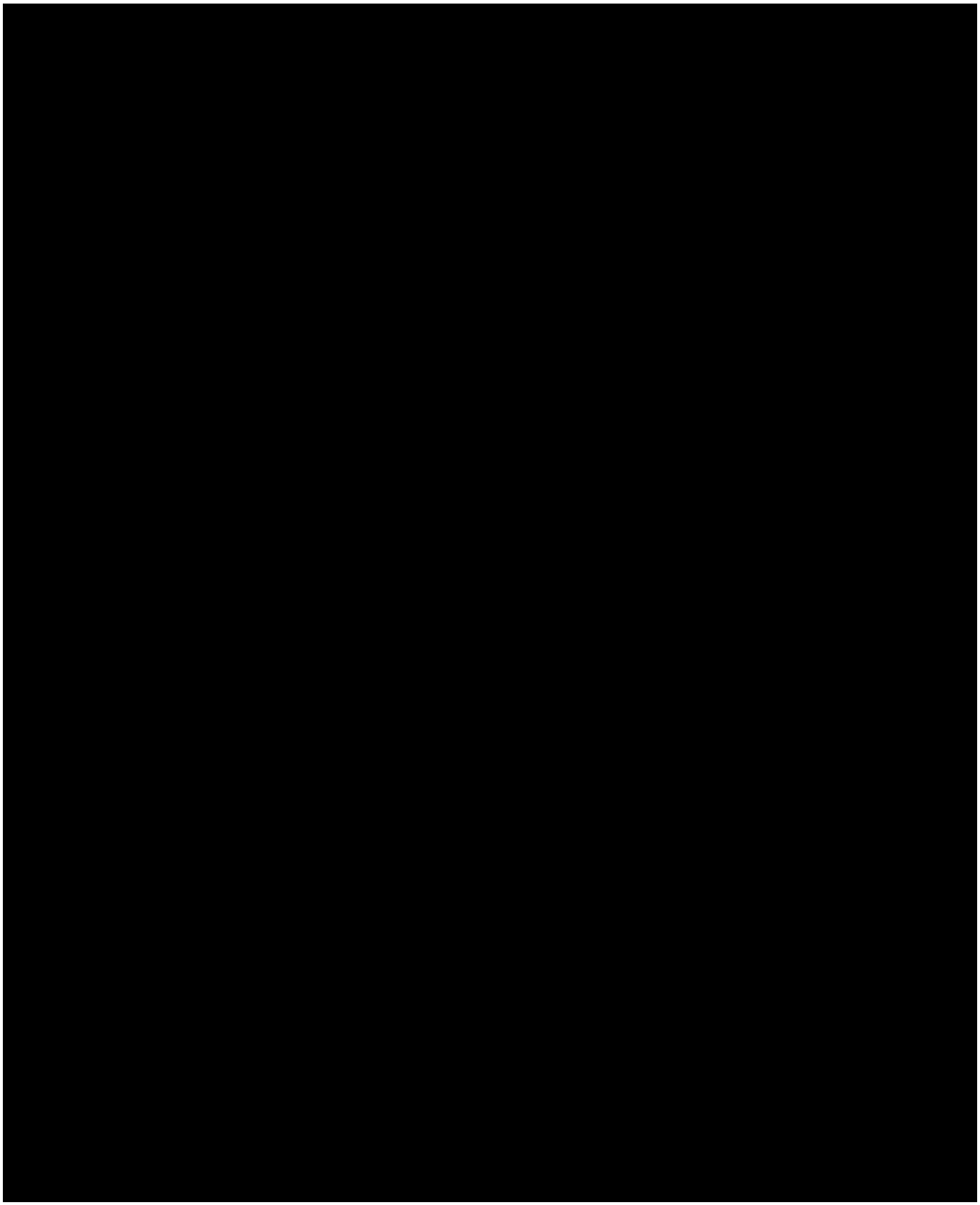
The customer app will be similar in design to that of the customer website and as such serves a broad and unique audience while also enabling additional user features such as fare payment via NFC.

Customer Mobile Application Design and Administration Manual will provide the user with a detailed understanding of the form, function, and uses of the app as well as any inherent limitations or system requirements.

2.7.2.7 Software Escrow Deposit

INIT will deposit INIT Software with a source code agent. During the one-year period there is no charge for SoundTransit. Deposit of 3rd party software such as Microsoft, Sage, SalesForce etc. is not included. Charges for an annual deposit after warranty are included in the operational costs. Our preferred source code agent is capable of doing Level 2 deposits if needed. Included in our pricing is Level 1 deposit which INIT has done for other projects. Level 2 deposit would require an upcharge. Please refer to the commented section D "Source Code Escrow" of the RFP document "Exhibit A Proposed Agreement" for additional details.

2.8 INIT's Proven Transition Methodology and Approach



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2.8.1 Minimal Customer Service and Project Impact Transition

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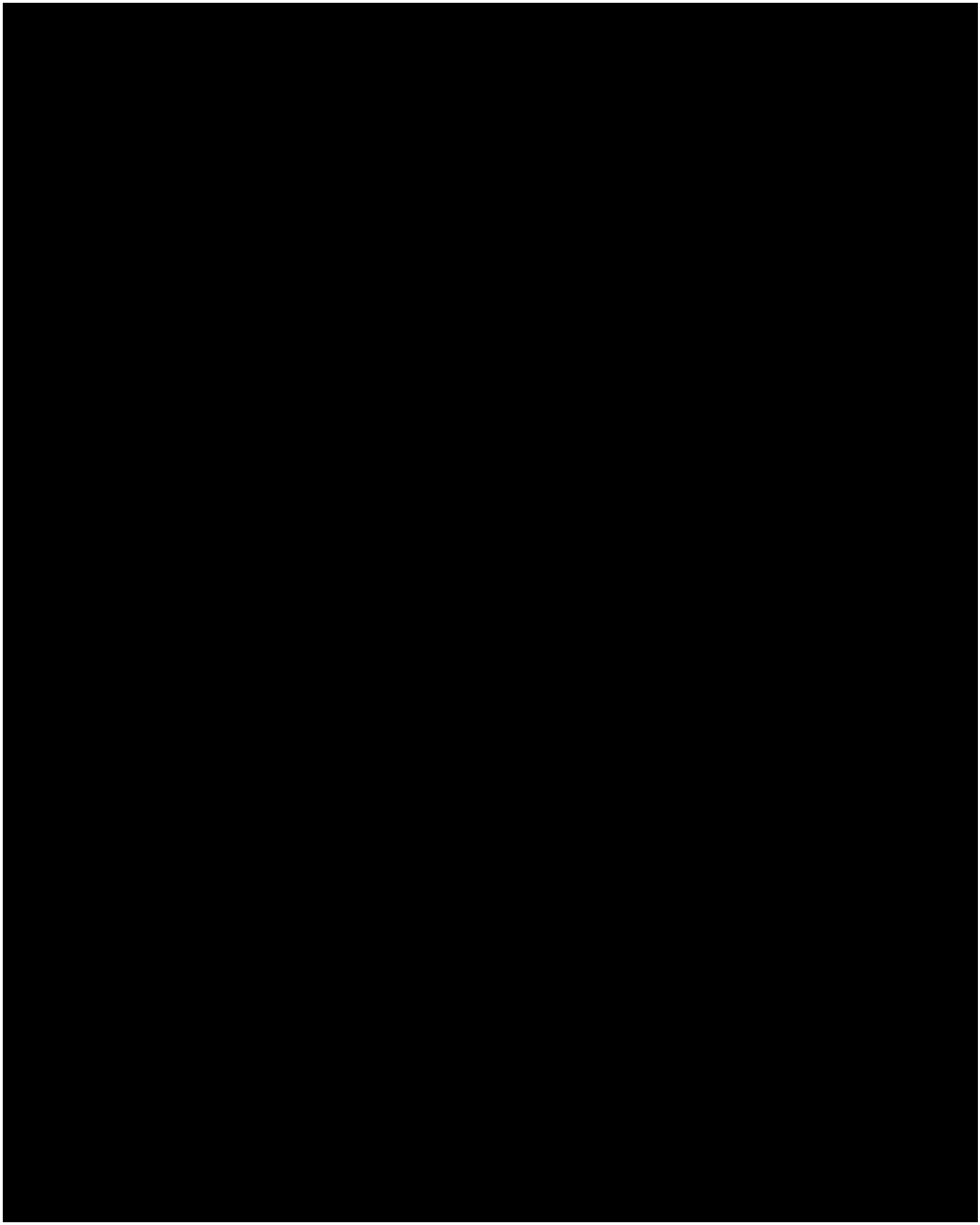
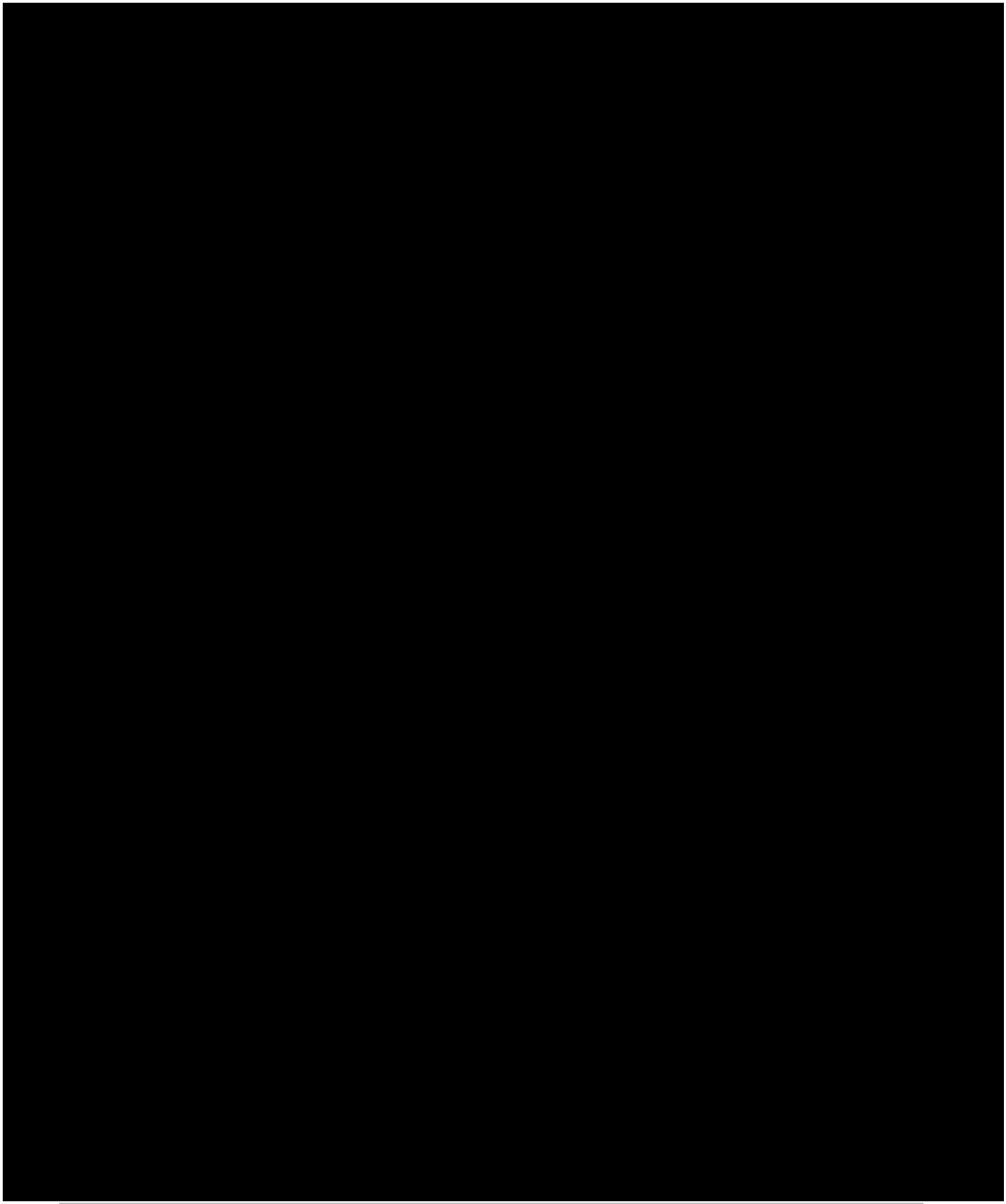
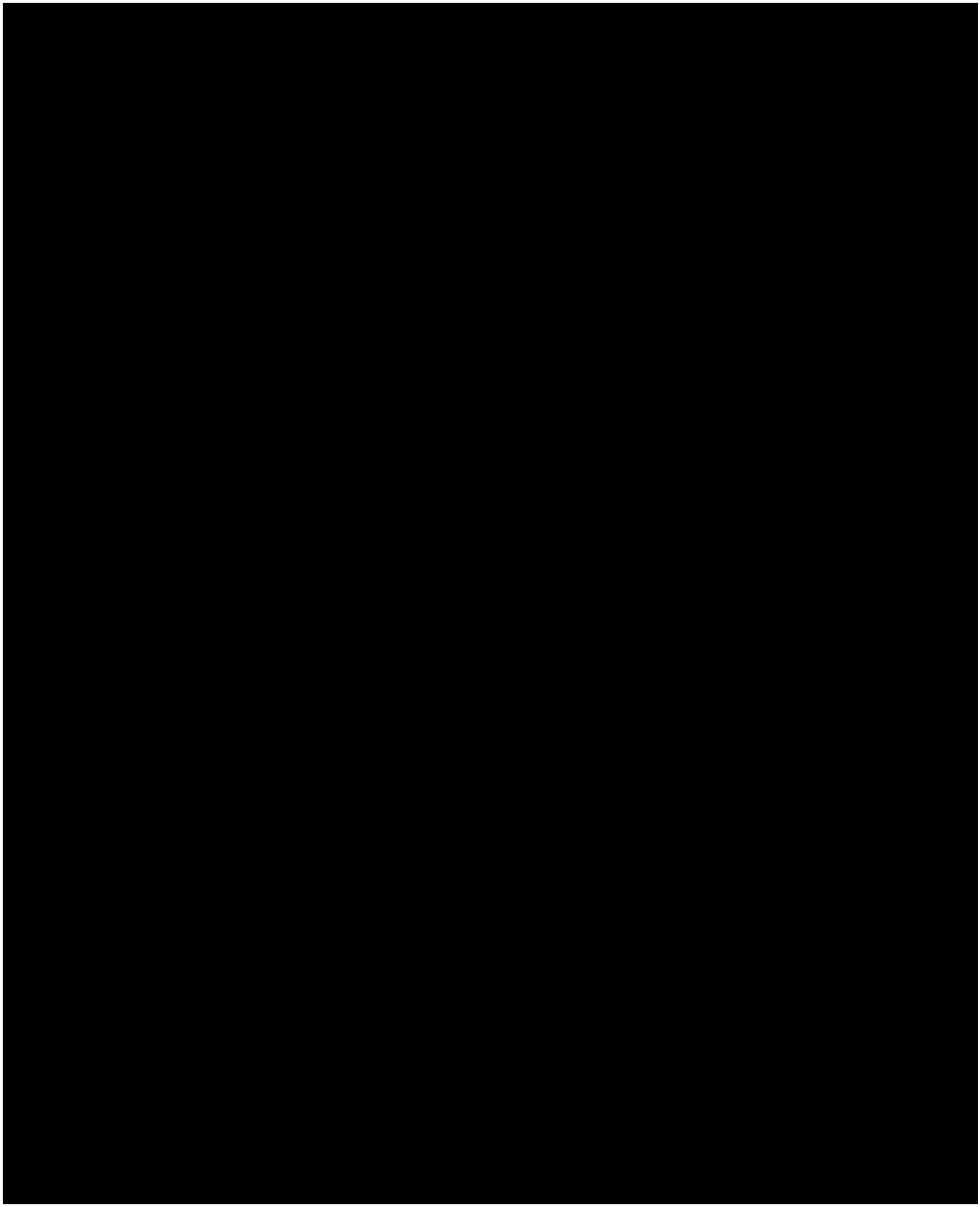
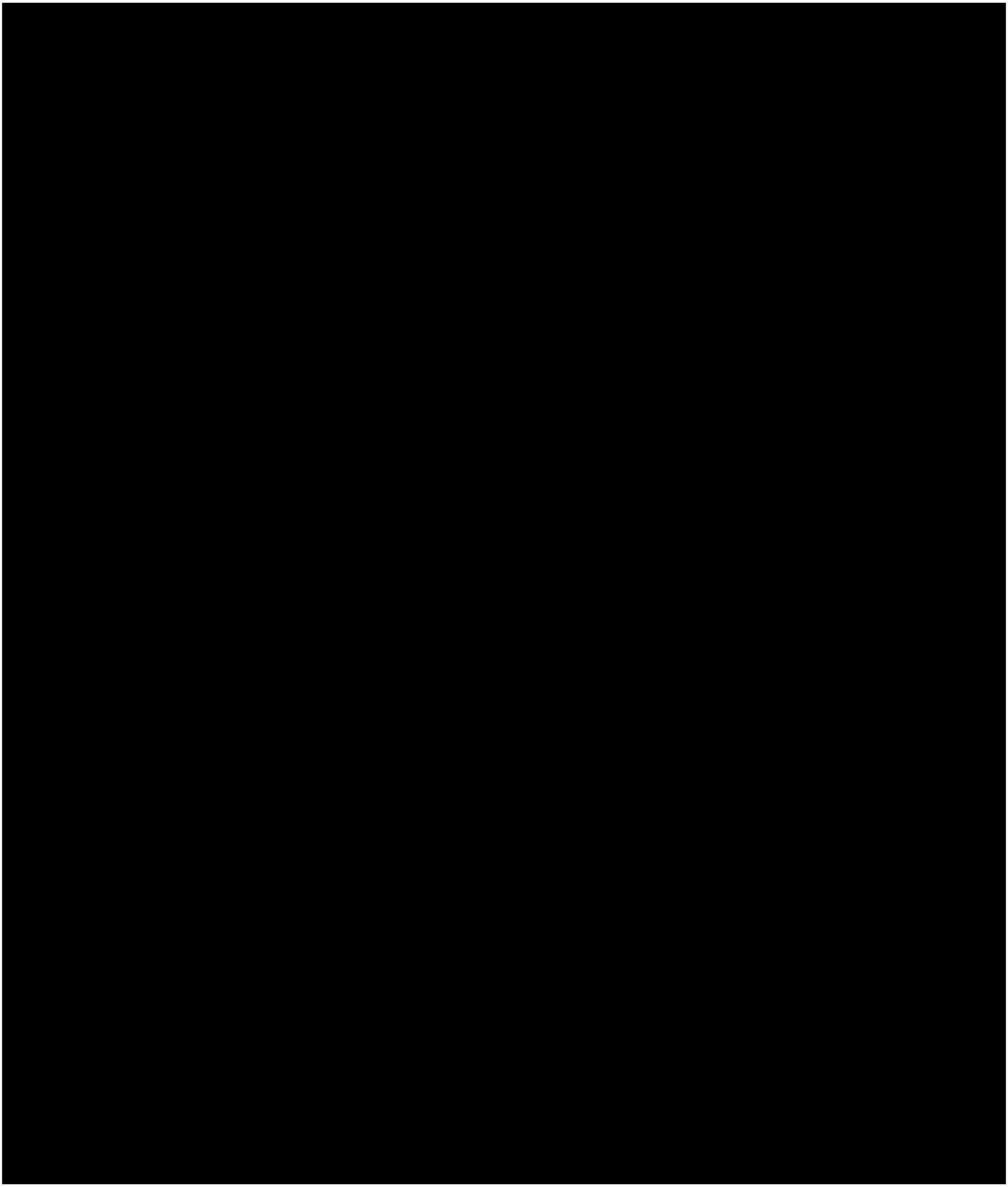
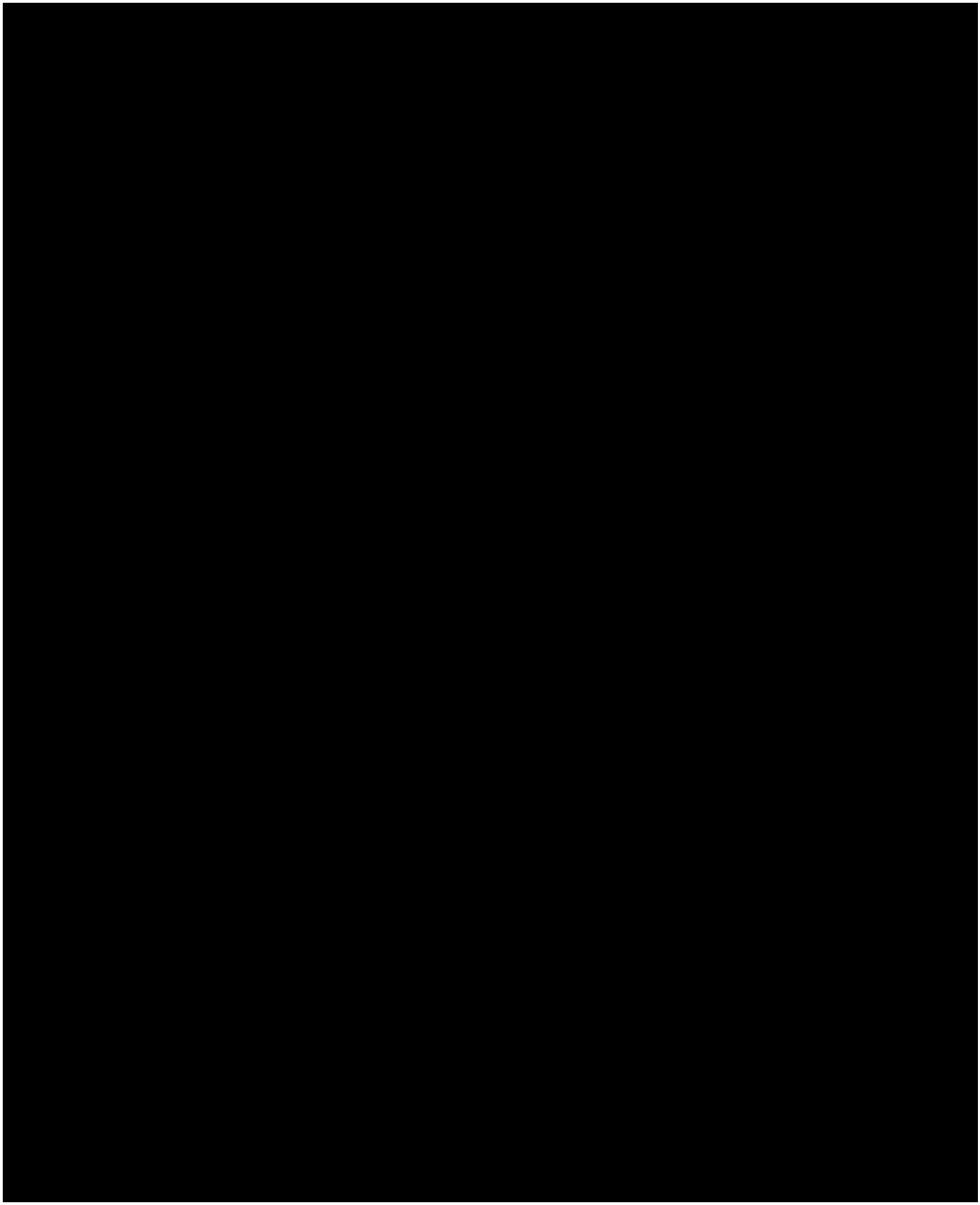
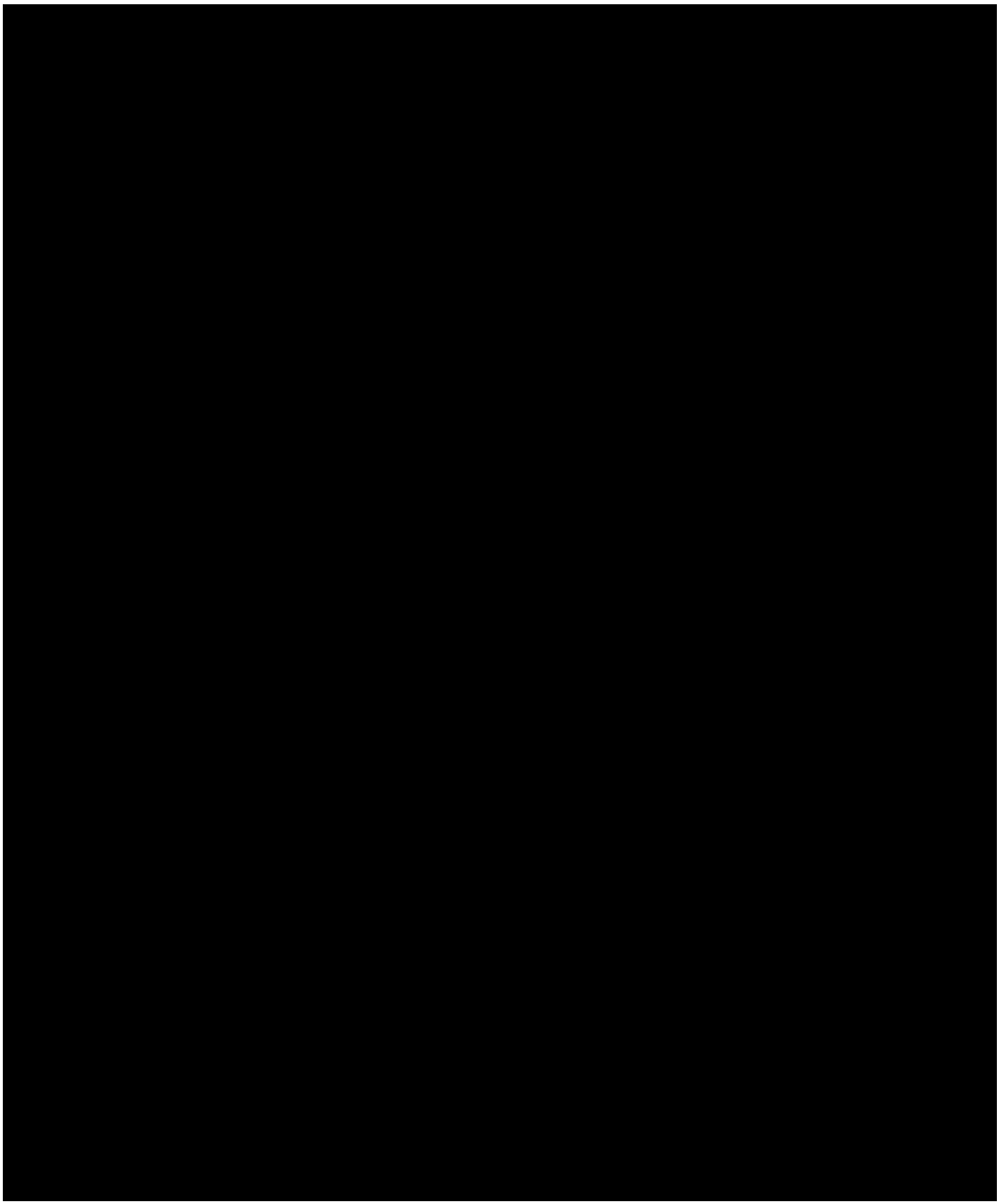


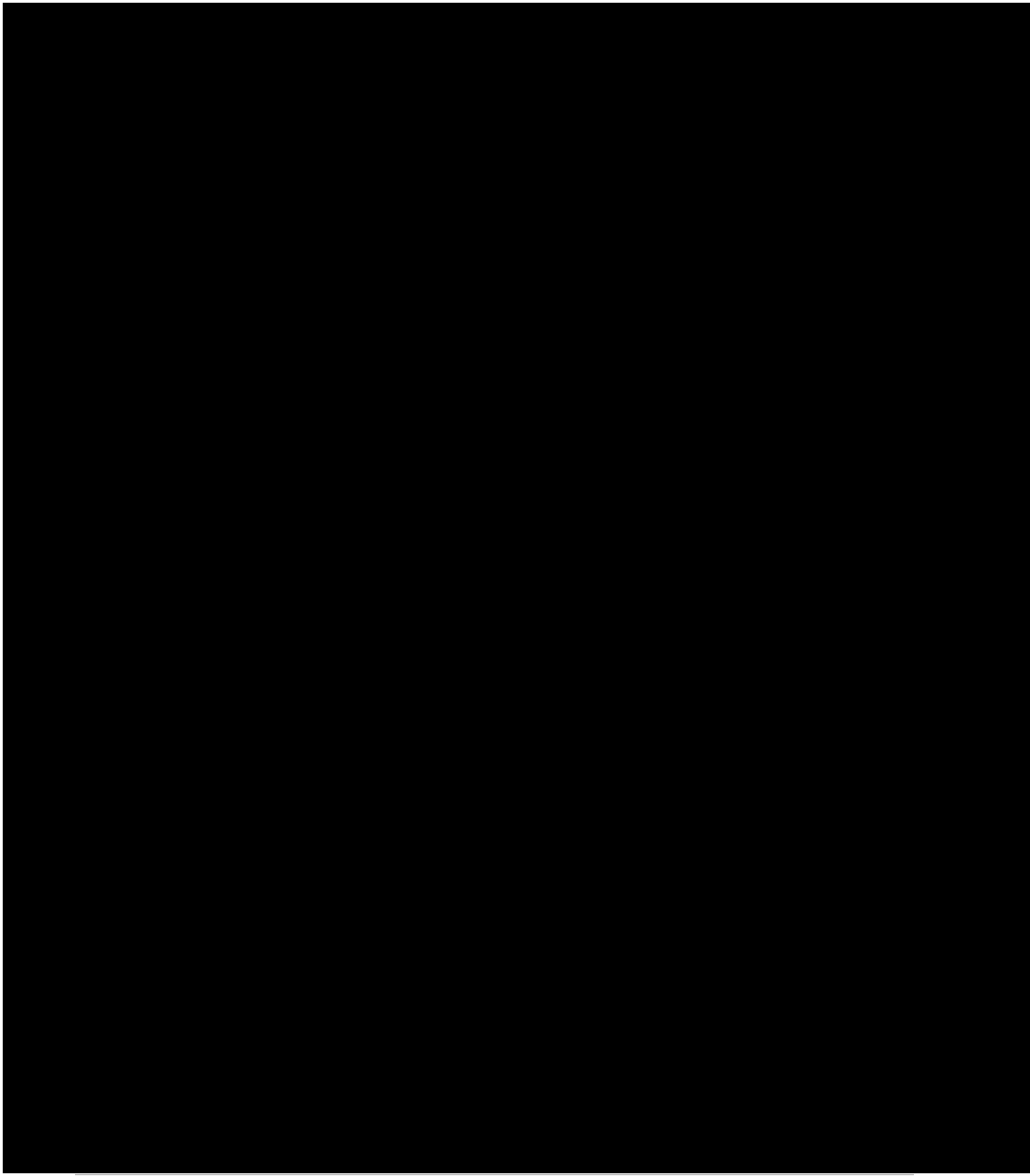


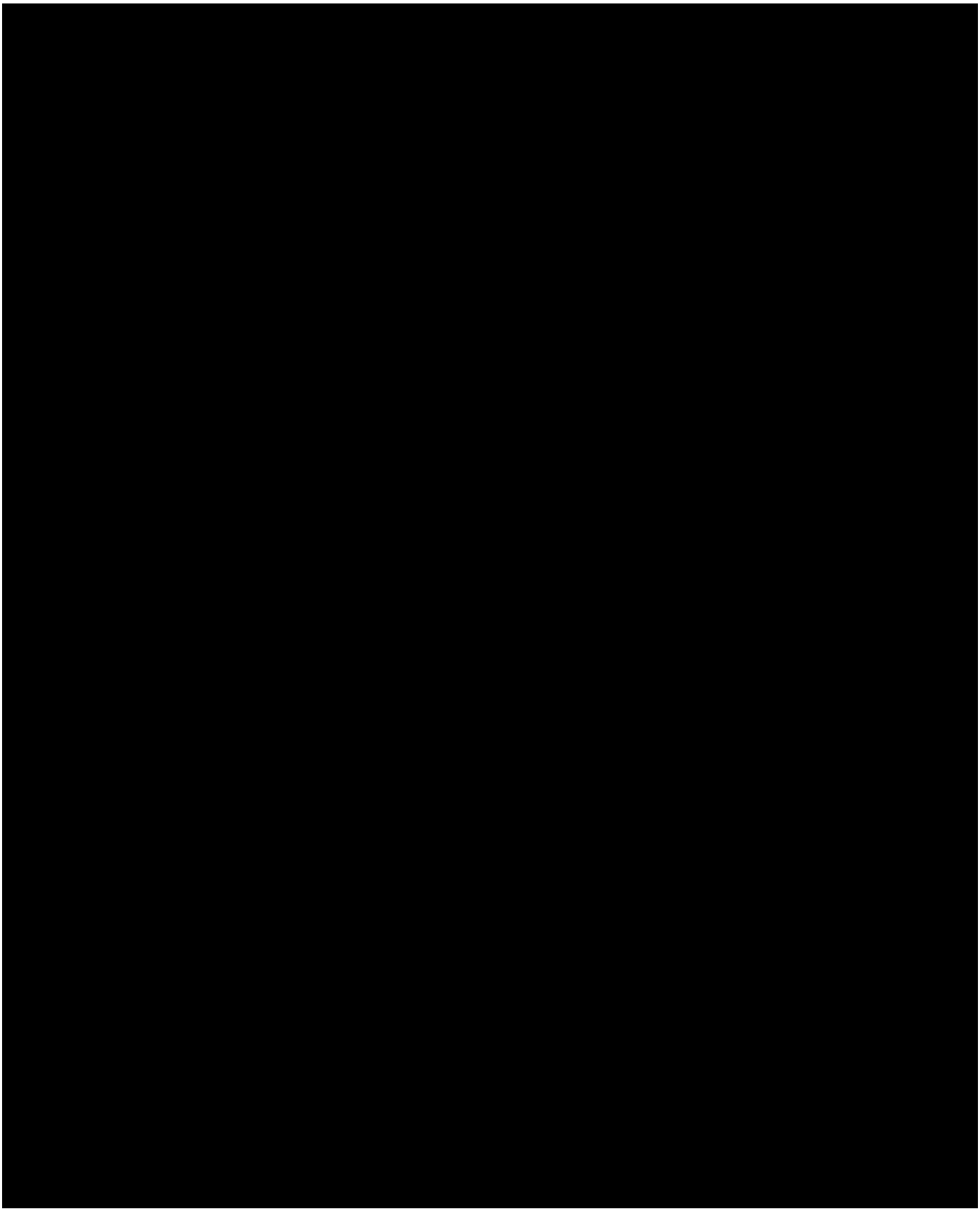


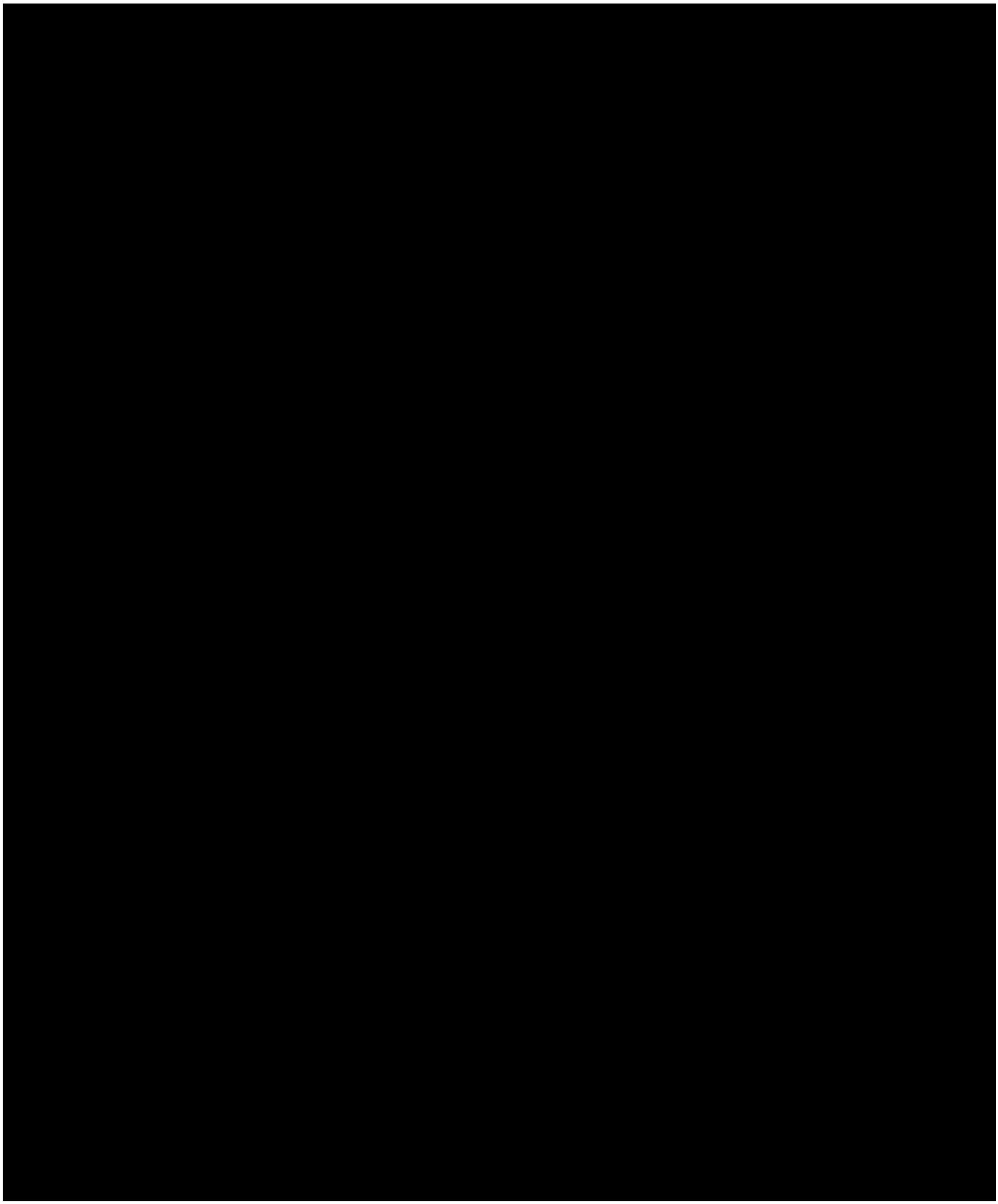


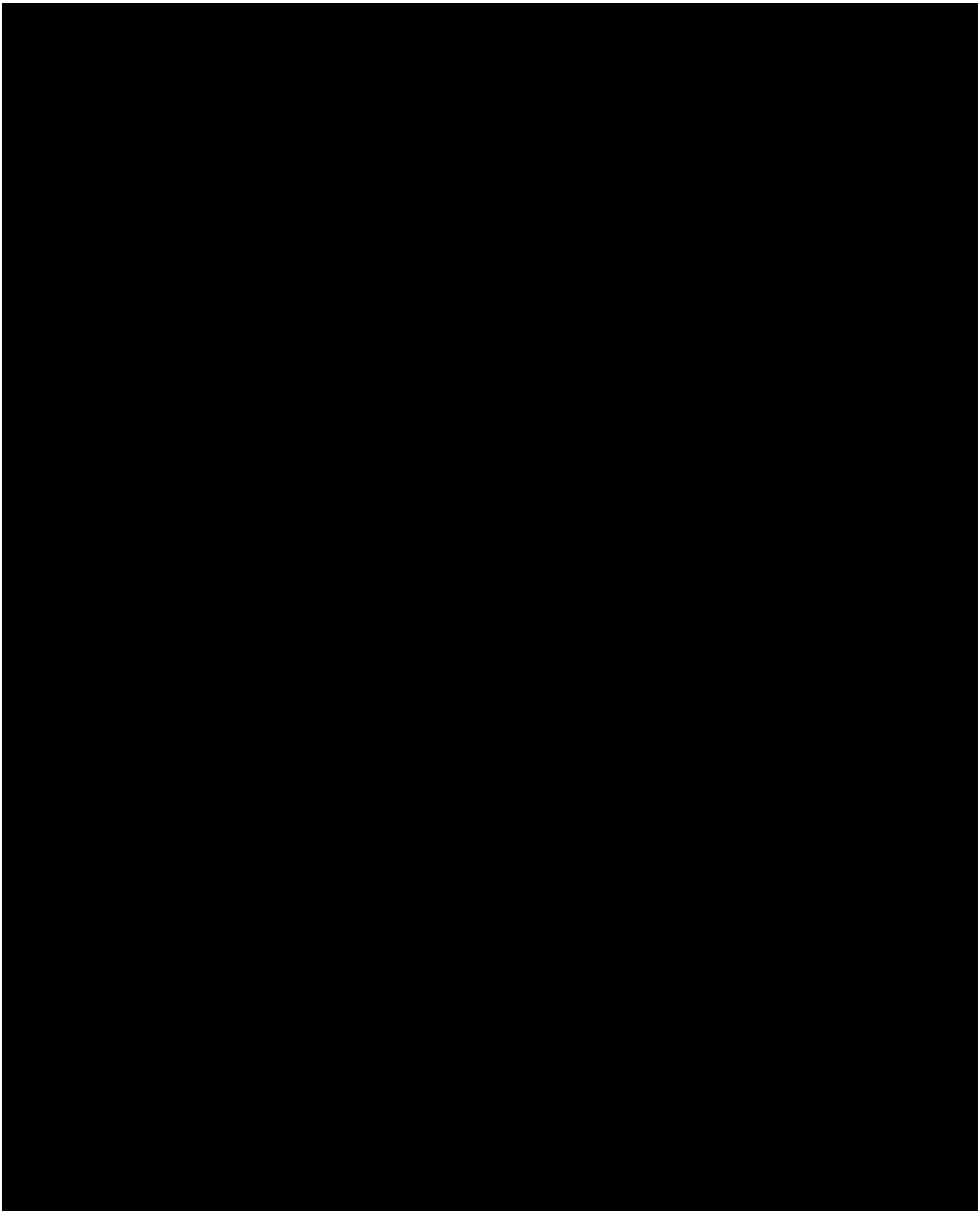


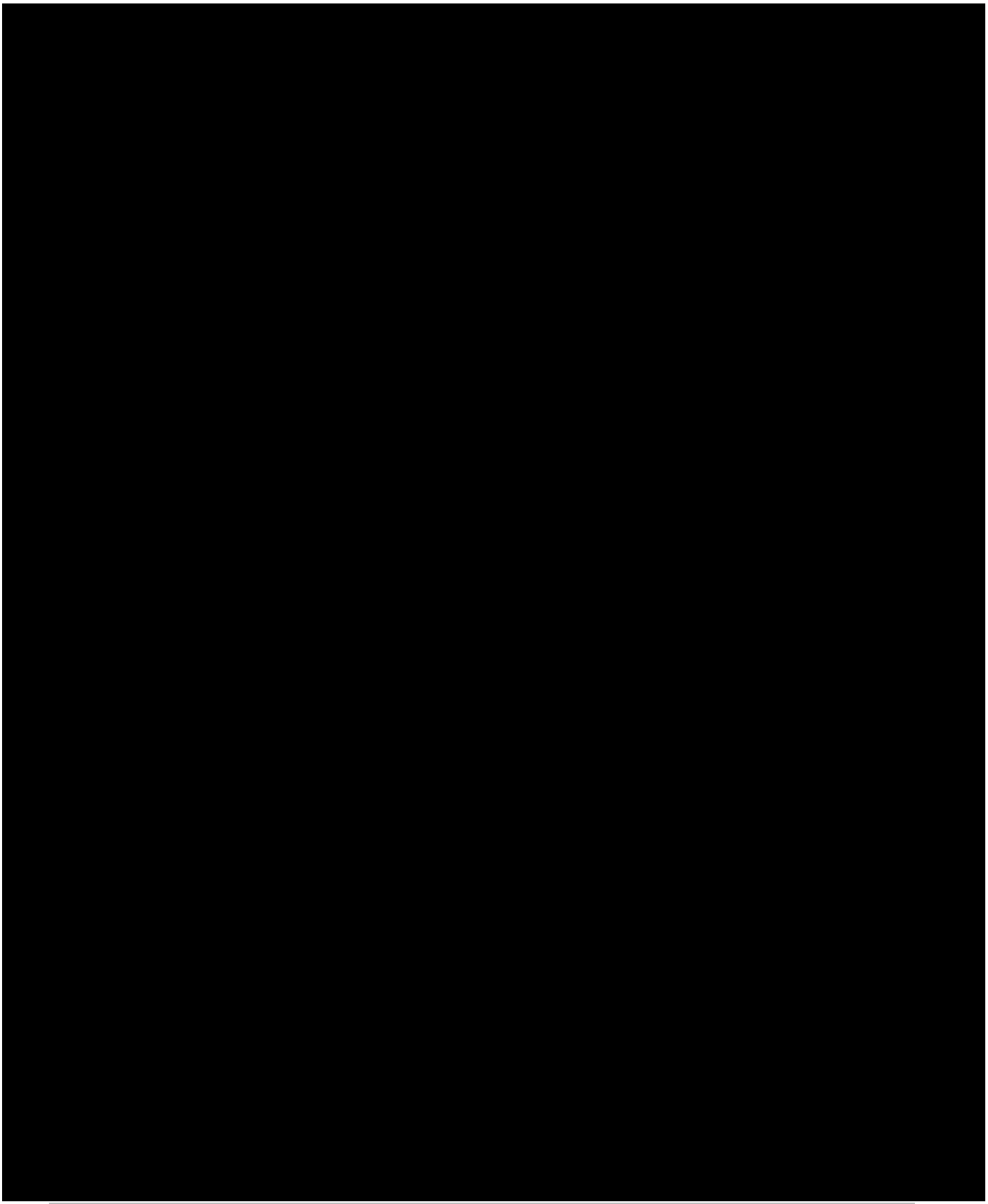


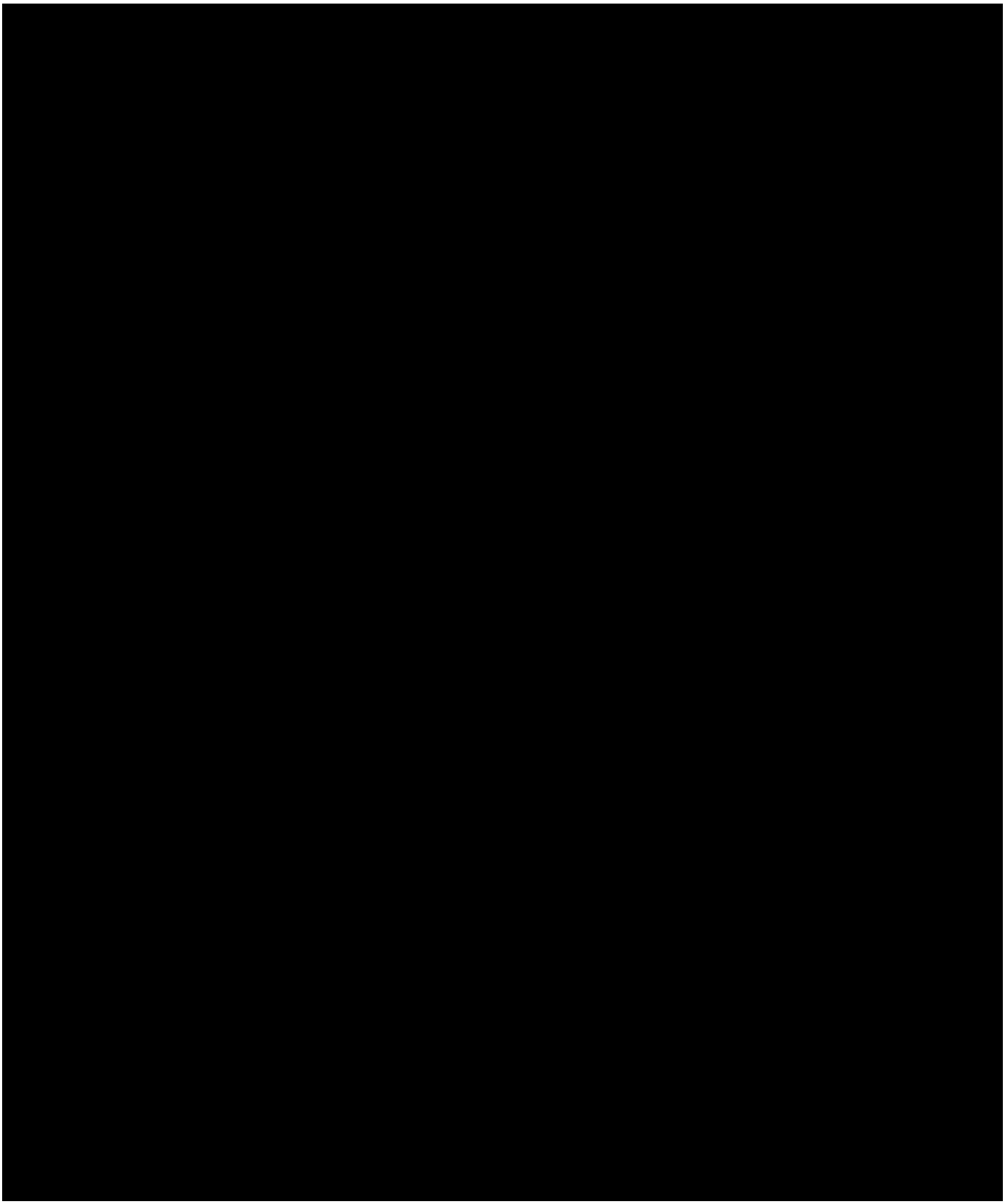


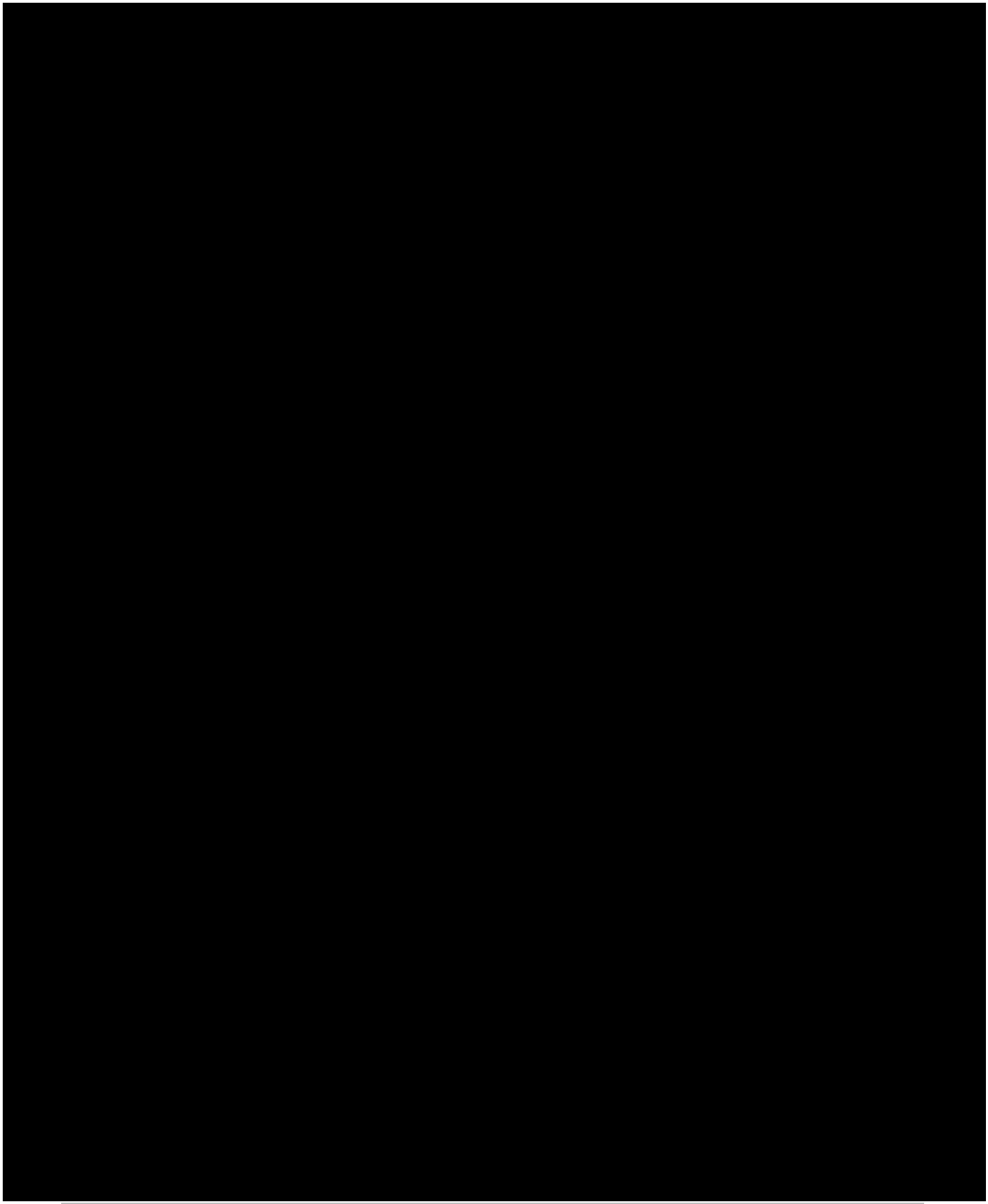


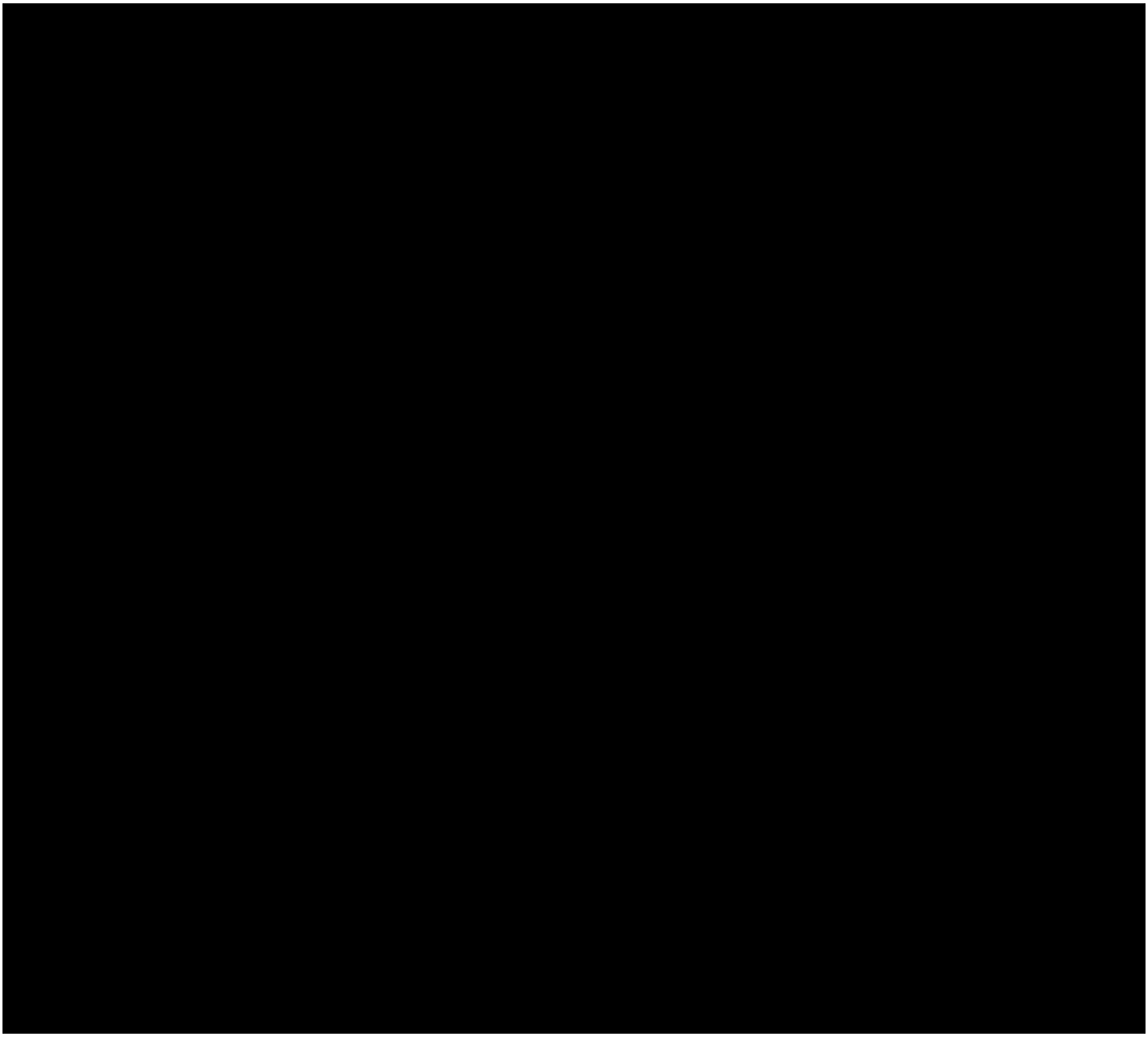


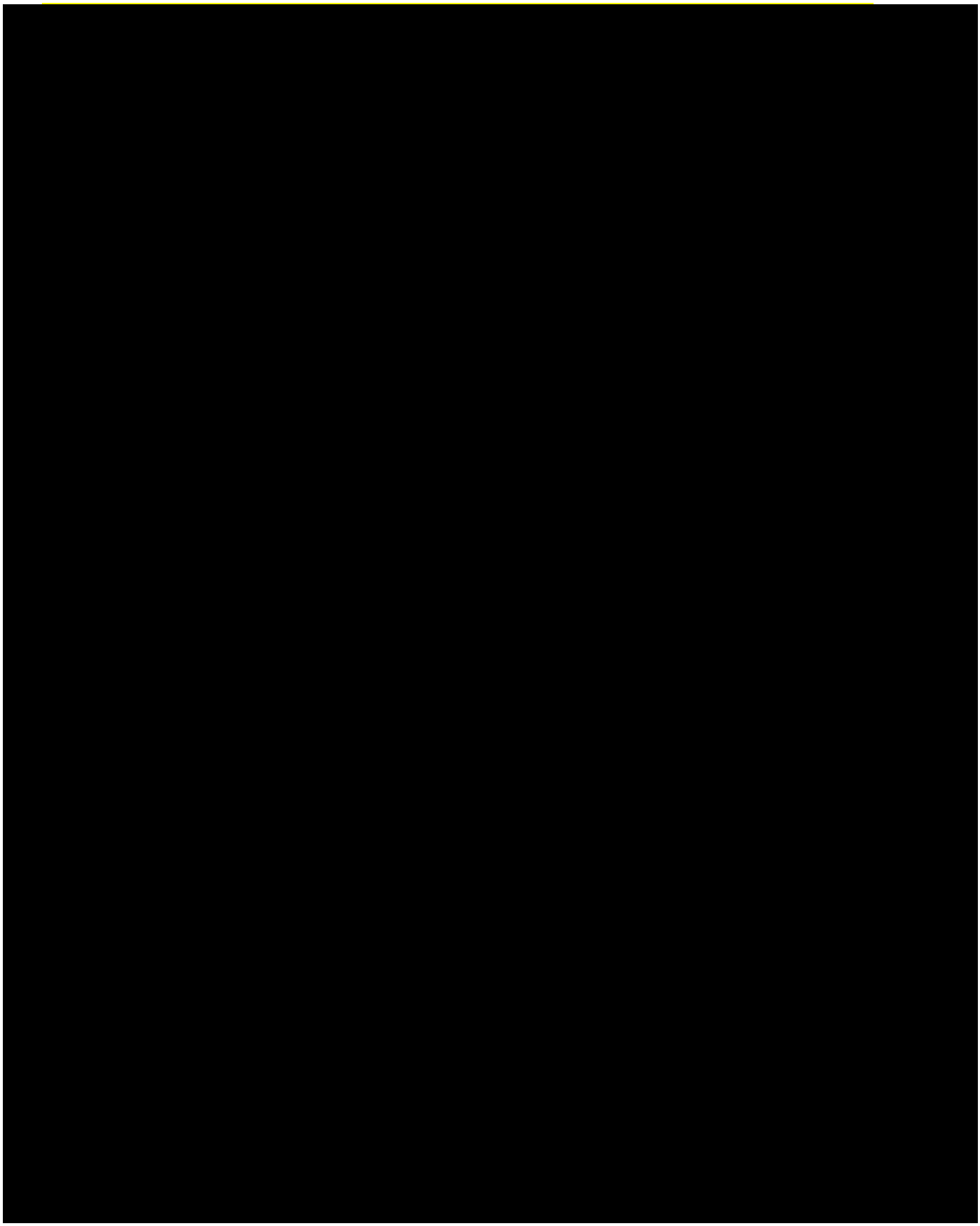


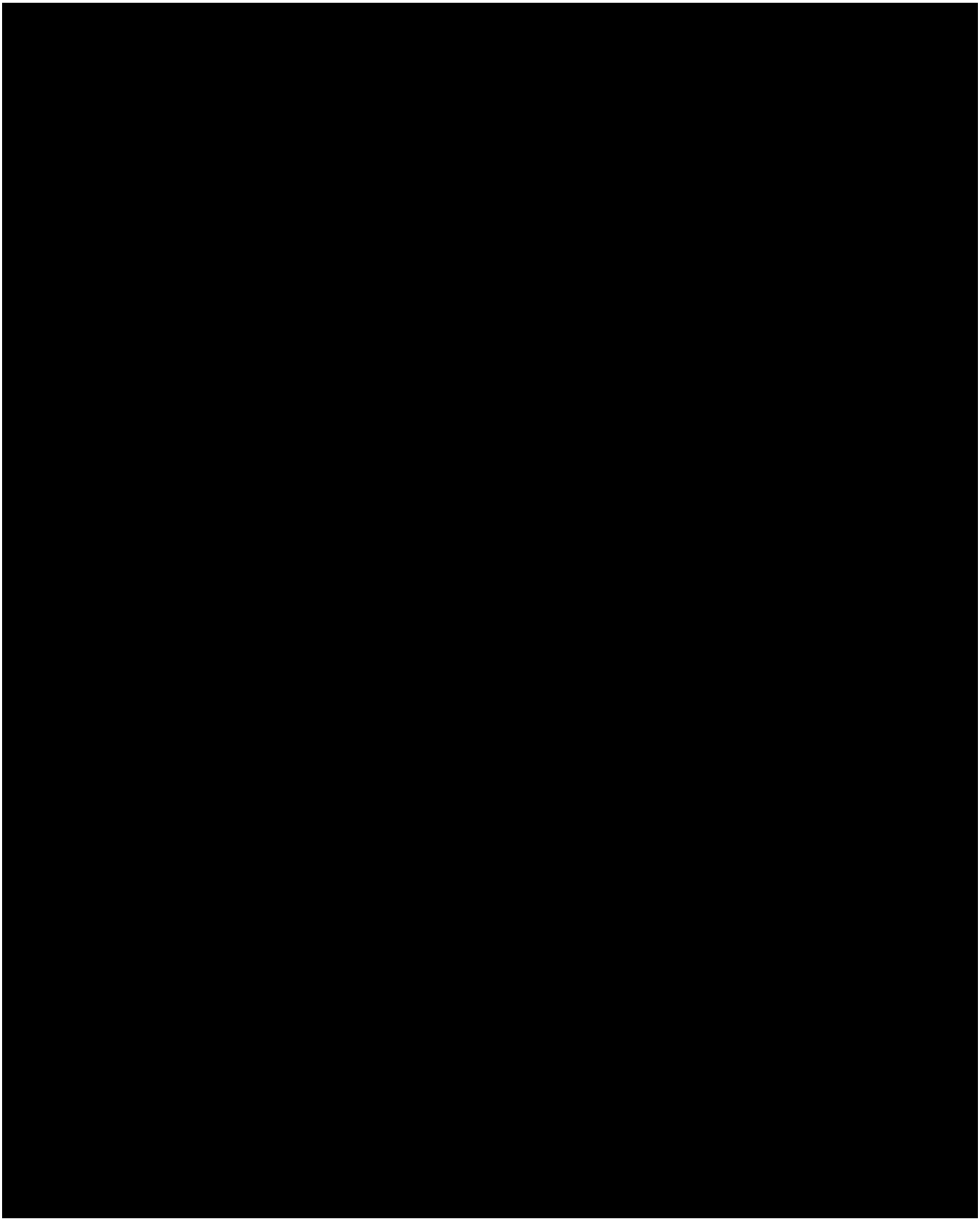




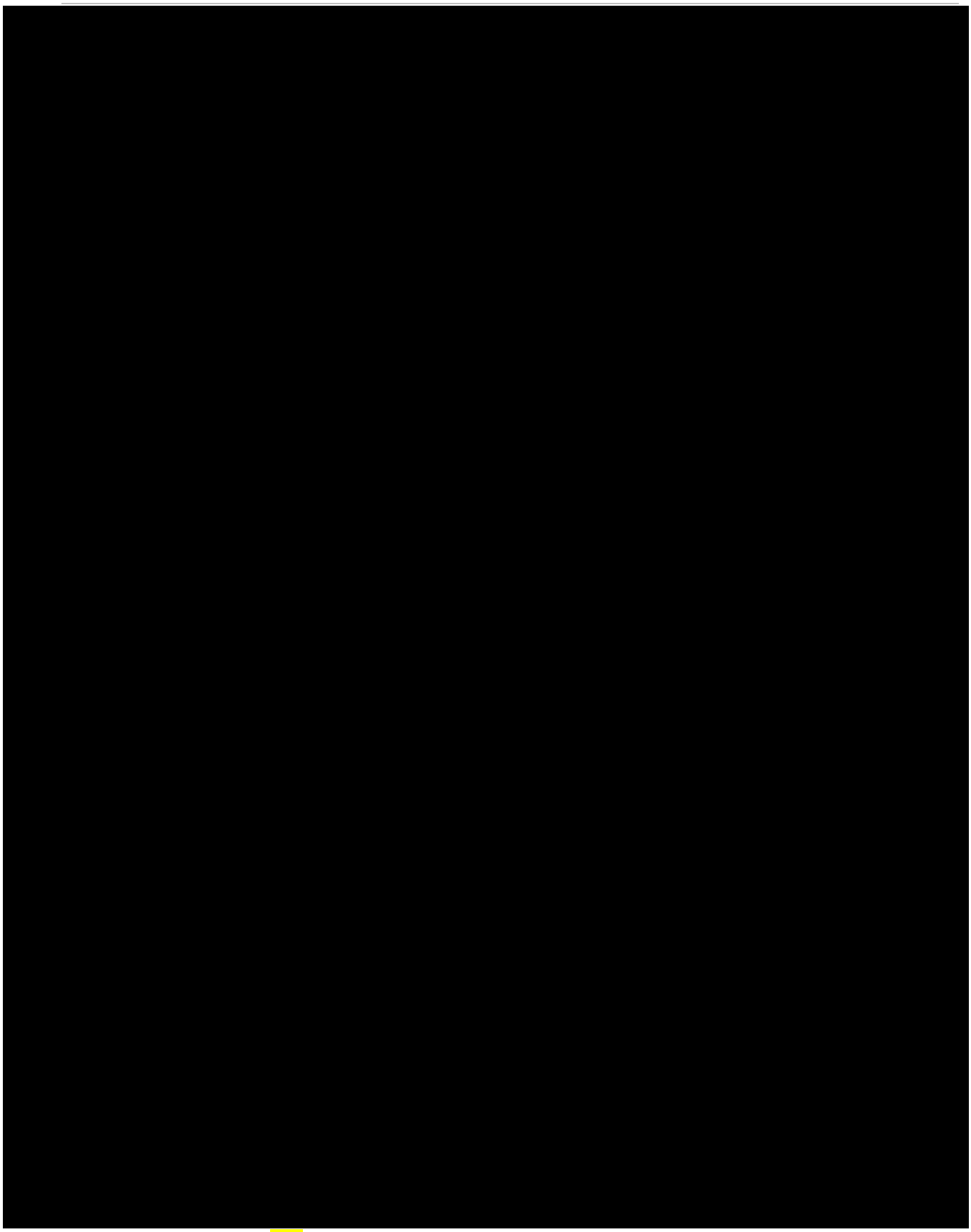


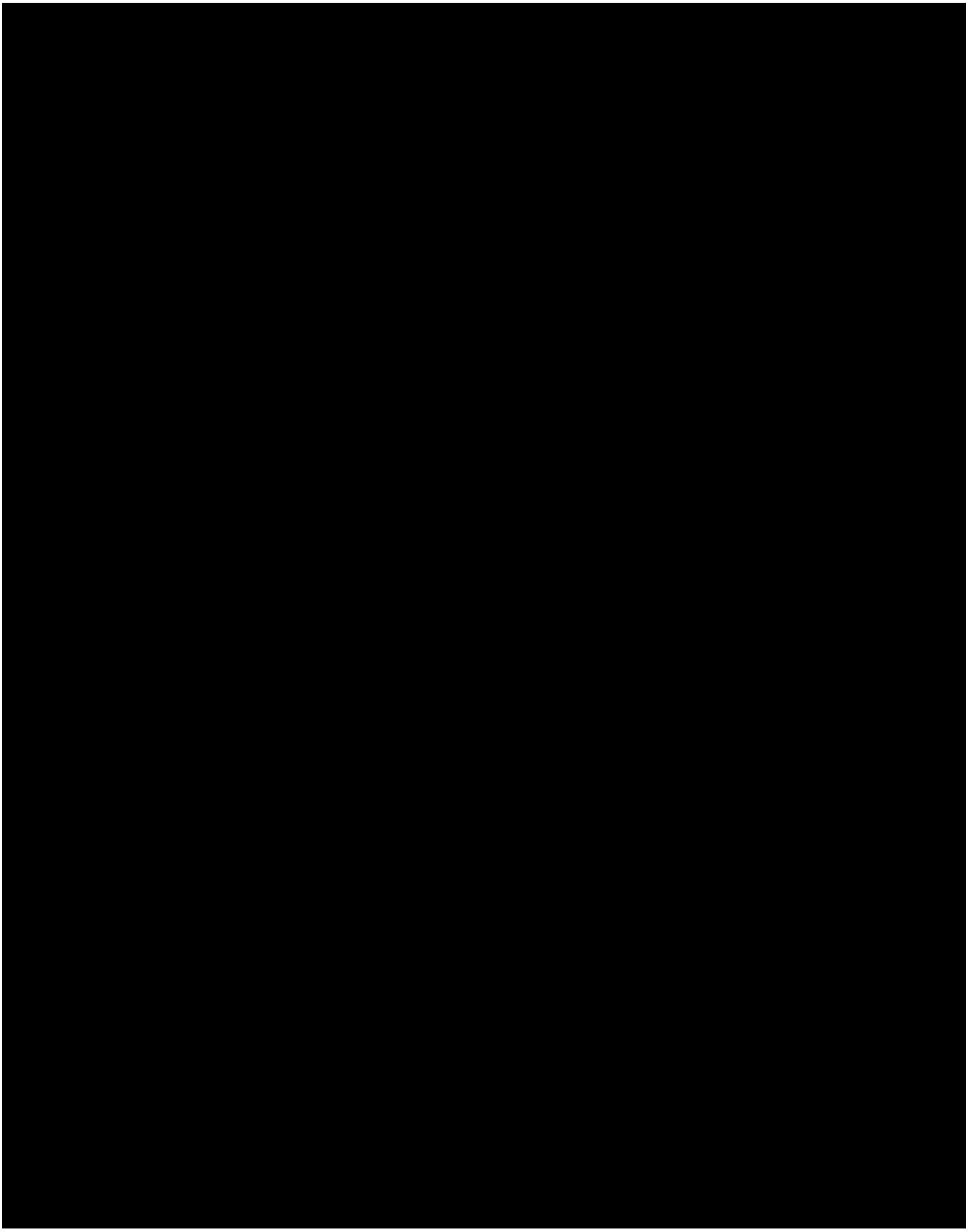


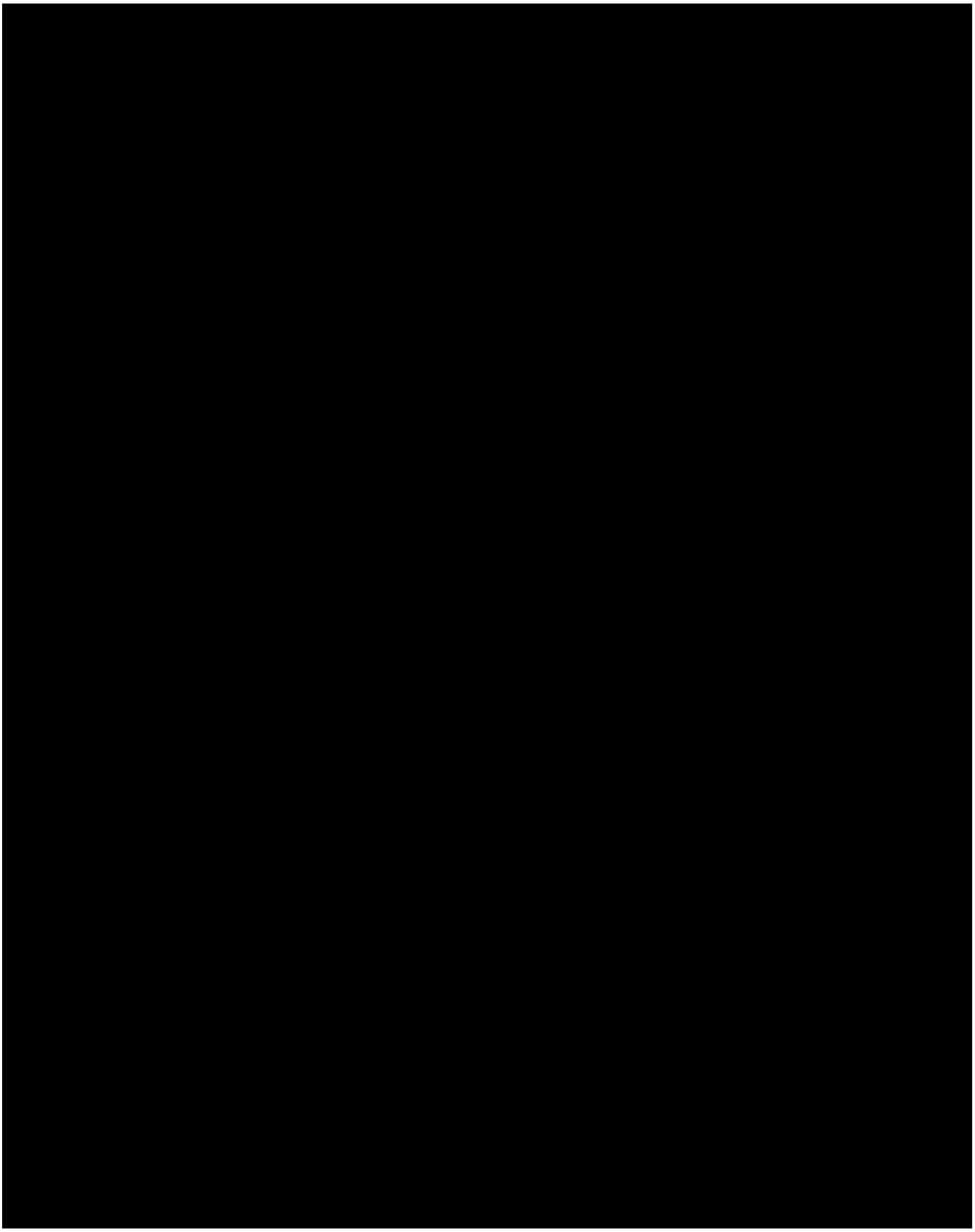


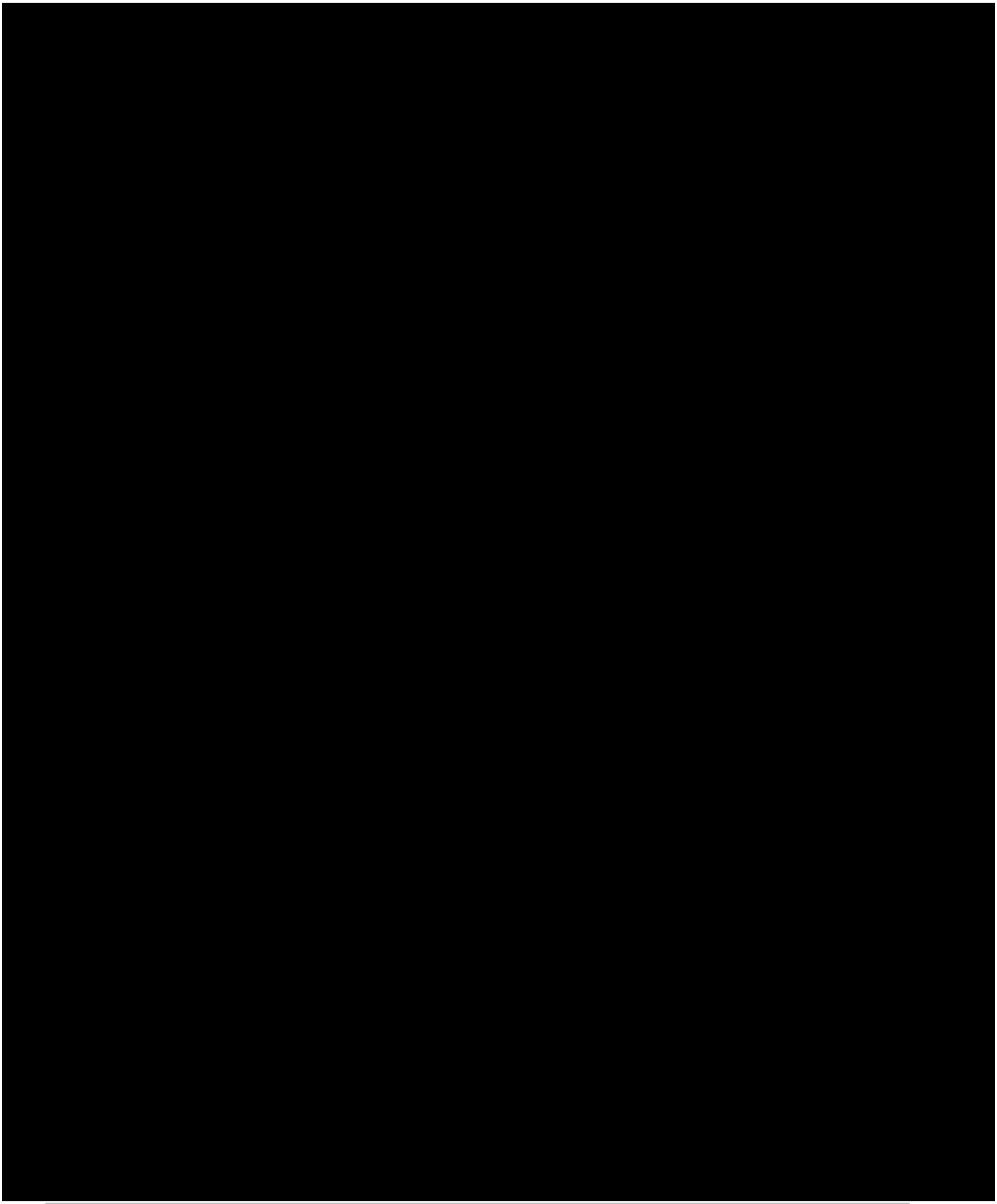


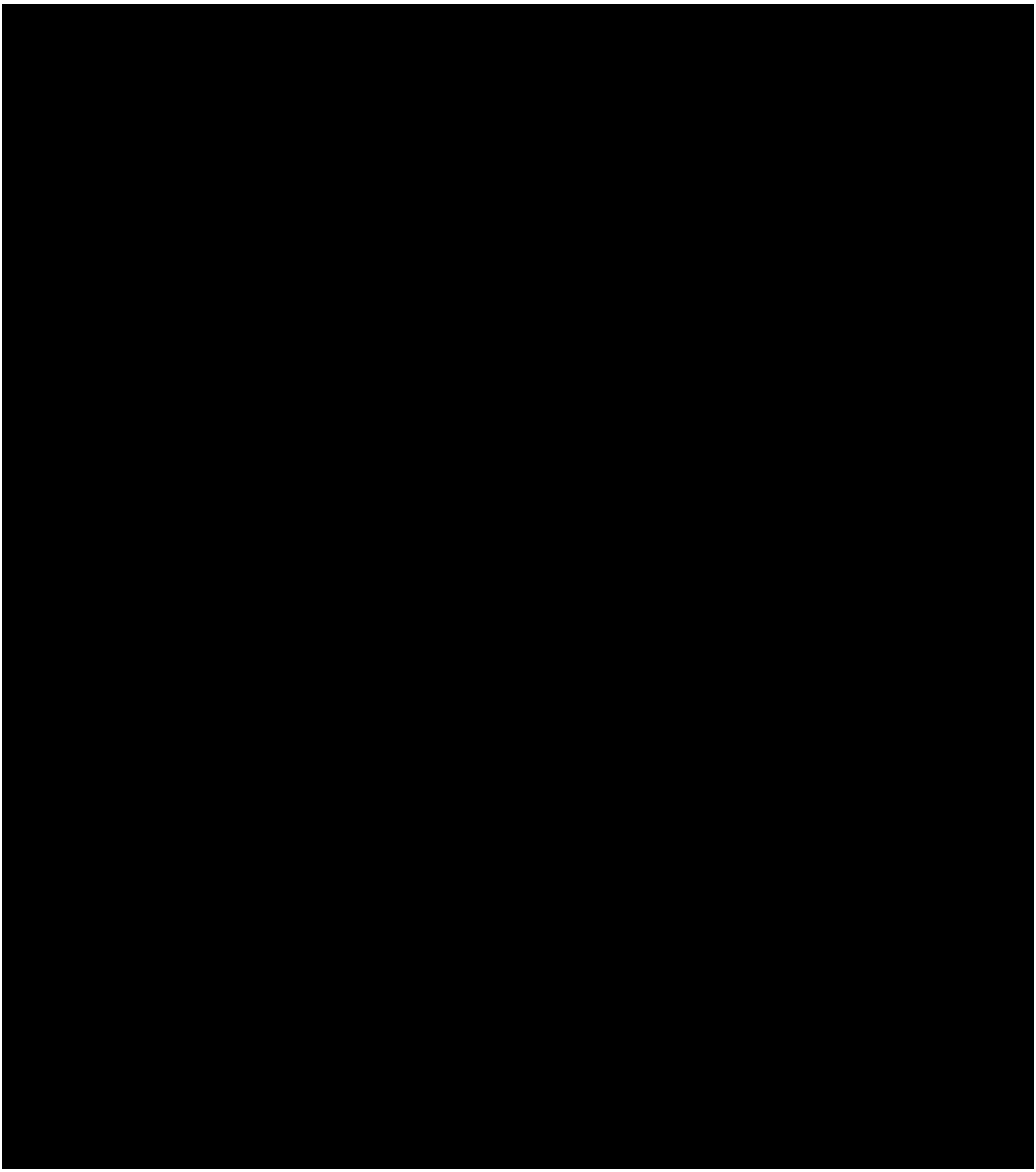
[2] Delayed or "Lack of" cooperation from the incumbent vendor remains a significant risk to the overall project due to the hard dependency on the timely and successful deployment of the DARe platform. Transferring this risk to the DARe vendor only lowers the likelihood of the risk materializing but does not reduce the significant impact should it occur.

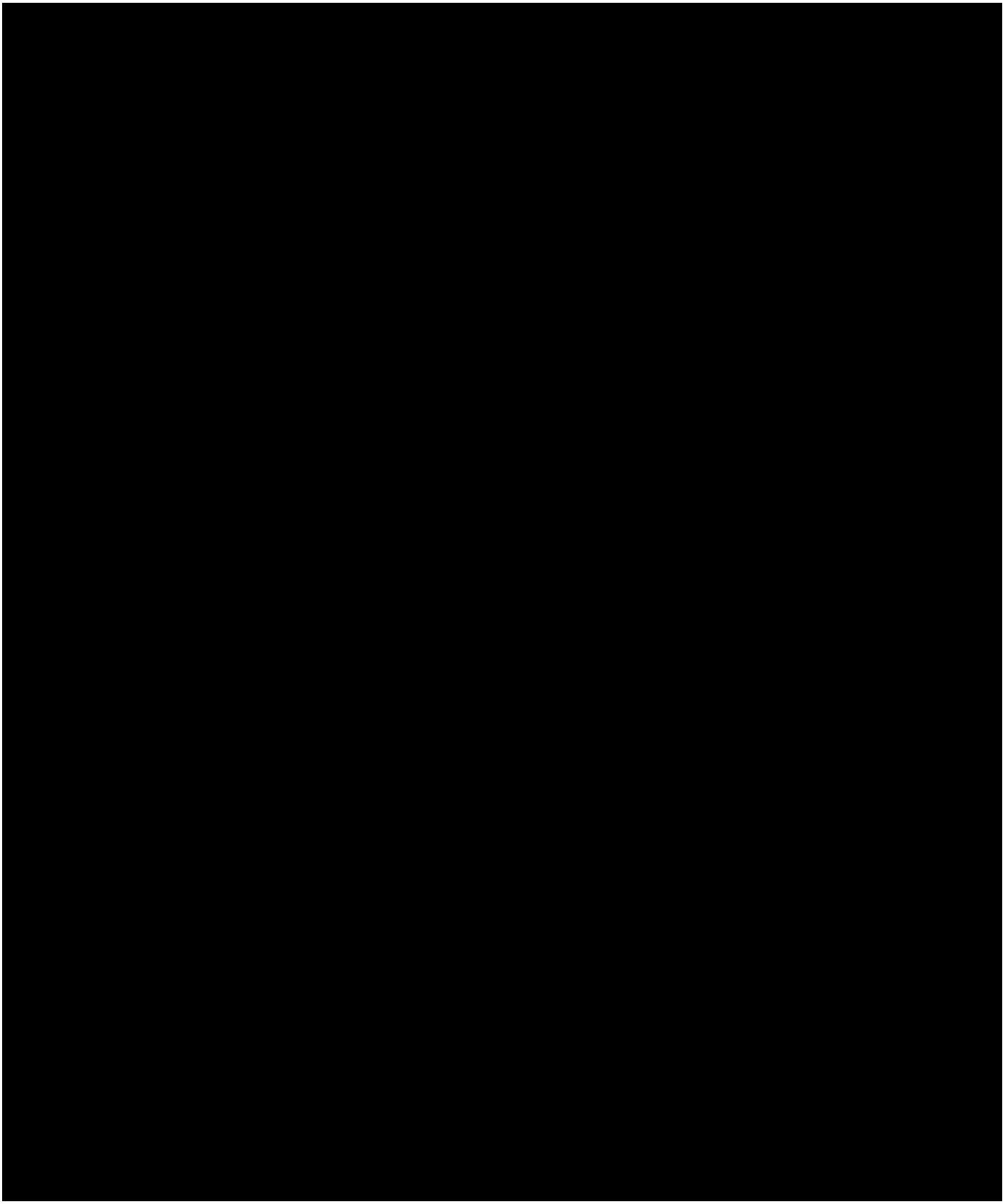


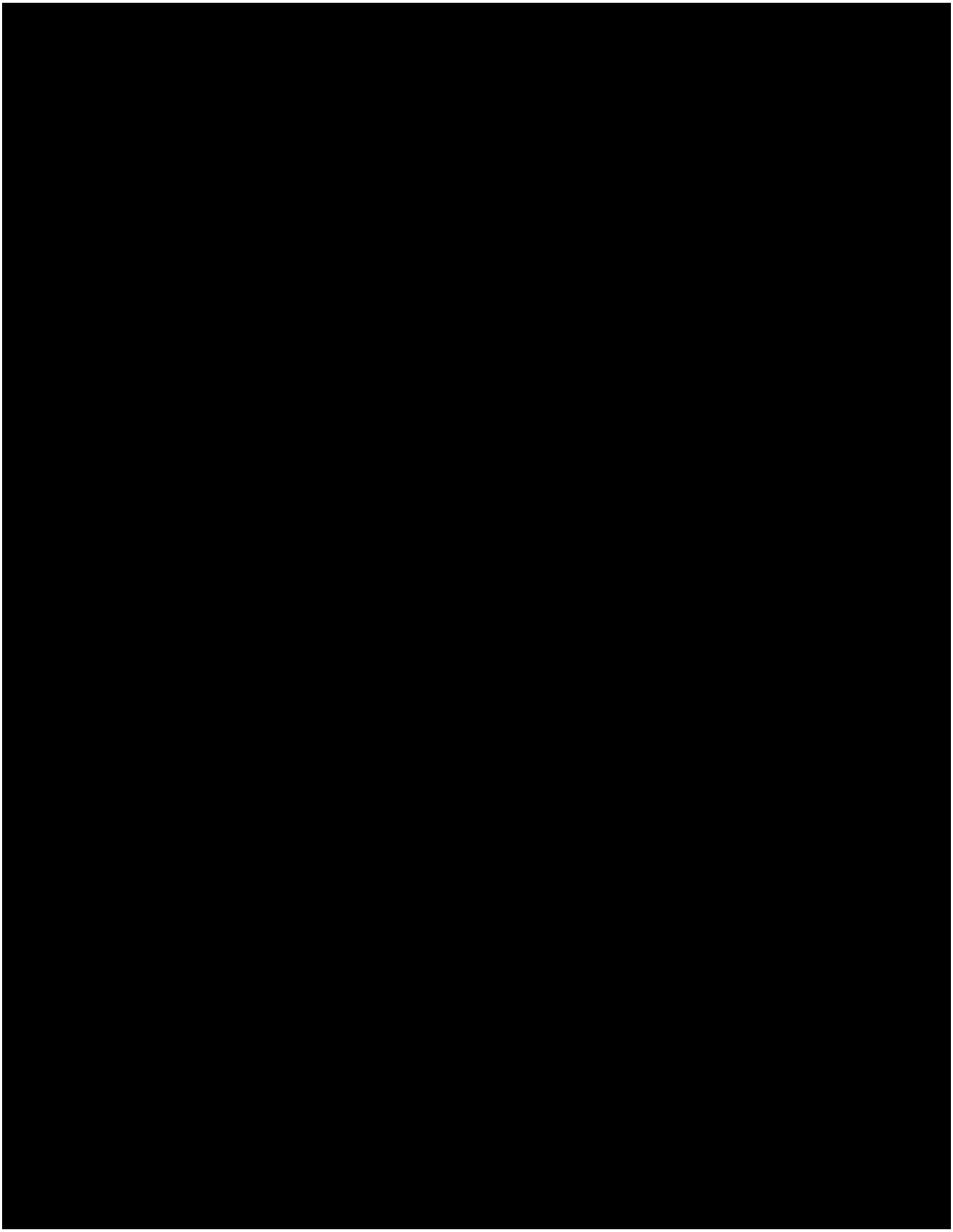


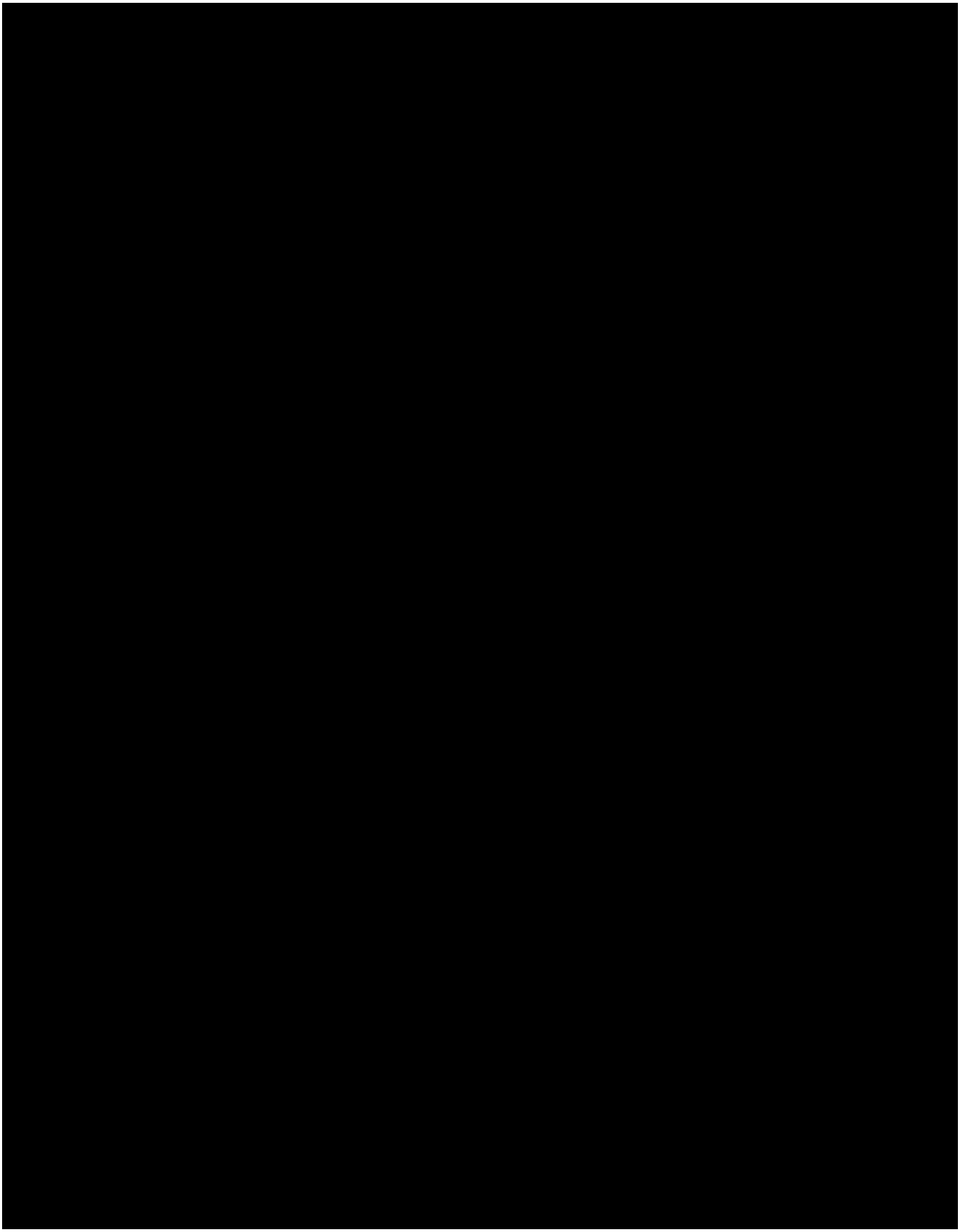


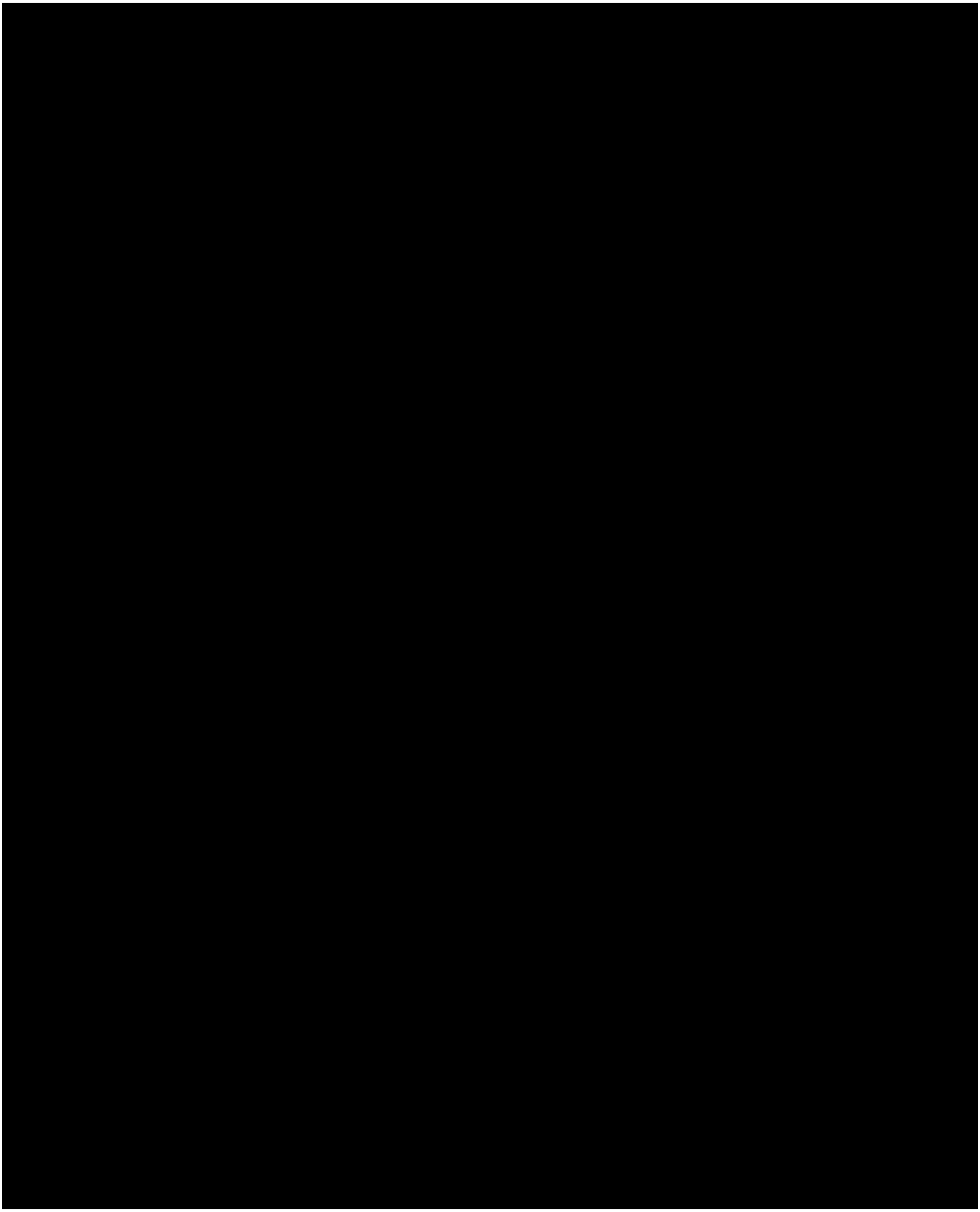


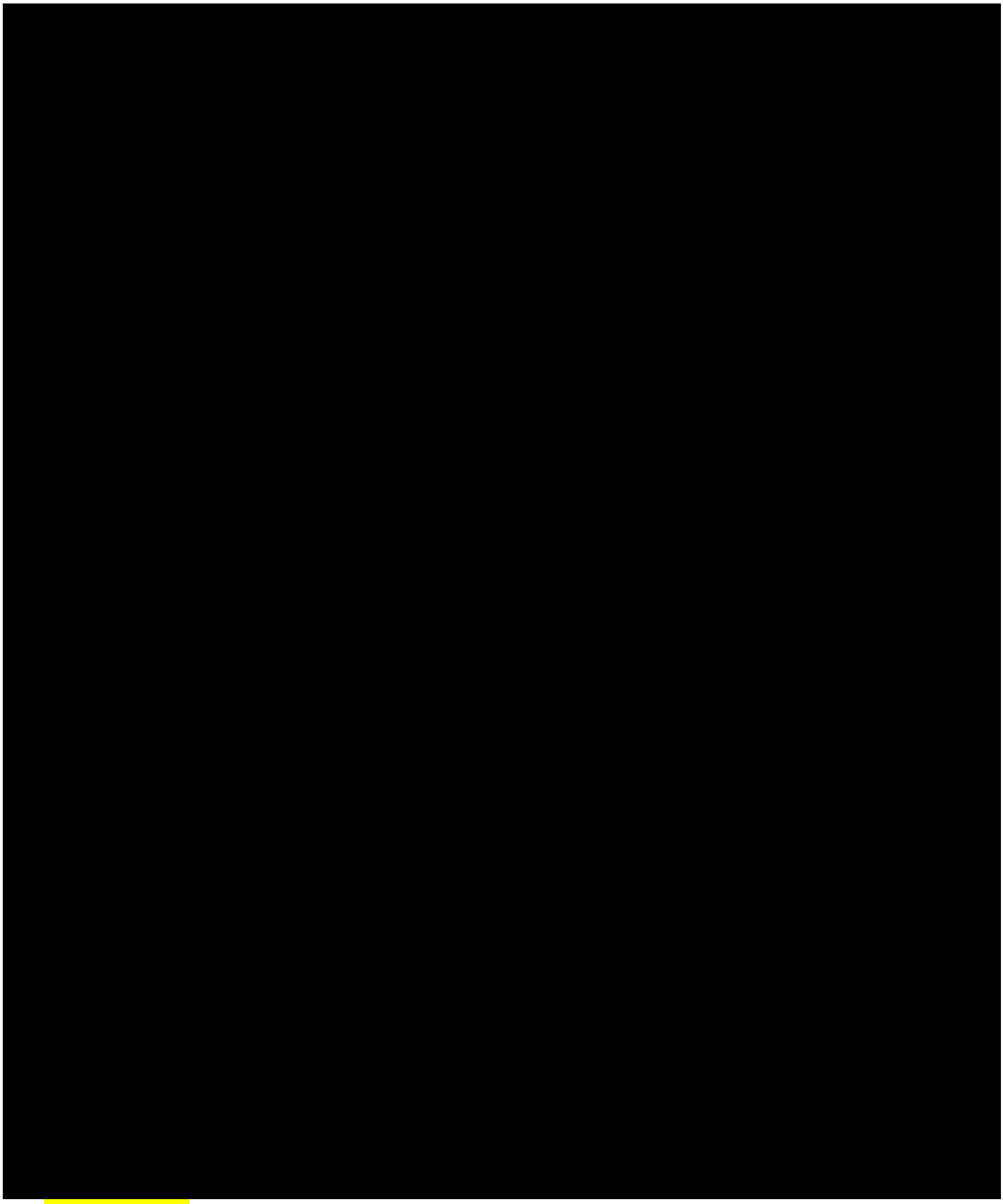


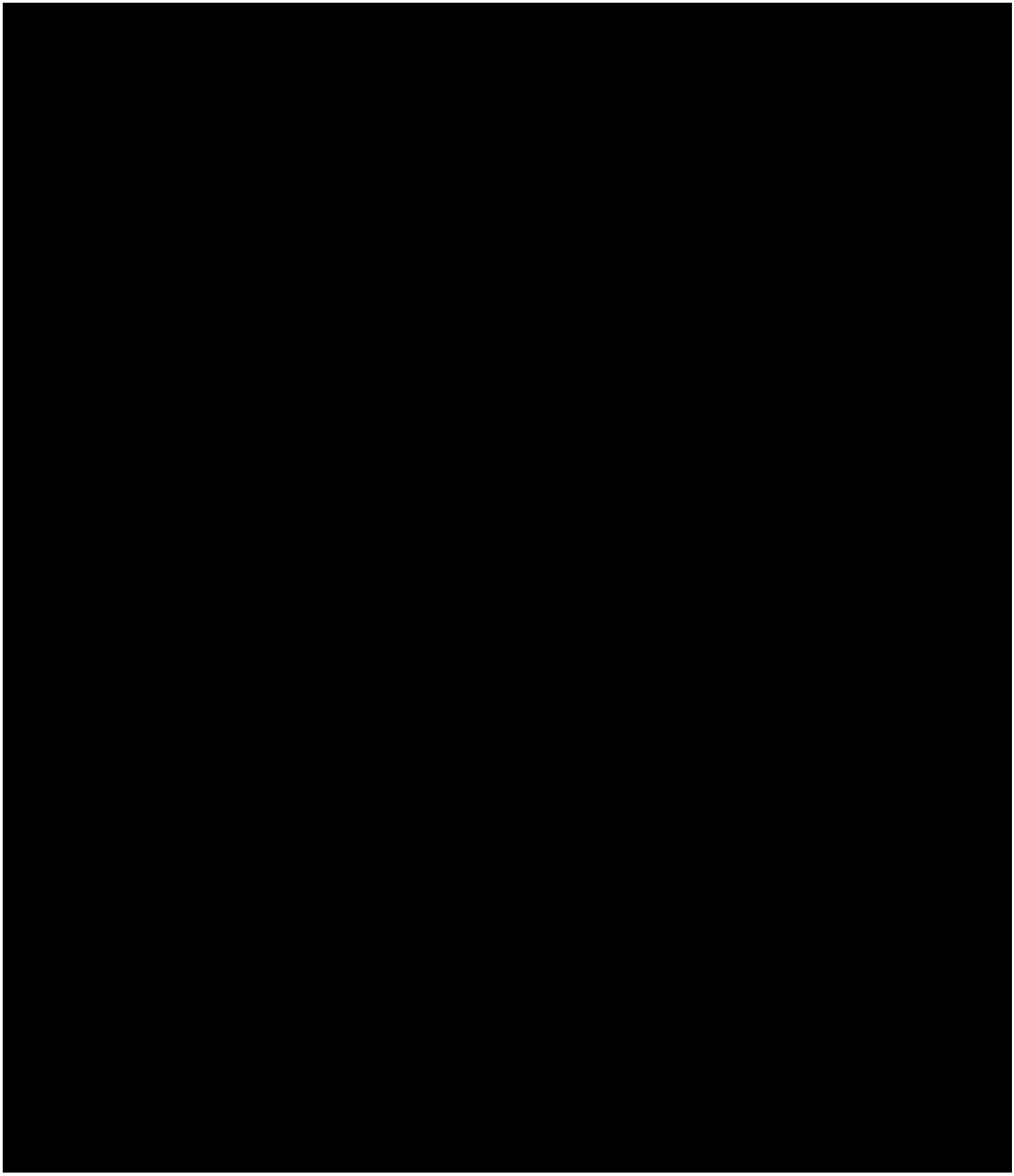


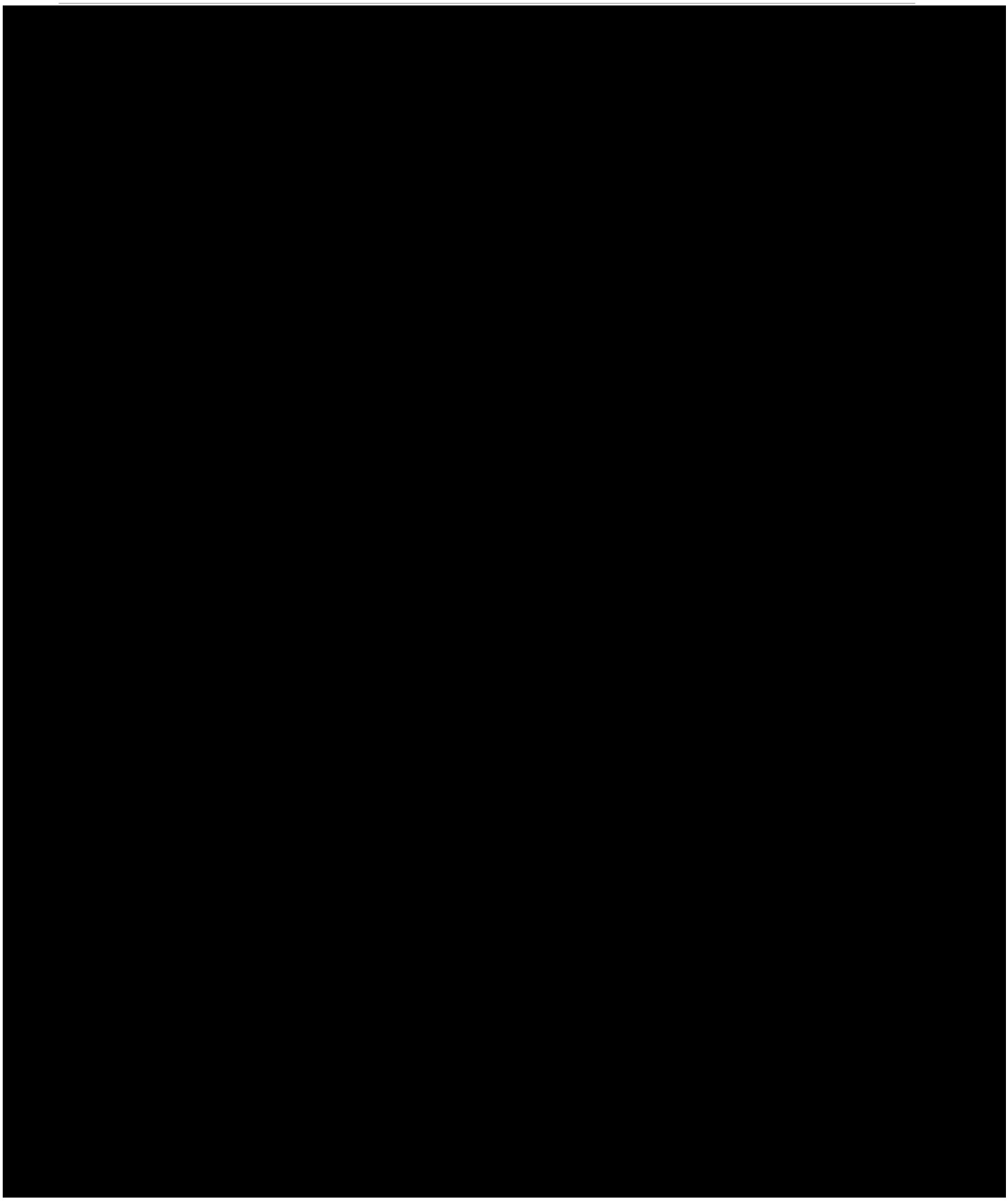


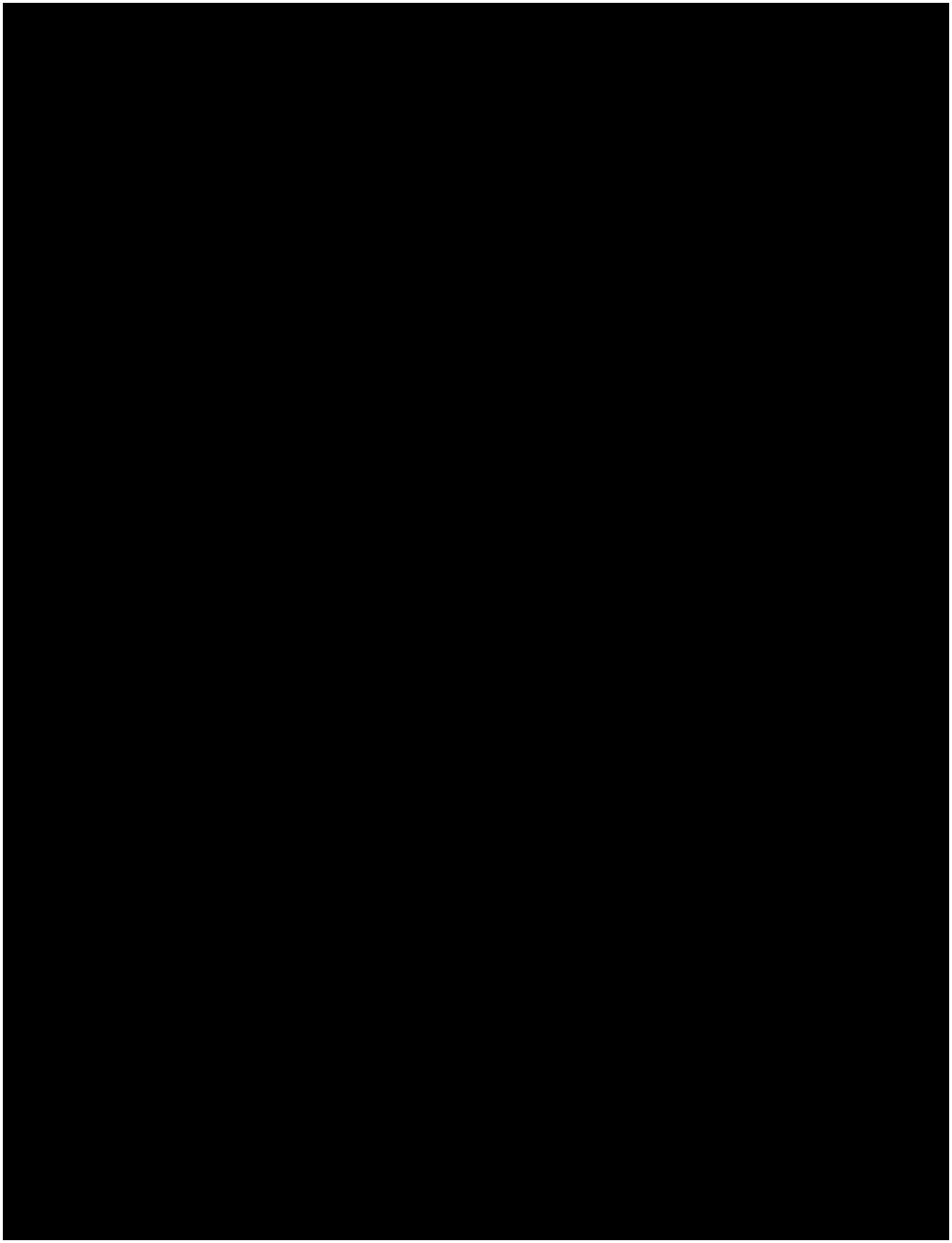












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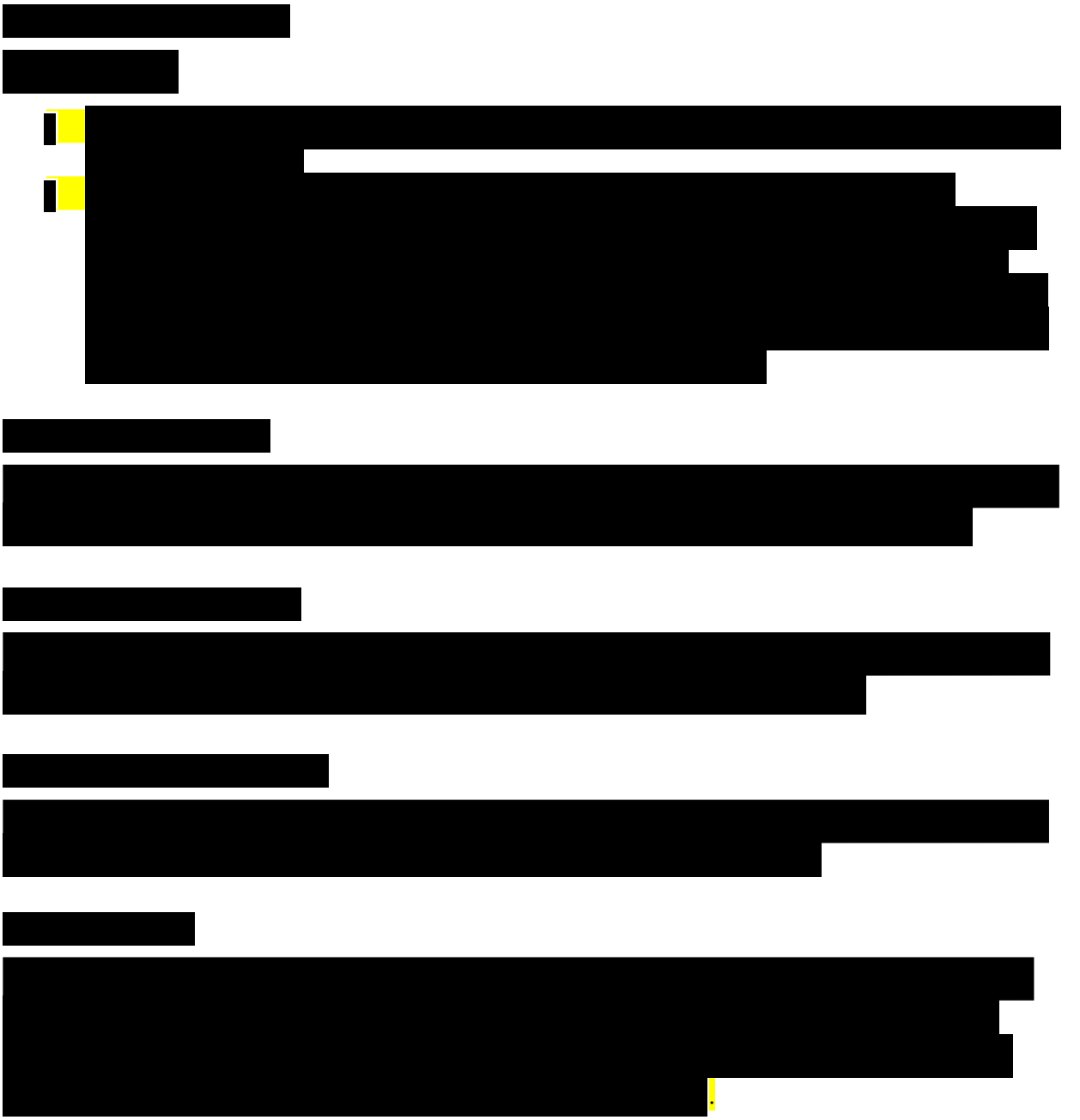

2.9 Operational Knowledge Transfer and Excellence Through Effective O&M Manuals

Attached to each proposal please find a USB flash drive containing the following manuals written for a similar project INIT performed on for Metro-Link in Portland, Or.

- eFare_MaintenanceManual_v1_2
- Manual_MOBILEvario_CSW_1.0
- Manual_MOBILEvario_Parameter_Management_1.0
- Manual_MOBILEvario_Tariff_Management_1.0
- Sample_FAT_TestPlan_PROXmobil3_v1
- INIT's ngORCA Preliminary Project Schedule

The manuals are examples of the quality of manuals INIT will deliver to the ORCA agencies if awarded the project were not meant to reflect the final content of the ngORCA specific manuals that will be provided under the scope of this project.

2.10 INIT's Experienced and Proven Risk Management Approach

Crucial is the successful handling of project risk. The risks involved here consist of completing the scope of services within each project on-schedule, within budget, and in full compliance with applicable requirements. In addition to the Risk Management Plan described above in section 2.7.2.1.3.5 above, INIT has incorporated various risk mitigation strategies to the contract provisions, including payment terms. Milestones payments are performance-based, i.e. made on the basis of project deliverables. Additionally, there is a milestone payment retainage to be used as a trust fund for the payment of any claims owed at the end of the contract. Additional risk mitigation and protecting for both parties is included in contract with clauses for such things as Indemnification/hold harmless, Limitation of liability, Liquidated Damages as well as Performance Incentives.

Each Project Manager oversees the Risk Management Plan for their project. The responsibilities for risk management are held within the Project Management Team, which is composed of personnel from both the ngORCA Transit Agencies and INIT (specifically the INIT Project Manager and Lead Engineer as well as the Team Leads listed in the first line under them in the org chart provided in section ***Error! Reference source not found. Error! Reference source not found.*** above).

The primary risk management resources and their risk focus areas, from the INIT team are as follows:

[redacted]

Key personnel from the Agencies include its Project Manager as well as Subject Matter Experts (SMEs) from Operations, IT, Accounting, Finance, Procurement, and other departments as needed. Key personnel from INIT are the Project Manager, System Engineer(s), Functional Managers, and any Technical Lead(s). Each member of the INIT team's responsibility for risk management is clearly assigned and explicitly incorporated in their respective job descriptions. For example, if there is risk pertaining to procurement or installation, then the INIT Supply Chain and Installation Lead would notify the Project Manager and the collective Project Management Team; however, an Agency personnel member working on the installation may also identify a risk and notify the ngORCA Program Manager. From the point the in which the risk has been identified and a Project Manager notified, the risk is then added to the matrix as defined in the Risk Management Plan description above.

Apart from unforeseeable technical and customer-specific difficulties, the punctual completion of projects depends on the availability of sufficiently qualified personnel. External suppliers and subcontractors in the process create both risks and opportunities with regard to staffing, schedule, price, and quality. The INIT Project Management Team is directed to escalate any crucial issue(s) to the project's Joint Management Committee in a timely manner. This ensures that INIT management is involved and can initiate corrective measures for risk minimization.

2.10.1 Special Note on Performance

The performance bond covers all capital cost as described in the price sheet (everything except item 5) for the project.

2.10.2 Letter of Credit Clarification

as

2.10.3 Milestone Based Payment Schedule

This is included as a table in Tab 5.

2.11 Special Considerations or Challenges

[redacted]

2.12 An Achievable Project Schedule

The Master Schedule we have proposed as the System Integrator has taken the ngORCA program in its entirety into consideration. As such, we have represented the key tasks provided as part of the ORCA project timeline and imbedded our schedule so that it is integrated as a component of that; giving the ORCA agencies the purview of the overall project detail.

Taking this approach, we believe we clearly articulate the timelines needed to deliver INIT's portion of the overall program while also creating space to include the dependent factors and activities inter-related with the other major aspects of the system (e.g. DARe, Retail, etc.). This demonstrates INIT understands the key points in the schedule which contribute as a major driver to key program milestones.

In addition to this approach, INIT has also taken into consideration the Agencies point that this is a schedule-driven project due to the imminent nature of the current legacy system going end of life. With that, we have evaluated our overall delivery scope and note that there are certain aspects more mature (with respect to their final design) than others. However, there is a critical point where these systems and components must be integrated. We believe our schedule ensures just that.

As a note when reviewing the detail of the schedule, contained within are several lines items for 'slack' or 'slack for improvement'. These line items reflect additional time that may need to be taken to complete the given topic area should things not go 'exactly' to plan. For example, we anticipate certain test phases to be scripted and take the specified amount of time; however, previous experiences have demonstrated that additional time may be needed for corrective action or accommodation or other 'unknowns'. To account for that, we have included these 'slack' lines items.

To aid in the Agencies review of both the schedule as well as the critical path associated with the work of the System Integrator, INIT has included a column titled 'Critical'. If the column is marked with a 'Yes' then the activity is deemed to be on the critical path and the Gantt chart will reflect a red progress bar.

Also of note, as part of INIT's schedule submission, in addition to the System Integrator Master Schedule we are including two (2) other reports with the aim to facilitate both a comprehensive and quick reference review. They are the Critical Path and High-Level Project Timeline.

Lastly, please note that we understand as part of Section 2.1.3.1 Master Schedule, the schedule is intended to be cost-loaded based on the guidelines of 2.1.3.3 Cost Management. At this early

stage we wanted to look at the schedule and INIT's pricing model in parallel with an eye towards integration once each are near their final state.

2.12.1 Milestones

The primary milestones of the ngORCA program are comprised of six (6) core stages:

1) Procurement Phase
2) Design
3) Development
4) Testing
5) Deployment
6) Operations and Maintenance

Within items 2, 3, 4, and 5 are a set of key milestones; they are at the top of each section and denoted by green colored font. Where possible we have included the dependent relationships between the other ngORCA vendors and the stages of the program; however, because the specific detail in stages 4, 5, and 6 are not known, creating durations to try and map to the stated Start and Finish dates from Section 1.6 of the RFP would be manufactured and as a result be quite long. In so doing, this would inadvertently displace the System Integrator critical path which we understand is a vital part of Agency review.

In effort to highlight the parallel procurement and integrations efforts of WSF and KCM, some additional line items in the schedule have been added to address points where it would be ideal that certain elements of those tasks would align with the overall SI-schedule. The full extent of these dependencies remains in part, unknown. As such the items created or meant as a high level with the understanding that many steps to reach them are required.

For reference to these sections please note the following specific lines applicable in the Project Schedule:

- **WSF Integration**
    - **Line 66**, WSF EFS2 Integration Procurement Complete. To fully incorporate WSF's pending changes we believe finalizing the procurement by CDR completion is critical so that we can include these discussions during PDR. If that is not possible, during the design discussions we need to discuss with WSF their timeline and dependent factors and then revise the schedule accordingly.
    - **Line 109**, WSF EFS2 Design Complete. The intention here is to call out our aim that the WSF integration design is complete within the same timeframe as the whole of the ngORCA SI design efforts. Provided this timeline is possible, INIT's

assumption is that the WSF integration follow the same test cycle as the existing SI integration work.

- **Line 177,** WSF EFS2 Integration Preparation. This line was included in the previous iteration of the schedule; however, due to revisions to the schedule made and line items added, we have called out this last point where WSF has been itemized separately from the rest of the SI-driven work. At this point our understanding is that WSF's integration would ideally be available as part of this test (FUT) and as such, future iterations calling out WSF separately are not currently required as we'd want the SIT test to include all integrations and system components collectively. However, future detailed iterations of the schedule may require something different; when the unknowns are clear.

- **KCM MDT Integration**
  - **Line 110**, KCM MDT Integration Design Complete. It is INIT's understanding that KCM's MDT procurement is separate from ngORCA from the equipment perspective; however, the MDT design and integration needs should occur within the ngORCA SI timeline. As such we have started the KCM MDT Integration at this stage as our aim would be the design is complete at the same time as the rest of the ngORCA efforts. We anticipate new and more detailed information would become available and as such would be incorporated into the schedule as needed to ensure dependencies and timelines are clear for the ngORCA program.
  - **Line 120**, KCM MDT / DDU Integration Development. We have created this line item separate from the remaining SI-integration development due the nature of the MDT integration which is separate but known from ngORCA. Within this line item we have assumed that the work must be complete in line with the same timeline as we anticipate FUT start to occur. That said, this may not occur or be possible based on variances unknown currently but wanted to create a placeholder for an ideal scenario given the successor dependencies.
  - **Line 164**, KCM MDT Equipment Functional Testing Passed. Since this equipment is procured outside of the ngORCA SI-procurement, this line is meant to ensure KCM MDT equipment tests pass within the same or similar timeframe as those of the ngORCA procurement.
  - **Line 168**, Confirm Order Timelines for New CT and KCM MDT (INIT Provided). This line was in the previous iteration of the schedule; however, considering the recent additions to the project schedule we wanted to call out the line change. The intent of this item is to ensure the dependencies and timelines of separate procurements are known and that information built into the project schedule.

Beyond this line our expectation currently would be that the ideal scenario is that the remainder of the KCM MDT integration effort follow the rest of the SI schedule collectively. Should this not occur or new information become available, we will update the schedule and outline the dependencies as needed or discussed.

In light of the new points addressed above, the key factor we would like to outline is that these tasks are meant as points of intersection in the schedule so as to call out the work at a high level to extent possible now. It is clear more detail and additional items are needed to fully outline the integration and dependent project factors. However, currently these are unknown and as such these high-level items are meant as placeholder or points in which we believe a certain element of the work should be ready or near complete. Ultimately, our goal will be that the SIT test is inclusive of all integration elements for WSF, KCM, and CT so that we can demonstrate full system functionality and integration.

2.12.2 Procurement Phase

The Procurement phase has been added at the start so as to provide a clear understanding of when Notice to Proceed will be issued for the start of the System Integrator work and also, to denote the other vendors that will also be integrated as part of the overall ngORCA program.

2.12.3 Design

During the design phase many major decisions will be made as well as a multitude of small to medium ones; those decisions are critical but can also be difficult to do when other constraints exist. We understand that time is a valuable asset to Agency stakeholders; with that in mind, as well as to maintain as much efficiency as possible, in the schedule we have proposed our industry-leading approach to system design. While not explicitly noted in the schedule, another major aspect of our design review will be the early engagement of our UX/UI partner as their involvement will be filtered across many elements of the overall system design.

We have taken into consideration the schedule-driven aspects of the program, the necessity of clear and thorough documentation, as well as the maturity of each system component. With that, as well as the existing service-proven implementation of significant portions of the INIT design and subsystems, we believe we can provide the most schedule and design advantage in the industry and successfully parse the design into at minimum two (2) separate ‘packages’. In so doing we can work towards approval on specific documents and move those through the design review at a greater pace.

When reviewing the different design review stages, you will notice a staggered approach. We plan to attempt approval of package 1 sooner than package 2 at each interval. However, each

design review stage in its entirety will not be formally 'approved' until all documents in both package 1 and package 2 have been formally approved. INIT's Project Team will create and manage a document control and tracking sheet that will keep the Agencies apprised to the various states and stages of each document.

In pursuing an agile approach at INIT we have found we can find more time to allocate to system areas which require further discussions, clarification, stakeholder buy-in, and so forth without impact to the overall design review and schedule as a result. In fact, we have found that we can actually gain some schedule advantage and increase the pace of the overall delivery. Additionally, as part of this approach we will begin to outline during CDR, where dependent decisions need to be made, where points of the design intersect, and where relevant, critical-path impact points.

Also of note is that each design review stages have a series of workshops to occur on site at the Agencies designated location(s) in the Puget Sound region. At each design review stage these workshops will vary in their approach. During CDR we will likely only have one primary week and will be attended by the core INIT Project Team and also key subject matter experts (SMEs) from both our US and German teams. We bring our SMEs to the discussion during these workshops as we have found this approach to on one hand, create efficiency in communication and collaboration and secondly, to begin to build the relationships necessary to extend the workshop interaction into effective discussions when they must be remote due to location differences.

Moving into PDR and FDR these workshops may be staggered between onsite and remote meetings, or a combination of both. Further, the occurrence of these workshops or other SME meetings will be greater as the fine tuning of the design becomes critical for the build stage.

2.12.4 Development

INIT takes an approach to system design that allows for the greatest flexibility for the longest duration. In order to maintain the schedule, at certain points decisions have to be final; however, we do not believe you have to compromise the integrity of the business needs in order to do that. With INIT you will experience thoughtful and creative technological and business solutions while also engaging in a collaborative process.

During the PDR stage INIT will begin some of its development in order to better fine tune and understand the decisions that will need to be made during the following stages. Also, as the System Integrator the INIT API's are major factors in the overall ngORCA program implementation. Fortunately, INIT has built many of the API's required for ngORCA's needs and are currently in live operation in other projects. In light of these factors INIT will build upon their

maturity in the early development stages so they are available as early as possible for other partners to build against. Along similar lines the back office is also a major part of the ORCA transition. As with the APIs, there are key dependencies that will have impact on the overall schedule necessitating conversations and plans be made earlier in the process. Fine tuning will continue to occur, but those major decisions will need to be outlined early on so that the path forward is clear.

As part of the build stage INIT will work on the testing and procurement of the system equipment. Equipment will go through the requisite pre-testing (environmental, shock, vibration, etc.) prior to their manufacture, have procurement, assembly and test stages at varying pace, as well as their own installation schedules. For the moment, this level of detail is not yet added to the schedule in significant detail but will be added as the final deliverables and schedules are established with line items per Agency, per item of equipment and so forth.

Additionally, the training program content will also become clearer as the development of system components are further along. With that, INIT will begin creation of the system manuals that form the basis of the training documentation. During this stage INIT will begin to submit and review with the Agencies these materials. Later iteration of the schedule will summarize the document packages associated with each training course and the courses themselves as well as their quantity will be built into the schedule, by Agency where appropriate.

2.12.5 Testing

There are several different stages that comprise the test phase of the program. Generally speaking, INIT will undertake functional testing first and as part of that execute on the various test stages that articulate the different needs of the system which can occur in varying timelines based on what factors are present. Following that, the system will undergo the integrated testing. Here INIT has added additional slack time specifically because this is often one of the most complicated elements of the schedule as it is the point where all elements need to come into alignment. INIT will elaborate the detail of the schedule (rolling-wave planning) as preparation for this phase comes into light and the detailed break-out of each test stage are clear.

Of critical importance is the balance between integrated lab testing and making the decision to move to a production state of this integrated test (field test). In so doing key decisions have to be made, the financial management application and reconciliation in place, and so forth as this testing becomes part of the production system.

2.12.6 Deployment

The deployment phase is comprised of multiple key factors. It is ensuring all the requisite equipment has been installed, tested, and functions according to the requirements of each stated test plan. During the more advanced tests in the Integration Testing phase (e.g. FIT or Pilot Test), the deployment will validate the system design and development have occurred and are working in an integrated and stable manner with equipment in production connecting in a simulated back-office production environment.

To support the integration and transition, INIT has noted the perceived benefits of including the legacy ORCA equipment as part of the Agencies ngORCA test facility implementation. Should this be possible, INIT proposes a small dry-run test in the lab prior to moving the full scope of the Pilot Test to the production environment. During the Pilot Test, the deployment is still within the confines of the limited roll-out and remains as such until the completion of the test and the system has reached the point in which INIT will become the system of record.

Once the system has gone through a dry-run test, if applicable, and successfully concluded the Pilot Test, and any residual issues or functions have been deployed, we then move to the public launch – the scope of which can be mutually defined – and initiate the point in which INIT becomes the system of record. This is an exciting point in the schedule but also a critical point as the system-wide installation is initiated without restriction and any future changes must be factored with both risk and impact due to the quantity of users engaged in the system. During this stage INIT will work with the ORCA agencies on deployment strategies and management to ensure the best possible outcomes.

The next key test phase is the system acceptance test; during this time INIT will report on the system health as determined by the performance metrics (KPI's) of the contract. During this stage the system is live and must adhere to these metrics and fall within the framework of the contract's requirements. At the moment the detail here is to simply note the acceptance test period as well as slack for any rework; however, in future iterations of this schedule each KPI will be added as well as its associated test documents.

Outside of the above acceptance testing, there may be a punch list of items necessary in order to achieve final system acceptance in its entirety. As those activities are known they will be added so that the path for the project completion is transparent for all stakeholders.

2.12.7 Operations and Maintenance

While there are many steps necessary to be in place in order to stand-up and transition the project to operations, these details will be further articulated as part of the system documentation and later discussions. For the purposes of the schedule, Operations and Maintenance are noted to start upon achievement of Final System Acceptance.

2.12.8 Summary

In closing, we believe the ORCA agencies will find INIT's proposed schedule to be competent in meeting the needs of the ngORCA program timeline while also balancing the required time and dependencies for successful delivery of the required deliverables and outcomes within each specified stage.

With the experience of having delivered account-based fare collection projects with stages similar to what ngORCA needs, we are relying upon real experience, lessons learned, and the success of witnessing first-hand what results out of implementing best practice approaches to these complex systems.

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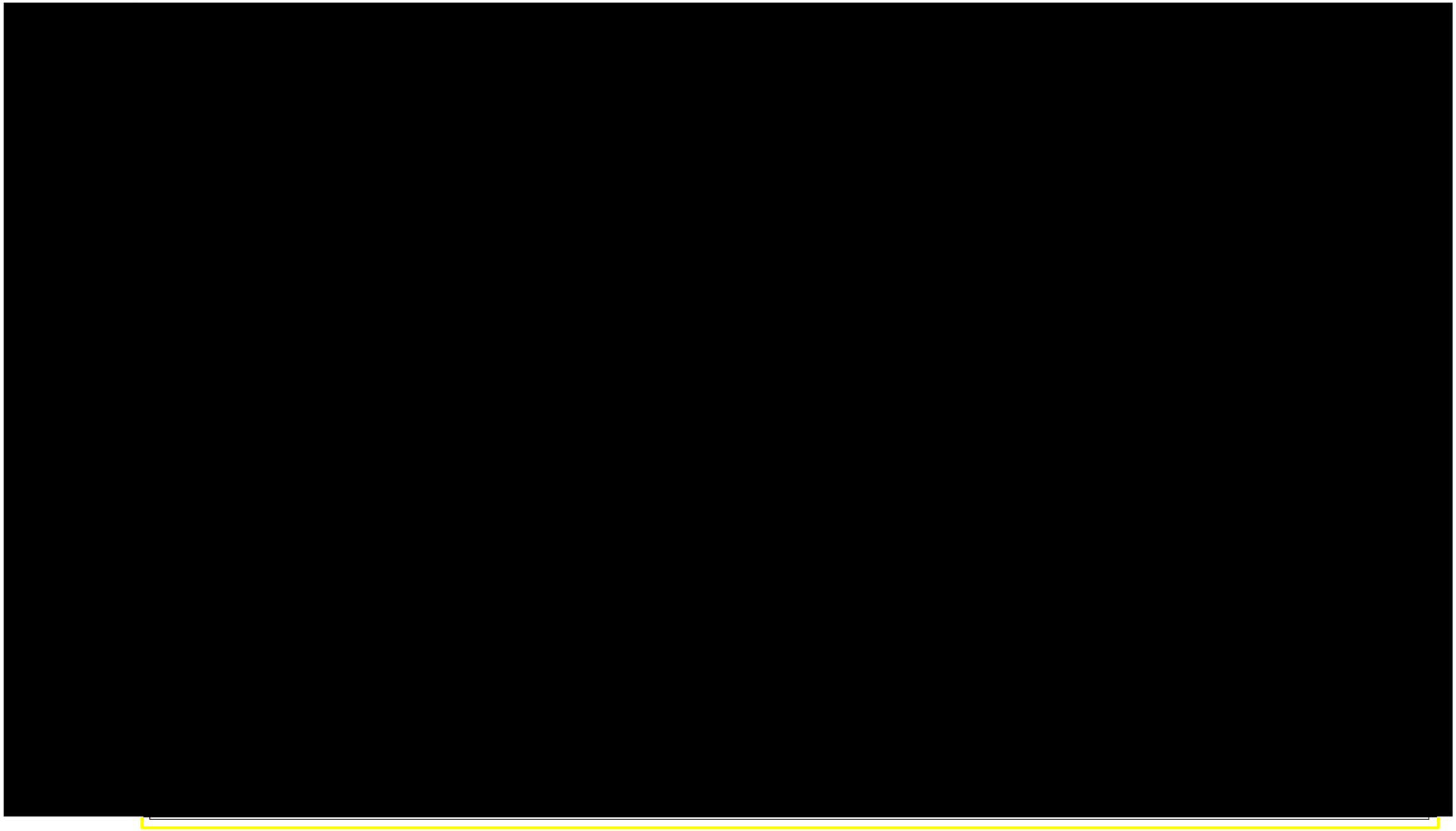
2.12.9 High Level Timeline



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2.12.10 Critical Path Timeline

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2.12.11 Detailed Timeline

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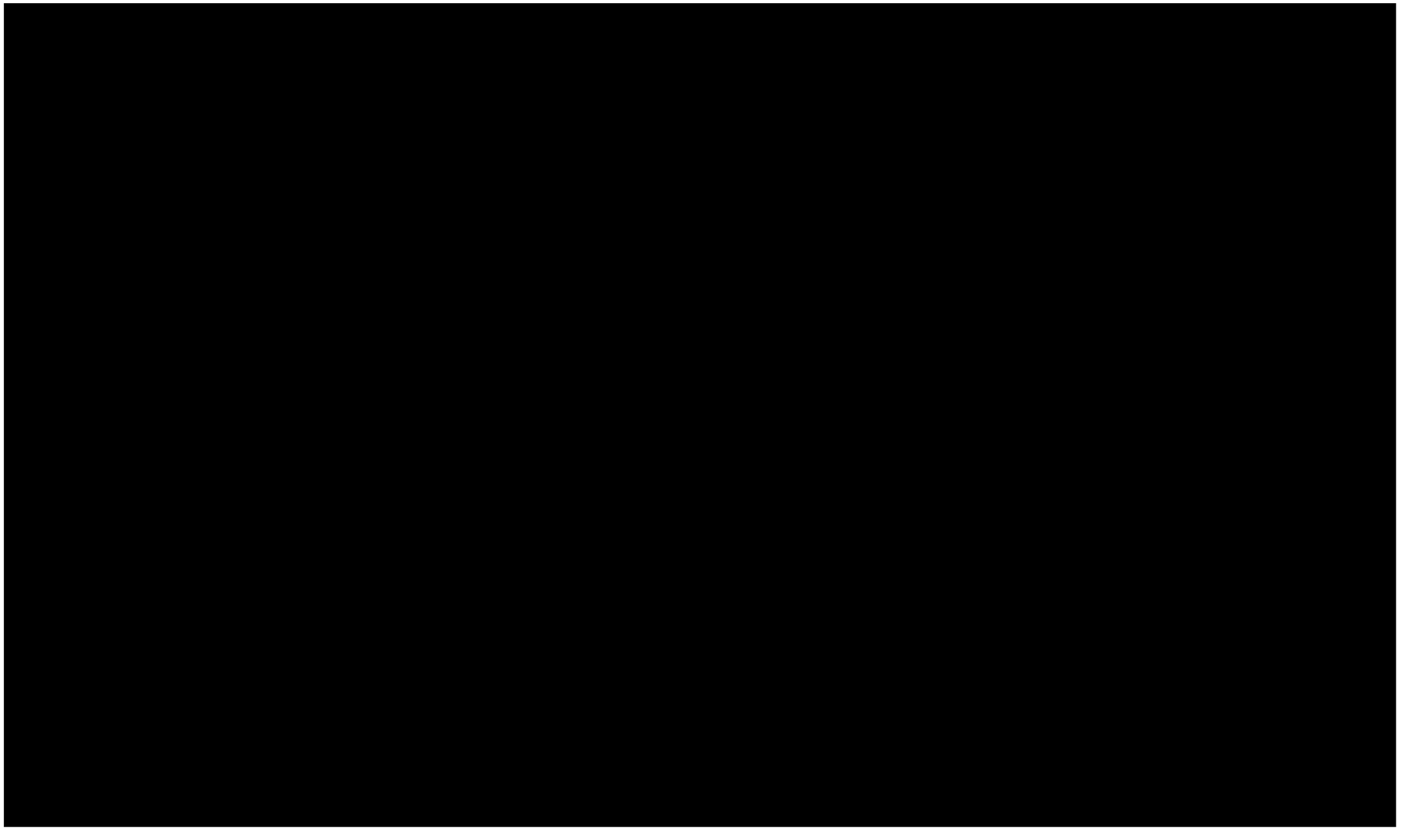

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2.13 INIT's Performance Guaranty

INIT proposes the following solution to performance risk security:

- For the period from Notice to Proceed until Final System Acceptance INIT will provide a Performance Bond equal to 100% of the contract value. This will provide Sound Transit the financial security of a third-party surety supporting the completion of the project. The costs for the performance bond are priced as a separate line item in the pricing sheet.
- Once the system is in Maintenance and Operations phase INIT would propose service level agreements that would give credits to Sound Transit for any missed performance levels. These credits would be a financial penalty to INIT, hence the incentive to deliver services at agreed upon levels.

INIT is open to discuss any alternatives to this approach.

2.14 INIT's Partnership with ROOT for Effective Operation and Maintenance

2.14.1 Staffing Plan for Responsive Operation and Maintenance

INIT will have a full-time lead engineer / support lead available for the duration of operations and maintenance period. They will be responsible for all items which INIT is responsible, including field services support, technical conversations/clarifications, ad-hoc training, support installation and testing required to support software updates, and be the interface for all systems monitoring. They will also manage the staff that remains dedicated to ngORCA operations including IT operations and data management. They will also attend routine failure review board meetings representing INIT, ensuring proper assignment and tracking of open items.

They will integrate with the larger INIT team which provides worldwide and third tier support, based in Chesapeake, Virginia, and Karlsruhe, Germany. This includes several key groups:

Seattle Resources/Groups	Chesapeake Resources/Group	Karlsruhe Resources/Group
Lead Engineer	Customer Support	Hotline Emergency Support
Sales Support	Device Repair	Development Support
DBA/IT Support	Logistics	
Project Executive Oversight	IT Support	

Seattle Resources/Groups	Chesapeake Resources/Group	Karlsruhe Resources/Group
Escalation	Monitoring and Reporting	

This allows us to leverage the other support expertise we are delivering to our fare collection systems (as example). INIT is continuing to invest in this model to allow for follow the sun support combined with localized support, increasing both response times and effectiveness of the services needed. If required, INIT will bring resources to the Puget Sound region to help with critical conversations or outages if it is determined to be most effective and efficient to support any requested changes or resolve any critical issues.

The systems engineer will work with the Regional ORCA Operations Team to ensure INIT can meet its obligation as a systems integrator throughout the operation and maintenance period and can provide Sound Transit and the agencies with collaborative support in addressing issues and evaluating changes.

We currently plan do as much equipment repair and maintenance in Seattle, Washington, at a location capable of quickly diagnosing and returning to service critical field components. In the event this facility can't support a certain repair, failed components will be sent to our Chesapeake, Virginia, manufacturing, repair and rebuild facility.

Overall, we plan on two dedicated full-time employees for the duration of the operations and maintenance period, as well as INIT program / management oversight. We are certain of that level of effort. The remaining INIT support teams (in Chesapeake and Karlsruhe) and those third-party software vendors (e.g. Salesforce, Bytemark) will be at a level that allows us to meet contract requirements through the same duration of time. Generally, these groups respond quickly when there are issues, and stand down (focused on other tasks) when the system is working nominally.

2.14.2 Services for Successful Operation and Maintenance

2.14.2.1 Operations & Maintenance Model (12 years)

One of INIT's most valued system characteristics is its reliability and ease of maintenance, monitored and managed by a team of experienced professionals in their required field(s). As is the case with the INIT hardware currently supplied to some of the ORCA Agencies, all equipment proposed for ngORCA is designed to be hot swappable. This is true of our field equipment—validators and terminals—and portions of our central IT systems such as hard drives, power supplies and redundant infrastructure items.

The ngORCA System is comprised of system equipment and applications, each to be managed and maintained in accordance with the system design and conformance requirements. The customer interface components associated with the client-side equipment will be managed by the Agencies for first line maintenance while INIT will take over any second line maintenance as well as system component repair or replacement.

In addition to the front-end applications is INIT's centralized system comprised of robust server and network infrastructures collectively referred to as the 'Back Office' (BO). Once these BO applications and infrastructure are configured and deployed, they will require ongoing support, monitoring, and periodic updates to ensure efficient system operations for the duration of the Agreement. INIT will support this environment so that the regional teams can fulfill their obligations to support ngORCA.

As part of the Operation and Maintenance (O&M) obligation INIT, as the System Integrator, will support the Agencies Regional ORCA Operating Team (ROOT) for the full duration of the 12-year O&M Agreement term, starting at conclusion of the one-year Warranty term, in the following areas:

- COTS and custom software maintenance
- Maintenance of SI-provided system components
- Regional systems local test facility hosting and maintenance
- Develop Fraud Controls
- Disaster Recovery Plan and Implementation
- Website hosting
- Back office system hosting + HW maintenance
- Maintain compliance with ISMS prescribed controls
- Operating Systems related to the above

All hardware is designed to be securely mounted but with the right keys and tools, they may be replaced in a few moments. Once replaced, they boot immediately, auto configure and are back in operation within minutes of being exchanged. In the unique case of the TVMs where Sound Transit is taking the lead (per the RFP), INIT will train the apporporiate personnel in how to open the device and replace the components within. This is a fast and relatively straightforward task, as our TVMs were built to be easily maintained with swappable components.

All servers are monitored by MOBILEguard which monitors each process providing restarts and error notifications even by email as appropriate. Beyond this we have our MOBILEsymon (system

monitor) application which supervises all reports from each MOBILEguard instance and each of the devices in the system whether fixed or mobile.

In addition, system reporting tools provide dashboard views of overall system performance and service issues. Finally, for the central system a full disaster recovery site is supplied as defined in chapter 2.14.2.5.8.

Service and maintainability is more than just hardware and software. It is about people. We feel that our track record of providing personal service-proven support on our other fare collection and CAD/AVL projects has shown our commitment to ensuring that any disruption to service is mitigated and managed as early and efficiently as possible. We look forward to detailed conversations about integrating our capabilities with that of ROOT, looking for long term support that is both effective and efficient.

2.14.2.2 Warranty (1 year)

INIT seeks to provide high-quality services to support ORCA in the operation of INIT's Intelligent Transportation System implementations. Following system acceptance, the ngORCA system will undergo a one (1) year Warranty term. During this term INIT warranties the repair and replacement of the affected SI-provided hardware, software, and labor associated.

Note that the warranty and maintenance service requirements of RFP SOW sections such as 8.2, 8.7 and 8.8 will be fulfilled. The following is supplemental information. For the avoidance of doubt, the requirements of the RFP SOW sections supersede.

The consistent maintainability of the INIT system for the Agencies assumes they are able to promptly notify INIT of failures in system components through the use of the INIT support line, Returned Material Authorization (RMA) form or the INIT on-line problem reporting system. As part of notifying INIT of a concern regarding any of the hardware or software, the Agency in-turn providing accurate information and details of system conditions surrounding the failure, as well as details of the failure and any error messages noted will greatly help support our efforts to minimize disruption to patrons and ensure no revenue impact.

Once a problem is properly logged with INIT and determined to be covered under the warranty or maintenance agreement, it is INIT's responsibility to respond to problem reports in a manner determined by the system impact and assigned problem priority.

INIT Onsite support will be provided as requested in the RFP. For issues where INIT onsite is not required agency staff will provide 1st line maintenance and INIT will provide 2nd line maintenance for hard and software issues.

INIT's Software Warranty will include the following key activities:

- Error analysis and repair of reproducible problems through a VPN data connection
- Includes version updates of existing system features, error correction, and assistance with temporary corrective actions, for reproducible errors
- INIT Support Line available 24 hours, 7 days per week

INIT's Hardware Warranty will include the following key activities:

- Includes parts repair of defective hardware supplied by INIT as part of this project
- The customer is responsible for all labor to troubleshoot and remove faulty equipment
- Replacement equipment will be obtained from the customer's on-site Spare Parts Inventory
- Defective equipment will be returned to INIT for repair. INIT will send a repaired or replacement unit to replenish the customer's Spare Parts Inventory. INIT pays for shipping both ways.

INIT seeks to provide high-quality services to support the ORCA agencies in the operations of INIT's Fare Collection System implementation.

A warranty or maintenance information package will be delivered at the start of warranty and maintenance with current support contact information including phone numbers, on-line support system information including user manual and pre-structured problem report forms.

2.14.2.2.1 Problem Reporting

The platform to report problems and Incidents is the Asset Management Application (AIM). All issues are logged and managed in the AIM. The AIM consists of the Jira application, the plugins "RIADA insight asset management" and "Discover". NgORCA/ ROOT will have real time access to the current status of every item logged.

Once a problem is properly logged with INIT, the support staff will respond in a manner determined by system impact and assigned problem priority. Issues can also be reported via the toll-free support line or by email. Following is a screenshot of a dashboard to show just an example of the powerful tools available.

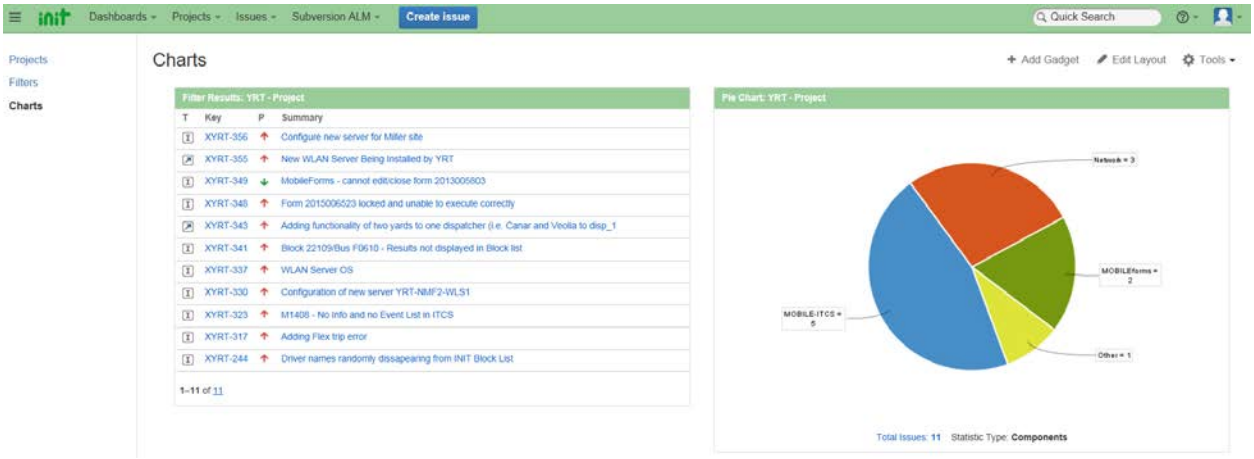


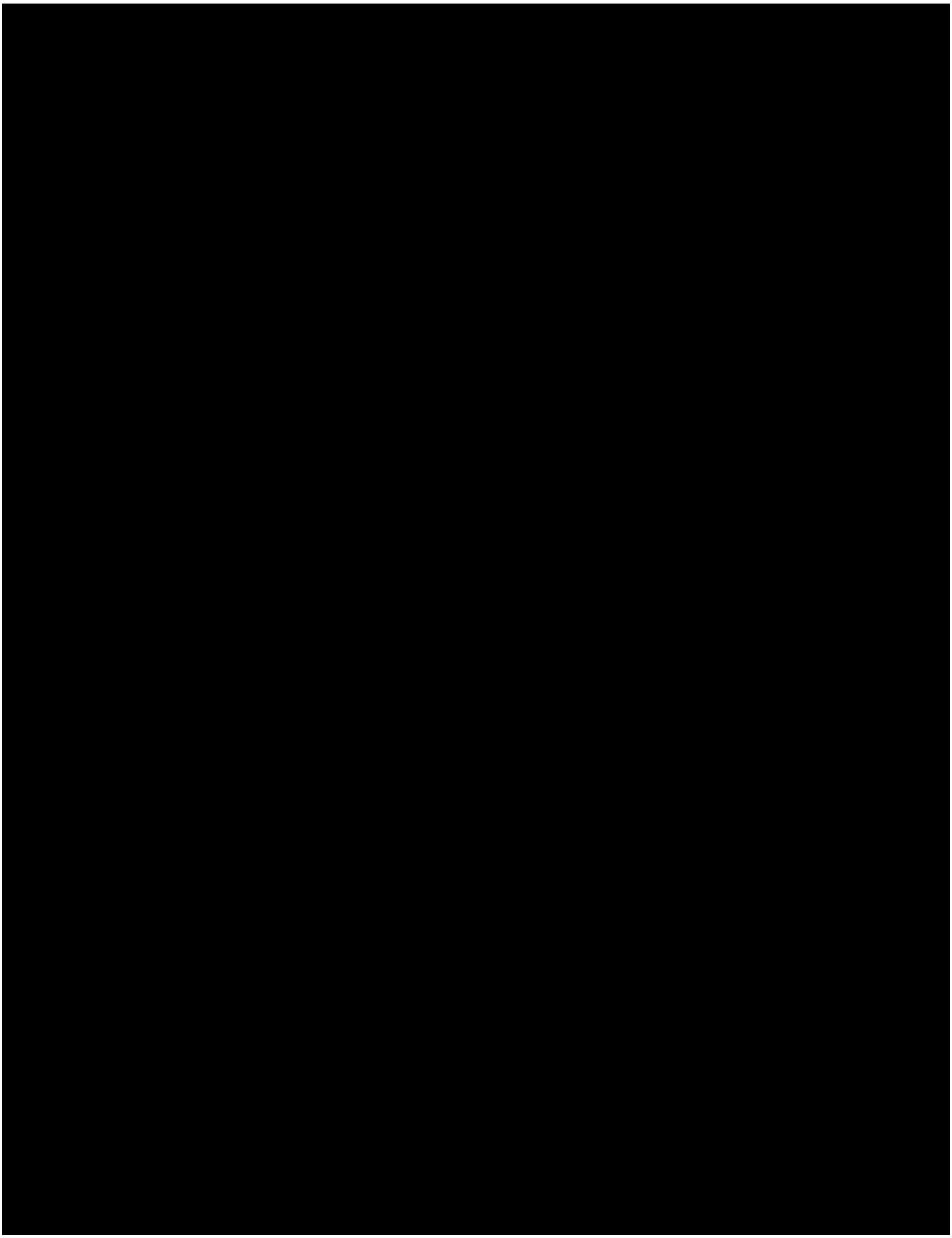
Figure 2-11: Sample Dashboard

2.14.2.2.2 Problem Classifications

Problems and errors are prioritized according to the architecture of the system and based on their system impact. The following classifications and categories are a draft.

As requested in the RFP, INIT will submit a customized software maintenance plan for ngORCA/ROOT to review and approve.

Note that the classifications do not attempt to include all possible examples of problems.



2.14.2.2.3 Problem Response and Support

INIT Onsite support will be provided as requested in the RFP. For issues where INIT onsite is not required agency staff will provide 1st line maintenance and INIT will provide 2nd line maintenance for hard and software issues.

Agency personnel will receive extensive 1st line maintenance training provided by INIT.

In addition to the support presence provided by the Lead Engineer, the Agencies / ROOT will be provided with technical support to for the general use and operation of the software via telephone throughout the warranty and maintenance terms. Telephone support will be provided by during normal business hours (PST) Monday through Friday, excluding holidays.

For purposes of reporting, INIT will provide INIT service desk access to the Agencies to make INIT aware of any software defects or malfunctions, and system outages, 24 hours a day, seven (7) days a week.

2.14.2.2.3.1 Response Times

INIT will react and respond within the timeframes defined in the RFP. As requested in the RFP, INIT will submit a customized software maintenance plan for ngORCA/ROOT to review and approve. The plan will include response times for various categories (see draft in section 2.14.2.2.2).

The workflow for the assignments of classification and priorities as well as escalation procedures will be agreed upon in the software maintenance plan.

2.14.2.2.3.2 Third Party Hardware & Software

INIT's proposal includes warranty and support services from 3rd party hardware and software manufacturers and vendors such as hosting providers. INIT serves as the primary support holder and thus any maintenance and support issues with the warranty provider are handled by INIT who will engage and include ngORCA/ROOT personnel if necessary or generally wanted by ngORCA.

2.14.2.3 System Hosting: Back Office, Regional Test Facility, and Websites (14 years)

INIT's provision of the ngORCA system back office (including ngORCA websites) requires that hosting of the production and redundant systems as well as the ORCA Regional Test Facility occur as part of the system implementation as well as through the duration of the warranty and System Hosting support phases of the contract. The Warranty term is one (1) year while the System Hosting support term is 14 years.

The back-office hosting infrastructure as defined in Section 6 of the SOW will be managed and maintained through the one (1) year Warranty term and the 14-year System Hosting Support Agreement. As part of that, the System Hosting Support processes will address the back-office operations hosting that deals with disk storage space, access and connectivity, and necessary disaster recovery / redundancy practices.

The website hosting will include those elements required in Section 5 of the SOW; specifically designed to account for scalable storage space, system access, and the appropriate connectivity for the system website's operation. While not inherently the same, INIT will manage and maintain the Websites as part of its duties related to the back-office requirements.

2.14.2.4 Systems and Operations Maintenance (12 years)

INIT will undertake the duties necessary to perform back office operations and support under the System Operations and Maintenance agreement for the specified term of 12 years. This term will begin upon conclusion of the ngORCA one-year Warranty period.

The ngORCA system is comprised of multiple back office systems and environments as well as third party and external integrations. As such, INIT will deploy its world-class System Operations team to champion the day-to-day management of the information security related functions including proactively analyzing and managing information generated from the centralized logging system, file integrity management system, ensuring backups, handling events generated by various system monitoring applications. The INIT System Operations team will also provide proactive monitoring of the overall ngORCA environmental health daily and taking required actions to ensure integrity of the expected performance metrics are adhered to.

During the terms of the agreement, INIT shall be responsible for the following activities:

- Monitoring system performance and health;
- Ensuring timely and accurate processing of transactions;
- Overseeing operation of all back-office support systems (e.g., CRM, Financial Management, etc.);
- Overseeing website operation;
- Overseeing mobile apps operations;
- Maintaining system configuration (making configuration changes upon approval);
- Testing and deployment of website and configuration changes;
- Supporting report updates and ad-hoc data requests; and
- Providing reports that confirm KPIs have been met.

Systems monitoring, management and reporting are critical to operational efficiency and application service delivery. INIT will as part of the system implementation, design and developed the MOBILEsymon dashboard and MOBILEguard service monitor applications to monitor all ngORCA system devices.

The resources assigned to carry out the work associated with the back-office operations will have experience and background as an IT professional required to function as a systems engineer overseeing and coordinating all back-office operations. The systems engineer shall oversee all aspects of service delivery and specifically address the following:

- Design and deliver support and service solutions in line with agency requirements and industry best practice;
- Ensure operational procedures and practices are well defined, documented and understood by the agencies and support personnel;
- Ensure support teams are skilled, trained and developed to enable them to deliver high quality service and support;
- Work closely with the Customer Support Services and Technical Support Services Managers to ensure support teams understand the scope of the project and support requirements and are able to meet these requirements within the expected performance criteria and KPIs;
- Be responsible for customer escalations and act as a point of escalation both in and out of hours as required;

- Directly manage local third-party IT service providers to ensure timely delivery of quality work;
- Monitor the effectiveness of the team against SLA/KPI"s, driving through change as needed to deliver continual service improvement;
- Review monthly service performance and KPI reports with agencies to ensure services are delivered within expected levels and discuss opportunities for improvement;
- Participate as a member of the failure review board (FRB) where deficiencies are reviewed; and
- Identify opportunities for efficiency, cost reduction and continuous improvement.

The accuracy of the database is maintained by INIT's MOBILEvario relational database model. This model organizes data into multiple tables where each record is identified by a unique key. Relationships between tables are established by referencing the unique keys of the two tables.

In addition to the above, INIT will carry out the following operational activities, proactively taking corrective action as needed without active reporting either by or from the Region, performed on a regular basis as follows:

Daily Operations

Weekly Operations

[redacted]

Monthly Operations

[redacted]

Quarterly Operations

[redacted]

[redacted]

2.14.2.4.1 Information Security Management System (ISMS) Compliance

The Information Security Management System (ISMS) is to be designed in such a way that the necessary governance for the applications, modules, and information that comprise the fare collection systems (Legacy ORCA and next gen ORCA), including the applicable information security controls will use ISO 27002:2013 as a baseline.

To ensure compliance, the ngORCA System solution that INIT supports (including its design, support, and operation activities) will be validated against the requirements to ensure with the applicable technical and administrative security controls, as determined by the ISMS conformance guidelines are in place.

Due to the duration of the O&M obligation and software maintenance agreement, it is likely that the security standards may be updated. As part of this agreement, INIT will ensure the requisite controls, technical revisions, and processes are updated or revised according to the procedures outlined in the Change Control Plan.

2.14.2.5 Software Maintenance (11 years)

2.14.2.5.1 General Capabilities

As part of INIT's obligations related to the back-office operations, periodic changes to the software may be required to address routine maintenance functions such as security patches and firmware updates or deployment of third-party integration updates (e.g. Sage or Salesforce). Additionally, throughout the duration of the software maintenance agreement it is anticipated that major technology changes will also occur affecting software compatibility or system security and fraud control. To address future needs or broader changes in technology, the Agencies may want to pursue system enhancements or upgrades. Change is an inevitable aspect of the system's operation but all maintenance and change activities must be managed in a clear, transparent, and structured way.

In order to address the multitude of preventative and standard maintenance needs of the software and the changes that will occur as part of that, INIT will submit a Software Maintenance Plan which will include the processes and procedures for each element. The plan will include those items noted above as well as deployment operations, risk management, production monitoring and roll-back planning. INIT will collaboratively develop the Software Maintenance Plan with ROOT – the figure below provides a sample outline.

Software Maintenance Plan [Sample Outline]

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5.2 Change Management Meetings 10
5.2.1 3-Month Configuration & Change Schedule 10
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5.3.3 Software Delivery Form 11
5.3.4 Deployment 11
5.3.5 Change Documentation 11
5.3.6 Change Log 11
5.3.7 Technical Documentation Updates 12

Sample Software Maintenance Plan Outline

2.14.2.5.2 Communications, Response and Resolution

Software maintenance related communications, response and resolution will be addressed in the Software Maintenance Plan. INIT complies with the Agencies capabilities specified in the Scope of Work – including:

- Telephone technical support
- 24 x 7 hotline to report system failures (with response times of less than 30 minutes)
- Onsite support, if required, within 24 hours
- hours status reporting if a repair takes longer than 4 hours

2.14.2.5.3 Software Change Management

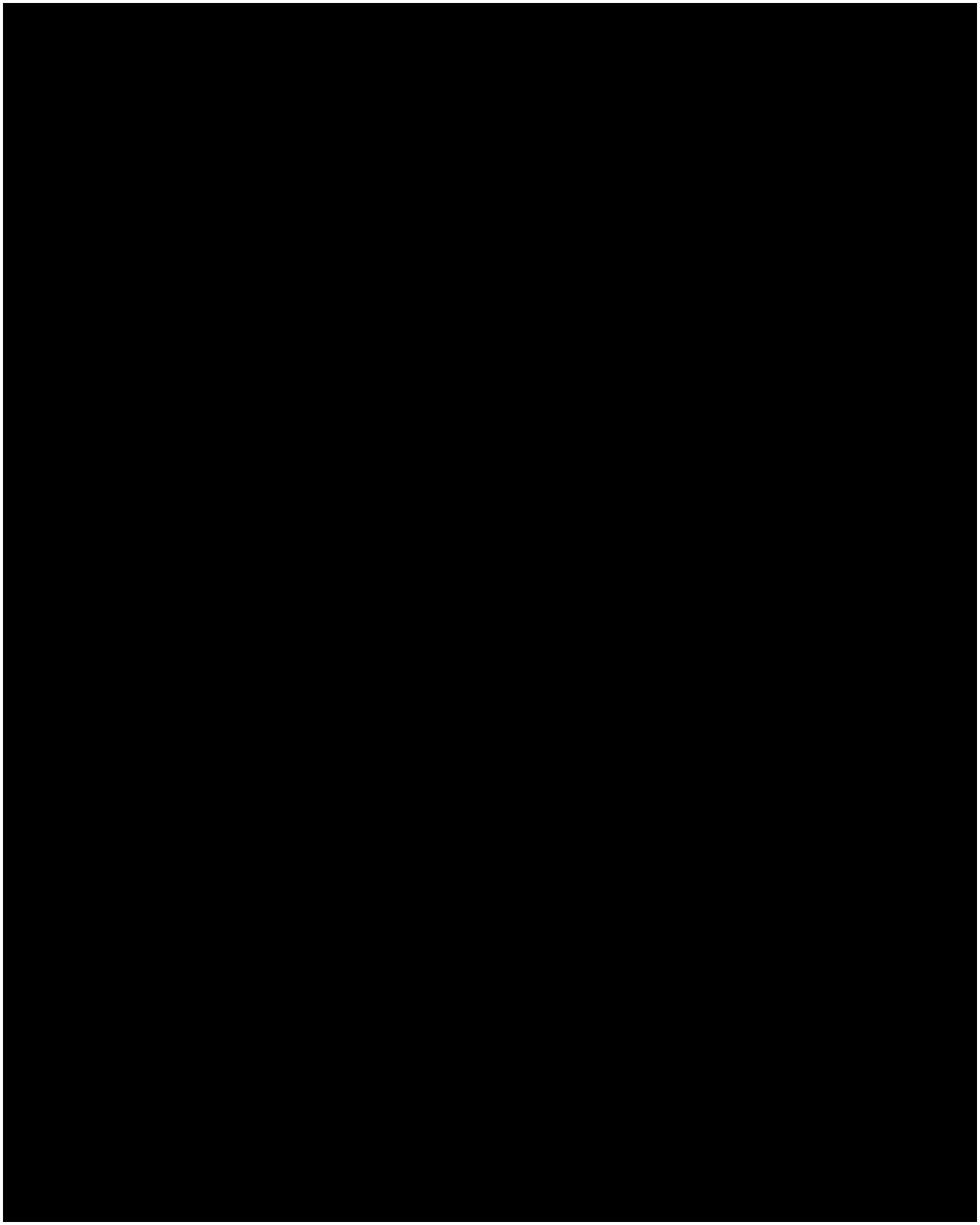
INIT will jointly develop and implement a rigorous software change management plan involving

- Analysis and reporting of the required complexity and risks of the proposed change
- Joint change management meetings
- 3-month changes look-ahead
- Comprehensive release management involving extensive testing (including regression testing) on all environments
- Maintaining effective change documentation (including Software Delivery Notes (SDNs) and a Change Log)

INIT will update any required technical documentation impacted by a change. The following samples show the proposed software change management plan outline, and INIT's Software Delivery Note (SDN), which is provided to the customer for a signed approval prior to any software change.

5 Software Change Management 10
5.1 Complexity of a Proposed Change 10
5.1.1 Initial Analysis 10
5.1.2 Preliminary Analysis 10
5.1.3 Report of Findings 10
5.1.4 Approve / Reject Decision 10
5.2 Change Management Meetings 10
5.2.1 3-Month Configuration & Change Schedule 10
5.3 Release Management 10
5.3.1 Versioning 10
5.3.2 Testing 10
5.3.3 Software Delivery Form 11
5.3.4 Deployment 11
5.3.5 Change Documentation 11
5.3.6 Change Log 11
5.3.7 Technical Documentation Updates 12

Sample software change management plan outline



Software change Software Delivery Note

2.14.2.5.4 Software Enhancements

INIT will participate in a responsive manner towards software enhancements. This process will involve the submission of the desired functionality or enhancement, a technical and cost impact analysis by INIT, and a response submittal outlining the scope and costs by INIT. If ROOT decides to proceed with the enhancement, then the Software Change Management process would be followed.

2.14.2.5.5 Field Equipment Maintenance

Once the system has been accepted by the Agencies, first line maintenance will be performed by the Agencies whereas second line maintenance repair will be undertaken by either INIT or the relevant OEM. INIT will manage and maintain spares and stock inventory to facilitate the first line maintenance efforts of each Agency.

To facilitate the purchase of new or additional equipment and spares, INIT will provide a spares price and consumables list for Agency reference and ordering as well as comment on any special tools or items needed to facilitate the repair efforts.

As serviceability and maintainability are essential to a successful handover of operational functions, INIT will ensure the Agencies receive the appropriate training and information necessary. Additionally, INIT staff and engineers will be available as needed to support first line maintenance efforts should further issues arise which limit the Agencies ability to perform the required functions or steps.

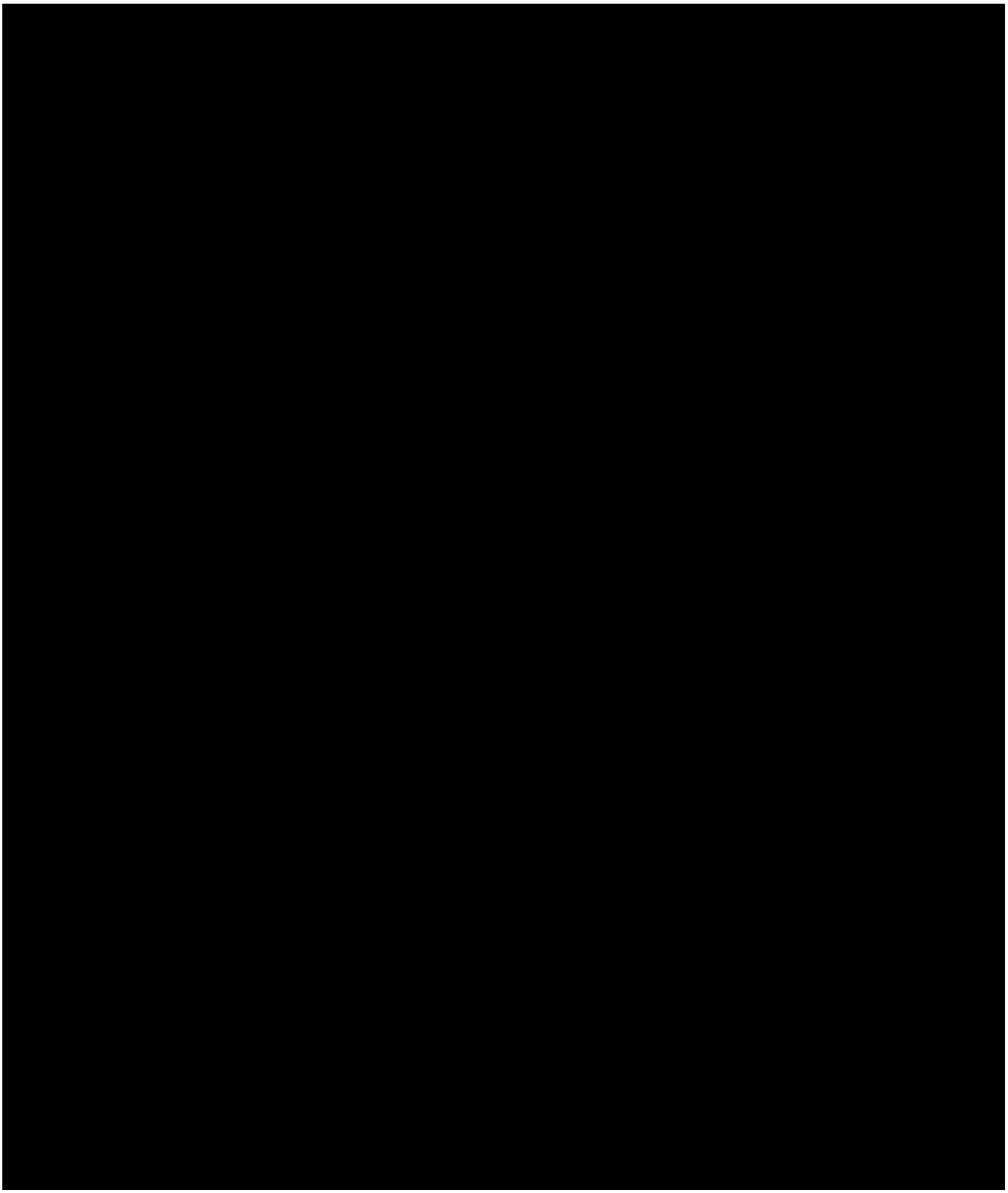
To clarify the RFP's section 8.12.2.5 titled Incident Response Times, INIT expects that vending machine first level maintenance will be handled Sound Transit as described in section 8.1. INIT will train Sound Transit and provide spares of internal components which are designed to be field serviceable, including swapping at the installed locations. Second line maintenance will be provided by INIT

2.14.2.5.6 Agency Test Facility

As part of the obligations associated with test of the ngORCA system during the project delivery, INIT will stand up a regional test environment for access by Agency and INIT staff. The detail of this solution is more fully covered in Section 2.7.2.4.3 above.

INIT will continue to host and maintain this test facility for the duration of the agreed terms and in accordance with the contract's requirements. The purpose of the test facility is an integral part of the overall test and deployment strategy and as such will be managed and maintained in a similar fashion as the production system (e.g. software patches, compatibility, etc.).

2.14.2.5.7 Fraud Controls



2.14.2.5.8 Disaster Recovery

INIT's proposed back office solution for ngORCA addresses both disaster avoidance and disaster recovery; the proposed solution favors disaster avoidance strategies to limit the impact of failure and need for disaster recovery and prepares for disaster recovery.

The primary business continuity objectives of ngORCA are covered by the multi-data center, active/active infrastructure. The active/active datacenter strategy allows for smooth failovers allowing operations to transparently move workloads between geographically separate infrastructures. Further, through the use of load balancing inbound connections, disruptions in a single datacenter have little to no impact to the continued operation of the system.

While disaster avoidance works against disaster recovery in some respects, INIT will deploy a more specific disaster recovery solution which ensures out-of-region data backup in a separate hardware environment. This third, out-of-region site does not support continual or failover operations due to distance and latency, but is intended specifically as a data-backup only solution. Business continuity, disaster avoidance, disaster recovery and backup solutions are documented in the Disaster Recovery Plan. The plan also addresses other ISO guidance regarding business continuity including risk assessments and business impact analysis.

2.14.2.5.9 Performance Measurement

2.14.2.5.10 General Capabilities

System performance is measured on multiple levels, from the network level over the different processes and services running in the back office up to the client applications and devices. The data that can be reported on and how it is being collected depends on the system and the way the performance is measured. Based on the captured data, different KPIs are calculated and reported at the end of the month to provide an overview of the systems performance in general and to ensure that the agreed level of operational performance is met.

INIT will provide a Performance Maintenance Plan which will identify the methods and approach to tracking and reporting the KPIs. Where possible the approach taken will seek to be automated whether related to the capture or reporting of the data elements.

2.14.2.5.11 Key Performance Indicators

As part of the Software Maintenance Plan INIT will include the means and measurements required to develop the requisite quantifiable measurements of performance to assess INIT's operation of the system.

The plan will outline the data source, calculations, and output for the following KPIs: Frontend Device Reliability, Frontend Device and Back Office Application Accuracy, Back Office Application Availability, Operating Performance Requirements, and Incident Response Times.

2.14.2.5.12 Failure Review Board

As far as possible, INIT will provide a list of expected exceptions and events for each device or application for classification as Chargeable or Non-Chargeable Failures. The classification will be used to determine during performance reporting if a failure will be chargeable against one or more of the KPIs.

To determine the severity of an exception or event and to classify it as chargeable or non-chargeable failure, a Failure Review Board (FRB) will be established as specified. From INITs side the FRB members will include the System Engineer, the Project Manager (when in the project executing phase), and the Customer Support Service Manager (when in operations and maintenance). In the event an escalation is required, the INIT Project Sponsor will participate

Newly classified chargeable and non-chargeable failures will be added to the list maintained in the back-office system to be used during the next calculation of the KPIs.

2.14.2.5.13 Performance Reporting

As noted above, INIT will collate and summarize the data applicable to the KPI metrics and perform the measurement calculations on a monthly calendar cycle for the duration of the operation agreements. This will result in a detailed report of overall system performance and result in a "meets or fails" summary of each KPI. Where possible, KPIs will be measured with automated elements of the system.

To prepare for the operational elements of the system and achieve system acceptance, the KPI metrics and reports and will be exercised during the integration and acceptance testing.

Where applicable the monthly reports will provide historical data or trend analysis to provide a broader overview of overall system health at a high level.

2.14.2.5.14 Credit Assessment

As part of the operations agreement INIT will sustain the obligation to meet the requisite KPI metrics. Should there be instances where the KPI has failed then the agreed deduction to the associated payment would be reviewed and where applicable apply to the associated invoice.

2.14.2.5.15 Level of Effort to Optimize Value

We expect our Services Operations manager to be fully dedicated to the support of this system, with the support of our customer support, field tech and IT support teams. Our plan is to operate the system as efficiently and effectively as we can, bringing down the amount of support that is required – especially over time. We plan an initial team that will be available throughout this contract and are capable of providing for all required KPIs and to maintain the overall ORCA customer experience. We have found with our current fare collection systems, both in North America and worldwide, that a well-designed and well-engineered system can operate at a very high level of accuracy with a minimum level of support and maintenance. We plan to leverage and enhance this through this project with ngORCA.

2.15 INIT's Warranty

Please refer to section 2.14.2.2

2.16 INIT's Sample Disaster Recovery Plan

A sample disaster recovery plan is included as an attachment at the back of this tab in the proposal.

2.17 INIT's Commitment to the Environment

We see transit as intrinsically "green," and have aimed to make direct contributions to our community through an ongoing commitment to sustainability. INIT is a proud signatory of the APTA Sustainability Commitment and has contributed to the creation of measurable guidelines for APTA business members to achieve higher levels of sustainability. Even this proposal is printed on 30% recycled paper.

Our manufacturing facility, Superior Quality Manufacturing (SQM), recycles the lead-free solder used in making their electronic boards. Additionally, INIT's cable manufacturer, Total Quality

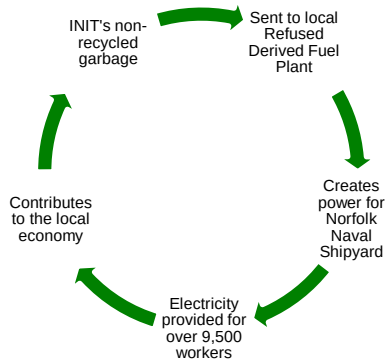
Manufacturing (TQA), recycles 100% of scrap cables through a partnership with a local cable recycler.

Simple changes in habits, like the removal or paper towels and replacement with hand dryers has made a large impact. By the first year, 593 pounds of paper towel usage was eliminated. The impact on the environment is calculated to be the equivalent of 11 trees with an estimated decrease in the company's carbon footprint of 69%.

2.18 INIT's Progressive Green Approach

INIT is a socially responsible business partner with a unique approach to fostering sustainability in our corporate and manufacturing practices.

As a zero waste to landfill company, we purchase recyclable products, reuse our shipping and manufacturing packaging, partner with an electronics recycler for repurposing manufacturing devices, and contribute all non-recyclable, non-compostable garbage to a Refuse Derived Fuel Plant (RDFP). The RDFP facility treats and burns the garbage creating electricity to power the local Norfolk Naval Shipyard, which is home to over 9,500 workers.



Extensive Experience and History of Innovation in Transit Technology

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

Resubmittal June 8, 2018

The Future of Mobility

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The sections listed below contain trade secret information that provides a business advantage to INIT over competitors. These sections are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

CONFIDENTIAL SECTIONS:

3.4 Extensive Recent Account-Based Fare Collection Projects

3.5 Customer References

3.7 INIT's Financial Performance

3.7.1 Stellar Financial History

3.7.2 A solid Financial Forecast

3.8 INIT's Recent Fare Collection Wins

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3 INIT's Extensive Experience and History of Innovation in Transit Technology

As the lead procurement agency for the Central Puget Sound Regional Fare Collection Coordination Project (ORCA), Sound Transit, is seeking an innovative Systems Integrator to collaboratively develop, build and test the best solution for the region. It is our strong belief that INIT's Electronic Fare Collection Management (MOBILE-EFM) product suite and our decades of experience as an Innovator and System Integrator in public transit will provide ORCA with the optimal technologies, processes and support services to assure the successful deployment and ongoing operations of a Next Generation Fare System for the Puget Sound region as specified in your RFP.

Having implemented more than 50 Electronic Fare Collection Systems worldwide, our system has advanced and matured based on a strong cooperation with our worldwide community of Transit Agency customers.

3.1 Multi-Agency Experience

INITs ticketing back-end system is well fitted for environments with multiple operators and Public Transit Agencies and supports multiple fare structures/policies. For example in our ticketing project in Bavaria, where the whole county rural traffic is implemented with INITs ticketing system, and its outstanding multi-client capabilities are heavily used by currently 10 clients/fare structures. At the beginning there was 4, now it is 10 and the number is increasing. The clients can be very different in size (OVF 800 vehicles, Krause 10 vehicles) and operational requirements (OVF more than 30 different fare structures and Krause with only 2 fare structures).

Another ticketing project with large number of fare structures and policies is VVO/Dresden (20 clients/fare structures), of very different sizes. Some of the clients are simultaneously independent clients for their own routes and contractors for the larger clients. This shows the outstanding scalability and flexibility of the MOBILEvario system.

Also our ticketing system with ECAN in Christchurch is a multi-client system (320 vehicles) with 7 different clients, all accepting the same Metrocard and getting assigned their individual revenue per week.

3.2 Why INIT

With INIT being a leading vendor of Electronic Fare Collection and Intelligent Transportation Systems (ITS), we are uniquely qualified to understand your needs across the full bandwidth of

your operations. See the figure below for a graphical view of INIT's 25 years of fare collection History.

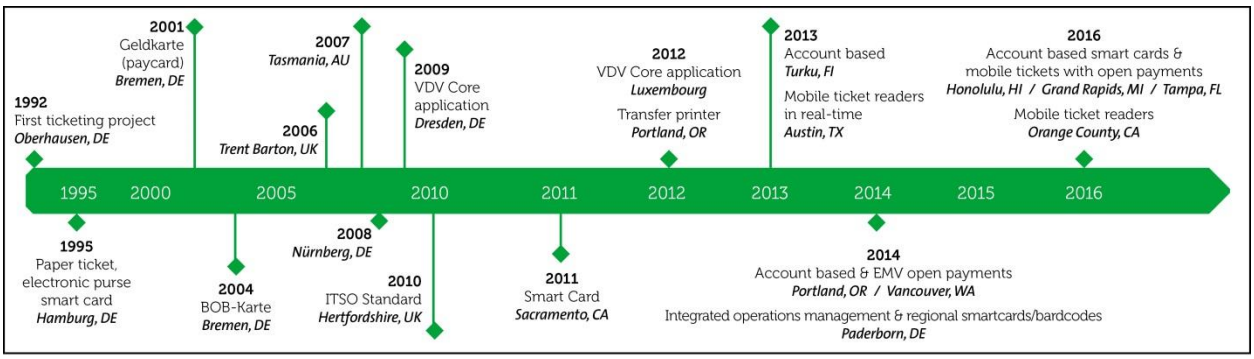

Figure 1: INIT's 25 Years of Fare Collection History

After a very thorough analysis of your RFP, we are pleased to confirm that ORCA's requirements are very similar to INIT's MOBILE-EFM Project recently implemented at TriMet in Portland, OR. Due to the similarity in scope and design of the Portland MOBILE-EFM System which features: a Multi-Agency, Account Based and Open Payments based System, Open APIs, a fully redundant back office, multiple fare product distribution channels etc., INIT can offer Sound Transit and their partner agencies a prompt and reliable implementation of the next generation ORCA (ngORCA) Regional Fare System.

The ability of INIT to deploy and grow a solid and experienced Seattle based team will be vital to the success of your project. INIT will deploy key technical and project management resources for the duration of the implementation phase of the contract to enhance the existing team already located at INIT's Seattle office. Additionally INIT is committed to provide the requisite employees and partners to fully maintain and operate the ngORCA Fare System during the operation and maintenance phases of the project.

We are excited about the prospect of working with Sound Transit and your partner agencies to collaboratively develop, build, and test the best solution for the transit agencies and their customers in the Puget Sound region. We are convinced that you will be amazed by the functionality, flexibility and reliability of our company and our best-in-class fare collection solutions and especially the outstanding team of Transit Professionals that we have assembled for this project.

3.3 INIT and Its Project Partners

3.3.1 INIT Innovations in Transportation, Inc. (INIT)

INIT was incorporated in the Commonwealth of Virginia in January of 1999 to serve the North American market, exclusively focusing on Intelligent Transportation Systems (ITS) for public transit. INIT GmbH, our sister company, was founded in 1983. Both companies are wholly owned by our parent company, INIT SE (formerly AG), which is located in Karlsruhe, Germany.

Years in Business

INIT GmbH has been in business for 34 years and INIT has been in business in North America for 18 years. The INIT SE group of companies has not changed ownership during this time, Its founders are still heavily involved in the business of providing services dedicated to public transit, giving INIT unmatched insight into the deployment of all types of ITS projects. Founder & CEO Dr. Gottfried Greschner continues to be involved and working at INIT on a daily basis. An investment in INIT's technology is an investment in our ITS future as well as yours.

Our North American Office Locations

INIT Innovations in Transportation, Inc.'s brand new consolidated North American headquarters office is in the City of Chesapeake, Virginia. We are at the midpoint of the US Atlantic Coast, 3 ½ hours south of Washington, DC, at the mouth of the Chesapeake Bay and adjoining the cities of Norfolk and Virginia Beach.

INIT operates in a multi-purpose 67,000 square foot facility which includes dedicated areas for Software Development, Customer Support, Engineering and Sales, manufacturing, and a dedicated laboratory for testing and development.

INIT Innovations in Transportation, Inc.
Phone (757) 413-9100
www.sales@initusa.com
www.initusa.com

INIT maintains Regional offices in Seattle, Toronto, New York and Tampa with personnel dedicated to providing and supporting the latest technology and a totally functionally compliant system for our clients.

INIT has formed a joint venture with the manufacturing company, Superior Quality Manufacturing (SQM) . SQM will provide through-hole and wave soldering, circuit board assembly and final assembly of several of our electronic devices including but not limited to: Proximity Readers, MDT's, Ticket Vending Machines (TVMs) and on-board computer backplanes. SQM is co-located within our Chesapeake, VA headquarters.

An additional joint venture with a major cable manufacturer, Total Quality Assembly (TQA) manufacturers the majority of INIT's cables, harnesses and mounting hardware equipment for our vehicle equipment installation needs. TQA is also co-located within our Chesapeake, VA headquarters.

Because both companies are subsidiaries, INIT is able to closely monitor quality and adjust production priorities in order to best meet the needs of our customers. Integrating both SQM and TQA into the INIT environment creates additional benefits for the

ngORCA project. Additional orders, cable replacements, etc. can be quickly implemented due to the working relationship and proximity of the teams and then delivered to ORCA. Finally, by investing in these companies, INIT continues to show the commitment to supplying American Made products.

Public transportation is an indispensable part of modern society. As one of the world's leading suppliers in the area of fleet management, passenger information and electronic fare collection systems, our primary goal is to help transit authorities make public transit services more attractive, faster and more efficient.

Customers such as TriMet, Grand Rapids, CDTA, RTD- Denver, and dozens more, benefit from the fact that INIT uses innovative mobility concepts, giving these forward-thinking transit authorities a technical advantage. This may be in the form of standard off the shelf or if needed customer specific, tailor-made solutions. As a supplier of turnkey systems, INIT develops, produces, installs and maintains integrated hardware and software solutions for all key tasks required within a transit agency.

Figure 2. INIT has over 30 customers in North America and more than 400 customers worldwide

INIT is a proven, experienced and accomplished systems integrator with over 30 transit agency customers in North America. We feel that INIT is best suited to maximize ORCA's investment with minimum risk as you implement and deploy the ngORCA system.

3.3.2 Bytemark

Founded in 2011, Bytemark is an international provider of fare collection technology employing over 90 talented individuals globally, with offices located in New York, Toronto, the UK,

Australia, and India. Bytemark's core offering is a comprehensive suite of products that digitize transit passes, tickets and fare media in a variety of innovative ways. Purchase of these fare products by transit riders is simple and instantaneous by means of web-based and smartphone-based purchasing experiences. Agencies are provided with powerful fare validation solutions, and cloud-based access to a full-suite management portal to manage and report on their operation.

Bytemark products have been implemented at over 20 transit agencies in North America including New York Waterway, Toronto Transit Commission, Capital Metro Transit (Austin, TX), and King County Metro (Seattle, WA).

3.3.5 ESP Enterprises

ESP Enterprises is the leading services company providing installation and maintenance to all Fare Collection Equipment Manufacturers and Transit Focused Electronics suppliers in North

America. ESP was formed in October of 2002. They have ongoing projects with ACS, Accenture, Avail Tech, Bytemark, Clever Devices, Conduent, Cubic Transportation Systems, Genfare, Lecip, Lilee, March Networks, Parkeon, Safety Vision, Scheidt & Bachmann, Trapeze, TSI Solutions, Vix, and Xerox and INIT.

ESP's primary goal is to supply with a labor force that's trained with skills specific to transit industry requirements and equipment. Their experience and knowledge of Mass Transit operational requirements and equipment provide foresight into the logistical and project planning requirements necessary for successful installation activities.

ESP operates under the need for scalable responses to their customers' needs and deadlines. As part of their operating philosophy we provide skilled labor and supplement as needed with local personnel who can be trained and supervised by more experienced staff. If requested by either the customer or transit authority ESP provides experienced oversight staff for a local subcontractor. This methodology allows ESP to rapidly scale their work force to meet the installation requirements of their customers and reduce related travel costs.

3.3.6 Anthro-Tech, Inc.

Anthro-Tech is a woman-owned business founded in 1997 and became a licensed Washington State Corporation in 2002. Anthro-Tech is Washington State DBE Certified. Anthro-Tech is a user-centered design consultancy focused on government agencies, nonprofits and enterprises with a social impact mission. They provide user-centered design strategy, user research, user experience design, usability testing and UX training services to organizations throughout the region and across the nation. Much of their work focuses on web sites, web & mobile applications, software systems and customer experience strategy.

Anthro-Tech proposes to provide user interface and user experience services for this contract to ensure all customer-facing interfaces are intuitive, usable, accessible and consistent across touchpoints.

Persistent has 36 offices in 12 countries. Their USA headquarters (Persistent Systems, Inc.) is located in Santa Clara, CA and their India Headquarters (Persistent Systems Limited is located in Pune, MH. We also have other locations in Mexico, France, Canada, Germany Netherlands, Japan, Malaysia, Australia and Singapore.

INIT will be using Persistent Systems, Inc. as our Salesforce Integrator as they have demonstrated that they are uniquely qualified.

3.3.8 Babinec Consulting LLC

Babinec Consulting LLC is a 100% woman-owned business and certified DBE (WA State/Federal Programs) formed in March 2017 by two sisters, Kati Babinec, PMP, and Lisa Babinec, PhD, CMP, both subject matter experts with a combined 40+ years of experience in their complimentary fields. They provide exceptional business management consulting services that enhance and advance our client's business success. They also help our clients realize their full potential and achieve mutually agreed upon desired outcomes. They dedicate ourselves to providing subject matter expertise and timely, superior end products that fulfill the client's stated goals. Babinec Consulting LLC devotes itself to offering innovative thinking, nurturing genuine partnerships, and championing the beliefs that accuracy, reliability, honesty, and trustworthiness will never be obsolete. Finally, their combined areas of expertise include the following:

- Technical Writing & Editing, Medical Writing & Editing, Copywriting, Copyediting, Substantive Editing, Line Editing, Proofreading, Instructional & Online Curriculum Design, Peer Review, Quality Assessment (Curriculum & Publishing), Grant Writing/Editing (CDC, NIH, etc.), and Educational Marketing
- Contract Risk Analysis & Management
- Contract Drafting, Review, & Negotiation
- Training: Risk Management, Trade Compliance, Contract Negotiation, Specialized Curriculum (project management fundamentals, ethics, process development, Train the Trainers, etc.)
- Strategic Planning & Procurement, Cradle-to-Grave RFX, RFX Planning, Scope Development, Implementation, Analysis, & Supplier Selection

3.4 Extensive Recent Account-Based Fare Collection Projects

INIT has a history of deploying very large multi-agency projects such as the entire State of Bavaria in Germany and others in Europe. We have now deployed three multi-agency fare collection systems in the USA HART (Tampa), the Sacramento Region (lead SACOG) (card based) and TriMetPortland OR / Vancouver WA Region (lead TriMet). Consequently we have developed a back office system (MOBILvario) that is very robust and multi-agency capable. While the

ngORCA Project will certainly present challenges INIT is confident that we are proposing both the technology as well as the engineering and project resources necessary to ensure a successful and on time project delivery.

The Account-Based fare collection projects listed below illustrate our firm's ability to perform the requirements of this contract. Each project includes a section titled "Relevance to ORCA." It should be noted that we have other relevant project experience. For example:

- Cloud Hosting at Orange County Transit Authority and Capital Metro (Austin, TX)
- Ferry Terminal Validation at New York City Ferry
- CAD/AVL integration to many vendors
    - Clever Devices in Pinellas Suncoast Transit Authority (Tampa, FL Region)
    - Conduent in Hillsborough Area Regional Transit Authority (Tampa, FL Region)
    - Avail at The Rapid (Grand Rapids, MI)
    - Trapeze at Metro Transit Authority (Nashville, TN) (contract pending)
- Fleet installations as large as 3,000 vehicles for CAD/AVL customers

3.4.1 INIT Projects

3.4.1.1 Portland and Vancouver HOP Fastpass

Tri-County Metropolitan Transportation District of Oregon, (TriMet)
4012 Southeast 17th Avenue
Portland, Oregon

[redacted]

Project Information

The HOP FastPass system is comprised of a joint-venture among three different transit agencies: TriMet, C-TRAN, and the City of Portland Streetcar. TriMet maintains the prime contract whereby INIT is the system integrator for the Portland, OR and Vancouver, WA metropolitan service area.

TriMet provides approximately 100 million trips per year. TriMet operates in the 24th largest metro area but is 11th in transit ridership. Additionally, nearly 1,200 employers in the area offer transit passes as an employee benefit. TriMet has approximately 700 buses, 97 light rail stations, 5 commuter rail stations, and 253 paratransit buses and 15 paratransit vans. The local public transportation network set up and operated by TriMet is considered one of the most innovative systems in the U.S. Portland is the third largest metropolitan region in the Pacific North West after Seattle, Washington and Vancouver, B.C.

C-TRAN ridership included approximately 5.8 million riders in 2015. C-TRAN offers regular bus service, express bus service, and limited bus service. Additionally, the C-TRAN program provides paratransit services too.

The City of Portland Streetcar is comprised of seventeen streetcars serving three unique lines in the Portland area. Weekly ridership averages around 15,000 for a total year to date of 1,674,550.

Mode Supported/ Number of Vehicles:

660 Fixed Route Buses

69 Light Rail Vehicles

268 Paratransit Vehicles

INIT's Responsibilities

INIT is the System Integrator for the TriMet HOP Fastpass program. The contract comprises of the design, build, test, and implementation of an Account-Based electronic fare (MOBILE-EFM) payment system for the Portland, OR and Vancouver, WA region serving customers of TriMet, C-TRAN and the City of Portland Streetcar. The Portland system is named "HOP FastPass." The system went into service in July 2017, two and a half years after contract award.

The HOP system supports both closed-loop and open-loop payment methods and mobile ticketing. The MOBILE-EFM system design is comprised of INIT's comprehensive Central Processing module, more than 1,100 on-board and platform contactless payment validators and approximately 100 retail POS units. INIT has also provided an Interactive Voice Response (IVR) system, Customer Relationship Management (CRM) tool, Maintenance and Management Inventory tool, as well as a Customer Web portal and Institutional Web portal for large business or institutional accounts and an initial 1,300,000 contactless smart cards.

Project Services

INIT provides a state-of-the-art electronic fare collection solution for TriMet. The contract includes the provision and the implementation of an account based solution, including:

- MOBILEvario backoffice with account processing, payment gateway, data warehouse, ledger, revenue clearing/settling, reporting, statistics, etc.
- Approximately 1,100 validators, on board buses/light rail and on platforms
- Retail Sales Terminals
- Open Architecture with various APIs to internal/external systems
- Closed Loop Payment, including integration with retail network provider
- Open Payment
- Fare Aggregation, Fare Capping
- IVR system integration from Enghouse
- Integration with Mobile Ticketing
- Web portal design and development (subcontracted to The Brigade)

The e-Fare solution will greatly enhance the already progressive bus, light rail, and commuter rail network in Portland. TriMet's ridership will benefit from more convenience and pricing

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equity and the ability to utilize contactless bank cards and mobile phones.

Total Cost of Contract: $12,557,888

Start Date: December 2014

End Date: Currently in Revenue Service as of July 2017

Project Staff

[redacted]

Account-Based with Open APIs

The MOBILE-EFM system is account-based and will support both closed-loop and open-loop payment methods as the future mobile ticketing. The system includes back-office clearing, revenue processing system and real-time fare processing. The MOBILE-EFM system's design is comprised of INIT's comprehensive Central Processing module, more than 1,100 onboard and platform contactless payment validators combined. INIT will also provide an Interactive Voice Response (IVR) system, Customer Relationship Management (CRM) tool, Maintenance and Management Inventory tool, as well as a Customer Web portal and Institutional Web portal for large business or institutional accounts and an initial 1,300,000 contactless smart cards.

As part of INIT's System Integrator role, the TriMet e-Fare project includes the integration with several third party systems. Following INIT's Open Architecture approach, open Application Programming Interfaces (API) will be available to external partners such as fare payment and inspection, mobile ticketing, device management and CAD/AVL information.

Relevance to ORCA

Riders of HOP will find installed on each bus, along each rail platform and C-TRAN BRT platform, as well as throughout the Portland Streetcars, the INIT validator or PROXmobil3. The PROXmobil3 is capable of accepting multiple forms of fare media included closed loop cards branded for HOP specifically, a personal credit card, mobile tickets, and also mobile payments (such as Samsung pay or Apple Pay).

First time riders can acquire a new HOP FastPass at the hundreds of ticket vending machines located throughout the city, at the transit ticket offices, and also at hundreds of retailers where they can purchase the hangar card like any other 'gift' cards available for sale. Riders can register their card, adding personalized information but also obtain balance protection so that if the card is ever lost or stolen, they can simply request to block the card and obtain a new one.

While INIT is quite proud of our success with the HOP FastPass project, and see many parallels to the ngORCA project, we certainly recognize the additional requirements of a true multi-agency region, including a much more complicated fare structure across numerous organizations.

3.4.1.2 Turku, Finland Account-Based System

City of Turku

Project Information

Turku is a city on the southwest coast of Finland at the mouth of the Aura River, in the region of Finland Proper. The city has a population of more than 180,000 inhibitants and is the 3rd largest urban area in Finland.

The City of Turku Public Transport manages and supervises the bus network which is mainly operated by private companies.

Mode Supported/ Number of Vehicles: 260 fixed-route buses

INIT's Responsibilities

INIT validators called PROXmobil2 are installed to every bus in the Turku region as well as integrated driver device EVENDpc that provides possibilities to sell and validate tickets, top-up accounts, print receipts, provide passenger information and many other functionalities.

Passengers can validate their traditional travel cards or QR codes from their mobile phones with INIT's validators. In the future roadmap there are also possibilities to pay the travel by contactless EMV card and/or NFC capable mobile phone.

The agency also co-operates with many event organizers in the Turku region to provide combo-tickets which include access to the event itself as well as usage of public transportation by using the QR code printed into the ticket.

For account management and more information about their current balance, passengers can log in to JLT's website. Furthermore, the system allows possibility to large institutions for bulk distribution such as schools, universities, social services programs, or major corporate entities. The Institutional website provided by the 3rd party integrated to our MOBILEvario back-office system allows the administrator to easily upload or download needed information in bulk. The system is prepared to utilize zones, selection of new fares and tariffs if and when ever the customer wants to utilize those.

When the final system acceptance is reached, INIT will begin a comprehensive 7 years warranty and maintenance contract.

Project Services

INIT is providing state-of-the-art integrated fleet management system including an electronic ticketing and fare collection solution for the region. The contract includes the provision and the implementation of: PROXmobil 2 Smart Media Processors and GPS enabled On-Board Computers with Wi-Fi technology on approximately for 260 buses, account-based ticketing which allows all information to be stored and managed in the back office system – in real-time. The ticket medium (e.g. a smart card) itself only contains a unique identification number (ID). This solution allows for a flexible and inexpensive use of various ticket media (2D barcode, proximity card, etc.) and offers more abuse protection in case of card loss. Most critical to the operation is the INIT provided Back-Office System, MOBILEvario, which is used for tariff management, regional revenue reconciliation and clearing functions.

Total Cost of Contract: $5 Million

Start Date: November 2013

End Date: Operation began in early 2017

Project Staff

[redacted]

Account-Based with Open APIs

Account based ticketing solution. The contract includes approximately 300 on-board computer incl. ticket printer EVENDpc and boarding control system PROXmobil2, open Sales API for 3rd parties to integrate to the system, open real-time passenger information interfaces, ticket inspection application and more. The core of the system is INIT's back-office System

MOBILEvario that provides a sophisticated yet easy to use solution for ticket processing and clearing revenues. MOBILEvario's powerful online validation server processes account transactions in real time.

The Föli system is an ID-based Ticketing system. It is highly flexible, supports various ticketing methods and sales channels, offers open interfaces (API) for the integration of 3rd party solutions and is client-based.

This and the use of comfortable passenger apps use the options new technologies, communication methods and digitalization offer to the fullest and make Turku a smart city. In addition, fare management can be handled much more efficiently.

It is the first of its kind system that went into operation and is part of the MaaS ecosystem. It set a new bar for ticketing systems in the Nordic Countries, which led to a suggested new Finland-wide approach for integrated mobility services and won the SLUSH award. The system is complemented by an integrated ITCS system that also provides RTPI.

Relevance to ORCA

INIT replaced the legacy ticketing system through a comprehensive transition strategy which allowed the existing card scheme and old fare system to remain in use while the new account-based ticketing system was implemented.

As a part of the migration process, transaction information was stored in both the legacy and INIT's new account based system. Transactions were processed in both systems while the old system was still the system of record. The revenue data calculated in MOBILEvario was reconciled against the data produced by the old system to make sure that the existing business rules were implemented correctly. As soon as a commonly agreed level in the consistency was achieved, the old system was shut down and the new account based system became the operational one.

During the vehicle installation the existing ticketing machine at the driver's place was dismounted and INIT's integrated ticketing and on-board computer device EVENDpc was installed at the drivers' place. Thanks to the migration plan presented above, the INIT system was immediately ready to operate in the vehicles without any need e.g. to change travel cards.

In addition, the INIT validator PROXmobil was installed and ready for the new ticketing system. Also thanks to the migration plan, there was no immediate urge to replace all old equipment in vehicles.

3.4.1.3 Tampa Bay Flamingo Account-Based Multi-Agency System

Tampa Regional Working Group

Project Information

The Regional Working Group (RWG) in Tampa consists of five county transport companies covering approximately 4100 sq. mile service area for the counties of Hillsborough, Pinellas, Hernando, Pasco, and Sarasota. Additional project partners include the Florida Department of Transportation (FDOT), and the Tampa Bay Area Regional Transportation Authority (TBARTA).

Mode Supported/ Number of Vehicles:

600 Buses

11 Streetcars

INIT's Responsibilities

The contract between INIT and RWG involves the deployment of an integrated fare system using account-based smart cards and mobile ticketing. INIT's passenger terminals, PROXmobil3, were installed on more than 600 buses for the validation of the new fare media.

INIT also supplied the back-end clearing and processing system MOBILEvario to facilitate the management of the RWG's individual customer accounts, setting of fare rules, revenue processing and statistical evaluation reporting MOBILEvario will benefit the RWG by allowing them to provide a seamless fare structure across eight counties while ensuring the secure administration of each agency data.

Also included in the project are interactive Voice Response (IVR) applications and new enhanced web portals to allow customers to check their balances, register their cards and load values, as well as manage mobile payment applications using their smartphones. Riders are able to use the mobile app across the Tampa Bay area by showing their purchased fare via the phone to the driver.

Project Services

The Tampa Regional Working Group (RWG) is comprised of five local transit agencies, with Hillsborough Area Regional Transit (HART) as the lead procuring agency. These agencies have chosen INIT to provide an account-based, regionally inclusive electronic fare payment system, in which customers in all applicable regions can travel within the Tampa area and use the same electronic fare payment strategy.

INIT is providing more than 600 PROXmobil3 electronic readers for Fixed Route vehicles to the RWG. Additionally, INIT will provide its MOBILEvario back end system to integrate the fare strategies of all 6 agencies. Moreover, INIT will take on the installation, mobile application, web development and IVR with accomplished and qualified subcontractors.

As part of the procurement, INIT is interfacing with several CAD/AVL providers. Each of the regional agencies has their own CAD/AVL solution, to which INIT must interface. This abundantly demonstrates INIT's integration capabilities, for which INIT's open architecture APIs and dedicated engineering teams are responsible.

INIT is also providing the initial supply of agency-issued smart cards, retail sales terminals and various fixed fare processing equipment.

Total Cost of Contract: $12,088,782.13

Start Date: 2nd Quarter 2016

End Date: Estimated 4th Quarter 2018

Project Staff

[redacted]

Account-Based with Open APIs

Supports contactless EMV fare cards (Open Payments), branded regional fare media (Closed Loop).

- Multi-client, regional EFM system
- Smart card & mobile ticket proximity readers
- Back-Office clearing and revenue processing system
- Open APIs for integration with third parties.

Relevance to ORCA

The Tampa Flamingo fare collection project is an account-based, multi-agency system. INIT is partnering with Bytemark and Marathon for mobile ticketing and the customer website. According to Lucien Campillo, HART's Director of Enterprise Project Management: "Our experience with INIT and their subs has been outstanding. Their design review process and test procedures have far exceeded our expectations. The personnel they assigned to the project have been top-notch. Leadership for the organization monitors the project and the correct amount of

emphasis is applied if there are any issues. The project management team has been dedicated and is very concerned about the quality of all deliverables. I cannot say enough how much we have enjoyed working with INIT's professional team"

It should be noted that the Tampa project is, in many ways, more of a parallel to ngORCA:

- True multi-agency Region
- BRT and Streetcar Modes
- Complicated fare structure
- Additional CAD/AVL integration points

3.4.2 Bytemark Projects

3.4.2.1 Electronic Ticketing and Fare Management System

Hillsborough Area Regional Transit Authority (HART)

Modes: Streetcar, Bus and Paratransit

This project consisted of the following transit agencies: Hillsborough Area Regional Transit Authority (HART), Pinellas Suncoast Transit Authority (PSTA), Sarasota County Area Transit (SCATA).
HART Ridership: 14,098,000 annual riders
PSTA Ridership: 13,074,000 annual riders
SCATA Ridership: 2,683,000 annual riders

Bytemark's Responsibilities

Bytemark was responsible for the design, development and deployment of mobile ticketing applications. Bytemark project manager Max Letaconnoux, CTO Nicholas Ihm, Platform Architect Abhishek Ravishankara, Mobile Architect Kevin Rejko, and Senior Software Engineer Iain Alexander have worked directly with INIT to manage technical integration of Bytemark's mobile ticketing application and INIT's MOBILEvario back office architecture.

Project Services

Bytemark partnered with INIT as a sub-contractor for this project with HART. Bytemark is providing a fully integrated mobile ticketing application with the INIT MOBILEvario back office system. The mobile app will be capable of topping-up both digital and physical fare media. Virtual smart card is capable of being validated onboard by barcode. Bytemark created a "fast track" app as part of this project. The fast track app was launched prior to the roll-out of the new fare collection system by Init. This provided a convenient mobile solution that HART riders could utilize while the new system was under development.

Total Cost of Contract: 5 Year $1,119,000

Start Date: Initial product launched in November 2016

End Date: In Service

Project Staff

[redacted]

Account-Based with Open APIs

Supports contactless EMV fare cards (Open Payments), branded regional fare media (Closed Loop).

- Multi-client, regional EFM system
- Smart card & mobile ticket proximity readers
- Back-Office clearing and revenue processing system
- Open APIs for integration with third parties.

Relevance to ORCA

- Integration with INIT's MOBILEvario account-based system
- Issuing virtual fare media
- Topping up physical and virtual fare media via mobile

3.4.2.2 Mobile Ticketing Application System

Interurban Transit Partnership, Grand Rapids, MI

[redacted]

Modes: Bus, BRT, Vanpool and Paratransit

Ridership: 11,446,000 annual riders

Bytemark's Responsibilities

Bytemark was responsible for the design, development and deployment of mobile ticketing applications. Bytemark project manager Max Letaconnoux, CTO Nicholas Ihm, Platform Architect Abhishek Ravishankara, Mobile Architect Kevin Rejko, and Senior Software Engineer Iain Alexander have worked directly with INIT to manage technical integration of Bytemark's mobile ticketing application and INIT's MOBILEvario back office architecture.

Project Services

Bytemark partnered with INIT as a sub-contractor for this project with The Rapid. Bytemark is providing a fully integrated mobile ticketing application with the INIT MOBILEvario back office system. The mobile app will be capable of topping-up both digital and physical fare media. Virtual smart card is capable of being validated onboard by barcode or NFC.Total Cost of Contract: 5 Year $342,000 + Transaction Commision %

Start Date: In development

End Date: N/A

Project Staff

[redacted]

Account-Based with Open APIs

1. Supported multiple fare policies and fare products, including fare capping and complex business rules.

2. Provided agency ownership or perpetual licensing of security keys, data formats, and Application Programming Interfaces to allow integration with outside vendors including Computer Aided Dispatch and Automated Vehicle Location, mobile ticketing, retail network, bike share, parking and other third party partners.
3. Based on an open architecture system with open Application Programming Interfaces that enable integration of third party commercial-off-the-shelf (COTS) hardware/software components.
4. Capable of supporting contactless fare media.
5. Capable of supporting open payments, including contactless bank cards and mobile wallets.

Relevance to ORCA

- Integration with INIT's MOBILEvario account-based system
- Issuing virtual fare media
- Topping up physical and virtual fare media via mobile

3.4.2.3 Mobile Ticketing Application System

Rhode Island Public Transit Authority

Modes: Bus and Paratransit

Ridership: 18,866,000 annual riders

Bytemark's Responsibilities

Bytemark was responsible for the design, development and deployment of mobile ticketing applications. Bytemark project manager Max Letaconnoux, CTO Nicholas Ihm, Platform Architect Abhishek Ravishankara, Mobile Architect Kevin Rejko, and Senior Software Engineer Iain Alexander have worked directly with INIT to manage technical integration of Bytemark's mobile ticketing application and INIT's MOBILEvario back office architecture.

Project Services

Bytemark partnered with INIT as a sub-contractor for this project with RIPTA. Bytemark is providing a fully integrated mobile ticketing application with the INIT MOBILEvario back office

system. The mobile app will be capable of topping-up both digital and physical fare media. Virtual smart card is capable of being validated onboard by barcode.

Project Staff

[redacted]

Account-Based with Open APIs

The APIs will support a number of interfaces to INIT devices and to 3rd parties, such as the retail network, website and mobile app.

Relevance to ORCA

- Integration with INIT's MOBILEvario account-based system
- Issuing virtual fare media
- Topping up physical and virtual fare media via mobile

3.4.2.4 Transit Go Ticket

King County Metro, Sound Transit, Seattle Streetcar, King County Water Taxi, Seattle Center Monorail

[redacted]

LiviuPrisecaru, IT PM Systems Development and Operations, King County Metro Transit
King Street Center 201 S Jackson St., Room 333
Seattle, WA 98104-3856
Phone Number: 206-477-5958
Email Address: Liviu.Prisecaru@kingcounty.gov

Modes: Bus, BRT, Light Rail, Streetcar, Water Taxi, Vanpool and Paratransit

KCM Ridership: 125,000,000 annual riders

ST Ridership: 42,732,000 annual riders

KCW Ridership: 601,000 annual riders

Streetcar Ridership: 1,358,000 annual riders

Monorail Ridership: 2,243,000 annual riders

Bytemark's Responsibilities

Bytemark developed and deployed mobile ticketing applications, customer web portal, and back office systems. Bytemark staff managed all product and agency onboarding, payment processing and merchant account applications, and client communication. Bytemark conducted multiple training sessions with different segments of KCM and Sound Transit Staff including: Fare inspection, Customer Service, Finance, Back Office & Product Administration.

Project Services

Transit Go Ticket

Transit Go Ticket is the regional mobile ticketing platform Bytemark launched for the Puget Sound region that is led by Seattle's King County Metro (KCM) and Sound Transit. After a competitive bid process, Bytemark was awarded a contract for mobile ticketing services with KCM in February 2016 and launched the mobile ticketing solution to the public in November 2016. Mobile ticketing services can be used across Bus, Light Rail, Streetcar, and Water Taxi services. The mobile app is available on iOS and Android. In addition to mobile, Bytemark also delivered an online customer portal for account management and customer outreach. Bytemark worked with a local SCS firm for marketing and engagement, which included digital and street team-outreach.

Bytemark also provided a "Lab" component as part of our contract. We supplied the agencies with hand held hardware to test new validation methods. The lab also encompassed demonstrating new features and technologies such as advanced reporting and analytics, Bluetooth validation, and special event ticketing and offers.

Bytemark recently added Seattle Center Monorail to the mobile ticketing platform in January 2018.

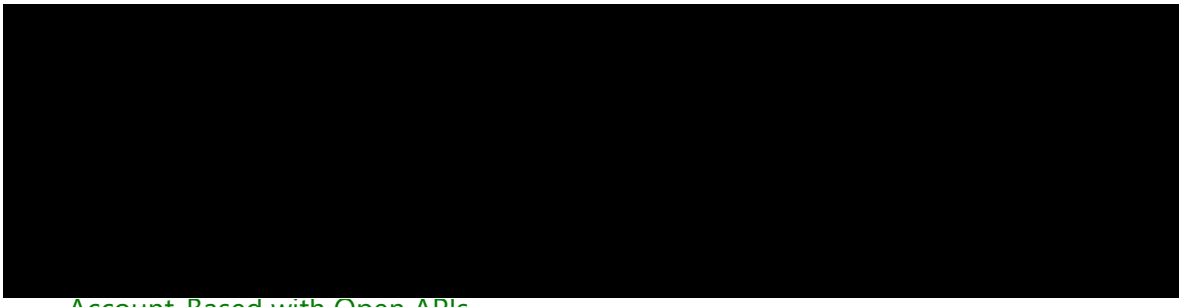
Total Cost of Contract: 5 Year $902,500 + Transaction Commission %

Start Date: Launched in November 2016

End Date: In Service

Project Staff

[redacted]



Account-Based with Open APIs

Bytemark's back end system is a microservices infrastructure comprised of multiple web services that can be swapped out or re-routed to other services to enable an open architecture with different third-party components and back office systems.

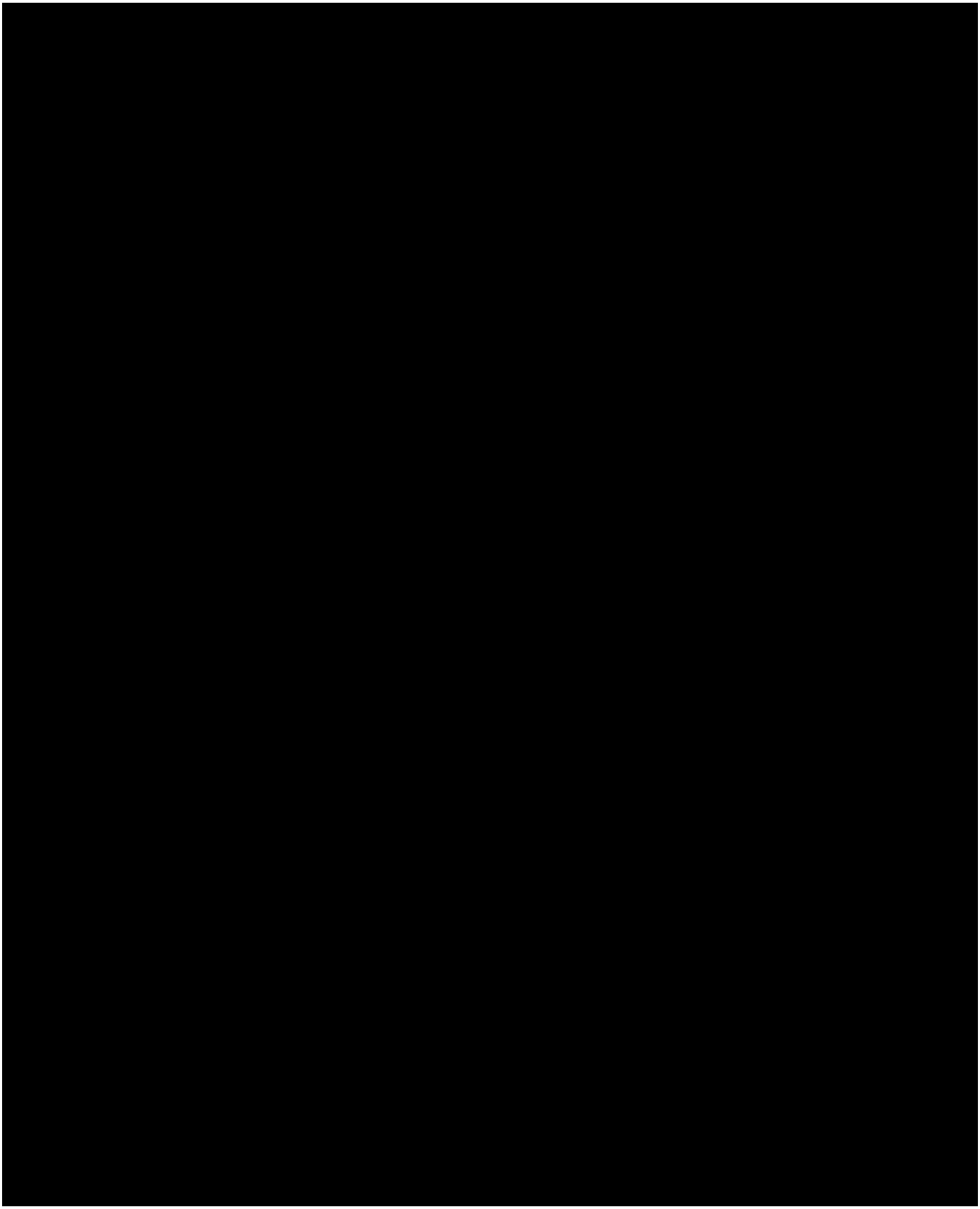
Bytemark web services implement REST-ful APIs that are documented with the OpenAPI specifications to allow for interopability with different systems, vendors, and integrators.

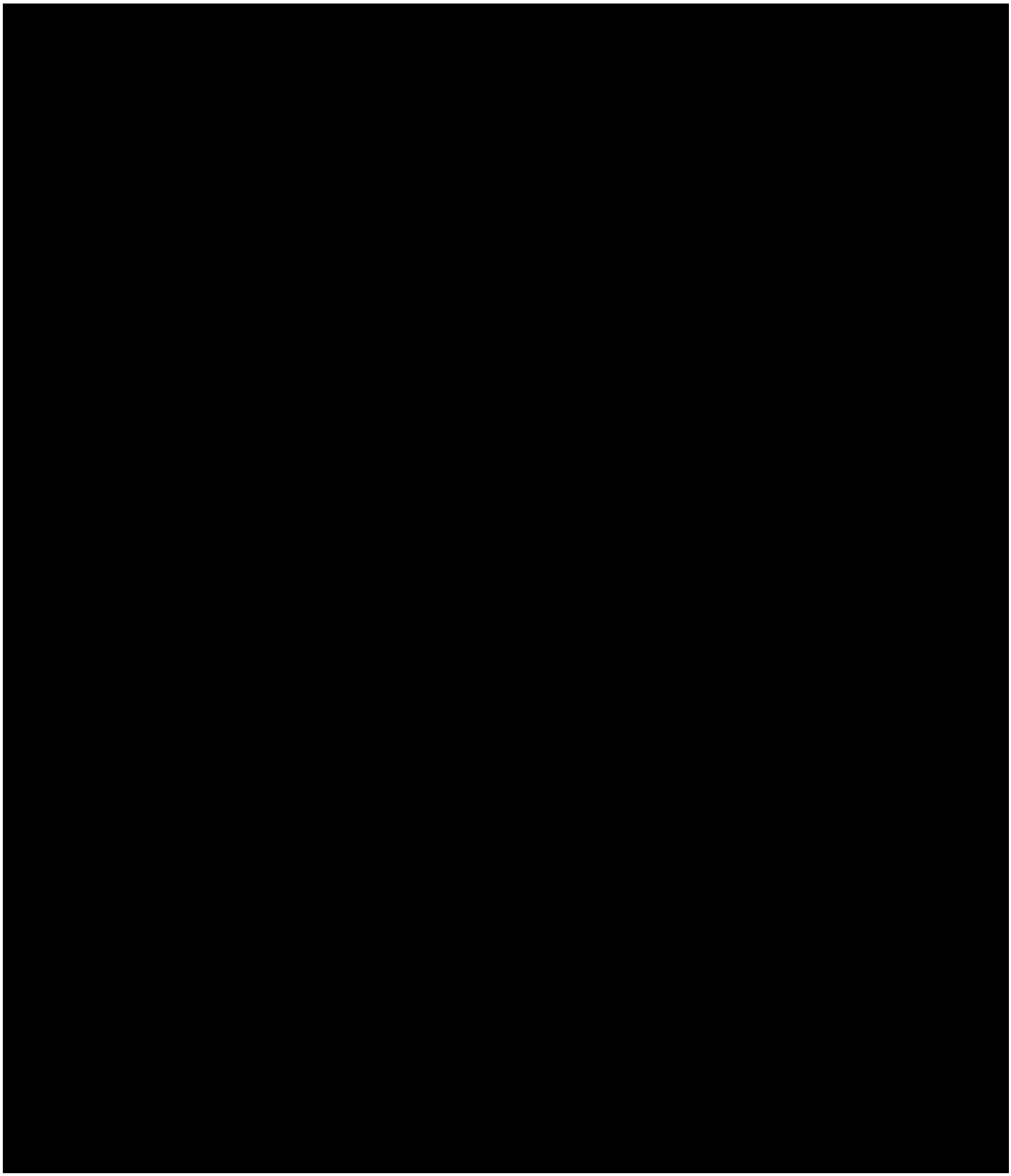
- Microservices facilitated by RESTful and open APIs
  - APIs follow RESTful standards.
  - The APIs use HTTP methods explicitly
  - The API are stateless
  - API responses are JSON formatted
- OAuth 2.0 protocols
- PCI Level 1 Certified Payment Gateway
- AWS Cloud Hosting

The Bytemark platform is a web-based account management system: Accounts reside in a cloud-based back office system. Users can register for an account through a mobile app or web portal. Users can login to their account on multiple devices and websites, and retrieve their account information and fare products from the back office system. The purchased fare products live in the user account in the cloud-based back office, and can be accessed on multiple devices. Tickets can be "locked" to a single device once they are activated to prevent activation on multiple devices. Fare products and payment information reside in the cloud-based back office, not the user mobile device, but may be cached on the device so that tickets may be used offline.

Relevance to ORCA

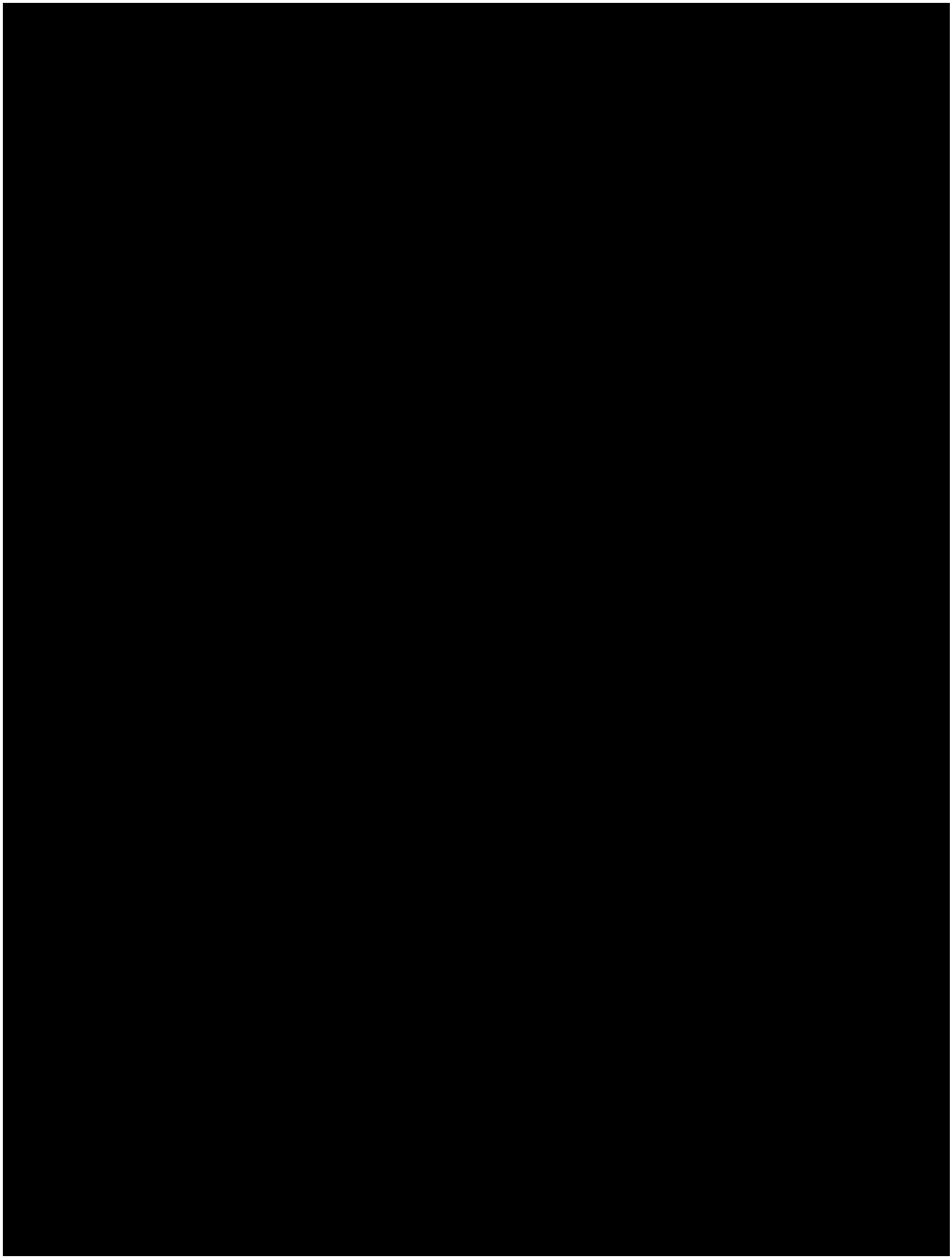
This project provided us with valuable experience working with key stakeholder agencies from the ORCA group. We have detailed knowledge of relevant fare structures and products. We integrated agency information, customer service links, and KCM's trip planner into our applications. We've trained agency staff and departments on how to manage our technology.

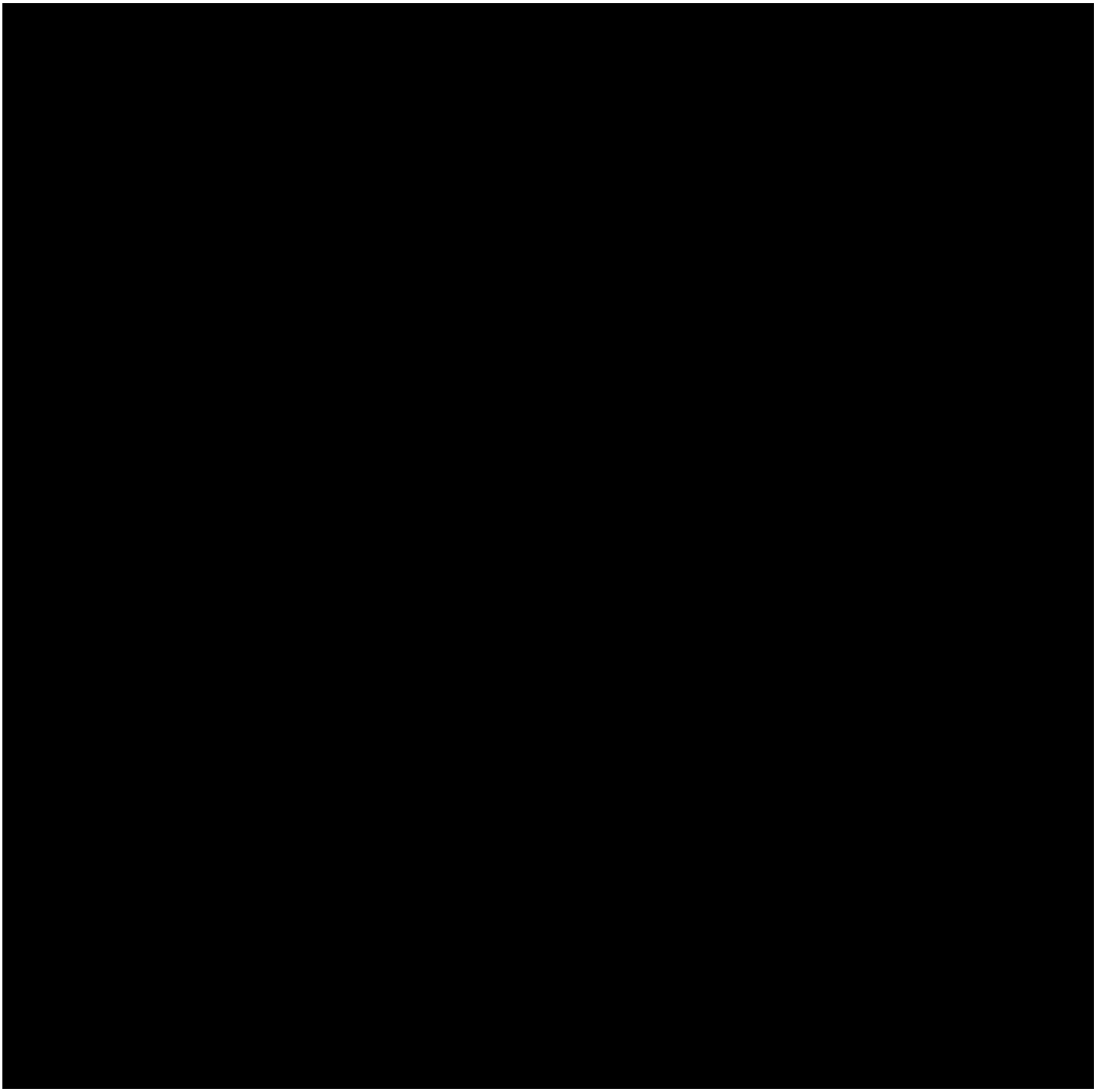




[redacted]

including blowers, trimmers, brush cutters, and construction tools.





3.4.5 ESP Enterprises Projects

3.4.5.1 Mobile Ticketing Pilot: Transit Go Ticket

Cubic

[redacted]

Cubic is a leading supplier of intelligent transportation systems for bus, rail, light rail, etc.

Installed all manufacturer equipment per Cubic's specifications.

Duration of project: 9/2012 – 2/2013 & 5/2015 – 7/2015

Project Staff

[redacted]

Relevance to ORCA

Relevant in size and scope with comparable equipment. Working with multiple agencies. Similar equipment.

3.4.5.2 Ticket Vending Machine Installations

Genfare

[redacted]

ESP installed all manufacturer's equipment as per Genfare specifications and also assisted with warranty and maintenance after installation.

Installation of ticket vending machines all associated network cabling.
Duration of project:

Project Staff

[redacted]

Relevance to ORCA

Project included ticket vending machines on the rail station.

3.4.6 Anthro-Tech, Inc. Projects

3.4.6.1 User-centered Redesign for Website, Mobile Website, Ticket Vending Machine, Regional Trip Planner, and Intranet

Sound Transit

[redacted]

Sound transit plans, builds and operates express bus, light rail and commuter train services serving the urban areas of King, Pierce and Snohomish counties in Washington State.

Anthro-Tech's Responsibilities

Supported the design, customer research and testing of customer focused products including: Sound Transit website, Sound Transit Ticket Vending Machine user interface, Sound Transit Ticket Vending Machine decals, digital signage, station wayfinding, mobile website, trip-planner, projects and plans website, Sound Transit intranet, developer portal, and digital roadmap strategy.

Project Services

- User-centered design strategy for creating rider focused technology solutions, including: the desktop and mobile websites, ticket vending machine user interface and external machine branding and decals, and digital signs displaying real-time arrivals.
- Quantitative and qualitative research including interviews, surveys, baseline and formative usability testing, card sorting, field research.
- Participatory design workshops to capture business requirements and involve stakeholders and use their ideas throughout the user experience design process.
- User experience design and development including wire framing, prototyping and visual design for the desktop and mobile applications, ticket vending machine interface, and digital signage.
- Assistance with developing an initial strategy for creating a more cohesive and consistent customer experience across all tools, along with guidance for employing tools to better deliver news on projects and community and rider impacts.

Total Cost of Contract: $2,000,000

Start Date: February 2010

End Date: March 2016

Project Staff

[redacted]

Relevance to ORCA

Designed an easy-to-use, intuitive, accessible and seamlessly integrated user experience across all customer touchpoints, tools and interfaces. Leadership in a data-driven and customer-centric design process and significant collaboration with regional transit agencies and stakeholders.

3.4.6.2 Product Usability Testing and Customer Experience Field Research

Amazon

[redacted]

Amazon is an electronic commerce and cloud computing company. It is the largest internet-based retailer in the world, the world's largest provider of cloud infrastructure services, and a producer of consumer electronics.

Anthro-Tech's Responsibilities

Performed a variety of types of research aimed at learning more about a range of Amazon customers and their behavior. Conducted research at Amazon labs as well as off-site at Anthro-Tech or meet customers where they are, in the field. As a third party, we allow Amazon to get honest feedback from populations that may be difficult for Amazon to bring on-site into their research labs.

Provided user-experience data and insights for the following products: Amazon Coins app, IMDb Android app, Amazon Local, Woot, Amazon Pantry, Amazon Gift Cards, Amazon Education, Amazon Payment products, Amazon Special Projects, and additional projects under NDA.

Project Services

Conducted the following user-centered design services for Amazon:

- Baseline usability studies
- Prototype usability testing
- Field research
- Focus groups for new product development
- Interviews to help map the customer's journey
- Remote moderated studies

- Responsive design comparative research on mobile, tablet, and desktop
- Design studios to inform design direction for the products
- Mockups and prototypes
- User interface specifications
- Ethnographic research

Total Cost of Contract: $400,000

Start Date: 2011

End Date: N/A Ongoing

Project Staff

[redacted]

Relevance to ORCA

Required significant expertise in user and usability research to drive innovative website and mobile app payment, e-commerce and sales conversion focused user interfaces.

3.4.6.3 User Research, Design, and Prototyping for Orcacard.com and Orcabiz.com

One Regional Card for All – Sound Transit

[redacted]

Sound Transit is a collaborative region-wide fare system consisting of seven transit agencies in the Puget Sound. Encompasses buses, trains, and ferries.

Anthro-Tech's Responsibilities

Detailed user interface specifications and design solutions to improve the usability of orcacard.com and orcabiz.com.
Focus groups and stakeholder buy-in from the partnering agencies for the ORCA2 program.
Market and customer research-driven personas detailing target audience groups, their goals, needs, pain points and opportunities for user experience improvements.

A user-tested responsive digital prototype of orcacard.com. The ORCA program will start development of the prototype and website changes in January 2017.

Project Services

- Baseline user experience testing to inform design solutions for high-value changes to the user-interface of Orcacard.com and ORCAbiz.com
- User-centered design strategy for the ORCA2 program and orca.com web site.
- Quantitative and qualitative research including market research survey, user interviews with business account holders, focus groups with all agency partners, and usability testing with customers
- User experience design and development including mobile prototyping
- Field usability testing

Total Cost of Contract: $250,000

Start Date: Project 1: 2010 – 2011
Project 2: October 2015 – March 31, 2016

End Date: March 31, 2016

Project Staff

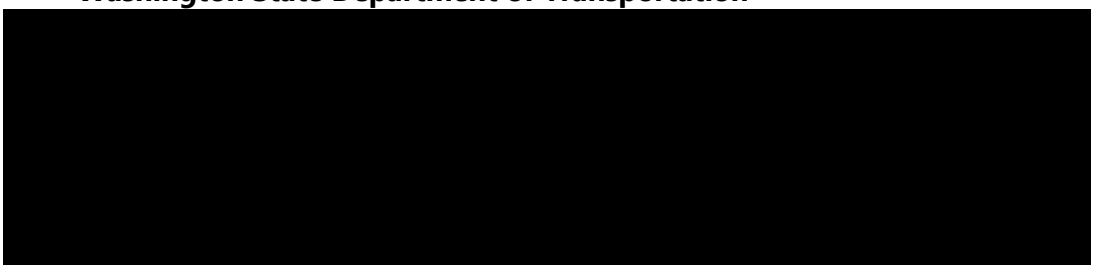
[redacted]

Relevance to ORCA

Involved highly strategic stakeholder and market research to ensure the Next Generation ORCA strategic direction is based on customer and stakeholder feedback. Led to a set of data-driven personas, which provide a shared understanding of the needs, behaviors and goals of the top customer groups. Leveraged our deep expertise in the iterative and user-focused design process, developing UX/UI for mobile responsive ORCA website.

3.4.6.4 User-centered Redesign of DOT website, Ferries Reservation System, and the Good to Go Tolling Application

Washington State Department of Transportation



The Washington State Department of Transportation is the steward of multimodal transportation in WA State. This includes the state ferry system, state tolling, and a data-rich website encompassing all forms of travel in Washington state.

Anthro-Tech's Responsibilities

User-centered design and research for the Department of Transportation Web site, the Ferries Reservation System and the Good to Go Tolling application. The project is still in progress. Accomplishments to date are: baseline usability testing for wsdot.wa.gov, Good to Go Tolling Application and WA State Ferries Reservation system, design solutions for quick win improvements for Reservation System and Good to Go Tolling application, user-centered design strategy and roadmap for redesigning, and stakeholder buy-in for improving the customer experience.

Project Services

User-centered design and research for the Department of Transportation Web site, the Ferries Reservation System and the Good to Go Tolling application.

Work includes:

- Customer strategy and roadmap
- Market and customer research
- Iterative usability testing
- Design solutions
- Mockups and wireframes
- Visual design
- User-interface specifications
- Content strategy and improvement
- ADA compliance

Total Cost of Contract: $1,000,000

Start Date: Project 1: January 2016
Project 2: October 2015

End Date: Project 1: Present

Project 2: March 31, 2016

Project Staff

[redacted]

Relevance to ORCA

Work involves strong UX leadership and execution in the data-driven and user-centered design process to improve websites and web applications ensuring a seamless experience across all. Requires intensive collaboration with stakeholders from across the organization. Leverages our deep expertise in information architecture, content strategy, prototyping, user interface design and visual design.

3.4.7 Persistent Systems, Inc. Projects

Persistent Systems, Inc. has not delivered any CRM project specific to 'Fare Collection' business domain. However, they have delivered a number of other projects of similar sizes for the clients belonging to other industries including but not limited to Healthcare, Financial Services, Insurance, Telecom, Media, Life Sciences, Travel. Please see our projects listed below:

3.4.7.1 Yahoo

Yahoo

[redacted]

Global leading provider of Email, Search and Internet based Services

Key Challenges

- Client was using RightNowCX (Oracle Service Cloud) for Customer Service for past 3 years and it was not really keeping pace with industry trends

- To ensure Business Continuity by adopting a market leading platform that evolves and adapts with changing customer service processes, client undertook three-month platform evaluation and selected Salesforce as platform of choice
- To lower the cost of ownership over the longer term, client was seeking an implementation partner with Service Cloud & Salesforce platform expertise and experience

Solution

- Persistent implemented Salesforce Service Cloud with below features:
- Multi-Channel Case Creation
- Custom Productivity Parameters
- Unified Support Tool
- Service Cloud Console
- Live Agent
- Productivity Improvement Tools
- Localization
- Knowledge Management

Some of the key numbers include:

- Solution implemented for 4 regions
- Supported Languages – 13
- Application integration – 10
- Support Channels – 5

Business Benefits/Value Driven

- Enhanced User Experience: Simple and clean UI enabling agents to quickly take actions on the case
- Accelerated Implementation: 5 months of implementation resulted in seamless transition to Salesforce from legacy CRM
- Improved Visibility: Tab level visibility into Agent's actions
- Improved Performance: Significant improvement in response time over legacy CRM

Number of Internal Customer Support Users: 1300

Project Timeline: 15 months

3.4.7.2 Breville

Breville

[redacted]

Phone Number: 310-755-3065 (Please give Persistent Systems, Inc. 48 hours' notice prior to contacting their customer)
Email Address: Aaron.Wanek@brevilleusa.com

Leading global retailer of electronic kitchen appliances. Supplies a variety of products like ovens, coffee machines, bread makers and many more across geographies. Presence in 4 continents: Australia, New Zealand, United States of America, Canada, UK, Singapore, Hong Kong and many more. Client's business is through online e-tailers and own e-commerce website across these regions.

Key Challenges

- Geographically distributed in 4 continents
- Lack of centralized CRM system for global operations
- Absence of automated processes
- Lack of efficient medium for communication between client and their Customers & Partners
- No transparency in auditing of Partners
- Absence of real time inventory visibility for Sales Team
- No visibility on return merchandise
- Lack of streamline process for Work Orders & claims

Solution

Persistent, chosen as the consulting & technology delivery partner, integrated one stop solution using Salesforce for all regions to provide 360 degree customer experience. Includes key features as follows:

- Service cloud implementation for call center
- Territory Management for PII Compliance
- Partner community implementation for their retailers and service centers
- Order and work order management by call center and partners
- Integration with Multiple carrier service by leverage salesforce AppExchange.
- Integration with Braintree gateway for payments and returns.
- Leveraging cloud storage (Amazon S3) for product technical documentation and integration
- Multi-currency & multi-lingual support
- Omni channel for case routing
- Computer telephony Integration
- Integration with ERP (AX- Microsoft Dynamics) for real time inventory visibility
- Local sales and service taxes calculation based on region
- Single Sign On

Business Benefits/Value Driven

- Digital transformation for some regions from traditional pen-paper work
- Restricted access to region wise data like accounts and cases (PII compliance)
- Increased productivity of Sales and Service agents through multichannel case support
- User friendly system with less clicks and intuitive navigation to improve customer service Turn Around Time
- Accountability and transparency in partner's business transaction

Number of Internal Customer Support Users: 150+

Project Timeline: 8 to 10 months

3.4.7.3 InVentiv

InVentiv

to

Client provides HealthCare related services such as clinical, research, education, Sales

Key Challenges

- The business requirement was to automate case creation in response to incoming calls
- Automatic outbound call list generation per project based on call cycle, call outcome priorities and manually scheduled appointment was required

Solution

Key feature implementation as follows:

- Creating project, assigning a toll free number to a project, setting up different project configuration and rules based on call outcome and type of HCP, Office, Patient or a custom group
- Incoming and outgoing call management using click to dial, dial-pad based on dynamically generated call list
- Automatic search of appropriate contact (HCP, Office, Patient) based on caller phone number and the target toll free number where the call is made

Project wise call summary, call outcome reports

Business Benefits/Value Driven

- Increased productivity Service agents
- Enhanced reporting leading to better decision making for execs
- Improvised call center management helping agents serve the customer faster, resulting in customer satisfaction

Number of Internal Customer Support Users: 300+

Project Timeline: 8 months + Ongoing enhancements

3.4.8 Babinec Consulting LLC Projects

Babinec Consulting LLC has not delivered any CRM project specific to 'Fare Collection' business domain. However, we they have delivered a number of other projects of similar sizes for the clients belonging to other industries. Please see our projects listed below:

3.4.8.1 NEURORADIOLOGY (Springer Nature)

NEURORADIOLOGY (Springer Nature)

[redacted]

Project Info and [redacted]
Manage and supervise day-to-day operations of this Springer Nature medical journal. Liaise with Editor-in-Chief, Section Editors, authors, and publishing house. Oversee the electronic submission process, copyedit articles, write letters on behalf of the Journal and editors, resolve intermittent problems, and guarantee smooth running of the publication/production process.

Key Challenges of the Project and Solution:
Key challenges include precision and reliability, meeting deadlines, and liaising with multiple stakeholders to guarantee a highly credible, accurate scientific journal. Solutions includes dedicating appropriate skills to individual tasks, communicating frequently and concisely with multiple stakeholders, and managing time wisely.

3.4.8.2 U.S. Army Corps of Engineers

U.S. Army Corps of Engineers

[redacted]

Project Info and Lisa Babinec's Responsibilities:

Technical editing and copyediting of a 75 page extensive report in a very short timeframe, working with multiple authors to generate a single voice throughout an accurate, error free publication.

Key Challenges of the Project and Solution:

Key challenges include language precision, style consistency, and maintaining a complex, standardized format with a consistent tone and voice. Solutions include an immediate dedication to the project to meet the short turnaround timeframe, communicating as necessary with multiple authors, and proofreading several times to eliminate all errors/inconsistencies.

3.4.8.3 Hydro Inc.

Hydro Inc.

[redacted]

Project Info and Kati Babinec's Responsibilities:

Hands on negotiation of commercial contracts (values from $250K to $25M) and identifying potential contract risks based on detailed reviews of proposed contracts, collaborating with internal stakeholders to ascertain acceptable risk levels, drafting specific contract language to reflect acceptable risk levels, negotiating with customer (independently and with Hydro management team), advising Hydro team on potential compromises and mitigations to reduce contractual risk, and finalizing contractual agreement with customers and Hydro.

Key Challenges of the Project and Solution:

Key challenges include ascertaining undisclosed needs/requirements from customer and Hydro team and developing alternatives to contract language that meets the needs of both parties to ensure future goodwill and business for Hydro. Solutions include asking questions, asking more

questions, proposing solutions, being candid and truthful in negotiations, and facilitating partnerships between customers and Hydro.

3.5 Customer References

Customer references for the INIT team can be found below.

3.5.1 INIT Reference Information

Tri-County Metropolitan Transportation District of Oregon, (Tri-Met)

[redacted]

Honolulu Authority for Rapid Transportation (HART), Honolulu, Hawaii

[redacted]

Hillsborough Area Regional Transit Authority (HART), Tampa, Florida

[redacted]

Our experience with INIT and their subs has been outstanding. Their design review process and test procedures have far exceeded our expectations. The personnel they assigned to the project have been top-notch. Leadership for the organization monitors the project and the correct amount of emphasis is applied if there are any issues. The project management team has been dedicated and is very concerned about the quality of all deliverables. Cannot say enough how much we have enjoyed working with this professional team"

3.5.2 Bytemark Reference Information

Hillsborough Area Regional Transit Authority (HART)

[redacted]

Interurban Transit Partnership, Grand Rapids, MI

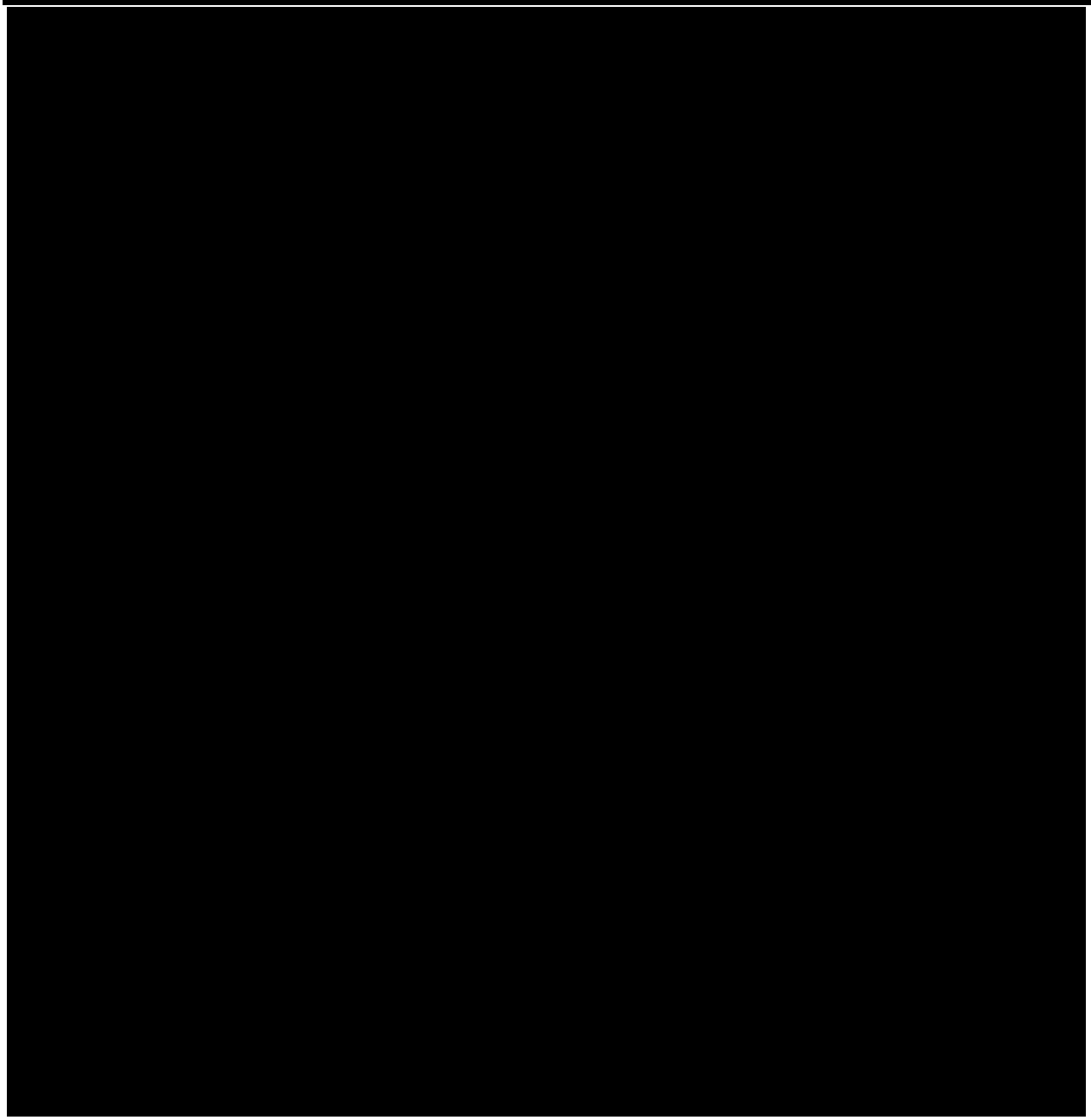
[redacted]

Rhode Island Public Transit Authority

[redacted]

King County Metro, Sound Transit, Seattle Streetcar, King County Water Taxi, Seattle Center Monorail

[redacted]



3.5.5 ESP Enterprises Reference Information

Cubic

Genfare

ACS/Genfare/Parkeon

3.5.6 Anthro-Tech, Inc. Reference Information

Sound Transit

[redacted]

One Regional Card for All (ORCA)

[redacted]

Washington State Department of Transportation

[redacted]

3.5.7 Persistent Reference Information

Persistent has not delivered any CRM project specific to 'Fare Collection' business domain. However, we have delivered number of other projects of similar sizes for the clients belonging to other industries including but not limited to Healthcare, Financial Services, Insurance, Telecom, Media, Life Sciences, Travel. Please see our references listed below:

Yahoo

[redacted]

Breville

[redacted]

Aaron Wanek, VP, Global Customer Care

[redacted]

InVentiv

[redacted]

3.5.8 Babinec Consulting LLC

NEURORADIOLOGY (Springer Nature)

[redacted]

US Army Corps of Engineers

[redacted]

Hydro Inc.

[redacted]m

3.6 INIT and Our High-Performance Partners' Organizational Structure

INIT has included our subcontractors in the organizational chart provided in Section 2 of our proposal where we show the relationship between the team leads and the subcontractors. Subcontractors are clearly marked with green banners.

3.7 INIT's Financial Performance

3.7.1 Stellar Financial History

The audited financial statements for INIT, Inc. and its subsidiaries for the last-three (3) years are attached in this section as Appendix A.

You can also view INIT SE's financial statements on our website by clicking on the following link:

https://www.initse.com/ende/investors/financial-reports/financial-reports-archive.html?#c2901

3.7.2 A Solid Financial Forecast

INIT has provided our audited financial statements which demonstrate a solid financial history. Thanks to prudent financial management over the last seventeen years, we have built a strong reserve.

As a member of the publicly traded INIT Group, we continuously prepare internal financial forecasts for our supervisory board. This planning is reviewed and approved on a regular basis. This is, however, internally proprietary information, which we are not able to release.

3.8 INIT's Recent Fare Collection Wins

INIT's current fare collection project portfolio is included below:

3.8.1 Tri-County Metropolitan Transportation District of Oregon, (Tri-Met), Electronic Fare Collection Implementation Technical Services – HOP FastPass

Project dates: December 2014 – July 2017 (in service)

Revenue over length of time:

[redacted]

Financial capacity details: This project is 100% financed by INIT internal resources.

Project details:

The HOP FastPass contract comprises the delivery of an Account-Based fare management system which supports both Closed Loop Cards and Open Payments. It includes a comprehensive Central Processing module, more than 1,100 onboard and platform validators combined; 90 mobile inspection devices, and approximately 100 retail POS units. INIT will also provide customer web portals and an initial 1,300,000 contactless smart cards.

Additionally, the project was extended to incorporate transportation services offered by the Clark Country Public Transit Benefit Area Authority (C-Tran), located in the neighboring city of Vancouver, WA and Portland Streetcar. This work also included efforts with C-Tran's new BRT line and TriMet's light rail lines, both of which had platform based validators. INIT further worked with TriMet's TVM supplier to integrate their platform based TVMs into the overall system.

INIT provides a state-of-the-art electronic fare collection solution for TriMet. The contract includes the provision and the implementation of an account based solution, including:

- MOBILEvario backoffice with account processing, payment gateway, data warehouse, ledger, revenue clearing/settling, reporting, statistics, etc.
- Approximately 1,100 validators, on board buses/light rail and on platforms
- Retail Sales Terminals
- Open Architecture with various APIs to internal/external systems
- Closed Loop Payment, including integration with retail network provider, Ready Credit Corporation
- Open Payment
- Fare Aggregation, Fare Capping
- IVR system integration from Enghouse
- Integration with Mobile Ticketing
- Web portal design and development

The HOP FastPass solution will greatly enhance the already progressive bus, light rail, and commuter rail network in Portland. Tri-Met's ridership will benefit from more convenience and

pricing equity and the ability to utilize contactless bank cards and mobile phones.

3.8.2 Honolulu Authority for Rapid Transportation (HART), Honolulu, Hawaii

Project dates: NTP April 1, 2016 completion estimated 2023

Revenue over length of time: [redacted]35

Financial capacity details: This project is 100% financed by INIT internal resources.

Project details:

550 Fixed Route (includes PROXmobil3, Mobile Display Terminal & Digi WR44R Router)
110 Ticket Vending Machines (TVMs) & 139 Faregates at 21 Rail Stations
10 Year Software Maintenance Contract
Project Phases:

- Phase 1: Implementation on TheBus (Late 2017)
- Phase 2: Interim Rail (Late 2018)
- Phase 3: The Handi-Van (2019)
- Phase 4: Full Revenue Service (2021)

3.8.3 Hillsborough Area Regional Transit (HART), Tampa, Florida

Project dates: 2nd Quarter 2016 – 4th Quarter 2018

Revenue over length of time: [redacted]

Financial capacity details: This project is 100% financed by INIT internal resources.

Project details:

The Tampa Regional Working Group (RWG) is comprised of 8 local transit agencies, with Hillsborough Area Regional Transit (HART) as the lead procuring agency. These agencies have chosen INIT to provide an account-based, regionally inclusive electronic fare payment system, in which customers in all applicable regions can travel within the Tampa area and use the same electronic fare payment strategy.

INIT is providing more than 600 PROXmobil3 electronic readers for Fixed Route vehicles to the RWG. Additionally, INIT will provide its MOBILEvario back end system to integrate the fare strategies of all 6 agencies. Moreover, INIT will take on the installation, mobile application, web development and IVR with accomplished and qualified subcontractors.

As part of the procurement, INIT is interfacing with several CAD/AVL providers. Each of the regional agencies has their own CAD/AVL solution, to which INIT must interface. This abundantly demonstrates INIT's integration capabilities, for which INIT's open architecture APIs and dedicated engineering teams are responsible.

INIT is also providing the initial supply of agency-issued smart cards, retail sales terminals and various fixed fare processing equipment.

3.8.4 The Rapid, Grand Rapids, MI

Project dates: February 2016 – Completion Date Expected April 2018

Revenue over length of time: [redacted] / 24 months

Financial capacity details: This project is 100% financed by INIT internal resources.

Project details:
INIT is providing ITP with an interoperable, account-based, automated fare collection system that will process smart cards and mobile tickets onboard The Rapid's fleet of 150 fixed-route buses. The same system will serve ITP's Silver Line BRT via 34 platform-mounted validators in addition to equipping ITP personnel with a mobile inspection App and validation device.

This account-based system allows for secure storage of ITP customer information in INIT's backend system, MOBILEvario, which riders of The Rapid can access via website, mobile application, or in person at ITP service centers. MOBILEvario is INIT's central revenue management system which will allow ITP to track sales and revenue by media type, manage POS transactions, issue and monitor usage of fare media, and manage the relationship with Vantiv, a 3rd party payment gateway. Additionally, INIT is incorporating two hugely important educational and medical institutions into the system in the form of Grand Valley State University and Spectrum Health, two of the largest employers in Grand Rapids.

INIT is providing EMV compliant PROXmobil3 validators on 150 buses with real-time validation and integration to the existing (Genfare/SPX cash) farebox and (Avail Technologies) CAD/AVL system. Digi WR44 cellular routers are being integrated and installed by INIT as part of the vehicle configuration as well. In addition to the core project scope, INIT has replaced Scheidt & Bachmann as the supplier of BRT platform validators and POS terminals.

3.8.5 Rhode Island Public Transit Authority (RIPTA), Providence, RI

Project dates: Kicked off January 2018 with 18 – 24 month project, depending on options

Revenue over length of time: [redacted]

Financial capacity details: This project is 100% financed by INIT internal resources.

Project details:

RIPTA is a quasi-public, state-wide independent authority, serving 36 of the 39 communities within Rhode Island. With a central hub in the Rhode Island Capitol city of Providence, RIPTA has a current fleet of over 230 fixed-route buses envisioned to be over 240 based by 2019. This project consists of an INIT Account-Based eFare Collection system with fully integrated Mobile Ticketing by Bytemark, an experienced INIT Partner and sister company.

Thirteen to twenty-six bus and INIT VENDstation BRT Platform Ticket Vending Machines (TVMs) are included as options for an envisioned future phase of this Fare Collection project, as a primary mechanism for the anticipated transition to non-cash payment for >90% of fare transactions. Instead, riders will pay via Mobile, Retail, Web, and RIPTA-internal eFare smartcards, using electronic payment options and an extensive retail network to pay fares.

The INIT system will interface with existing Conduent OrbCAD AVL system (formerly known as Xerox and/or ACS). It will communicate with the back end via an existing on-board 3G/4G/LTE cellular modem, plus the RIPTA WLAN.

The INIT MOBILEvario Central Data System back-end will validate fares via an On-line Validation Server designed for the highly anticipated future acceptance of contactless EMV media, and to support Card Present transactions.

RIPTA will have INIT PROXmobil3 fare validators on board all vehicles, communicating via cellular wireless routers and is also considering platform-mounted Validators.

The project encompasses INIT engaging and supporting RIPTA's government, healthcare, educational, corporate, and other business partners' fare needs for their groups of both in-state and neighboring regional transit systems.

3.9 INIT's Experience in State-of-the-Art Automated Fare Collection Services, Features and Functionality

INIT's account-based MOBILE-EFM system is designed with Open Payments included in the base system. With Open Payments, customer can use their contactless credit cards or mobile wallets like Apple Pay, Android Pay and Samsung Pay to purchase their ticket right at the validator. No need to get a card, download an App or search for change. This lowers the entry barrier to use public transit tremendously and makes it especially easy for non-frequent riders like tourists.

They can simply use a preferred payment medium that they already possess, and they don't have to worry about potentially unused credit balances. The benefit to the ORCA agencies are savings of the administration costs of media inventory and the complex accounting management of remaining credit balances.

The AFC system proposed for the ngORCA project will include Open Payments functionality and we are proposing Open Payments be implemented in Phase One of the project.

INIT has successfully deployed Open Payment at TriMet in Portland with deployment scheduled for Birmingham, England soon.

INIT's Knowledgeable and Experienced Team

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

Resubmittal June 8, 2018

The Future of Mobility

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Price

Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

The Future of Mobility

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All sections of this document contain trade secret information that provides a business advantage to INIT over competitors. These sections are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

5 INIT's High-Value, Cost-Effective Solution

5.1 Price Forms

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Next Generation ORCA System Integrator RFP
Proposal Pricing Form

Pricing Summary

Item No.	Description	Total Price
1	Implementation Services	[redacted]
2	System Software and Design	
3	Equipment and Spares	
4	Fare Media	
5	Operations and Maintenance Support Services	
6	Software Licenses	
7	Value-added Features and Capabilities	
	GRAND TOTAL	**$ 92,398,641.37**

Signed:

6/8/2018

Date

Roland Staib, President & CEO

Name & Title

Next Generation ORCA System Integrator RFP
Pricing Form

Item No.	SOW Ref.*	Description	Unit	Est. Quantity	Unit Price	Amount
1. IMPLEMENTATION SERVICES						
	Program and Contract Management					
1.01	2	Program & Contract Management (NTP to System Acceptance)	LS	1		
		UI/UX Strategy, Consulting and Stakeholder Engagement	LS	1		
		Ticket Vending Machine Interface	LS	1		
		Customer Website Interface (Passengers)	LS	1		
		Customer Website Interface (Institutions)	LS	1		
		Customer Mobile App Interface	LS	1		
		Other Interfaces	LS	1		
		Tools, Participant Recruitment and Project Management	LS	1		
		Subtotal - Program and Con				
	Installation and Transition Services					
1.02	2	Transition Strategy and Planning	LS	1		
1.03	2	Back-Office Installation and Configuration, Including Documentation	LS	1		
1.04	2	Field Device Site Surveys and Prototyping	LS	1		
1.05a	2	Onboard Equipment (validator and DDU) Installation (Excluding KCM)	EA	650		
1.05b	2	Onboard Equipment (validator and DDU) Commissioning (Excluding KCM)	EA	650		
1.05c	2	Onboard Equipment Documentation (Excluding KCM)	LS	1		
1.06	2	Onboard Validator Equipment Installation, Commissioning, and Documentation (KCM Only)	EA	0		
1.07a	2	Wayside Validator Installation	EA	1095		
1.07b	2	Wayside Validator Commissioning	EA	1095		
1.07c	2	Wayside Validator Documentation	LS	1		
1.08a	2	VM Installation	EA	291		
1.08b	2	VM Commissioning	EA	291		
1.08c	2	VM Documentation	LS	1		
1.09a	2	CST Installation	EA	41		
1.09b	2	CST Commissioning	EA	41		
1.09c	2	CST Documentation	LS	1		
		Subtotal - Installation and T				
	Testing					
1.10	2	Agency Test Facility Implementation, Housing, and Documentation	LS	1		
1.11	2	Factory Testing and Documentation	LS	1		
1.12	2	Integration Testing and Documentation	LS	1		
1.13	2	Pilot Testing and Documentation	LS	1		
1.14	2	System Acceptance Testing and Documentation	LS	1		
	Training					
1.15	2	Training Course Development and Materials	LS	1		
1.16	2	Training Course Delivery	EA	1		

	Manuals				
1.17	2	System Manuals	LS	1	[redacted]
				TOTAL PRICE - 1. IMPLEME	

Item No.	SOW Ref.*	Description	Unit	Est. Quantity
2. SYSTEM SOFTWARE DESIGN				
	Back Office Applications			
2.01	6	Account-based Transaction Processor	LS	1
2.02	6	Customer Relationship Management	LS	1
2.03	6	Asset Incident Management	LS	1
2.04	6	System Manager	LS	1
2.05	6	Fare Media Management	LS	1
2.06	6	Financial Management	LS	1
2.07	6	Central Payment	LS	1
2.08	6	Configuration and Change Management	LS	1
2.09	6	Tariff Management	LS	1
2.10	6	API Management	LS	1
				Subtotal - Back O
	Externally Sourced Applications			
2.11	5	Customer Mobile App	LS	1
2.12	5	Agency Mobile Apps (Fare Inspection & Fare Payment)	LS	1
2.13	5	Customer Website	LS	1
				Subtotal - Externally Sou
	Field Device and Equipment Software			
2.14	4	Onboard and Wayside Validator Software	LS	1
2.15	4	Driver Display Unit Software	LS	1
2.16	4	Customer Service Terminal Software	LS	1
2.17	4	Full Feature Vending Machine Software	LS	1
				Subtotal - Field Device and Eq
	API Development			
2.18	3	Application Programming Interface (API) Development	LS	1
				Subtotal -
	System Integration Services			
2.19	3	Onboard Integration (PT, CT, KT, ET)	LS	3
2.20	3	Onboard Integration (KCM)	LS	1
2.21	3	Washington State Ferries Integration	LS	1
2.22	3	Data Access and Reporting Platform (DARe) Integration	LS	1
2.23	3	Retail Network Integration	LS	1
2.24	3	Integration with Legacy ORCA Back Office	LS	1
2.25	3	ADA Paratransit Integration	LS	1
2.26	6	Integration of Agency Provided CRM Application ($0 if SI-provided CRM application is proposed)	LS	1
2.27	6	Integration of Agency Provided Financial Application ($0 if SI-provided financial application is proposed)	LS	1
		Vanpool Integration	LS	1
				Subtotal - System Int
	Transit Payment Application			
2.28	7	Transit Payment Application	LS	1
				Subtotal - Transit Pay
				TOTAL PRICE - 2. SYSTEM SOF

[redacted]

Item No.	SOW Ref.*	Description	Unit	Est. Quantity
3. EQUIPMENT AND SPARES				
	Producion Equipment and Spares			
3.01	4	Back Office Hardware - Four Environments ($0.00 if cloud is proposed)	LS	1
3.02	4	Onboard Validator (including spares)	EA	2,926
3.03	4	Onboard Validator Mounting System and Installation Kit (including spares)	EA	2,926
3.04	4	Driver Display Unit (including spares)	EA	1,086
3.05	4	Driver Display Unit Mounting System and Installation Kit (including spares)	EA	1,086
3.06	4	Wayside Validator (including spares)	EA	1,160
3.07	4	Wayside Validator Mounting System and Installation Kit (including spares)	EA	1,160
3.08	4	Customer Service Terminal (including spares)	EA	41
3.09	4	CST Portable Printer	EA	12
3.10	4	CST Mail Center Printer	EA	2
3.11	4	Full Feature Vending Machine (including spares)	EA	146
3.11a	4	Credit for omission of bill and coin acceptance	EA	
3.11b	4	Credit for omission of coin acceptance	EA	
3.11c	4	Credit for omission of change issuance	EA	
3.11d	4	Credit for omission of media issuance	EA	
		Light Vending Machine	EA	146
				Subtotal - Production Equipm
	Test Equipment			
3.12	2	Agency Test Facility Hardware - Seven Agencies	LS	1
				Subtotal -
	Training Equipment			
3.13	2	On-board Training Unit (BIB) - including validator, DDU and other SI equipment)	EA	12
3.14	2	Wayside Training Unit - including wayside validator	EA	3
3.15	2	CST Training Unit	EA	7
				Subtotal - Trai
				TOTAL PRICE - 3. EQUIPMENT
Item No.	**SOW Ref.***	**Description**	**Unit**	**Est. Quantity**
4. FARE MEDIA				
	Fare Media			
4.01	7	Contactless Extended-use Smart Cards (including training and test cards)	EA	1,000,000
				TOTAL PRICE -

Item No.	SOW Ref.*	Description	Unit	Est. Quantity	Unit Price	Amount
5. OPERATIONS AND MAINTENANCE SUPPORT SERVICES						
	Software Maintenance Agreement					
5.01	**8**	**Year 1 – Software Maintenance Agreement**	**MO**	**12**		
		INIT Software Escrow Agreement	LS	1		
		INIT Central Software Maintenance	LS	1		
		INIT Vehicle Software Maintenance	LS	1		
		INIT Central Software Upgrade	LS	1		
		INIT Vehicle Software Upgrade	LS	1		
		Salesforce (100 Users, Per User/Per Month)	MO	12		
		Sage 300c (100 Users, Annual Renewal)	LS	1		
		JIRA Service Desk	LS	1		
		JIRA Software	LS	1		
		Confluence	LS	1		
		BitBucket - Source Code Management	LS	1		
		Faronics DeepFreeze	LS	1		
		RIADA INSIGHT CORE	LS	1		
		RIADA INSIGHT DISCOVERY	LS	1		
		Azure API Management	LS	1		
		Azure Active Directory	LS	1		
		Azure ExpressRoute	LS	1		
		Ivanti (Shavlik) Support	LS	1		
		CimTrack Support	LS	1		
		IBM Maas 360 Mobile Device Management (per device/per month)	LS	1		
		Antivirus Subscription	LS	1		
		Bomgar Annual Support	LS	1		
		New Relic APM	LS	1		
		New Relic Support (20%)	LS	1		
		Shareplex Subscription	LS	1		
		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1		
5.02	8	Year 2 – Software Maintenance Agreement	MO	12		
5.03	8	Year 3 – Software Maintenance Agreement	MO	12		
5.04	8	Year 4 – Software Maintenance Agreement	MO	12		
5.05	8	Year 5 – Software Maintenance Agreement	MO	12		
5.06	8	Year 6 – Software Maintenance Agreement	MO	12		
5.07	8	Year 7 – Software Maintenance Agreement	MO	12		
5.08	8	Year 8 – Software Maintenance Agreement	MO	12		
5.09	8	Year 9 – Software Maintenance Agreement	MO	12		
5.10	8	Year 10 – Software Maintenance Agreement	MO	12		
5.11	8	Year 11 – Software Maintenance Agreement	MO	12		
				Subtotal - Software Mainten		
	System Operations and Maintenance					
5.12	8	Year 1 – System Operations & Maintenance	MO	12		
5.13	8	Year 2 – System Operations & Maintenance	MO	12		
5.14	8	Year 3 – System Operations & Maintenance	MO	12		
5.15	8	Year 4 – System Operations & Maintenance	MO	12		
5.16	8	Year 5 – System Operations & Maintenance	MO	12		
5.17	8	Year 6 – System Operations & Maintenance	MO	12		
5.18	8	Year 7 – System Operations & Maintenance	MO	12		
5.19	8	Year 8 – System Operations & Maintenance	MO	12		
5.20	8	Year 9 – System Operations & Maintenance	MO	12		
5.21	8	Year 10 – System Operations & Maintenance	MO	12		

5.22	8	Year 11 – System Operations & Maintenance	MO	12
5.23	8	Year 12 – System Operations & Maintenance	MO	12
				Subtotal - System Operations
	System Hosting			
5.24	**3 & 8**	Year 1 - Back Office, Test Facility, and Website Hosting	MO	12
		Mobile Payment System Hosting	MO	12
		INIT Back Office, Test Facility and Website Hosting	MO	12
5.25	**3 & 8**	Year 2 - Back Office, Test Facility, and Website Hosting	MO	12
5.26	**3 & 8**	Year 3 - Back Office, Test Facility, and Website Hosting	MO	12
5.27	**3 & 8**	Year 4 - Back Office, Test Facility, and Website Hosting	MO	12
5.28	**3 & 8**	Year 5 - Back Office, Test Facility, and Website Hosting	MO	12
5.29	**3 & 8**	Year 6 - Back Office, Test Facility, and Website Hosting	MO	12
5.30	**3 & 8**	Year 7 - Back Office, Test Facility, and Website Hosting	MO	12
5.31	**3 & 8**	Year 8 - Back Office, Test Facility, and Website Hosting	MO	12
5.32	**3 & 8**	Year 9 - Back Office, Test Facility, and Website Hosting	MO	12
5.33	**3 & 8**	Year 10 - Back Office, Test Facility, and Website Hosting	MO	12
5.34	**3 & 8**	Year 11 - Back Office, Test Facility, and Website Hosting	MO	12
5.35	**3 & 8**	Year 12 - Back Office, Test Facility, and Website Hosting	MO	12
5.36	**3 & 8**	Year 13 - Back Office, Test Facility, and Website Hosting	MO	12
5.37	**3 & 8**	Year 14 - Back Office, Test Facility, and Website Hosting	MO	12
				Subtotal
	Warranty			
5.38	8	System Warranty (12 months beginning at Beneficial Use)	LS	1
				S
				TOTAL PRICE - 5. OPERATIONS AND MAINTENANCE SUPP

Item No.	SOW Ref.*	Description	Unit	Est. Quantity
6. SOFTWARE LICENSES				
6.01	3	Software Licenses - All Environments	LS	1
				TOTAL PRICE - 6. SOFTWA

Item No.	SOW Ref.*	Description	Unit	Est. Quantity
7. Value-added Features and Capabilities				
		Open Payments		
		Open APIs		
		Fare Capping/Loyalty Programs		
				TOTAL PRICE - 7. Value-added Features a

*Refers to sections in the RFP SOW where capabilities associated with the pricing item are listed. Cap
be included in other sections of the SOW not listed on the pricing

[redacted]

System Integrator -- As-Needed Services

Item No.	Description	Unit	[redacted]
AS-NEEDED SUPPORT SERVICES			
AS.01	Senior Project Manager	HR	
AS.01	Project Manager	HR	
AS.02	Systems Engineer (Sr)	HR	
AS.03	Systems Engineer (Mid)	HR	
AS.04	Systems Engineer (Jr)	HR	
AS.05	Software Engineer (Sr)	HR	
AS.06	Software Engineer (Mid)	HR	
AS.07	Software Engineer (Jr)	HR	
AS.08	Technician	HR	

* Agreed upon rates (applicable to CY 2017) may be subject to modification on an annual
exceed a percentage equivalent to the change in the BLS Consumer price index (CPI), fro
most recent available 6 month data period. Requests for rate adjustments must be subm
Manager 45 days prior to the beginning of a new calendar year.

Signed:

6/8/2018

Date

Roland Staib, President & CEO

Name and Title

System Integrator - Tiered Equipment Pricing

Item No.	Description	
TIERED EQUIPMENT PRICING		Unit
	On Board Validators, 1-10 quantity	EA
	On Board Validators, 11-20 quantity	EA
	On Board Validators, 21-50 quantity	EA
	On Board Validators, 51-100 quantity	EA
	On Board Validators, 100+ quantity	EA
	Driver Display Unit, 1-10 quantity	EA
	Driver Display Unit, 11-20 quantity	EA
	Driver Display Unit, 21-50 quantity	EA
	Driver Display Unit, 51-100 quantity	EA
	Driver Display Unit, 100+ quantity	EA
	Wayside Validators, 1-10 quantity	EA
	Wayside Validators, 11-20 quantity	EA
	Wayside Validators, 21-50 quantity	EA
	Wayside Validators, 51-100 quantity	EA
	Wayside Validators, 100+ quantity	EA
	Customer Service Terminal, 1-10 quantity	EA
	Customer Service Terminal, 11-20 quantity	EA
	Customer Service Terminal, 21-50 quantity	EA
	Full Featured Vending Machines, 1-2 quantity	EA
	Full Featured Vending Machines, 3-10 quantity	EA
	Full Featured Vending Machines, 11-20 quantity	EA
	Full Featured Vending Machines, 21-50 quantity	EA
	Full Featured Vending Machines, 51-100 quantity	EA
	Full Featured Vending Machines, 100+ quantity	EA
	Light Vending Devices, 1-2 quantity	EA
	Light Vending Devices, 3-10 quantity	EA
	Light Vending Devices, 11-20 quantity	EA
	Light Vending Devices, 21-50 quantity	EA
	Light Vending Devices, 51-100 quantity	EA
	Light Vending Devices, 100+ quantity	EA
	Training BIB - On Board Validator, 1-10 quantity	EA
	Training BIB - On Board Validator, 11-20 quantity	EA
	Training BIB - On Board Validator, 21-50 quantity	EA
	Training BIB - Wayside Validator, 1-10 quantity	EA
	Training BIB - Wayside Validator, 11-20 quantity	EA
	Training BIB - Wayside Validator, 21-50 quantity	EA
	Training BIB - CST Unit, 1-10 quantity	EA
	Training BIB - CST Unit, 11-20 quantity	EA
	Training BIB - CST Unit, 21-50 quantity	EA

[redacted]

5.2 Pricing Notes

The price changes highlighted above have been incorporated based on the feedback received in the Request for Revised Proposal (2018-02-16). They reflect changes in INIT's proposed technical solution and delivery of the system. While not every line item has been changed, all prices have been reevaluated based on our understanding of the Agencies needs and concerns and with INIT's overall commitment to the Next Generation ORCA project in mind.

INIT has removed the proposed management discount which will give both parties an opportunity to enter the negotiated procurement with the full breadth of costs on the table.

Below are notes that correspond to the numbers in the Pricing Form above.

1.01 Program and Contract Management

A detailed price breakdown of the separate components that make up the 3rd Party UI/UX Consultant, requested in Section 3.1.6 of the RFP, has been added. We have only added 10% to their price for risk, financing and handling.

The line for the Performance Bond has been removed and the cost has been distributed across the capital costs of the project.

1.05-1.09 Installations

These sections have been broken down to show equipment installation, commissioning and documentation. Commissioning was previously included in Section 1.01 Program Management, and Documentation for these items was included in Sections 1.12 and 1.13. Those line items show a decrease to account for the move.

Any civil works necessary to install vending machines such as control cabinets, etc. are not included unless otherwise stated in the proposal.

The price for Wayside Validator installations includes load, unload and commute time between sites.

1.10-1.14 Testing

INIT has reduced each line in this section through scope refinement and further cost analysis. In addition, labor efforts for System Engineering have been redistributed to Sections 2.19-2.27 System Integration Services.

Section 2: System Software Design

This section includes design, development and the one-time licenses for INIT's proprietary software including MOBILEvario (Account-based Transaction Processor) and MOBILEsymon (System Manager).

No discount is offered for agencies who currently use INIT's MOBILEsymon or MOBILEguard.

100 hours of report development is included in Line 2.01 Account Based Transaction Processor.

2.02 Customer Relationship Management

INIT's CRM solution assumes the price for 100 Salesforce licenses per month. This is an ongoing license fee assessed in Section 5: Software Maintenance Agreement.

2.05 Alternative Fare Media Management

The alternative fare media management solution described in Tab 1, Section 1.8.6 of the INIT proposal is priced below. This is a sample to show the cost of this alternative and is not the base solution nor is it included in the base contract of this proposal.

Item No.	SOW Ref.*	Description	Unit	Est. Qty
2.05	6	Alternative Fare Media Management Productive Solutions	LS	1
	System Operations and Maintenance			
5.12	8	Year 1 – System Operations & Maintenance	MO	12
5.13	8	Year 2 – System Operations & Maintenance	MO	12
5.14	8	Year 3 – System Operations & Maintenance	MO	12
5.15	8	Year 4 – System Operations & Maintenance	MO	12
5.16	8	Year 5 – System Operations & Maintenance	MO	12
5.17	8	Year 6 – System Operations & Maintenance	MO	12
5.18	8	Year 7 – System Operations & Maintenance	MO	12
5.19	8	Year 8 – System Operations & Maintenance	MO	12
5.2	8	Year 9 – System Operations & Maintenance	MO	12
5.21	8	Year 10 – System Operations & Maintenance	MO	12
5.22	8	Year 11 – System Operations & Maintenance	MO	12
5.23	8	Year 12 – System Operations & Maintenance	MO	12
		Subtotal - System Operations and Maintenance		
TOTAL PRICE – ALTERNATIVE FARE MEDIA MANAGEMENT WITH P SOLUTIONS				

[redacted]

2.06 Financial Management

INIT's Financial Management solution assumes 100 licenses for Sage per month. This is an ongoing license fee assessed in Section 5: Software Maintenance Agreement.

2.06 Alternative Financial Management

The alternative financial management solution described in Tab 1 Section 1.8.7 of the INIT proposal is priced below. This is a sample to show the cost of this alternative and is not the base solution nor is it included in the base contract of this proposal.

Item No.	SOW Ref.*	Description	Unit	Est. Qty
2.06	6	Alternative Financial Management Mythics - Oracle eBusiness	LS	1
	Software Maintenance Agreement			
5.01	8	Year 1 – Software Maintenance Agreement	MO	12
5.02	8	Year 2 – Software Maintenance Agreement	MO	12
5.03	8	Year 3 – Software Maintenance Agreement	MO	12
5.04	8	Year 4 – Software Maintenance Agreement	MO	12
5.05	8	Year 5 – Software Maintenance Agreement	MO	12
5.06	8	Year 6 – Software Maintenance Agreement	MO	12
5.07	8	Year 7 – Software Maintenance Agreement	MO	12
5.08	8	Year 8 – Software Maintenance Agreement	MO	12
5.09	8	Year 9 – Software Maintenance Agreement	MO	12
5.10	8	Year 10 – Software Maintenance Agreement	MO	12
5.11	8	Year 11 – Software Maintenance Agreement	MO	12
		Subtotal - Software Maintenance Agreement		
TOTAL PRICE – ALTERNATIVE FINANCIAL MANAGEMENT WITH ORACL				

2.07 Central Payment

As required in the RFP Section Two Scope of Work section 3.2.4.9, this price includes our Central Payment Processing API and does not include costs for the payment processor or payment gateway.

2.11 Customer Mobile App

The Customer Mobile App includes development and testing of the app based on results of the UI/UX specifications and the technical specifications of the RFP. There is no migration from the existing Bytemark system to the Next Generation ORCA system.

There are no transaction fees associated with the App, ongoing software maintenance is included in Sections 5.12-5.23.

2.12 Agency Mobile Apps (Fare Inspection and Fare Payment)

The Agency Mobile Apps includes development and testing of the apps based on results of the UI/UX specifications and the technical specifications of the RFP. In addition, NFC validation for Android is included.

2.13 Customer Website

The Customer Website includes Marathon's development and testing of the website based on results of the UI/UX specifications and the technical specifications of the RFP. Integration of the website and CRM tool is included in Section 2.02 Customer Relationship Management.

2.19-2.27 System Integration Services

The price of each line item in this section has been increased to include the redistribution of System Engineering efforts which were previously concentrated entirely in Sections 1.10-1.14 Testing.

If INIT is not appointed as the main contractor or system supplier, INIT can only accept technical responsibility for the creation and proper functioning of the components supplied by INIT for the interfaces to the third-party systems. Technical responsibility comprises the technical specifications and the test on the interfaces on the basis of the information and facilities made available. It does not include responsibility for third-party systems' interfaces functioning on schedule and perfectly.

Additional Agencies

INIT's robust system is capable of supporting the addition of the required five (5) additional agencies (Req. 3.3.11-4) however the costs for this are not included and could be determined in the future through a project change order.

Onboard Integrations

Onboard Integrations (Total Qty. 3) for Pierce Transit, Kitsap Transit and Everett Transit are priced in this section. As the CAD/AVL Supplier for Community Transit and King County Metro, our proposal includes the integration of these 2 systems with no additional costs to the ORCA program. The quantity of integrations listed on the price sheet have been modified to reflect this.

Integration with Legacy ORCA Back Office

This includes the integration development as described in the technical specifications of the RFP. This line does not include Vending Machine integration to the Vix legacy back-office.

Vanpool Integration Phase 1

Our proposal includes the price to integrate with the Vanpool system as required in RFP section 3.3.10. The full vanpool integration for Phase 2 is not included.

Washington State Ferries Integration

This includes the integration development as described in the technical specifications of the RFP. Other items such as testing and documentation specific to the WSF Integration are included in those line items.

3.02 - 3.03 Onboard Validator & Mounting System

The onboard validator proposed includes WiFi capability (Requirement 4.2.2.4-3) which accounts for it's $48.00 price difference from the Wayside Validator.

The optional Horizontal Mounting which is described in Section 1.6.1.1.3 Installation & Mounting is offered for an additional $47.00 USD per unit. A minimum quantity of 100 is required for this upgrade.

3.11 Full Feature Vending Machine

For tiered pricing per unit please see Section 5.1 Price Forms, Tiered Equipment Pricing.

3.11a – 3.11d FFVM Credits

The per unit credits offered for the omission of these functionalities apply to the FFVM only.

Light Vending Machine

This proposed small-scale machine does not offer change but will accept coins and bills and will issue one type of fare media.

For tiered pricing per unit please see Section 5.1 Price Forms, Tiered Equipment Pricing.

3.13 – 3.15 Training Equipment

The Training Equipment included a significant overestimation of costs and configuration efforts and have been revised accordingly.

Onboard Training Units include Qty 12 PROXmobil3, TOUCHit3, associated cables and housing, and configuration.

Wayside Validator Training Units include Qty 3 PROXmobil3, associated cables and housing, and configuration.

CST Training Units include Qty 7 CST hardware.

For tiered pricing per unit please see Section 5.1 Price Forms, Tiered Equipment Pricing.

Section 5: Operations and Maintenance Support Services

The chart below describes INIT's assumptions for the number of years associated with each project phase.

	2018 Year 0	2019 Year 1	2020 Year 2	2021 Year 3	2022 Year 4	2023 Year 5	2024 Year 6	2025 Year 7	2026 Year 8	2027 Year 9	2028 Year 10	2029 Year 11	2030 Year 12	2031 Year 13	2032 Year 14	2033 Year 15
Project Awarded	x															
Project Design		x														
Implemen-tation			x	x												
System Warranty					x											
Hosting			x	x	x	x	x	x	x	x	x	x	x	x	x	x
Software Maintenance						x	x	x	x	x	x	x	x	x	x	x
System Operations & Maintenance					x	x	x	x	x	x	x	x	x	x	x	x

Software Maintenance Agreement

An error in our calculation for this section had inconsistent and incorrect assumptions for annual escalation. The revised price reflects this correction. Maintenance for INIT software assumes a 2% annual escalation. Software included in this section consists of the Backoffice applications (Pricing Form Sections 2.01-2.10) and the Backoffice Environments (Pricing Form Section 6).

The full itemized list of software can be found in the Price Form Line 5.01. This list carries over the course of Years 2-11 with an escalation of 2%.

System Operations & Maintenance

The Operations and Maintenance section included an overestimation of scope requirements and efforts which have been revised accordingly. The ongoing costs included in this section are assumed to be:

- Agency Test Facility
- Hardware Maintenance and 24x7 System Support
- External Application Maintenance (Customer and Agency Apps, Websites)
- Support Staff (System Engineer, Network and Database Engineers, Program Management)

External Application Maintenance (Customer App) has been increased per month for Years 1-10 as described in section 2.11 Customer Mobile App.

System Warranty

The system warranty period will last for 12 months and begins upon Beneficial Use of the system. Beneficial use requires INIT is the system of record and 90% of the installations under INIT responsibility have occurred. At the end of this 12-month period, software maintenance begins.

System Hosting

Hosting Fees include the proposed System Backoffice applications and the mobile apps. The production and test system as well as disaster recovery location are all priced here. The datacenter proposed in Section 1.4.2.6 System Hosting (WOWRACK) will be responsible for the hardware and utilities. They will maintain the hardware and refresh every 3 years.

Section 6: Software Licenses (All Environments)

This section includes all licenses for the Backoffice environments and COTS IT software. This does not include the initial licenses for INIT's proprietary software. (Pricing Form Sections 2.01-2.10)

Section 7: Value Add Features and Capabilities

INIT is including Value-added Features such as Open Payments, Open APIs and Fare Capping in the base price of our proposal. For a detailed description of our potential value-added capabilities, please refer to Tab 6.

6 Proposed Payment Milestone Schedule

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Next Generation ORCA System Integrator RFP

Proposed Payment Milestone Schedule

Item No.	SOW Ref.*	Description	Project Phases															
			Design				Deployment					Transition	Testing			Final Testing and Closeout		Total
1. IMPLEMENTATION SERVICES			PMP	CDR	PDR	FDR	PAT	1st 25%	2nd 25%	3rd 25%	Final	ngORCA SoR	SILT	SIFT	Pilot	SAT	FSA	Total
	Program and Contract Management		Sep-18	Oct-18	May-19	Aug-19	Jan-20				Dec-21	Jul-21	Oct-20	Aug-21	Aug-21	Aug-22	Sep-22	Total
1.01	2	Program & Contract Management (NTP to System Acceptance)	**5.0%**	**5.0%**	**10.0%**	**10.0%**	**10.0%**					**10.0%**	**10.0%**	**10.0%**	**5.0%**	**15.0%**	**10.0%**	100.0%
		UI/UX Strategy, Consulting and Stakeholder Engagement	**25.0%**	**25.0%**	**25.0%**	**25.0%**												100.0%
		Ticket Vending Machine Interface	25.0%	25.0%	25.0%	25.0%												100.0%
		Customer Website Interface	25.0%	25.0%	25.0%	25.0%												100.0%
		Customer Website Interface	25.0%	25.0%	25.0%	25.0%												100.0%
		Customer Mobile App Interface	25.0%	25.0%	25.0%	25.0%												100.0%
		Other Interfaces	25.0%	25.0%	25.0%	25.0%												100.0%
		Tools, Participant Recruitment and Project Management	25.0%	25.0%	25.0%	25.0%												100.0%
	Installation and Transition Services																	
1.02	2	Transition Strategy and Planning		**10.0%**	**40.0%**	**50.0%**												100.0%
1.03	2	Back-Office Installation and Configuration, Including Documentation		**5.0%**	**10.0%**	**10.0%**							75.0%					100.0%
1.04	2	Field Device Site Surveys and Prototyping		5.0%	10.0%	10.0%	35.0%	10.0%	10.0%	10.0%	10.0%							100.0%
1.05a	2	Onboard Equipment (validator and DDU) Installation (Excluding KCM)		5.0%	10.0%	10.0%	35.0%	10.0%	10.0%	10.0%	10.0%							100.0%
1.05b	2	Onboard Equipment (validator and DDU) Commissioning (Excluding KCM)		5.0%	10.0%	10.0%	35.0%	10.0%	10.0%	10.0%	10.0%							100.0%
1.05c	2	Onboard Equipment Documentation (Excluding KCM)		5.0%	10.0%	10.0%							75.0%					100.0%
1.06	2	Onboard Validator Equipment Installation, Commissioning, and Documentation (KCM Only)		5.0%	10.0%	10.0%												
1.07a	2	Wayside Validator Installation		5.0%	10.0%	10.0%	35.0%	10.0%	10.0%	10.0%	10.0%							100.0%
1.07b	2	Wayside Validator Commissioning		5.0%	10.0%	10.0%	35.0%	10.0%	10.0%	10.0%	10.0%							100.0%
1.07c	2	Wayside Validator Documentation		5.0%	10.0%	10.0%							75.0%					100.0%
1.08a	2	VM Installation		5.0%	10.0%	10.0%	35.0%	10.0%	10.0%	10.0%	10.0%							100.0%
1.08b	2	VM Commissioning		5.0%	10.0%	10.0%	35.0%	10.0%	10.0%	10.0%	10.0%							100.0%
1.08c	2	VM Documentation		5.0%	10.0%	10.0%							75.0%					100.0%
1.09a	2	CST Installation		5.0%	10.0%	10.0%	35.0%	10.0%	10.0%	10.0%	10.0%							100.0%
1.09b	2	CST Commissioning		5.0%	10.0%	10.0%	35.0%	10.0%	10.0%	10.0%	10.0%							100.0%
1.09c	2	CST Documentation		5.0%	10.0%	10.0%							75.0%					100.0%
	Testing																	
1.10	2	Agency Test Facility Implementation, Housing, and Documentation											100.0%					100.0%
1.11	2	Factory Testing and Documentation											100.0%					100.0%
1.12	2	Integration Testing and Documentation												100.0%				100.0%
1.13	2	Pilot Testing and Documentation													100.0%			100.0%
1.14	2	System Acceptance Testing and Documentation														100.0%		100.0%
	Training																	
1.15	2	Training Course Development and Materials											100.0%					100.0%
1.16	2	Training Course Delivery											100.0%					100.0%
	Manuals																	
1.17	2	System Manuals											100.0%					100.0%
2. SYSTEM SOFTWARE DESIGN																		
	Back Office Applications																	
2.01	6	Account-based Transaction Processor		**5.0%**	**10.0%**	**10.0%**	75.0%											100.0%
2.02	6	Customer Relationship Management		5.0%	10.0%	10.0%	75.0%											100.0%
2.03	6	Asset Incident Management		5.0%	10.0%	10.0%	75.0%											100.0%
2.04	6	System Manager		5.0%	10.0%	10.0%	75.0%											100.0%
2.05	6	Fare Media Management		5.0%	10.0%	10.0%	75.0%											100.0%
2.06	6	Financial Management		5.0%	10.0%	10.0%	75.0%											100.0%
2.07	6	Central Payment		5.0%	10.0%	10.0%	75.0%											100.0%
2.08	6	Configuration and Change Management		5.0%	10.0%	10.0%	75.0%											100.0%
2.09	6	Tariff Management		5.0%	10.0%	10.0%	75.0%											100.0%
2.10	6	API Management		5.0%	10.0%	10.0%	75.0%											100.0%

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	Externally Sourced Applications																	
2.11	5	Customer Mobile App		**5.0%**	**10.0%**	**10.0%**							37.5%	37.5%				100.0%
2.12	5	Agency Mobile Apps (Fare Inspection & Fare Payment)		5.0%	10.0%	10.0%							37.5%	37.5%				100.0%
2.13	5	Customer Website		5.0%	10.0%	10.0%							37.5%	37.5%				100.0%
	Field Device and Equipment Software																	
2.14	4	Onboard and Wayside Validator Software		**5.0%**	**10.0%**	**10.0%**							37.5%	37.5%				100.0%
2.15	4	Driver Display Unit Software		5.0%	10.0%	10.0%							37.5%	37.5%				100.0%
2.16	4	Customer Service Terminal Software		5.0%	10.0%	10.0%							37.5%	37.5%				100.0%
2.17	4	Full Feature Vending Machine Software		5.0%	10.0%	10.0%							37.5%	37.5%	0.0%	0.0%	0.0%	100.0%
	API Development																	
2.18	3	Application Programming Interface (API) Development		**5.0%**	**10.0%**	**10.0%**							37.5%	37.5%				100.0%
	System Integration Services																	
2.19	3	Onboard Integration (PT, CT, KT, ET)		**5.0%**	**10.0%**	**10.0%**							37.5%	37.5%				100.0%
2.20	3	Onboard Integration (KCM)																
2.21	3	Washington State Ferries Integration		5.0%	10.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	37.5%	37.5%				100.0%
2.22	3	Data Access and Reporting Platform (DARe) Integration		5.0%	10.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	37.5%	37.5%				100.0%
2.23	3	Retail Network Integration		5.0%	10.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	37.5%	37.5%				100.0%
2.24	3	Integration with Legacy ORCA Back Office		5.0%	10.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	37.5%	37.5%				100.0%
2.25	3	ADA Paratransit Integration		5.0%	10.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	37.5%	37.5%				100.0%
2.26	6	Integration of Agency Provided CRM Application ($0 if SI-provided CRM application is proposed)					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
2.27	6	Integration of Agency Provided Financial Application ($0 if SI-provided financial application is proposed)					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
		Vanpool Integration		5.0%	10.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	37.5%	37.5%				100.0%
	Transit Payment Application																	
2.28	7	Transit Payment Application											50.0%	50.0%				100.0%
3. EQUIPMENT AND SPARES																		
	Producion Equipment and Spares																	
3.01	4	Back Office Hardware - Four Environments ($0.00 if cloud is proposed)																
3.02	4	Onboard Validator (including spares)		**5.0%**	**10.0%**	**10.0%**	37.5%				37.5%							100.0%
3.03	4	Onboard Validator Mounting System and Installation Kit (including spares)		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.04	4	Driver Display Unit (including spares)		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.05	4	Driver Display Unit Mounting System and Installation Kit (including spares)		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.06	4	Wayside Validator (including spares)		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.07	4	Wayside Validator Mounting System and Installation Kit (including spares)		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.08	4	Customer Service Terminal (including spares)		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.09	4	CST Portable Printer		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.10	4	CST Mail Center Printer		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.11	4	Full Feature Vending Machine (including spares)		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.11a	4	Credit for omission of bill and coin acceptance																
3.11b	4	Credit for omission of coin acceptance																
3.11c	4	Credit for omission of change issuance																
3.11d	4	Credit for omission of media issuance																
		Light Vending Machine		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
	Test Equipment																	
3.12	2	Agency Test Facility Hardware - Seven Agencies		**5.0%**	**10.0%**	**10.0%**	37.5%				37.5%							100.0%
	Training Equipment																	
3.13	2	On-board Training Unit (BIB) - including validator, DDU and other SI equipment)		**5.0%**	**10.0%**	**10.0%**	37.5%				37.5%							100.0%
3.14	2	Wayside Training Unit - including wayside validator		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.15	2	CST Training Unit		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
4. FARE MEDIA																		
	Fare Media																	
4.01	7	Contactless Extended-use Smart Cards (including training and test cards)					50.0%				50.0%							100.0%
6. SOFTWARE LICENSES																		
6.01	3	Software Licenses - All Environments		5.0%	10.0%	10.0%	75.0%											100.0%

Value Added Features

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

Resubmittal March 23, 2018

The Future of Mobility

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CONFIDENTIAL SECTIONS:

6.3 Ready for the future – With a fully Open Payments ready system included in the Base System!

6.4 Unique System Features – Only Available with INIT's Automatic Fare Collection System

6.4.a Maintain your own Fare Structure

6.4.b Increase Participation in Institutional Programs and Facilitate New Transit Partnerships

6.4.c Reduce Bus Dwell Time and Operator interaction

6.4.d EMV and Other Standards

6.4.e Seamless Operations through Easy Maintainable Devices

6.5 Real Flexibility in Technology – INIT provides Open API's

6.8 Minimizing Costs, Risks and Delivery Time

6.10 Future Oriented – Constant Refresh of Ideas

6.11 ORCA Next Phase and Potential Future Projects

6.11.1 Expansion to Other Agencies

6.11.2 Full Vanpool Integration

6.11.3 Paratransit Integration with Scheduling Systems

6.11.4 Acceptance of Open Payments

6.11.5 Limited-use fare media

6.11.6 Acceptance of Third-Party issued cards

6.11.7 Fare capping and other loyalty programs

6.11.8 Integration with Other Transportation Providers

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6 Value Added Features

6.1 Introduction

The next generation ORCA project team is seeking a strong and reliable partner that can deliver, fully integrate and operate a high quality regional fare collection system. INIT's product suite and our experience as a System Integrator is the perfect match providing exceptional Value Add and unique System Features.

This document should outline unique features and explicit strength of INIT's fare collection solution. We think that certain components of our system, e.g. the very strong API platform, are unique to INIT and will provide additional value to the project, even if the feature itself is in the Statement of Work.

Having implemented more than fifty Electronic Fare Collection Systems, our system has advanced and matured based on a strong cooperation with our worldwide community of Transit Agencies. With INIT being a leading vendor in Automated Fare Collection and Intelligent Transportation Systems (ITS), INIT is uniquely qualified to understand your needs.

The following sections of this document highlight unique Added Values and Benefits with INIT:

- Swift and Dependable Implementation – INIT is the Preferred Provider of Account Based AFC Systems
- Unique System Features – With INITs most advanced Fare Collection System
- Ready for the Future – Open Payments developed and included in the Base System
- Real Flexibility in Technology – INIT provides open API's to Simplify Integration
- Environmental Value – Waste Management
- Knowledge Sharing – Engaged INIT Customers
- Minimizing Costs, Risks and Delivery Time – Engineered in Germany, Made in America
- Local to Seattle – INIT knows the Puget Sound region
- Future Oriented – Constant Refresh of Ideas

6.2 Swift and Dependable Implementation – Unique Knowledge in Account Based Systems

No other AFC vendor is implementing and integrating "state of the art" Account Based Automated Fare Collection Systems at the high level and expertise that INIT is currently providing. After a very thorough analysis of your RFP, we are pleased to state that your requirements are very similar to our on-going implementations of the Automated Fare Collection projects listed below. Due to the similarity in scope and design featuring Account Based Systems, Open APIs and more, INIT will be able to provide a fast and reliable implementation of the next generation ORCA system.

All components offered are based on proven technology. Building on the Portland HOP FastPass implementation, as well as recent fare system projects, INIT can significantly reduce the risk and accelerate the implementation process.

Account Based INIT Fare Collection Systems:

- Portland OR (700 vehicles, 400 platform validators) – In revenue service
- Grand Rapids MI (150 vehicles and 35 platform validators)
- Honolulu HI (550 vehicles, 110 Ticket Vending Machines, 139 Faregates)
- Tampa FL (629 vehicles)
- Turku Finland (260 vehicles) – in revenue service
- Rhode Island Providence Transit Agency (200)

6.3 Ready for the Future – With Full Open Payments Ready System Included in the Base System!

INIT's account-based AFC system is designed with Open Payments included in the base system. With Open Payments, customers can use their contactless credit cards or mobile wallets like Apple Pay, Android Pay and Samsung Pay to purchase their ticket right at the validator. No need to get a card, download an App or search for change. This lowers the entry barrier to use public transit tremendously and makes it especially easy for non-frequent riders like tourists.

They can simply use a preferred payment medium that they already possess, and they don't have to worry about potentially unused credit balances. The benefit to the ORCA agencies are the savings of media inventory administration costs and the complex accounting management of remaining credit balances.

The AFC system proposed for the next generation ORCA project will include Open Payments functionality and could be implemented in Phase One of the project.

See chapter 6.11.4 of this document for further details.

6.4 Unique System Features – Only Available with INIT's Automatic Fare Collection System

6.4.4 EMV and Other Standards (deleted)

[redacted]

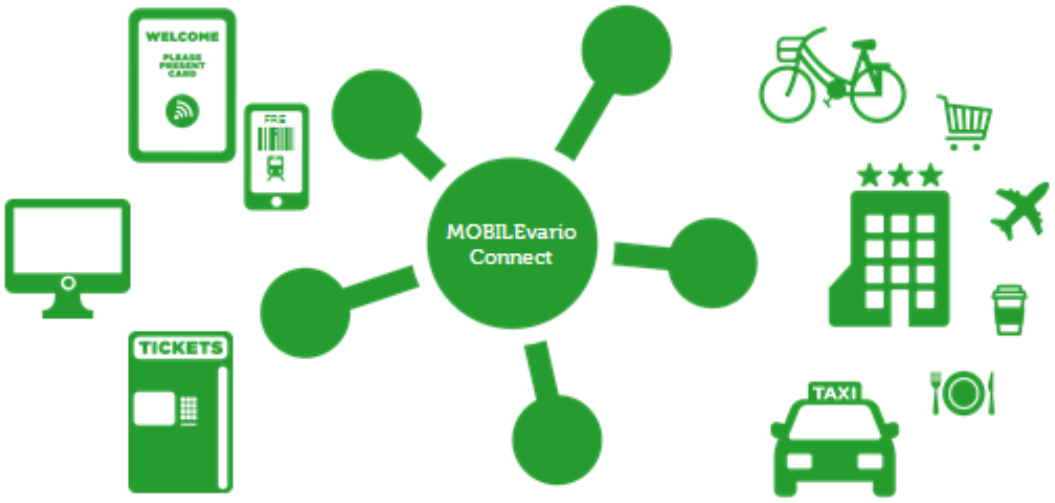
[redacted]the health status of the components is monitored centrally and actions can therefore easily be dispatched.

INIT's Proximity Reader PROXmobil3

6.5 Real Flexibility in Technology – INIT provides Open API's

The INIT AFC solution offers a seamless experience for riders and the Transit Agency. We provide an integrated end-to-end system, which is tailored to your individual requirements.

Our Open APIs (Application Programming Interfaces), used by multiple transit agency customers, give the Agency the freedom to easily grow your system and integrate new technologies or third party COTS solutions.



Integrating Multiple Parties through open API's

The open back-office system architecture combined with the flexible tariff solutions and the multi-client capability allows integration of different modes of transport into one system.

All modes of public transport as well as other transport modes such as car-sharing, bike-sharing, taxis, parking as well as road tolling can be integrated into INIT's account-based ticketing solution. This results in more convenience to customers since only one subscription is needed to use all modes of transportation. This enables users of the next generation ORCA system to use e.g. bike sharing options without any additional registration which reduces the entry barriers tremendously. Likewise other transportation services can be integrated into a multi-modal mobility account. All this is done via open Application Programming Interfaces (APIs), which enables the integration of 3rd party service providers and even hardware into the ticketing system and distribution network.

6.6 Environmental Value – Waste Management

INIT is a socially responsible business partner with a unique approach to fostering sustainability as a part of our company's corporate philosophy. We see transit as intrinsically "green," and have consequently aimed to make direct contributions to our community through an ongoing commitment to sustainability.

6.6.1 Zero Waste Initiative

What began as a simple recycling mission at INIT's corporate office located in Chesapeake, VA rapidly grew into a full-blown strategy to become a certified zero-waste-to-landfill company. Zero-waste-to-landfill means everything we use is reduced, reused, recycled or composted.

6.6.2 Partnership with TFC Recycling

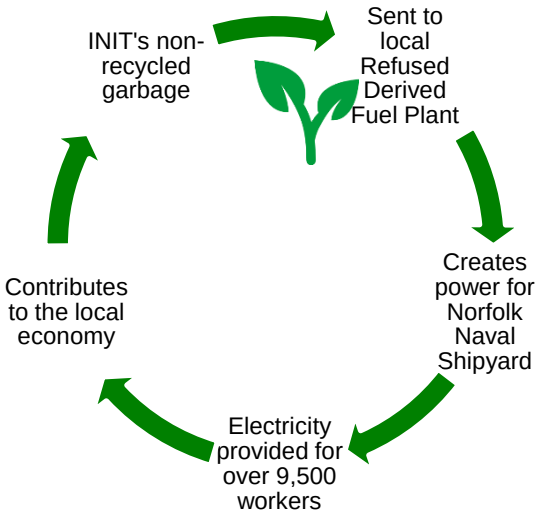
An important step for INIT was to partner with TFC Recycling, a leader in the collection, processing and marketing of recyclable materials and management of solid waste through innovative material recovery. TFC offers a single stream recycling process and provides an economically friendly solution for non-recyclable trash.

Non-recyclable, non-compostable garbage is sent to the Refuse Derived Fuel Plant, a local facility that treats and burns the waste for the creation of energy. This allows us to contribute to the local economy by providing the fuel for electricity to power the Norfolk Naval Shipyard which employs over 9,500 workers.

6.6.3 Community Impact

By the first year, 593 pounds of paper towel usage was eliminated through the use of hand dryers. The impact on the environment is calculated to be the equivalent of 11 trees with an estimated decrease in the company's carbon footprint of 69%.

The zero waste to Landfill Certification also compelled INIT to become a business member signatory on the APTA Sustainability Committee.



6.7 Knowledge Sharing with Engaged Customers

INIT hosts a User Group conference annually as well as Customer Forum and Educational-Instructional webinars and on a monthly basis, these are explained in more detail below.

6.7.1 INIT Working Group

INIT's Working Group meeting have been replace with the Interactive Webinars and Customer Forums described below.

6.7.2 INIT User Group Conference

The INIT User Group Conference is held annually; however, keep in mind that the Conference location alternates between a North American Transit Agency Host location and a European location. The User Group Conference focuses on Managers and Senior Leadership. The topics relate more to strategy and effective application rather than daily usability. If a customer has a maintenance agreement, then up to 4 attendees will have their Conference expenses covered by INIT. After the 4th attendee, all others receive a 10-20% discount on registrations. Any other expenses for additional attendees are carried by the Transit Agency, e.g. hotel, travel and any non-INIT provided meals.

6.7.3 Interactive Webinars and Customer Forums

INIT hosts Monthly "20 Minutes with INIT" webinars. This year we are focused on projects. https://www.initse.com/ende/us/news-events/knowledge-database/articles/2017/20-minutes-with-init-webinars.html. The monthly webinars cover hot industry topics followed by a question and answer period where you can discuss any operational issues you may want to discuss with INIT engineers as well as your agency peers. Check out the webinar schedule and register to

automatically receive an invite! In addition to the Webinars we also host an INIT Customer Forum – here we store webinar recordings, presentations and such. This is for customers to talk to each other. https://forum.initusa.com

6.8 Minimizing Costs, Risks and Delivery Time

INIT's equipment is German designed and engineered and manufactured at INIT's state of the art manufacturing facility in Chesapeake VA. The equipment is of the highest quality, which significantly increases its reliability and reduces the cost of ownership. The INIT solution is based on existing and proven technology already deployed at multiple Transit Agencies around the world, which reduces project risk, the cost to design, implement and deploy the solution and ultimately allows INIT to deliver the next generation ORCA project **on time and on budget.**

6.9 Local to Seattle – INIT knows the Puget Sound region

INIT's Western Regional office is located in the heart of Seattle at Pioneer Square. The office was established here more than 10 years ago and serves as the main office for all INIT personnel working on projects at Seattle area Transit Agencies and in the western USA.

6.10 Future Oriented – Constant Refresh of Ideas

INIT works with local Universities and Research facilities to develop and implement the latest leading edge innovations. New technological trends such as "Be-In-Be-Out" technologies are constantly assessed and discussed in multiple working groups and forums. In combination with a constant dialogue with our customers, trade show participations and more the INIT system is in a process of constant improvement.

6.11 ORCA Next Phase and Potential Future Projects

6.11.1 Expansion to Other Agencies

The requirement to expand a fare collection system to other agencies is a very familiar request for INIT. Many of our existing AFC customers, such as the Transit Agencies in Sacramento CA and in Munich Germany have added additional Agencies to their system post installation.

All INIT applications are built to support multi-agency environments without the limitation of a maximum number of agencies. Since the Tariff is highly configurable by the Agency, there is most likely no system change required when adding an additional agency.

The schedule drivers for integrating the agency are:

- Number of vehicles / platforms to be installed

- Integration effort with existing CAD/AVL system or Fare Box (if applicable)
- Complexity of the transfer rules connected to the agency

6.11.2 Full Vanpool Integration

For the HART AFC project in Honolulu, INIT is installing mobile validators based on cellphone technology the Agency's paratransit vehicles. These low cost validators are portable and could easily be installed within the agencies' vanpool cars. The concept would be that the vanpool user taps his or her card whenever they board and leave the vehicle. The distance travelled could be calculated based on the GPS coordinates and the account could be charged the appropriate fare automatically.

INIT is aware that a Vanpool integration would require a change in major business rules for the Vanpool system. As such, we would need detailed discussions around this topic to further explore if this would be a feasible option. As part of this discussion INIT would gather the technical requirements and discuss with our internal development teams. Using this information, coupled with the current integration of ngORCA, INIT would be able to detail the full costs and associated schedule impact. Unfortunately, without further technical clarification, low level detail is not possible at this time. That said, INIT's understanding of the current Vanpool implementation is that the system is quite extensive and utilizes methods which vary or deviate from the ORCA implementation. In light of that very high-level understanding as well as the known business rules changes required, this would be a complex change.

The RFP lists two components as part of the 'Full Vanpool Integration': the billing and reporting function and a bookkeeping mobile app.

Currently INIT does not have a full vanpool management system in its product portfolio. But this could be integrated as an additional feature of the MOBILEvario suite so that the complete management and the billing and reporting could be performed in the INIT system. In addition INIT has experience with public apps that are built in-house. So it would be possible to build a bookkeeping mobile app in-house too.

Detailed technical discussions would be required to determine scope and schedule impact for this effort.

6.11.3 Paratransit Integration with Scheduling Systems

In Portland, INIT and TriMet integrated TriMet's Paratransit scheduling system from Trapeze Pass into the HOP FastPass system. Paratransit users may register their HOP card with their Paratransit account and choose their HOP card as the standard payment method. As soon as the paratransit ride is successfully performed, the account will automatically be charged with the fare calculated by the background system. The integration was realized with the Open

Architecture APIs and therefore would not require any system changes in the INIT background system.

Schedule drivers for the integration of Paratransit are:

- There are only minimal configuration changes needed in the background system (e.g. a new sales channel 'Paratransit' needs to be added). All changes required can be performed in a matter of days
- Main driver: implementation effort on the Paratransit Scheduling software side

6.11.4 Acceptance of Open Payments

INIT offers to implement Open Payments functionality on the validators in Phase 1 of the next generation ORCA project without any additional costs or impact to the schedule. Open Payments is currently in operation within the INIT Hop Fastpass system in the Portland region.

A requirement to realize the Open Payments without additional costs or schedule impact would be to use [redacted] as a payment gateway in combination with one of the certified [redacted] processors. INIT already has all certifications to achieve this solution.

All transaction costs connected to the Open Payment transactions are not part of this proposal.

6.11.5 Limited Use Fare Media

The HOP FastPass System in Portland uses paper based limited-use fare media cards with NXP Ultralight 'C' chips for their TVMs and sale at all ticket offices. If compatible technology is used (e.g. Ultralight 'C' cards), the INIT validators and the backend system are prepared to accept limited-use fare media without any system changes.

Schedule drivers for the integration:

- No changes needed on the INIT back-office side if a compatible technology with compatible encoding is used
- TVMs would need to be equipped with a limited-use ticket dispenser

6.11.6 Acceptance of Third-Party Issued Cards

There are multiple ways to accept third-party issued cards. Two examples of third-party issued card realization can be found in the HOP FastPass project in the Portland area:

Bullet point deleted

- Portland Public School (PPS): PPS issued their own cards with their customized printed logo. The cards are pre-encoded with the HOP FastPass card application before they are delivered to PPS for distribution to students and staff

Both implementations happened without any system changes needed on the INIT backend or validator side and would be available to the next generation ORCA system without any INIT system changes.

Other concepts to accept third-party issued cards:

- Use UID as account identifier: The easiest way (but the least secure way) to accept third-party cards is using the Unique card ID as an account identifier. Further security discussions would need to happen to further explore this option
- Use existing unique identifier stored on the card: If the card schema can be exchanged, a unique identifier that is already stored on the card (e.g. student ID) could be used as the transit account identifier. In this case a key exchange with the provider of the cards would be needed to be able to authenticate the cards
- Write additional fare application on the third-party card: the closed-loop fare application that is written to the INIT proposed DESfire cards could be written to a third-party issued card as a second application. Writing the application to the card may happen when the card is issued or afterwards (e.g. using a special software / card reader in the ORCA service center). A key exchange with the issuing agency would be needed to write to the card and authenticate the card.

6.11.7 Fare capping and other loyalty programs

Fare capping is a standard feature of the INIT account based background system MOBILEvario and therefore can be included from day one.

6.11.8 Integration with Other Transportation Providers

Using INIT's Open Architecture APIs, integration with other transportation providers like bike share is possible. INIT and TriMet are currently working on the integration of bike lockers and bike share in the Portland region using the HOP card system. Bike locker integration was already successfully realized in INIT's fare collection project in Luxembourg. Since the integration complexity can vary tremendously, it is not possible to estimate any schedule drivers without further discussing the scope.

6.11.8.1 Luxembourg Bike Locker integration

For the Luxembourg project INIT realized an integration with the loal bike locker provider. Every bike locker has a validator installed. Customers that want to use the bike lockers load a special bike locker pass to their card.

Once the card is tapped on the validator and a valid product is available, the validator communicates with the electronic door lock and opens the door.

Luxembourg Bike Locker integration

6.11.8.2 Portland/Vancouver Bike Share and Bike Locker integration

For the HOP Fastpass project in the Portland area, INIT is working with TriMet and the local bike share provider to provide an integration to their bike share system (Biketown) and to the bike lockers provided by TriMet.

The bike locker integration is very similar to the Luxembourg integration project (see last chapter). The difference is that a newer validator model (PROXmobil3 instead of PROXmobil2) and that an account based instead of a card based approach will be used.

For the bike share integration with Biketown, the HOP card will be used as the identifier to unlock the bikes. Instead of tapping the Biketown card, customers will be able to register their HOP Fastpass to their Biketown account. After the registration process the HOP Fastpass can be used as the account identifier when renting a bike. Payment will still be handled in the Biketown system.

Commitment to and Compliance with Equal Employment Opportunity Law

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CONFIDENTIAL SECTIONS:

7.1 Commitment to Diversity

7.2 Diversity Efforts and Commitment

7.2.4 Current Diversity Metrics

7.2.5 Linda Keith – Responsible for overseeing adherence to EEO laws

7.3 Init's Equal Employment Opportunity / Affirmative Action Policy

7 INIT's Workforce: A Commitment to Inclusion and Diversity

The continued excellence of INIT is largely dependent upon our ability to attract, develop, and retain highly skilled, talented, and motivated employees. An essential element in maintaining this is the recognition of the value of a diverse workforce. Characteristics such as age, culture, ethnicity, gender, race, religious preference, sexual orientation, gender expression, and the expression of unique philosophies and ideas provide the opportunity to better understand each other. This understanding will strengthen the efficiency and productivity of the workforce, whose primary objective is to provide excellent service to the Company.

7.1 Commitment to Diversity

Below please find a table detailing the diversity of our ngORCA and local teams:

INIT's Commitment to Diversity				
	Proposal Team	**Project Team**	**INIT Seattle**	**INIT USA**
Minorities	3	3	21%	27%
Women	6	5	29%	23%
Staff with Disabilities	*	*	*	*

Note: Does not include subcontractors identified in this proposal

Regarding staff with disabilities, we have not maintained comprehensive statistics on individuals with disabilities until recently and may have been undercounting those we accommodate for. As of January 1, 2018 INIT, implemented a procedure in which we will, going forward, obtain information as to prospective employees in the hiring process as well as current employees as to their disability status, minority status and veteran status. Response to such inquiry will be voluntary. However, as a firm, INIT values all individuals and provides them whatever resources and accommodations are required for them to have a productive and enjoyable career with our firm. These can be temporary for a short term requirement or long term if it's a permanent need.

7.2 Diversity Efforts and Commitment

Wherever INIT operates, we create a team that represents the current and future diversity of the area. We are proud to have our second largest North American office located in Seattle, Washington, to take advantage of the rich diversity available across the Puget Sound region. We've hired staff from many varied backgrounds, both professionally and personally to create a team that represents the overall area.

7.2.1 INIT, an Equal Opportunity Employer

On or about November 1, 2017 INIT implemented an Equal Employment Opportunity/Affirmative Action Plan for Individuals with Disabilities, Protected Veterans, Minorities and Females. All of these documents are available upon request; however, due to the confidential nature of some of the salary data contained in these documents, we ask that your EEO office reach out to Linda Keith, our Vice President and Chief Financial Officer who is responsible for overseeing Human Resources and INIT's adherence to EEO laws and policies. Ms. Keith can be reached at 757-413-9100 extension 307 or emailed at LKeith@INITusa.com.

These documents will ensure what already is an established policy within INIT, namely equal employment opportunity for all person, in all phases of INIT's operations, without regard to race, religion, color, sex, sexual orientation, gender identity, national origin, age, physical or mental disability, or status as a disabled veteran or other protected veterans.

7.2.2 How INIT meets our EEO Objectives

Effort's INIT makes to ensure that we provide equal employment opportunities are accomplished by endeavoring to meet the following goals:

- Attract and retain qualified individuals from diverse backgrounds who are committed to the continued excellence of INIT
- Encourage an environment that fosters a diverse workforce in terms of age, culture, ethnicity, gender, race, religious preference, sexual orientation, gender expression, and the expression of unique philosophies and ideas
- Provide all employees the opportunity for professional development and personal growth
- Expect that all employees will treat each other with dignity and respect
- Uphold all applicable federal, state, and local laws and regulations

INIT provides "EEO Tag Line" in all solicitations for applicants; in addition an EEO clause is implemented in our documents such as e.g. our purchase orders. With our soon to be implemented online hiring process we will notify State ESDS of hiring opportunities.

Recently, we've started a new college hire program which takes advantage of regional higher education institutions and their ability to meet our growing needs. In 2018 we expect to expand this to an internship program that targets the regions youth who want to combine their skills and their passions into learning more about a career in transit technology. We have, and will continue to apply the same commitment to a diverse workforce and an inclusive culture to these programs.

With this experience and dedication to a team which brings out the best in all of our collective backgrounds, we feel that we can both be respectful of one's background but also leverage it for project successes.

7.2.3 How INIT Creates Diverse Teams

INIT strives to bring our EEO goals into the creation of our project teams. On similar projects in size and scale to ngORCA, we do this by ensuring a team reflective of the culture and diversity mirroring that of our client. This involves hiring in the local area and bringing resources to live in the area for the duration of the project. This works to ensure that cultural boundaries can be removed, and that our teams do their best to reflect the region in which they are working.

7.2.4 Current Diversity Metrics

All of our fare collection projects (TriMet, Tampa, Grand Rapids, Honolulu), similar to this scope of work, require a mid to large size team, and in all instances we apply the same approaches.

INIT's Commitment to Diversity		
	INIT Seattle	**INIT USA**
Minorities	21%	27%
Women	29%	23%

7.2.5 Linda Keith – Responsible for overseeing adherence to EEO laws

Linda Keith, Vice President and Chief Financial Officer, is responsible for overseeing Human Resources and INIT's adherence to EEO laws and policies. In carrying out the recently implemented Affirmative Action Plan she will receive the requisite support of senior management necessary to execute the assignment and the staff and time to administer the program. The specific responsibilities include, but is not limited to, the following:

1. Continue developing policy statements and Affirmative Action Plans;
2. Assisting in the identification of problem areas;
3. Assisting management in arriving at effective solutions to problems;
4. Designing and implementing audit systems that will:
    a. measure effectiveness of INIT's programs;
    b. determine the degree to which the company placements goals and objectives have been attained;
    c. determining whether minorities and women have the opportunity to participate in all INIT-sponsored educational, training, recreational, and social activities; and
    d. ensure that INIT is in compliance with Executive Order 11246 and all regulations promulgated thereunder.
5. Serving as a liaison between INIT and enforcement agencies.
6. Serving as a liaison between INIT and minority organizations, women's organizations, and other community actions groups concerned with employment opportunities of minorities, women and other protected groups.

7. Ensuring that required compliance information is properly displayed.
8. Ensuring that all INIT facilities are desegregated.
9. Ensuring that minority, women and other protected groups of employees are afforded full opportunity to, and are encourage to, participate in all INIT-sponsored educational training, recreation, and social activities.

In addition, we would like to mention that, as an executive of the company for over 15 years, Linda has lead INIT's commitment to diversity and growing our diverse workforce for over 15 years. Linda will ensure that employment actions regarding staffing and managing the work will be carried out in a nondiscriminatory manner. As already mentioned, across our entire management team, each leader is expected to adhere not to the goals of diversity, but the culture of inclusion as well. Being an inclusive workforce makes for a richer organization serving our incredibly diverse clients across North America.

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7.3 INIT's Equal Employment Opportunity / Affirmative Action Policy

INIT's EQUAL EMPLOYMENT OPPORTUNITY/ AFFIRMATIVE ACTION POLICY:

INIT Innovations in Transportation, Inc. ("INIT") maintains a continuing policy of nondiscrimination in employment. It is our policy to provide equal opportunity in all phases of the employment process and in compliance with applicable federal, state, and local laws and regulations. This policy of nondiscrimination shall include, but not be limited to, the following employment decisions and practices: hiring; upgrading; promotions; demotions or transfers; layoffs; recalls; terminations; rates of pay or other forms of compensation; selection for training, including apprenticeship; and recruitment or recruitment advertising.

INIT will not discharge, or in any other manner discriminate against employees or applicants because they have inquired about, discussed, or disclosed their own pay or the pay of another employee or applicant. However, employees who have access to the compensation information of other employees or applicants as a part of their essential job functions cannot disclose the pay of other employees or applicants to individuals who do not otherwise have access to compensation information, unless the disclosure is (a) in response to a formal complaint or charge, (b) in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or (c) consistent with INIT's legal duty to furnish information.

Employees and applicants of INIT will not be subjected to any form of harassment, discrimination, or retaliation for exercising rights protected by, or because of their participation in, an investigation or compliance review related to Title VII of the Civil Rights Act of 1964, the Age Discrimination in Employment Act, the Americans with Disabilities Act, Executive Order 11246, Section 503 of the Rehabilitation Act of 1973, the Vietnam Era Veterans' Readjustment Assistance Act of 1974, the Veterans Employment Opportunities Act of 1998, or any other federal or state nondiscrimination law, rule, or regulation.

INIT also maintains an affirmative action program to implement our equal employment opportunity policy. If you have any questions with regard to our policy or our program please contact Katharina Brekke Powers, Associate General Counsel during normal business hours.

[redacted]

Roland Staib, CEO & President,
INIT Innovations in Transportation, Inc.

An Innovative Systems Integrator for Next Generation ORCA

An Innovative Systems Integrator for Next Generation ORCA

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CONFIDENTIAL SECTIONS:

8.1 Small Businesses and DBE's Contacted

8.1.1 [redacted], President - GO Systems and Solutions LLC, Business Analyst

8.1.2 Anthro-Tech – UI/UX Consultant

8.1.3 ESP Enterprises – Vehicle, Wayside Validators and VM Installation Services

8.1.4 West Sound Workforce – CST Installers and more

8.1.5 [redacted] Consulting – Technical Writer

8.1.6 Edco Incorporated – Machine Shop

8.3 Approach for Monitoring/Mentoring and Supporting

8.5 DBE/Small Business Participation

8 INIT's Contribution towards Progressive Business Practices

INIT has a history of working with DBE's to provide goods and services on many of our Automated Fare Collection and Computer Aided Dispatch projects. We typically search for DBE's for roles such as Assistant Project Managers, Electrical Contractors, Vehicle Installation Services and more.

For this ngORCA opportunity, we have reached out to local businesses as described below.

Firstly, we searched the http://www.omwbe.wa.gov/directory-of-certified-firms website looking for firms in the greater Seattle area that we could reach out to become part of the team. We identified three (3) firms representing Electrical Contractors, Fleet Maintenance services, Traffic signal and street lighting contractors. Detailed in Form 4 are the results of our contact with these firms.

Secondly we called contacted the SBA's Seattle District Office [redacted] for advise on contacting other DBE's in the greater Seattle area. We were lead to the Washington Procurement Technical Assistance Center.

Finally we contacted [redacted] a Government Contracting Specialist with the Washington Procurement Technical Assistance Center. Working with [redacted], we were able to post the following request to send with their next email newsletter blast.

"INIT Innovations in Transportation is looking for qualified DBE's and SBA's for a project that will commence 4th quarter 2018. This is a large opportunity in the Seattle area requiring many skills and talents. We realize that firms may not have specific experience in the areas listed below but we are willing to train, mentor and supervise firms with applicable experience. Services we have identified that may be useful include:

- Assistant Project Managers
- Server Test facility electrical build out
- Administration overhead such as receptionist and cleaning services
- Technical writers
- Oracle consulting
- Building lessee
- Technical documentation requiring CAD skills
- Software test automation (scripts with release reports)
- Network Architecture design
- Vending Machine Installation and Testing
- Installation of equipment and devices on vehicles
- Voice Talent
- Accounting services with Oracle experience

Please reply to [redacted] In your reply, please provide contact information, DBE status, website, office location, number of full –time employees, certifications, specific area of expertise from the list above along with specific experience that are applicable. Failure to provide the above information will be considered unresponsive. We look forward to receiving your information no later than October 1st, 2017."

We were contacted by 6 firms as a result of our ad. The results of our subsequent contact with these firms is detailed in Form No. 4.

In addition, we used personal contacts to look for DBE firms that could fill the requirement for a UI/UX consultant, Business Analyst and Installation Services.

A weakness cited was:

- Some of the firms contacted appear to be a stretch for qualifying for Form 4:
- 1 cleaning services (also not DBE)
- 4 CAD services (not needed)
- One "provided company information":
- One just checked website

INIT worked hard to identify potential DBE's and initially identified many efforts as can be seen in the ad we placed shown above. If a company contacted us or we reached out to a company due to our own research, they were included on Form 4. Some companies that contacted us were simply not qualified and we determined that the logistics of outsourcing CAD services was not in the best interest of a successful project.

In addition, in this resubmittal, we went back and identified that we could use the services of a contract manufacturer and a technical writer. You will see B[redacted]Consulting and Edco Incorporated added below.

It should be noted that Anthro-tech, West Sound Workforce and [redacted]Consulting are local to Seattle and Endo Incorporated is in nearby Mount Vernon.

Please see an additional Form 4 completed (5 of 5)

8.1 Small Businesses and DBE's Contracted

8.1.1 [redacted], President - GO Systems and Solutions LLC, Business Analyst

[redacted]

[redacted] has a strong background in transit projects, and will bring her knowledge and experience with Puget Sound's transit evolution [redacted]' experience consulting in the region.

[redacted] will be a major contributor leading INIT's business analysis efforts and is responsible for ensuring clear and agreed to specifications for all elements of INIT's integration efforts.

8.1.2 Anthro-Tech – UI/UX Consultant

Anthro-Tech will support this effort in by ensuring a seamless and consistent experience across all user touchpoints including: websites, mobile app, vending machines and validators. Anthro-Tech will provide a User Experience Strategist to direct and manage the user-centered design activities, integrate the research and design work and manage stakeholder and customer input throughout the design and development process.

Anthro-Tech's Design Researcher will conduct quantitative and qualitative customer research to understand customer needs and evaluate the ease of use of interfaces. They will also design and conducts market and user research surveys, focus groups, stakeholder interviews, web analytics data, usability tests, field research and other activities to develop actionable design concepts and solutions based on customer research findings.

8.1.3 ESP Enterprises – Vehicle, Wayside Validators and VM Installation Services

As the company we have selected to aid in the installation of equipment, ESP Enterprises will be an integral part of the Transition Plan. ESP Enterprises is experienced in the installation and subsequent testing of INIT equipment on-board buses and streetcars as well as wayside installation of Vending Machines, validators, signs and more. Working in several 4 man crews at times when their installation services will minimally impact operations or the riding public, ESP will perform their services during an extended stay in the region. Included in section titled "Knowledge and Recent Experience of Key Individuals" and the Appendix are the resumes on ESP Enterprises key staff members.

8.1.4 West Sound Workforce – CST Installers and more

Although, ESP Enterprises could also perform this service, we wanted to contract with a local firm for installation of the Customer Service Terminals (CST). This will provide the ORCA agencies a resource for setup and teardown of CST's for special events and other occasions. We also envision their services for possible troubleshooting and repair services.

INIT also will be relying on West Sound Workforce for an administrative assistance to assist with the additional workload at our Seattle office during the deployment of the ngORCA system and possibly beyond. We have also discussed utilizing their services for custodial maintenance.

8.1.5 [redacted] Consulting – Technical Writer

For the review and editing of our technical documentation, we have selected Babinec Consulting, a technical writing form. Babinec Consulting LLC is a 100% woman-owned business and certified DBE (WA State/Federal Programs) formed in March 2017 by two sisters, [redacted] and [redacted], both subject matter experts with a combined 40+ years of experience in their complimentary fields. We provide exceptional business management consulting services that enhance and advance our client's business success. We also help our clients realize their full potential and achieve mutually agreed upon desired outcomes. We dedicate ourselves to providing subject matter expertise and timely, superior end products that fulfill the client's stated goals. [redacted] Consulting LLC devotes itself to offering innovative thinking, nurturing genuine partnerships, and championing the beliefs that accuracy, reliability, honesty, and trustworthiness will never be obsolete. Finally, our combined areas of expertise include the following:

- Technical Writing & Editing, Medical Writing & Editing, Copywriting, Copyediting, Substantive Editing, Line Editing, Proofreading, Instructional & Online Curriculum Design, Peer Review, Quality Assessment (Curriculum & Publishing), Grant Writing/Editing (CDC, NIH, etc.), and Educational Marketing
- Contract Risk Analysis & Management
- Contract Drafting, Review, & Negotiation
- Training: Risk Management, Trade Compliance, Contract Negotiation, Specialized Curriculum (project management fundamentals, ethics, process development, Train the Trainers, etc.)
- Strategic Planning & Procurement, Cradle-to-Grave RFX, RFX Planning, Scope Development, Implementation, Analysis, & Supplier Selection

8.1.6 Edco Incorporated – Machine Shop

For our requirement to provide new mast for the PROXmobile3 validators, we have selected Edco, an experienced machine shop. EDCO, INC. is located in Mount Vernon Washington, and is Certified by American Institute of Steel Construction (AISC) for Steel Building Structures (STD Certification) and Bridge and Highway Components (CPT Certification).

EDCO, INC. has been a contract manufacturer of unique industrial equipment for customers all over the world since 1976. EDCO's work has been a diverse mix of projects for The Boeing Company, the US Navy (both direct and subcontracted), Alcoa, Team, Hexel, construction firms such as CDM Smith and Kiewit, and a wide variety of customers from all across diverse industries. EDCO is a full service contract manufacturer supporting design, engineering, project management, material procurement, welding, machining, assembly, testing, and logistics. Their

team has earned respect by providing high quality service and quick turnaround. Over 90% of their work is with repeat customers.

Since just 2010, we have completed over:

- 500 projects for The Boeing Company
- 200 projects for Alcoa
- 175 project for Electroimpact
- 115 projects for Harbor Offshore
- 75 projects direct to US Navy/SAIC

8.2 Experience and Approach to managing diverse teams

As leading providers of Intelligent Transit Systems, INIT's Project Managers [redacted] our Western Regional Director, have extensive experience working with Small Businesses on projects of similar size. As the prime contractor, INIT frequently shares resources with our subcontractors. This includes office space, transportation, test equipment, and specialty tools while always providing the bulk of materials so that we can maintain quality.

8.3 Approach for Monitoring/Mentoring and Supporting

The reviewer is correct that we did not address how we will support each Small Business we selected to participate in this effort.

The verbiage originally submitted is specific to ESP Enterprises for installation service and reflects how we typically work with our Small Business Installer.

As you can see on Form 3B and in the corporate profile of the companies we selected, these are highly qualified companies that will make significant contribution to project success. These companies are selected for the contribution they bring to the effort and require little if any monitoring and mentoring. As such, below please find how we will support these DBE's

Quality from our subcontractors is paramount.

In support of our selected installation company ESP Enterprises, INIT provides extensive training and documentation before the installation begin. During mini-fleet installs, INIT system engineers work alongside the installation crews to make sure their installation instructions are understandable and clear. In addition, we provide all materials and parts provided in a kit with barcodes clearly identifying the vehicle type or wayside installation location to reduce the error of the team installing the wrong equipment on the wrong vehicle or location. . In addition to detailed written work instructions we also provide written test procedures to check and verify the quality of their work.

[redacted], who will be helping us as a Business Analyst is an example where we have selected a highly capable individual. With Paula's extensive transit experience and the prominent role she is filling, she will support us more than we will support her. INIT's project manager will be overseeing her work and will certainly make sure she has the resources required for her to succeed at her efforts.

Project Management will be the most critical method of supporting Anthro-Tech, our Ui/UX consultant. Anthro-Tech was selected because of their expertise so the most important way we can support them is to make sure ByteMark, Marathon, Persistent and INIT developers work closely with Anthro-Tech in a timely manner.

INIT will support West Sound Workforce in much the same way we will support ESP Enterprises. We will provide written installation instructions, test procedures and kits as well as have INIT Systems Engineers work alongside them for as many installations as necessary to assure quality work.

In support of [redacted] Consulting, we will provide office space allowing them to work side by side with our Systems Engineers.

In support of Edco Incorporated, INIT's System Engineers will provide complete documentation in support of this contract manufacturing effort.

8.4 Responsibility for overseeing success

[redacted] INIT's Western Regional Director based out of our Seattle office is responsible for engaging and overseeing our small business efforts as they relate to the ngORCA project. [redacted] [redacted] our Implementation Lead will provide direct supervision for [redacted]

8.5 DBE/Small Business Participation

INIT efforts have resulted in a DBE/Small Business Participants Goal of 14.46 % calculated using the base without extended Operations and Maintenance.

Exclusivity: INIT has not established exclusivity with any of the DBE firms proposed.

SOUNDTRANSIT

PROPOSAL FORM NO. 2 CERTIFICATION REGARDING CONFLICT OF INTEREST

The Proposer is required to certify that performance of the work will not create any conflicts of interest or disclose any actual or potential conflicts of interest by completing and signing one of the following statements:

The Proposer hereby certifies that to the best of its knowledge and belief, performance of the services described in the Scope of Work will not create any conflicts of interest for the Proposer, any affiliates, any proposed subconsultants or key personnel of any of these organizations.

DATE: 10/25/17

AUTHORIZED SIGNATURE: [signature]

TITLE: Vice President + CFO

PROPOSER/COMPANY NAME: INIT Innovations in Transportation, Inc.

OR

The Proposer hereby discloses the following circumstances that could give rise to a conflict of interest for the Proposer, any affiliates, any proposed subconsultants or key personnel of any of these organizations. (Attach additional sheets as needed.)

Name of Individual/Company to which potential conflict of interest might apply:

Nature of potential conflict of interest:

Proposed Remedy:

DATE:

AUTHORIZED SIGNATURE:

TITLE:

PROPOSER/COMPANY NAME:

SOUNDTRANSIT

PROPOSAL FORM NO. 3A DBE/SMALL BUSINESS COMMITMENT FORM - INSTRUCTIONS

We affirm that we have read and understand the provisions in the Contract Documents setting forth the subcontracting and DBE and Small Business participation requirements established in this RFP and that we have complied with all such DBE/Small Business participation objectives. We certify that all documentation (including outreach information) submitted by us to demonstrate such compliance is true and accurate.

Furthermore, we have listed on the following form all DBE/Small Businesses that we will use if awarded the Agreement under this RFP and whose participation will be counted toward meeting the applicable DBE/Small Business participation requirements.

Definitions for DBE/Small Business Participation Plan

Box	Name	Description
1	Procurement Number	Sound Transit's Procurement Number as listed on the cover of the solicitation document.
2	Procurement Title	Name of procurement as written on the cover of the solicitation document.
3	Company Name	Proposer's company name.
4	Address	Business address of Proposer's office in Sound Transit's locale.
5	City, State, Zip	City, state, zip for Box No. 4 above.
6	Contact Name	Proposer's contact person for this procurement.
7	Contact Phone	Contact's phone number.
8	Contact's Email	Contact's Email address.
9	DBE/Small Business Commitment	Total percentage the Proposer commits to including on the contract of proposed subconsultants who are DBEs or certified or self-declared Small Businesses, including the Proposer's contribution if Proposer is a DBE or certified or self-declared Small Business.
10	DBE/Small Business Goal	Sound Transit's DBE/Small Business Goal as listed in the solicitation.
11	Total Proposal Price	Total Amount of Proposal
12	DBE/Small Business Participants	List all DBE/Small Business participants, including Proposer, if Proposer is a DBE or certified or self-declared Small Business.
13	Small Business Indicator	Indicate the type of certification status or other indicator of each Small Business: Disadvantaged Business Enterprise (DBE), Minority Business Enterprise (MBE), Women Business Enterprise (WBE), Small Business Enterprise (SB), Small Business Administration (SBA), Americans With Disabilities Act Businesses (ADAB), Other (identify).
14	Description of Work	Brief description of the work to be performed by the proposed DBE/Small Business participant.

PROPOSAL FORM NO. 3B DBE/SMALL BUSINESS COMMITMENT FORM

Procurement No.	1. RTA/RP 0119-17	Company Name	3. INIT, Innovations in Transportation	**Diversity Contract Goals**	
		Address	4. 424 Network Station Road	Small Business Commitment 9.	14 %
Procurement Title	2. Systems Integrator for Next Generation ORCA	City/State/Zip	5. Chesapeake, VA, 23320	DBE Commitment	14 %
		Contact Name	6. Mr. Jim Hicks	**Small Business Goal** 10.	**5%**
		Contact Phone	7. 757-413-9100 ext 314	**DBE Goal**	**2%**
		Contact Email	8. JHicks@INITusa.com	11. Total Proposal Price	$ 48,291,783.01

12. DBE/Small Business Participants (May include Proposer if counted towards Goal)	13. Small Business Indicator (DBE, MBE, WBE, Size, etc.)	14. Description of Work	DBE/Small Business Participants	
			15. Proposed Subcontract Amount	16. Percent of Proposed Contract
ESP Enterprises, Inc.	DBE/MBE	Vending Machine and Validator Installation Services	$ [redacted]	
Anthro-Tech	DBE/WBE	User Experience Design Consulting	$	
West Sound Workforce	DBE/WBE	Customer Service Terminal Installation Services	$	
Go Systems and Solutions	DBE/WBE	Business Analyst Consultant	$	
Babinec Consulting	DBE/WBE	Technical Writing	$	
Edco Incorporated	DBE/WBE	Contract Manufacturing	$	
Subtotal and percent from attached list of DBE/Small Business participants:			17.	
(Please attach a separate list of additional planned DBE/Small Business participants, as necessary)		**DBE/Small Business Participants Total:**	**19.** $ 6,813,885.35	20. 14.11 %

PROPOSAL FORM NO. 4 DBE/SMALL BUSINESS OUTREACH DOCUMENTATION FORM

Page 1 of 5

If there is a DBE or Small Business goal in this RFP, or if the Proposer will have subconsultants perform all or part of the Scope of Work, then the Proposer shall submit this form as part of its Proposal as documentation of its efforts to reach out to DBEs and Small Businesses to participate in the Agreement under this RFP. Sound Transit may request the Proposer provide additional information regarding its efforts. Attach additional forms as necessary.

By submitting this Form, the Proposer certifies it contacted the identified DBEs and Small Businesses, in an effort to solicit their participation in performance of the work in the Agreement under this RFP.

Is Subcontracting anticipated for this Contract? Yes **Yes** _____ **No**

1. Firm Name: PH Traffic

Contact Person: [redacted]

Area of Expertise: Civil and traffic engineering, traffic signal design, modifications, & ITS planning

DBE and Small Business Status: DBE

Date Contacted: October 17th

Response: [redacted]

2. Firm Name: Premium Fleet Services

Contact Person: [redacted]

Area of Expertise: Truck/Fleet Maintenance and Service

DBE and Small Business Status: MBE

Date Contacted: October 17th

Response: [redacted]

3. Firm Name: RPL Electric LLC

Contact Person: [redacted]

Area of Expertise: Electrical contracting on residential, commercial and industrial projects

DBE and Small Business Status: WBE

Date Contacted: October 17th

Response: [redacted]

4. Firm Name: Sundance Electric

Contact Person: [redacted]

Area of Expertise: Electrical contracting on commercial, industrial, and mass transit

DBE and Small Business Status: DBE

Date Contacted: October 17

Response: [redacted]

PROPOSAL FORM NO. 4 DBE/SMALL BUSINESS OUTREACH DOCUMENTATION FORM

Page 2 of 5

If there is a DBE or Small Business goal in this RFP, or if the Proposer will have subconsultants perform all or part of the Scope of Work, then the Proposer shall submit this form as part of its Proposal as documentation of its efforts to reach out to DBEs and Small Businesses to participate in the Agreement under this RFP. Sound Transit may request the Proposer provide additional information regarding its efforts. Attach additional forms as necessary.

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Is Subcontracting anticipated for this Contract? Yes **Yes** _____ **No**

1. Firm Name: ESP Enterprises Inc.
Contact Person: [redacted]
Area of Expertise: Installation and maintenance of electronic fare-box equipment
DBE and Small Business Status: MBE
Date Contacted: September 12, 2017
Response: [redacted]

2. Firm Name: Anthro-Tech
Contact Person: [redacted]
Area of Expertise: User-centered design consultancy focused on government agencies
DBE and Small Business Status: DBE/WBE
Date Contacted: Several Conversations week of October 17 and 23rd
Response: [redacted]

3. Firm Name: Applexus Technologies LLC,
Contact Person: [redacted]
Area of Expertise: Information Technology Services and Consulting
DBE and Small Business Status: MBE
Date Contacted: October 17, 2017
Response: [redacted]

4. Firm Name: XITIJ
Contact Person: [redacted]
Area of Expertise: Microsoft certified independent software vendor
DBE and Small Business Status: MWBE
Date Contacted: October 17, 2017
Response: [redacted]

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PROPOSAL FORM NO. 4 DBE/SMALL BUSINESS OUTREACH DOCUMENTATION FORM

If there is a DBE or Small Business goal in this RFP, or if the Proposer will have subconsultants perform all or part of the Scope of Work, then the Proposer shall submit this form as part of its Proposal as documentation of its efforts to reach out to DBEs and Small Businesses to participate in the Agreement under this RFP. Sound Transit may request the Proposer provide additional information regarding its efforts. Attach additional forms as necessary.

By submitting this Form, the Proposer certifies it contacted the identified DBEs and Small Businesses, in an effort to solicit their participation in performance of the work in the Agreement under this RFP.

Is Subcontracting anticipated for this Contract? YES **Yes** **No**

1. Firm Name: Autoscan, Inc
Contact Person: [redacted]
Area of Expertise: Computer Aided Design Services
DBE and Small Business Status: MBE
Date Contacted: October, 17, 2017
Response: [redacted]

2. Firm Name: Fair Cape Consulting, LLC
Contact Person: [redacted]
Area of Expertise: Computer Aided Design Services
DBE and Small Business Status: DBE/WBE
Date Contacted: October, 12, 2017
Response: [redacted]

3. Firm Name: ITEN Associates
Contact Person: [redacted]
Area of Expertise: Computer Aided Design Services
DBE and Small Business Status: DBE/MBE
Date Contacted: October, 18, 2017
Response: [redacted]

4. Firm Name: Keiser Group
Contact Person: [redacted]
Area of Expertise: Computer Aided Design Services
DBE and Small Business Status: MWBE/DBE
Date Contacted: October, 10, 2017
Response: [redacted]

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PROPOSAL FORM NO. 4 DBE/SMALL BUSINESS OUTREACH DOCUMENTATION FORM

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By submitting this Form, the Proposer certifies it contacted the identified DBEs and Small Businesses, in an effort to solicit their participation in performance of the work in the Agreement under this RFP.

Is Subcontracting anticipated for this Contract? YES **Yes** **No**

1. Firm Name: Verity Cleaning Solutions
Contact Person: [redacted]
Area of Expertise: Office Celaning
DBE and Small Business Status: Not listed as DBE or WBE
Date Contacted: October 16, 2017
Response: [redacted]

2. Firm Name: Paracletemc
Contact Person: [redacted]
Area of Expertise: Security and Network Systems
DBE and Small Business Status: DVOB
Date Contacted: October 16, 2017
Response: [redacted]

3. Firm Name: GO Systems and Solutions, LLC
Contact Person: [redacted]
Area of Expertise: Transportation Technology Consulting
DBE and Small Business Status: DBE/WBE
Date Contacted: October 15, 2017
Response: [redacted]

4. Firm Name: [redacted]
Contact Person: [redacted]
Area of Expertise: Temporary Staffing Needs
DBE and Small Business Status: DBE / WBE
Date Contacted: October 10, 2017
Response: [redacted]

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PROPOSAL FORM NO. 4 DBE/SMALL BUSINESS OUTREACH DOCUMENTATION FORM

If there is a DBE or Small Business goal in this RFP, or if the Proposer will have subconsultants perform all or part of the Scope of Work, then the Proposer shall submit this form as part of its Proposal as documentation of its efforts to reach out to DBEs and Small Businesses to participate in the Agreement under this RFP. Sound Transit may request the Proposer provide additional information regarding its efforts. Attach additional forms as necessary.

By submitting this Form, the Proposer certifies it contacted the identified DBEs and Small Businesses, in an effort to solicit their participation in performance of the work in the Agreement under this RFP.

Is Subcontracting anticipated for this Contract? YES **Yes** **No**

1. **Firm Name:** Edco Inc.
   Contact Person: [redacted]
   Area of Expertise: Contract Manufacturing
   DBE and Small Business Status: DBE and WBE
   Date Contacted: March 6, 2018
   Response: [redacted].

2. **Firm Name:** Babinec Consulting
   Contact Person: [redacted]
   Area of Expertise: Technical Writing
   DBE and Small Business Status: DBE and WBE
   Date Contacted: March 8, 2018
   Response: [redacted]fter

3. **Firm Name:** Documents Design
   Contact Person: [redacted]
   Area of Expertise: Technical Writing
   DBE and Small Business Status: DBE/WBE
   Date Contacted: March 8, 2018
   Response: [redacted]

4. **Firm Name:** Mel Dodd Consulting
   Contact Person: [redacted]
   Area of Expertise: Technical Writing
   DBE and Small Business Status: DBE / MBE
   Date Contacted: March 8, 2018
   Response: [redacted]

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

Instructions for Certification:

By signing and submitting this form, the prospective lower tier participant[1] is providing the signed certification set out below.

1. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, Sound Transit may pursue available remedies, including suspension and/or debarment.

2. The prospective lower tier participant shall provide immediate written notice to Sound Transit if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

3. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "bid/proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 29]. You may contact Sound Transit for assistance in obtaining a copy of those regulations.

4. The prospective lower tier participant agrees by submitting this bid or proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by Sound Transit.

5. The prospective lower tier participant further agrees by submitting this bid or proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction", without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

6. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

7. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

8. Except for transactions authorized under Paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, Sound Transit may pursue available remedies including suspension and/or debarment.

[1] "Lower tier participant" includes all contractors, consultants, subcontractors and subconsultants participating on any of Sound Transit's contracts.

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

9. The prospective lower tier participant certifies, by submission of this bid or proposal, that neither it nor its "principals" [as defined at 49 C.F.R. § 29.105(p)] is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: INIT Innovations in Transportation Inc.
(Type or Print Company Name)

[redacted]
(Signature) (Title)

Print Name: Linda Keith

Please Print on Recycled Paper

SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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2. The prospective lower tier participant shall provide immediate written notice to Sound Transit if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

3. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "bid/proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 29]. You may contact Sound Transit for assistance in obtaining a copy of those regulations.

4. The prospective lower tier participant agrees by submitting this bid or proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by Sound Transit.

5. The prospective lower tier participant further agrees by submitting this bid or proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction", without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

6. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

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[1] "Lower tier participant" includes all contractors, consultants, subcontractors and subconsultants participating on any of Sound Transit's contracts.

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

9. The prospective lower tier participant certifies, by submission of this bid or proposal, that neither it nor its "principals" [as defined at 49 C.F.R. § 29.105(p)] is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: GO Systems and Solutions LLC
(Type or Print Company Name)

[redacted]
(Signature) (Title)

Print Name: Paula E. Okunieff

Please Print on Recycled Paper

SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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2. The prospective lower tier participant shall provide immediate written notice to Sound Transit if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

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6. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

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10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: Bytemark, Inc.
(Print Company Name)

By: [redacted] CEO & President
(Signature) (Title)

Print Name: Micah Bergdale

Please Print on Recycled Paper

SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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[1] "Lower tier participant" includes all contractors, consultants, subcontractors and subconsultants participating on any of Sound Transit's contracts.

Please Print on Recycled Paper

SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

9. The prospective lower tier participant certifies, by submission of this bid or proposal, that neither it nor its "principals" [as defined at 49 C.F.R. § 29.105(p)] is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: [redacted]

By: [redacted] Vice President (Title)

Print Name: [redacted]

Please Print on Recycled Paper

SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

Instructions for Certification:

By signing and submitting this form, the prospective lower tier participant[1] is providing the signed certification set out below.

1. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, Sound Transit may pursue available remedies, including suspension and/or debarment.

2. The prospective lower tier participant shall provide immediate written notice to Sound Transit if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

3. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "bid/proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 29]. You may contact Sound Transit for assistance in obtaining a copy of those regulations.

4. The prospective lower tier participant agrees by submitting this bid or proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by Sound Transit.

5. The prospective lower tier participant further agrees by submitting this bid or proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction", without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

6. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

7. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

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Propos[redacted]

By: [redacted]

Print Na[redacted]

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

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10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: Anthro-Tech, Inc.
(Name)

By: [redacted] Founder & CEO
(Signature) (Title)

Print Name: [redacted]

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

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10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: [redacted]

By: [redacted] anaging Director
(Title)

Print Name: [redacted] JS

Please Print on Recycled Paper

SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

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10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: West Sound Workforce, Inc.
(Typed or Printed Company Name)

[redacted] President + CEO
(Title)

Print Name: Julie Tappero

Please Print on Recycled Paper

SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

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Proposer: Wow Technologies, Inc. (WOWRACE)

[redacted]ame) vice president.

(Signature) (Title)

Print Name: Edward Osclcar

Please Print on Recycled Paper

SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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SOUNDTRANSIT

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Proposer: Arctic Wolf Networks, Inc.

[redacted]pany Name)

(Signature)

Pres + CEO

(Title)

Print Name: Brian M. NeSmith

Please Print on Recycled Paper

SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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SOUNDTRANSIT

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Proposer: EDCO, INC
(Type or Print Company Name)

By: [redacted] President
(Signature) (Title)

Print Name: LESCIE SMITH

Please Print on Recycled Paper

SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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SOUNDTRANSIT

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Proposer: Babinec Consulting LLC
(Type or Print Company Name)

[redacted]

(Signature)

Owner & CFO
(Title)

Print Name: Lisa S. Babinec

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SOUNDTRANSIT

PROPOSAL FORM 5 CERTIFICATION OF BIDDER OR PROPOSER REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

Instructions for Certification:

By signing and submitting this form, the prospective lower tier participant[1] is providing the signed certification set out below.

1. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, Sound Transit may pursue available remedies, including suspension and/or debarment.

2. The prospective lower tier participant shall provide immediate written notice to Sound Transit if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

3. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "bid/proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 29]. You may contact Sound Transit for assistance in obtaining a copy of those regulations.

4. The prospective lower tier participant agrees by submitting this bid or proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by Sound Transit.

5. The prospective lower tier participant further agrees by submitting this bid or proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction", without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

6. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not proposed for debarment under 48 CFR part 9, subpart 9.4, debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

7. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

8. Except for transactions authorized under Paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is proposed for debarment under 48 CFR part 9, subpart 9.4, suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, Sound Transit may pursue available remedies including suspension and/or debarment.

L.A.
L.A.

[1] "Lower tier participant" includes all contractors, consultants, subcontractors and subconsultants participating on any of Sound Transit's contracts.

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SOUNDTRANSIT

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion"

9. The prospective lower tier participant certifies, by submission of this bid or proposal, that neither it nor its "principals" [as defined at 49 C.F.R. § 29.105(p)] is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

10. When the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this bid or proposal.

Proposer: Persistent Systems Inc.
(Type or Print Company Name)

[redacted]
Ranjan Juneja (Mar 23, 2018)
(Signature)

Account Owner
(Title)

Print Name: Ranjan Juneja

Legal Approved (Tejashree S)
Legal Approved (Tejashree S) (Mar 23, 2018)

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SOUNDTRANSIT

PROPOSAL FORM NO. 6 CERTIFICATION REGARDING LOBBYING

The undersigned [Consultant] certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for making lobbying contacts to an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form--LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions [as amended by "Government wide Guidance for New Restrictions on Lobbying," 61 Fed. Reg. 1413 (1/19/96). Note: Language in paragraph (2) herein has been modified in accordance with Section 10 of the Lobbying Disclosure Act of 1995 (P.L. 104-65, to be codified at 2 U.S.C. 1601, et seq.)]

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

[Note: Pursuant to 31 U.S.C. § 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such expenditure or failure.]

The Consultant, IVIT Innovation in Transportation Inc., certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Consultant understands and agrees that the provisions of 31 U.S.C. 3801, et seq., apply to this certification and disclosure, if any.

[redacted]

Signature of Consultant's Authorized Official

10/25/17

Date

Linda Keith, VP & CFO

Name and Title of Consultant's Authorized Official

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SOUNDTRANSIT

PROPOSAL FORM NO. 7 BUY AMERICA

Certification Requirement for Procurement of Steel, Iron, or Manufactured Products.

Certificate of Compliance with Buy America Requirements

The proposer or offeror hereby certifies that it will comply with the requirements of 49 U.S.C. 5323(j)(1) and the applicable regulations in 49 CFR Part 661.

Date 10/26/17

[redacted]

Printed Name Linda Keith

Company INIT Innovations in Transportation Inc.

Title Vice President + CFO

OR

Certificate of Non-Compliance with Buy America Requirements

The proposer or offeror hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j) but it may qualify for an exception to the requirement pursuant to 49 U.S.C. 5323(j)(2), as amended, and the applicable regulations in 49 CFR Part 661.7.

Date _____

Signature _____

Attorney, Corporate Officer, Owner, or Partner

Printed Name _____

Company _____

Title _____

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next generation ORCA

The Capability Conformance Matrix must be signed by an authorized representative of the Proposer with authority to execute binding contracts on its behalf. By signing below, the Proposer hereby agrees that all the information associated with the capabilities are true and agreed upon as part of the Scope of work for the ngORCA RFP No RTA/RP 0119-17. This Capability Conformance Matrix will be binding and part of the agreement between the Proposer and Sound Transit.

[redacted]

Signature

Roland Staib, President & CEO

Name, Title

6/7/2018

Date

Capability Subsection	Capability Type	Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
Section 2 Implementation Services						
Section 2.1 Project Management						
Project Management Plan	Mandatory	2.1.3-1	The project Management Plan (PMP) will include but is not limited to the following elements: • Organization chart identifying key project personnel and contact information • Master schedule, identifying key project milestones and activities • Schedule for all project design and manufacturing elements that require Agency approval • Project meeting schedule • Methodology to control project schedule, scope, cost, and risk • Risk management plan and risk register, including identified project risks and actions required to mitigate them • Transition and change management processes and procedures • Safety processes and procedures • Quality assurance processes and procedures to confirm that the requirements of the contract are being met • Subcontractor management and communications • Document and Master Issues List (MIL) control processes and procedures, including version and traceability controls • Change management plan and procedures for all deliverables and subsequent revisions • Cost management			
Section 2.4 Testing						
General Rqmts	Mandatory	2.4.1-1	All system components and subsystems will be tested individually and in integrated environments to make sure that they meet all technical and functional capabilities in the specifications.			
		2.4.1-2	All tests and inspections will be documented by the SI, and monitored and signed off by the Agencies or their representatives, as well as by the SI or its representatives.			
Test Documentation	Mandatory	2.4.2.1-1	The inspection and test plan will include a detailed schedule indicating the sequence of each test, where and when each test will take place, and the number of SI-provided staff covering each test.			
		2.4.2.1-2	The inspection and test plan will detail the number and range of tests, as well as the criteria for acceptance of each phase of testing. All performance measurement procedures and acceptance criteria, including the number and type of failures allowed in each phase of testing, will be subject to Agency review and approval. The plan will include all capabilities as well as those identified during design review.			
Agency Test Facility	Mandatory	2.4.3-1	The test facility will be connected to the next generation ORCA back office test environment, including the account-based transaction processor and all specified support systems, which fully replicates the production environment. The test environment hardware will be identical to the production system hardware, but will not require system redundancy.			
		2.4.3-2	With the exception of factory testing, all specified formal testing will be conducted onsite, and all laboratory-based testing will be conducted in the test facility. The SI shall provide all labor and materials required for system testing, including but not limited to closed-loop fare media and bank cards.			
Factory Testing	Mandatory	2.4.4.1-1	First Article Configuration Inspection (FACI) will take place at the point of assembly, after manufacture or procurement of the first production units for each of the System components: onboard validators and mounting hardware, wayside validators and mounting hardware, driver display units and mounting hardware, vending machines, customer service terminals, and the back office, including all subsystems.			
		2.4.4.2-1	Factory Acceptance Test (FAT) will be conducted by the SI at the SI's facility or at a subcontractor's facility designated by the SI. The SI shall provide all necessary supplies for FAT.			
		2.4.4.2-2	If at any time after any phase's test results have been approved, a design change is made, the performance of the modified system components will need to be demonstrated as conforming to this specification and the test results will be resubmitted for Agency approval.			
Integration Testing	Mandatory	2.4.5.2-1	The SI shall conduct all System Integration Test (SIT) testing at the Agency test facility.			
		2.4.5.2-2	If the SI hosts the System, the automated failover process will be exercised in multiple failover scenarios during systems integration testing to demonstrate no data loss or significant degradation in system performance. The Disaster Recovery Plan will include regular failover testing after implementation.			
		2.4.5.3-1	The SI will conduct all Field Integration Test (FIT) testing in the production environment.			
System Acceptance Testing	Mandatory	2.4.6.1-1	SAT will be performed in the production environment with all components, subsystems, and networks completely operational, online, and in service.			
		2.4.6.2-1	The SI shall submit a request for Final System Acceptance upon successful completion of SAT and determination that all work has been completed in accordance with this Scope of Work and final design.			

Capability Subsection	Capability Type	Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
Section 8 Operation & Maintenance Services						
Section 8.2 Operations & Maintenance Model						
Operations & Maintenance Model	Mandatory	8.2-1	The SI shall warrant that all of the equipment, computer systems, and software provided for the System, including those components warranted by third-party suppliers, will be free from defects in operation, material, and workmanship under normal operating use. Remedial work to correct deficiencies will include the repair or replacement of equipment, components, devices and/or materials.			
		8.2-2	The SI shall provide a one (1) year warranty that begins upon Final System Acceptance.			
		8.2-3	The SI shall follow proper Agency security procedures for gaining access to field equipment and facilities, and shall not engage in such procedures without having received Agency-provided training.			
		8.2-4	Prior to the start of the SMA, all software maintenance activities will be covered under warranty.			
	Desired	8.2-5	All software maintenance performed under the warranty will comply with the documented software maintenance capabilities			
		8.2-6	The warranty will include but is not necessarily limited to the following SI provided equipment and software, and back office systems and software: • Onboard validators and associated hardware • Wayside validators and associated hardware • DDUs and associated hardware • CSTs • VMs • Test facility • Production and test back office systems			
		8.2-7	The warranty will cover the following: • Repair or replacement of all equipment or systems required as a result of an identified hardware defect • Software updates or re-writes required to repair all identified software defects or bugs, and apply all necessary patches or security updates released by the SI or third-party software providers throughout the term of the warranty • All labor associated with hardware and software testing and deployment, both in the lab and field environments, needed to support warranty activities			
		8.2-8	If during the warranty term, the required replacement of any component or device exceeds 10% of the mean quantity installed, a "fleet defect" will be declared, and the entire quantity of such components or devices will be considered defective.			
		8.2-9	If a fleet defect is declared, the Program needs the SI to undertake and complete a corrective work program to replace all components of that type with new components. The repair schedule and procedures will be subject to Agency review and approval. All items replaced under these terms will be warranted for at least one (1) year after replacement.			
		8.2-10	A fleet defect will be considered resolved when the installed components are determined to meet or exceed all of the KPI capabilities, and upon Agency approval.			
		8.2-11	The Program needs the SI to be responsible for all personnel, labor, tools, materials, shipping charges, and other costs associated with the repair or replacement of components and/or subsystems throughout the warranty term.			
		8.2-12	Following completion of the warranty term, should there be warranty work to complete, the warranty will be extended to provide equal coverage for each piece of equipment.			
		8.2-13	The warranty will not apply to any equipment that has been damaged by any person other than the SI or SI's assignee. Environmental conditions described in these technical specifications will be considered normal operating conditions for this System and will not qualify for exclusion.			

Capability Subsection	Capability Type	Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
		8.2-14	The Agencies will operate and maintain the equipment and software in accordance with the SI's specific instructions in order to maintain this warranty. The Agencies will be held blameless if the SI has provided inadequate or inaccurate training, and/or incomplete operating manuals, maintenance manuals, electrical and electronic schematics, mechanical diagrams, or software documentation.			
		8.2-15	In the event the SI fails to comply promptly with warranty requirements, the Agencies will, upon written notice to the SI, have the right to deduct the cost of the Agencies' prevailing labor and material costs for repairing a defect from any compensation due, or coming due, to the SI. In the event the SI has been paid in full, the Program needs the SI to agree to compensate the Agencies for the costs incurred.			
		8.2-16	Spare modules used by the SI during the warranty term will be replaced by the SI at no cost to the Agencies. The Program needs the SI to maintain sufficient spare sub-assemblies, modules, and components to meet the System availability capabilities through the conclusion of the warranty.			
		8.2-17	During the entire warranty term, any and all repairs, adjustments, or replacements of equipment by the Program needs the SI to be documented by the SI within the AIM at the completion of every day.			
		8.2-18	The Program needs the SI to develop a warranty plan outlining processes and procedures to be implemented to meet all specified warranty requirements. A draft of the warranty plan will be submitted at FDR and a final version will be provided a minimum of 90 calendar days prior to the start of any warranty term.			
		8.2-19	The Program needs the SI to provide a new component or subsystem if a particular component or subsystem was repaired or replaced three (3) times for the same failure, as determined by the FRB, within the warranty period.			
Section 8.3 Website Hosting						
	Mandatory	8.3-1	The SI shall provide the hosting services necessary to support website operations, and interfaces to internal and external systems needed to perform the required functions for the duration of the contract.			
Section 8.4 Back Office Hosting						
	Mandatory	8.4-1	If the SI hosts the System, they shall provide the hosting services necessary to support system operations and interfaces to internal and external systems needed to perform the required functions for the duration of the contract.			
Section 8.5 Back Office Operations						
Back Office Operations	Mandatory	8.5-1	The SI shall be responsible for all back office operations and maintenance under the back office operations agreement.			
		8.5-2	Throughout the term of the back office operations agreement, the SI will meet the associated system performance capabilities (e.g., back office accuracy, availability, and server authorization rate).			
		8.5-3	The SI shall develop a back office operations plan outlining the processes and procedures to be implemented in order to meet all specified back office operations capabilities. A draft of the back office operations plan will be submitted at FDR and a final version will be provided a minimum of 90 days prior to the start of the back office operations agreement term.			
	Desired	8.5-4	The SI's Lead Engineer will continue in a full-time onsite operations and maintenance services role throughout the term of the back office operations agreement. The SI may propose an alternate to fill the primary onsite operations management role, subject to Agency approval, and may elect to have additional onsite staff as needed to meet the capabilities of the back office operations agreement.			
		8.5-5	The Program needs the SI to allow Agency staff to shadow all back office operations and support activities throughout the back office operations agreement.			
		8.5-6	Under the back office operations agreement, the Program needs the SI to be responsible for the following activities: • Monitoring system performance and health • Providing timely and accurate processing of transactions • Overseeing operation of all back office support systems (e.g., CRM application and financial management systems) • Overseeing website operation • Overseeing operation and updates of mobile apps • Maintaining system configuration, and making configuration changes upon request from the Agencies • Testing and deployment of website and configuration changes • Supporting report updates and ad-hoc data requests			
		8.5-7	Failure to meet the specified performance capabilities will result in deductions from the monthly back office operations payments made to the SI. Deductions will be based on the level of performance, and impacts of persistent failures.			
		8.5-8	The Program needs the SI to be responsible for updates to the SI-provided reports no less than quarterly.			

Capability Subsection	Capability Type	Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
		8.5-9	The SI will provide a monthly invoice (at end of month) for back office, online services and other components in an itemized fashion with any credits related to KPIs also listed.			
Section 8.6 ISMS Compliance						
ISMS Compliance	Mandatory	8.6-1	The SI shall be responsible for maintaining the System's compliance with all required security controls, and for facilitating the operation of the regional ISMS by providing all necessary evidence of proper control implementation and operation for the System for the duration of the contract.			
	Desired	8.6-2	The region's ISMS will continuously assess the risk profile of the System. If needed, the Program needs the SI to implement additional controls to address newly identified risks to the System, based on changing technological, business, or compliance needs.			
Section 8.7 Software Maintenance						
General Capabilities	Mandatory	8.7.1-1	The SI shall provide preventative and corrective software maintenance to support system operations while meeting the performance standards set forth in this SOW.			
		8.7.1-2	The SI shall submit a Software Maintenance Plan for review and approval identifying the approach to meeting the capabilities of the SMA.			
		8.7.1-3	Throughout the term of the SMA, the SI will meet the associated system performance capabilities (e.g., device reliability and accuracy).			
	Desired	8.7.1-4	The Software Maintenance Plan will cover the following: • Software updates or re-writes required to fix all identified software defects or bugs throughout the term of the SMA • Application of all necessary patches or security updates released by the SI or third-party software providers • All software testing and deployment, both in the lab and field environments, needed to support these activities			
		8.7.1-5	Performance of software maintenance activities will be completed in a manner that does not disrupt or degrade system operations, to the fullest extent possible.			
		8.7.1-6	The Program needs the SI to make corrections and modifications to the System software in coordination with the Agency staff. Serious issues (i.e., any error which causes system reliability or availability to fall below stated capabilities) will be corrected immediately.			
		8.7.1-7	If the condition requiring correction affects the operation of other system components, then the Program needs the SI to provide repair or replacement of the System components that fail, regardless of whether the warranty term has expired for those components.			
		8.7.1-8	The Program needs the SI to make every attempt to fix software problems impacting revenue collection within two (2) hours of being reported.			
		8.7.1-9	The SI and the Agencies shall agree on an appropriate course of action if a third-party software provider goes out of business, or if maintenance updates for third-party software degrades performance of the SI's system.			
		8.7.1-10	Software to be maintained under the SMA will include all required updates to the APIs and associated specifications provided by the SI.			
		8.7.1-11	All third-party software will be maintained at the most current or previous version at no additional charge throughout the term of the SMA, so long as it does not involve a major rewrite of the SI's software.			
ations, Response & Resolution	Mandatory	8.7.2-1	The SI shall provide technical support to the Agencies for the general use and operation of the software via telephone throughout the warranty and SMA terms. Telephone support will be provided by the SI during normal business hours (PST) Monday through Friday, excluding holidays.			
		8.7.2-2	The SI shall provide phone number and email address for the reporting of software defects or malfunctions, and system outages, 24 hours a day, seven (7) days a week.			
	Desired	8.7.2-3	During the warranty and SMA terms, the Program needs the SI to respond to reports of system outages within 30 minutes of notification, 24 hours a day, seven (7) days a week. A fully-qualified service representative will be onsite as soon as possible, and no more than 24 hours after being contacted by Agency staff, if it is determined that a physical presence is needed to resolve the identified issue.			
		8.7.2-4	During the warranty and SMA terms, the Program needs the SI to respond to a report of any software defect or malfunction within one hour of notification during Agency business hours. A fully-qualified service representative will be onsite as soon as possible, and no more than 24 hours after being contacted by Agency staff, if it is determined that a physical presence is needed to resolve the identified issue.			
		8.7.2-5	Program needs the SI to maintain a change log of all changes that are performed, and provide this change log to the Agencies on a mutually agreed upon schedule. The change log must be sufficiently detailed to allow the Agencies to determine when any feature was added or modified, and the scope of the change. The change log will conform to the change management policies defined in the change management plan.			

Capability Subsection	Capability Type	Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
Communica		8.7.2-6	Advance notification will be provided, as defined by the change management policies outlined in the change management plan, for all software maintenance activities.			
		8.7.2-7	The Program needs the SI to submit to the Agencies no less than every two weeks a bulletin setting forth planned modifications and updates to the software, upgrade schedules, and a calendar of key dates for system changes for the coming three months and beyond. The bulletin will conform to the change management policies defined in the change management plan.			
		8.7.2-8	Throughout the SMA term, the Program needs the SI to document all equipment repairs, adjustments, or replacements within a maintenance management system, by the end of each day.			
		8.7.2-9	If a software problem impacts revenue collection, but repair will take longer than three (3) hours, the Program needs the SI to report the cause of the problem as soon as it becomes evident, and provide status reports at least every four (4) hours thereafter, until the problem is corrected or a workaround is established.			
Software Change Management	Mandatory	8.7.3-1	Without releasing the SI from its obligations under the warranty and SMA, the Agencies have the right to refuse to install any updates, at their sole discretion.			
		8.7.3-2	During the term where the SMA is in effect, the SI shall update training course materials and manuals as needed to reflect software changes performed under the agreement.			
		8.7.3-3	All changes to any delivered and installed part of the System must comply with the mutually agreed upon change request and software deployment procedures defined in the SI's Project Management Plan.			
	Desired	8.7.3-4	The Program needs the SI to track and maintain a list of software maintenance issues and open items. The Program needs the SI to distribute the list to the Agencies in advance of each monthly meeting.			
		8.7.3-5	Software and firmware updates will be clearly documented and submitted in advance of deployment for Agency review and approval.			
		8.7.3-6	During the warranty and SMA terms the Program needs the SI to provide updated course instruction and materials resulting from any significant system hardware or software changes.			
		8.7.3-7	The Program needs the SI to support software change management meetings no less than monthly throughout warranty and SMA terms, either in person or via phone.			
		8.7.3-8	The Program needs the SI to keep all software environments (training, test, development, staging, and production) at the same configuration and patch level as appropriate.			
		8.7.3-9	The Program needs the SI to notify the Agencies whenever corrections, modifications or revisions of system software are available.			
		8.7.3-10	As standard practice when repairing deficiencies and releasing device or back office system fixes or upgrades, the Program needs the SI to prepare and run regression testing scripts to test that each build delivered to the test environment does not result in any issues with the devices and systems currently in operation, including those that are not being updated. Any regression issues will be documented as deficiencies and resolved accordingly.			
Software Enhancements	Mandatory	8.7.4-1	The SI shall provide to the Agencies all support required to develop and deploy such enhancements at the SI's labor rates specified in the price schedule.			
	Desired	8.7.4-2	The Program needs the SI to provide timely response to requests for software enhancements (customizations) by the Agencies that are not covered by the warranty or SMA. Enhancements include modifications to the software that add capabilities and improve or change software functions that are not modifiable using the System configuration parameters defined in this SOW.			
Section 8.8 Field Equipment Maintenance						
nent Maintenance	Mandatory	8.8-1	A detailed service operations document including service procedures and VM screen flows will be provided during design review for Agency review and approval.			
	Desired	8.8-2	Spare devices and modules used for all maintenance activities performed prior to Final System Acceptance will be replaced with functional equipment a maximum of 14 calendar days after use.			
		8.8-3	The SI will provide instructions and pricing for the purchase of replacement devices and modules for all SI-supplied equipment, including but not limited to: * Onboard validators * Wayside validators * Driver display units * CST (and all peripherals) The purchase of replacement equipment may be through the SI or OEM, and pricing may be provided for repaired or refurbished equipment, in addition to new equipment.			
		8.8-4	The Program needs the SI to provide a recommended list of spare modules and parts to support the installed fleet at completion of SAT. Recommended quantities will be provided based on expected usage.			

Capability Subsection	Capability Type	Capability Number	Capability	Fully Conforming	Non-conforming	
Field Equipment	Desired	8.8-5	The Program needs the SI to provide a recommended list of consumables at completion of SAT to support system operations for one year. Consumables are items that have a limited life cycle due to constant use and are expected to be replaced on a frequent basis, such as bulbs, fuses, and receipt paper. Recommended quantities will be provided based on expected usage.			
		8.8-6	The Program needs the SI to provide a list of special tools needed to maintain the System at completion of SAT. Special tools are defined as special diagnostic tools and equipment that is not readily available from commercial sources. The Program needs the SI to provide sufficient documentation to allow the Agencies to manufacture these tools.			
		8.8-7	The Program needs the SI to not modify or repair any equipment in revenue service without the approval of the ROOT or an Agency-authorized representative.			
		8.8-8	During the warranty, the Program needs the SI to ship replacement modules within one business day of receipt of any field equipment returned for repair/replacement.			
Section 8.9 Agency Test Facility						
	Desired	8.9-1	The Program needs the SI to update the Agency test facility for the duration of the contract.			
Section 8.10 Fraud Controls						
	Mandatory	8.10-1	The SI shall be responsible for maintaining the System's fraud control capabilities for the duration of the contract.			
Section 8.11 Disaster Recovery						
Disaster Recovery	Mandatory	8.11-1	The SI shall maintain the Disaster Recovery Plan for the duration of the contract. The plan will conform to the required service level agreement and be consistent with the Business Continuity Plan and recovery time capabilities.			
		8.11-2	For SI-hosted solutions, the SI must have a current Disaster Recovery Plan in place for both IT and non-IT related disasters for the duration of the contract.			
Section 8.12 Performance Measurement						
General Capabilities	Mandatory	8.12.1-1	The SI shall submit a Performance Maintenance Plan for review and Agency approval during design review identifying the approach to measuring and reporting on performance against KPIs.			
		8.12.1-2	The SI shall be responsible for measuring performance against all KPIs.			
		8.12.1-3	The SI shall automate the capture of all necessary data and KPI calculation wherever possible. For validation purposes, the Agencies will have full access to the source data and code used to perform the calculations.			
	Desired	8.12.1-4	System performance will be measured using the data generated and stored by the System. Data generated manually will be used when it is the only option for tracking an activity associated with a particular KPI (e.g., response time).			
		8.12.1-5	The Program needs the SI to commence performance measurement during the SAT and continue to perform this activity throughout the operations agreements.			
	Mandatory	8.12.3-1	The FRB will be established prior to the start of acceptance testing to evaluate equipment and back office failures, as well as other system issues, throughout acceptance testing.			
		8.12.3-2	The acceptance test plan submitted by the SI will include a proposed FRB structure and system performance review process.			
		8.12.3-3	The Agencies' project manager will make the final and binding decision on any disputes that remain unsettled by the FRB after a period of 10 business days.			
	Desired	8.12.3-4	The members of the FRB will attempt to settle any disputes based on the requirements in this SOW, and will use best judgment in any scenarios where the requirements are silent or unclear.			
		8.12.3-5	At a minimum, the Failure Review Board (FRB) will be comprised of the Agencies' project manager, or a designated representative, and the SI's lead engineer.			
		8.12.3-6	The FRB will be responsible for the review and approval of the acceptance test plan, and shall agree to the criteria for the execution and approval of the acceptance test phases.			
		8.12.3-7	During acceptance testing, the FRB shall meet no less than weekly. The FRB will review all failures and other system issues that arise during acceptance testing to assess their severity and impact on completion of this test phase.			
		8.12.3-8	Following the prescribed SAT period, the FRB will make a recommendation on whether to approve or extend the test phase. Final discretion for the approval of acceptance testing and the granting of Final System Acceptance will reside with the Agencies.			
		8.12.3-9	Following Final System Acceptance, the FRB will continue to meet monthly for the remainder of the operations agreements. During this time, the FRB will be responsible for reviewing system performance and settling any disputes around measurement of the KPIs.			

Capability Subsection	Capability Type	Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
Failure Review Board	Desired	8.12.3.1-1	Non-chargeable failures include, but are not limited to, the following: • Mishandling of equipment or back office system components • Any failures caused by externally applied stress conditions outside of normal operating conditions and in excess of the requirements in this SOW • Failures caused by incorrectly exercised operating, maintenance or repair procedures performed by the Agencies where correct procedures have been delivered by the SI (failures resulting from any maintenance or repair performed by the SI will be chargeable) • Failure caused by vandalism • Communications failures beyond the control of the SI • Downtime due to scheduled maintenance • Heater or battery adjustments • Dependent failures as a result of a non-chargeable failure			[redacted]
		8.12.3.1-2	All other failures will be considered relevant and chargeable unless determined to be non-chargeable by the FRB.			
		8.12.3.1-3	Non-chargeable failures will not affect the reliability, accuracy, and availability KPI calculations.			
		8.12.3.1-4	Chargeable failures include, but are not limited to, the following: • A malfunction which prevents the System component from performing its designated function, or meeting the performance criteria, when used and operated under the environmental and operational conditions stated in this SOW • A malfunction that might cause a threat to customers, employees, or others • An occurrence that does not cause the System component to become entirely inoperable, but requires some form of maintenance attention to restore normal function • Any occurrence where data is not successfully transmitted between elements of the System • Planned software updates or fixes that adversely affect the operation or performance of the System • Scheduled maintenance or repair activities that adversely affect the operation or performance of the System			
		8.12.3.1-5	The following specific conditions, at minimum, will be considered chargeable failures in any components or Systems delivered: • Software anomalies and bugs (every incident of a software anomaly or bug causing a malfunction will be considered a failure) • Hardware failures that are not clearly a result of conditions outside the requirements of this specification • Failures of mounting hardware • Data storage failures, including those due to the disk space provided • Partial or complete failure of a passenger display • Failure to accurately read and/or process a card • Failure to properly register and report any transactions • Data download/upload failure • Event or alarm transmission failure • Unexpected shutdown of equipment or the System • All maintenance requiring module replacements			
		8.12.3.1-6	Under mutual agreement, the FRB will classify additional failures as chargeable or non-chargeable as required.			
		8.12.3.1-7	Chargeable failures will affect the reliability, accuracy, and availability KPI calculations.			
	Mandatory	8.12.4-1	The SI shall be responsible for reporting on performance against all KPIs on a monthly basis.			
		8.12.4-2	The SI shall commence performance reporting during SAT and continue to perform this activity throughout the operations agreements.			
		8.12.4-3	The Program needs the SI to provide up to 100 hours of design for Agency-specific modification of provided canned reports.			

Capability Subsection	Capability Type	Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
Performance Reporting	Desired	8.12.4-4	At a minimum, the following reports will be provided: • Device reliability • Device accuracy • Device availability • Back office accuracy • Back office availability • Server authorization rate • Maintenance response time			[redacted]
		8.12.4-5	The reports will be generated without manual data entry by the SI wherever possible.			
		8.12.4-6	The reports will include tables and graphical charts showing the current and historical performance of each device of system under measurement.			
		8.12.4-7	The reports will include a calculation of any credits to be assessed in the current month based on current and prior performance.			
		8.12.4-8	The Program needs the SI to create canned reports that can be run, viewed, and downloaded by the Agencies using the reporting system. These reports will not count toward the custom reports to be defined by the Agencies.			
Credit Assessment	Desired	8.12.5-1	Credits will be granted for a failure to meet any KPIs identified as having an associated credit.			
		8.12.5-2	Credits will be determined as a percentage of the operations payments made to the SI. The credit percentage and operations payment associated with each KPI will be determined during negotiations.			
		8.12.5-3	The SI will have three opportunities to meet the KPI as measured. By the third assessment period (the third consecutive month) if the measurement is not meet, it will be deemed a failure and a credit granted.			
		8.12.5-4	The credit multiplier will increase by a factor of one for each month that a KPI is not met, up to the full value of the associated operations payment (e.g., if a KPI is not met two months in a row, the credit will be doubled in the second month; if a KPI is not met three (3) months in a row, the credit will be tripled in the third month)			
		8.12.5-5	Successfully meeting a KPI will end a persistent failure and reset the credit multiplier.			
		8.12.5-6	The total credit applied to an operations payment will not exceed the full amount of the operations payment in that month. Credits will not be carried over from month to month.			
		8.12.5-7	The Program needs the SI to be responsible for reporting on credits in the System performance reports and will deduct credits directly from any invoices submitted to the Agencies.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
Section 3 System Design & Architecture				
Section 3.1 Common Design Capabilities				
3.1.1-1	Software and hardware provided under this contract will be designed to provide a minimum useful life of 12 years from commissioning date.			
3.1.1-2	To establish a design as service-proven, the SI shall submit specific details of the design's application history, certified by current users of the equipment.			
3.1.1-3	The SI may offer, for approval, a design which is largely unchanged from a service-proven design, but which varies slightly in design or manufacture to meet the capabilities of this SOW, including newer generations of service-proven equipment. The Program needs the SI to show, in detail, what has been changed and why such changes will not adversely affect operation or maintenance in the planned environment.			
3.1.1-4	The System design will be service-proven. As service-proven, or derived from a service-proven design, the System design will meet all of the following criteria: • Has been deployed and met system acceptance requirements at a minimum of one (1) transit agency with bus and rail operations • Has been deployed and successfully integrated frontend equipment with a back office system at a minimum of one (1) transit agency • Has been deployed and achieved a level of reliability, accuracy, and availability consistent with the performance requirements in this SOW at a minimum of one (1) transit agency			
3.1.1-5	Proposed vending machines will be nearly identical in design and construction to a model deployed and in revenue service (i.e., in use and passed system acceptance) at a minimum of one (1) transit agency.			
3.1.1-6	Proposed wayside and onboard validators and associated onboard equipment will be nearly identical in design and construction to a model deployed and in revenue service (i.e., in use and passed system acceptance) at a minimum of one (1) transit agency.			
3.1.2-1	At the time of delivery, equipment, and all associated components and software will contain no prototype, obsolete, or discontinued products. Any hardware or software components that have an end-of-life prior to expiration of warranty must include replacement plans to be executed at the SI's cost.			
3.1.2-2	The System will be designed using open standards for software design, communications protocols, fare media, and other relevant design components.			
3.1.2-3	Software applications and devices will be built using Commercial off the Shelf Software (COTS) components where possible, and custom software and hardware modules only if necessary and approved by the Agencies.			
3.1.2-4	Fare media will be available for competitive purchase from multiple U.S. sources. The Program needs the SI to provide the specifications and associated documentation necessary to support the future procurement of fare media from third parties.			
3.1.2-5	The System will have a modular design for all relevant components. These modules will support field replacement to return a device to service in minimal time, as determined and approved during system design and testing, in the event of a failure. The System will also permit upgrades and configuration changes without requiring component replacement or redesign.			
3.1.2-6	In order to reduce the cost and complexity of device maintenance, all devices, components, parts, modules, assemblies, and subassemblies provided will be fully interchangeable among those of the same type without the need to make adjustment for proper compatibility.			
3.1.2-7	The System will be designed so that technology upgrades may be done with no or minimal redesign of components, modules, and software, or other work.			
3.1.3-1	The Program needs the SI to furnish equipment and materials from the manufacturers identified in the SI's deliverables, unless otherwise approved.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.1.3-2	The Program needs the SI to select and supply devices, components, parts, modules, assemblies, and subassemblies, as well as software and other essential elements of the System, based on projected availability and long-term original equipment manufacturer (OEM) support commensurate with the required useful life of the System.			
3.1.3-3	If any vital device, component, part, module, assembly, or subassembly, or support for OEM software, is being discontinued or obsoleted by the SI or OEM, the Program needs the SI to notify the Agencies a minimum of six (6) months prior to last available date of purchase or support.			
3.1.3-4	The Program needs the SI to work with the Agencies to find or develop a suitable replacement for any device, component, part, module, assembly, subassembly, or software that is obsoleted by the SI or OEM. If the SI chooses to obsolete any SI-provided equipment or software within 12 years from Final System Acceptance, all hardware and software development costs necessary to support a replacement will be borne by the SI.			
3.1.4-1	All components of the System will be constructed of the highest quality materials suitable for production-level use in the intended environment over the required useful life of the System. The SI shall use only new components conforming to the capabilities of this SOW and approved by the Agencies. This does not preclude use of recycled materials in the manufacture of new components.			
3.1.4-2	The SI shall be responsible for all materials and workmanship. It is the Systems Integrator's responsibility to design, select, and apply all materials necessary to meet the capabilities of this SOW. If alternate materials are offered following selection, it is the responsibility of the SI to demonstrate that the alternate materials are equivalent to the proposed materials, and to obtain Agency approval for the substitution prior to any implementation.			
3.1.4-3	All SI provided equipment will be free from safety hazards and will be designed to comply with relevant Underwriter's Laboratory (UL) Standards. All interior and exterior surfaces will be free from sharp edges, protrusions, exposed wires, or other hazards.			
3.1.4-4	If it is found that approved sources do not furnish a uniform product, or if the product from such source proves			
3.1.5-1	The SI shall supply all necessary software applications and shall design and configure all device and back office software			
3.1.5-2	System software will incorporate the following design elements at a minimum:			
3.1.5-3	System software will incorporate the following controls at a minimum:			
3.1.5-4	System software will incorporate the following diagnostic capabilities at a minimum:			
3.1.5-5	Software upgrades will be centrally managed and fully tested prior to installation. The System shall be able to roll-back			
3.1.5-6	All third-party software will be at the latest commercial release at the time of FDR. If a release candidate is pending, the			
3.1.6-1	The System interfaces will be user-friendly and provide easily-configurable dashboards and graphics as determined during design review.			
3.1.6-2	The SI will work closely with the Agencies' IT and web services teams to develop an approved user interface design. The Agencies will play a critical role in the website design and testing throughout the implementation.			
3.1.6-3	System equipment will provide customers and Agency users with displays, graphics and signage, controls and mechanisms that are simple to use, easy to understand, and conveniently located as determined during system design and testing. By following instructions given on and by the equipment, an inexperienced user will be able to understand all transaction processes and results. All such user interfaces will be user-friendly; that is, safe, predictable, simple to use, accessible for persons with disabilities, and in accordance with other applicable human engineering principles.			
3.1.7-1	The System equipment will provide reliable operation over its useful life, and will be designed to require minimal scheduled and unscheduled maintenance.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.1.7-2	Automatic diagnostic test routines (and equipment if necessary) will be included to aid in troubleshooting malfunctions. These test routines will provide the capability to isolate defects down to the Lowest Level Replaceable Unit (LLRU).			
3.1.7-3	The SI shall provide documentation and a Maintenance Plan during PDR that defines at a minimum: • Preventative Maintenance frequency for all system devices based upon time and transactions • A list of all Preventative Maintenance tasks to be performed, including a brief description of the work, and any parts, materials, or other components required • Time required to complete each defined Preventative Maintenance task • Which Preventative Maintenance tasks require tools to complete, and which can be performed as “fingertip maintenance”			
3.1.7-4	The interior of the System equipment will be designed to allow easy and safe access. Adequate space will be available to insert keys; grasp, lift, and turn internal components; and remove and replace components, connections, and consumables. As appropriate, guides, rails, tracks, handles, and captive fasteners will be provided to facilitate module installation and removal.			
3.1.7-5	Any component or module that must be lifted (except for cash containers when full) will not weigh more than 20 pounds. Any exceptions to this weight limitation will be subject to Agency approval.			
3.1.7-6	For ease of service and replacement, all electrical connections between components and subassemblies will be established by means of connectors that allow rapid removal of a component or subassembly. Plug-in connectors will be equipped with strain relief to prevent damage to cables and connectors.			
3.1.7-7	Components requiring frequent adjustment or maintenance will be conveniently located as determined during design and testing, and designed to facilitate access and adjustment utilizing tool-free techniques wherever possible.			
3.1.7-8	All devices will have clear labels and symbols that at a minimum indicate safety warnings, servicing steps, and wiring connections.			
3.1.7-9	No more than one person will be required to perform corrective maintenance, with the exception of vandalism, on an individual piece of equipment.			
3.1.7-10	The System will have a modular design for all relevant components. These modules will support field replacement to return a device to service in minimal time in the event of a failure. The System will also permit upgrades and configuration changes without requiring component replacement or redesign.			
3.1.7-11	The replacement of field devices or components will be quick and secure as determined during design review.			
3.1.8-1	The System will be sized such that the total number of possible transactions, and total concurrent use of transit accounts, will at a minimum support 200% of the projected regional ridership totals and peak usages supplied by the region.			
3.1.8-2	Scaling the System will in no way impact the overall performance of the System, the KPIs to which the System must meet, and any of the requirements contained in the SOW.			
3.1.9.1-1	All system components and mounts will be sufficiently constructed to comply with local codes regarding stability of structures and contents in earthquakes, high velocity wind (up to 60 miles per hour), and other natural phenomena.			
3.1.9.1-2	All system components will be designed to withstand structure-borne stresses and vibrations caused by the motion of transit vehicles, daily customer use, passing of trains or other vehicles, and emergency braking of fully-loaded trains.			
3.1.9.1-3	All system components, including all interior-mounted components and assemblies, will resist horizontal shocks of up to 6 g (where “g” is the acceleration of gravity at sea level, or 9.81 meters per second squared) and up to 1.2 g in the vertical axis for a duration of up to 12 milliseconds (ms) without permanent deformation or failure.			

Capability Number	Capability	ully Conforming	onConforming	Comments
3.1.9.1-4	There will be no failure of mounts or decrease in operational performance of any system components under conditions simulated by a sinusoidal sweep vibration test at a sweep rate of one-half octave per minute, from 5 Hz to 200 Hz to 5 Hz, at a peak vibratory acceleration of 0.25 g for a minimum of 50 cycles when applied to each of the three axes and repeated continuously for five (5) complete cycles. If any assembly or component is a source of vibration, measures will be taken to dampen the vibration. Resonant frequencies that may exist in the mounted structures will be critically dampened. All corrective measures must be approved by the Agencies.			
3.1.9.1-5	Onboard equipment, including onboard validators and driver display units, will pass the following shock and vibration tests: • IEC 60068-2-27 • IEC 60068-2-64			
3.1.9.1-6	Rail equipment, including vending machines and wayside validators, will pass the shock and vibration tests specified in the ERTMS/ETCS Environmental Requirements (e.g., EEIG 97s0655).			
3.1.9.2-1	Onboard equipment, including onboard validators and driver display units will be protected to prevent degradation in performance from exposure to moisture or dust raised by inclement weather or interior cleaning. Operation of the fare collection equipment in this environment will not in any way impair equipment performance throughout the required useful life of the System.			
3.1.9.2-2	Onboard equipment, including onboard validators and driver display units, will be designed, built, and installed for the harsh, high shock and vibration operating environment in which the System components will be installed. Operation of the fare collection equipment in this environment will not in any way impair equipment performance throughout the required useful life of the System.			
3.1.9.2-3	The onboard equipment provided by the SI will be able to operate and not suffer any degradation in performance unde the following environmental conditions: • Storage temperature: -22° to +150°F • Operating temperature: -15°F to 140°F ambient • Thermal shock: Up to 50 degrees F in 1 hour, non-condensing • Relative humidity: 5-100%, non-condensing • Airborne dust: up to 180 micrograms per cubic meter, with iron and salt particles • Sunlight: direct sunlight, radiation loading of up to 789J/sec/m2 • Inclination: 0° to 20° off vertical • Rainfall: 10 inches over 12 hours • Water/solvents: IEC529 to level IP54 or equivalent • Pollution: Vog (e.g. sulfur dioxide-laden air) and other forms of native air pollution • Other operational conditions: water spray, industrial cleaning solvents, and mud on system components from cleaning vehicle floors and walls			
3.1.9.2-4	The onboard equipment will be either immune to or protected from the damaging effects of visible spectrum and ultraviolet radiation.			
3.1.9.2-5	The onboard equipment will be designed to be resistant to liquid ingress caused by driving rain, or by splashed water or cleaning chemicals, such as would occur during routine equipment and vehicle cleaning.			
3.1.9.2-6	Means will be provided to detect failure of any cooling device and provide for a controlled shutdown of the System components and generation of a maintenance event.			
3.1.9.2-7	The onboard equipment will be tested and certified to operate under the environmental conditions specified in Society of Automotive Engineers (SAE) J1455 and all standards contained therein.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.1.9.3-1	The wayside equipment provided by the SI will tolerate the environment in which it is installed and stored. The equipment will be able to operate and not suffer any degradation in performance under the following environmental conditions: • Storage temperature: 0° to +140°F • Operating temperature: -15°F to 140°F ambient • Thermal shock: Up to 30°F in 1 hour, non-condensing • Relative humidity: 5-100%, non-condensing • Airborne dust: up to 180 micrograms per cubic meter, with iron and salt particles • Sunlight: direct sunlight, radiation loading of up to 3MJ/hr/m2 • Platform Inclination: 0° to 10° off vertical • Rainfall: 10 inches over 12 hours • Water/solvents: IEC529 to level IP65 or equivalent • Pollution: VOG and other forms of native air pollution • Other operational conditions: water spray, industrial cleaning solvents, and mud on system components from cleaning station floors and walls			
3.1.9.3-2	VMs will be subject to incidental moisture from customers and cleaning through coin, bill, and ticket slots, and other openings and enclosure joints, and will be designed for proper operation under such conditions. All exposed surfaces, including push buttons, the display screen, and coin and bill components will be unaffected by detergents and cleaning solvents. Means will be provided to expel moisture from the VMs to support continued, reliable operation.			
3.1.9.3-3	Means will be provided to detect failure of any cooling device and provide for a controlled shutdown of the System components and generation of a maintenance event.			
3.1.9.3-4	The wayside equipment will be either immune to or protected from the damaging effects of visible spectrum and ultraviolet radiation. Internal components that may be either damaged or affected operationally when exposed to direct sunlight will be protected from exposure during maintenance activities without requiring specific action by maintenance personnel.			
3.1.9.3-5	The wayside equipment will be designed to be resistant to liquid ingress caused by rain, or by splashed water or cleaning chemicals, such as would occur during routine equipment and platform cleaning.			
3.1.9.3-6	Wayside equipment, including wayside validators and VMs will be protected to prevent degradation in performance from exposure to moisture or dust raised by inclement weather or cleaning. Operation of the fare collection equipment in this environment will not in any way impair equipment performance throughout the required useful life of the System.			
3.1.9.4-1	CSTs will be designed and configurable to be installed in Agency facilities. Operation of the equipment in this environment will not in any way impair equipment performance throughout the required useful life of the System.			
3.1.9.4-2	Means will be provided to detect failure of any cooling device and provide for a controlled shutdown of the System components and generation of a maintenance event.			
3.1.10.1-1	The SI shall design, supply, install, test, and commission all internal system components necessary to provide the required electrical power to the SI-supplied equipment.			
3.1.10.1-2	Electrical power will be obtained from existing power sources and will be filtered, transformed, converted, battery-stored, and distributed by the SI as required, including all necessary connections and terminations.			
3.1.10.1-3	Onboard equipment, including onboard validators and driver display units, will be designed to operate reliably from a vehicle's direct current power source, which will be either 12 volts or 24 volts of direct current (VDC).			
3.1.10.1-4	Primary power will be provided by the Agencies at equipment installation locations, and may not be clean or isolated at the voltage levels required by the SI-supplied equipment. Any necessary conditioning of the primary power, or addition of line interface filters or power supplies, will be the responsibility of the SI, and to the greatest extent possible, will be performed within the equipment enclosures.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.1.10.1-5	All system components operating off of line voltage will be designed to operate with a plus or minus 10% fluctuation in voltage without any damage or interruption.			
3.1.10.1-6	In the event of a loss of electrical power, field equipment will complete any transaction in process, retain all data, and shutdown in an orderly manner. The equipment will return to full operational status after a power failure without manual intervention or adversely affecting the integrity of stored data.			
3.1.10.1-7	All equipment will be protected against damage or data loss under the following conditions: • Voltage fluctuations • Reverse polarity of the input voltage • Temporary voltage variations (0 to 50 V) • Over-current draw • Stray currents			
3.1.10.1-8	The onboard equipment power supply will include adequate filters and components to regulate the bus-supplied voltage and render it devoid of power spikes and noise. Provisions will include elimination of power fluctuations caused by fluorescent lights, coach alternators, coach startup (cranking), air conditioning units, radio communication units, and other systems characteristic of a bus environment.			
3.1.10.1-9	Adequate protection against onboard transient power surges, as determined during system design and testing, will be incorporated to the extent necessary to prevent damage to the electronic components of the onboard equipment.			
3.1.10.1-10	Power sensing will be incorporated into onboard equipment power supplies to cause the devices to switch off automatically if the supply voltage increases or decreases to levels beyond the voltage tolerance.			
3.1.10.1-11	All system components will retain any information stored in non-volatile memory under any conditions of the supplied power.			
3.1.10.2-1	The SI shall certify the electromagnetic compatibility of system components to be furnished. The SI shall provide the results of interaction analysis and testing of each system component with regard to frequency distribution, amplitude, and harmonic content for review and approval during design review.			
3.1.10.2-2	The Program needs the SI to confirm system equipment will operate without being adversely affected by or causing electromagnetic interference (EMI).			
3.1.10.2-3	All system components will include protection against external EMI and radio frequency interference (RFI) emissions, as well as internal conductive or inductive emissions.			
3.1.10.2-4	All system components will conform to the following capabilities: • FCC Part 15, Subpart B Class A (Conducted emissions), pertaining to conducted susceptibility • FCC Part 15, Subpart B Class A (Radiated emissions), pertaining to radiated susceptibility			
3.1.10.2-5	Equipment will not emit measureable EMI or RFI that produces harmful interference with any other onboard or station devices or systems, including Global Positioning System (GPS) and magnetic compass readings, and will comply with the following standards: • IEC 1000-4-6 (EN61000-4-6) pertaining to conducted susceptibility • IEC 6100-4-3 (EN61000-4-3) pertaining to radiated susceptibility • IEC 6100-4-2 (EN 6100-4-2) pertaining to electrostatic discharge			
3.1.10.2-6	Operation of the equipment will not be affected by the electromagnetic fields generated by traction power (overhead catenary or third rail) or by local high voltage power distribution lines.			
3.1.10.2-7	Operation of the wayside equipment, including VMs and wayside validators, will not be adversely affected by the operation of other station equipment, such as lighting and communications equipment, within close proximity.			
3.1.10.2-8	Onboard equipment, including onboard validators, and driver display units will be unaffected by interference from fluorescent lights, coach alternators, air conditioning units, radio communication units, and other systems characteristic of a bus environment.			

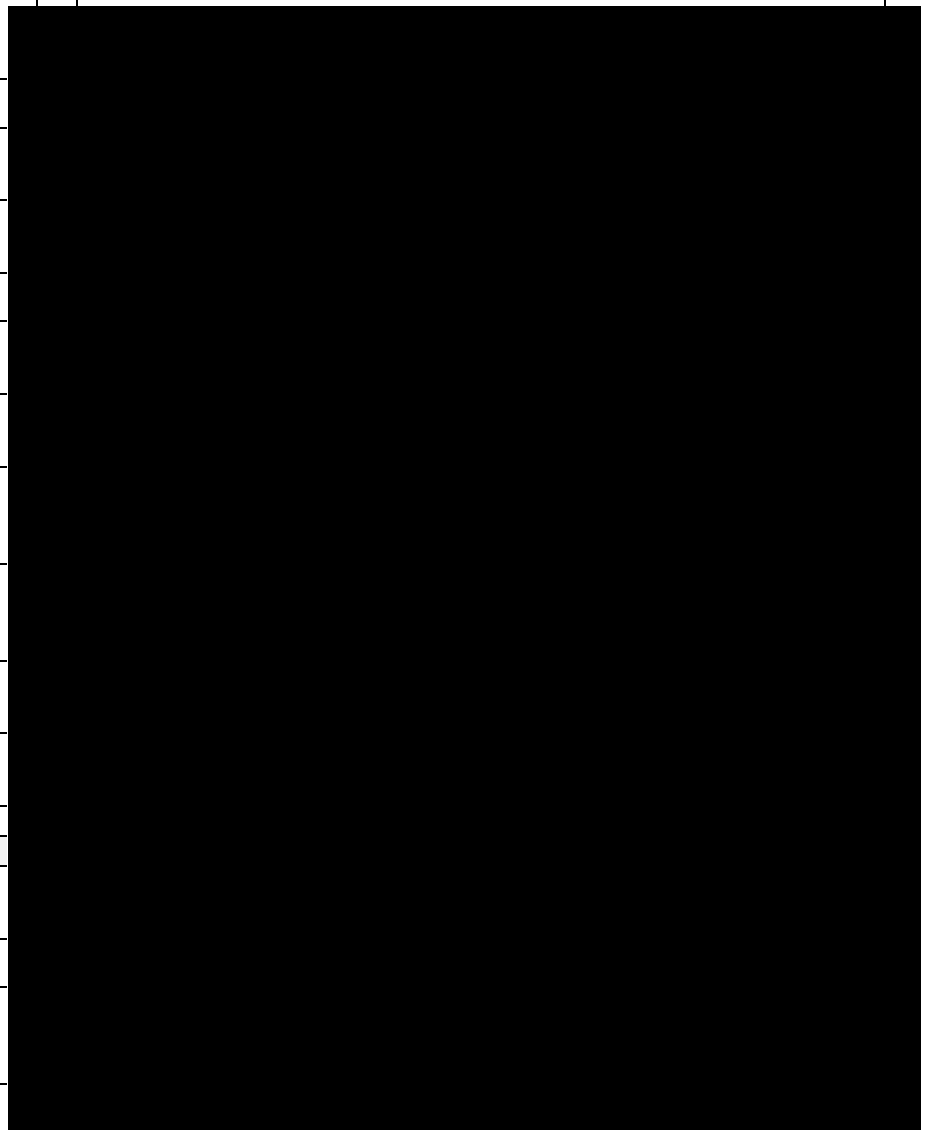
Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.1.10.2-9	Equipment communications will not interfere or be impacted by the use of established frequencies, including but not limited to: • Audio frequencies for overlay track circuits, highway crossing approach and island circuits, and electrical lock circuits • Audio frequency code overlay for Automatic Train Control (ATC) systems • Signal power • Cab signals			[redacted]
3.1.10.3-1	All equipment enclosures, chassis, assemblies, panels, switch boxes, and terminal boxes will be grounded. Protective grounding will be provided to make sure that exposed metal on all system components is connected to a common ground point.			
3.1.10.3-2	The Program needs the SI to meet safety capabilities for the grounding that conforms to the National Electric Code (NEC) and UL, SAE and local codes where applicable.			
3.1.10.3-3	The Program needs the SI to provide certification that all system components furnished have been tested to meet applicable UL criteria. Documentation citing UL certification or acceptable test results will be provided for review and approval during design review.			
3.1.10.3-4	System equipment will be equipped with Ground Fault Circuit Interrupter (GFCI) circuit breakers, which include a “push to test” button, visible indication of a tripped condition, and ability to detect an earth leakage current of approximately 5 milliamperes in accordance with UL 1053 and California Energy Commission (CEC) standards.			
3.1.11-1	The Agencies will own all data generated by the equipment, systems, and software delivered under this Contract. The Agencies will be able to freely access and distribute all data free of charge. The Agencies will retain ownership of all data in perpetuity with no restrictions or additional cost.			
3.1.11-2	All documentation described in this SOW will become the property of the Agencies, or provided under a perpetual license to enable internal use, editing, and distribution to third-parties at no additional cost.			
3.1.11-3	Any reports generated by the System are the sole property of the Agencies and will not be shared or distributed without Agency express written permission.			
3.1.11-4	The Program needs the SI to develop a Software Licensing and Documentation Plan for Agency approval. The Plan will identify all system software and interfaces and any applicable terms that apply to the use and distribution of the covered components.			
3.1.11-5	All system and software interfaces will be defined and documented, and will be provided to the Agencies under a perpetual license to enable internal use and distribution to third-parties at no additional cost.			
3.1.11-6	All open architecture API, libraries, and Intellectual Property (IP), including data exchange formats and algorithms, will be provided to the Agencies under a perpetual license to enable internal use and distribution to third-parties at no additional cost.			
3.1.12-1	All equipment, software, employee and customer interfaces will meet or exceed ADA standards to maximize ease of use. The System equipment will comply with the most recent version of the ADA Accessibility Guidelines (ADAAG) at the time of Final System Acceptance.			
3.1.12-2	All devices and systems will meet or exceed ADA and accessibility standards, which will include compliance with all current industry and government standards governing accessibility. The SI shall be fully responsible for tracking all required certifications, for the interfaces to the payment devices and the System as a whole, including any required certifications.			
3.1.12-3	Accessibility guidelines and regulations will be incorporated in the design of the entire system from the onset. Usability will be tested in the design process and implementation.			
3.1.12-4	All system and user interfaces will comply with section 508 of the Rehabilitation Act of 1973, which includes the Web Content Accessibility Guidelines (WCAG) 2.0, meet or exceed the WA State Accessibility Policy – Standard 188.1 (https://ocio.wa.gov/policy/accessibility) and meet or exceed all ADA requirements.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.1.12-5	The customer website and mobile app will be designed to be user friendly and accessible to current and potential riders and Agency employees. The System will comply with the most recent version of the ADAAG at the time of Final System Acceptance and will meet or exceed the WA State Accessibility Policy – Standard 188.1.			
3.1.12-6	The SI will provide an Accessibility Compliance Plan during design review that articulates how the required ADA and accessibility standards will be met for the entire system during each phase of the project. This plan will be subject to approval by the Agencies.			
3.1.12-7	The SI will provide an Accessibility Compliance Plan that articulates how the required ADA and accessibility standards will be maintained following implementation. This plan will include ongoing operations, change management, and a plan for updates when regulations change. This plan will be subject to approval by the Agencies.			
3.1.12-8	The SI shall create an ADA compliance framework as part of the Accessibility Compliance Plan that will track compliance with all appropriate local, state and federal accessibility standards.			
3.1.12-9	All equipment provided or purchased by the SI that will provide fare media or fare validation will be certified by the Original Equipment Manufacturer (OEM) or SI, as compliant with all applicable accessibility standards at the time of Final System Acceptance.			
3.1.12-10	VM instruction text will include raised lettering and braille instructions that will meet or exceed all applicable accessibility and ADA requirements.			
3.1.12-11	The VM display screen will display characters and symbols compliant with all accessibility and ADA requirements.			
3.1.12-12	The onboard and wayside validator design and mounting will be in compliance with or exceed all applicable ADA requirements and will be approved by Agencies.			
3.1.12-13	The onboard and wayside validator will have ADA-compliant visual and audible indicators that provide distinctive messages for approval or denial of all fare media validations and validator status. All validator visual and audio output will be fully configurable and subject to Agency review and approval during design review.			
3.1.12-14	All customer-facing payment processing hardware and software will meet or exceed all applicable accessibility and ADA requirements. The design will be reviewed and approved during design review.			
3.1.12-15	The SI shall be responsible for conducting all testing required to meet or exceed the current Accessibility and ADA regulations prior to Final System Acceptance.			
3.1.12-16	All mobile app screens will use colors to enhance legibility and be in compliance with or exceed all applicable ADA requirements.			
3.1.12-17	All mobile apps will utilize and be fully compatible with the native accessibility features of the mobile operating system.			
3.1.13-1	All equipment that reads fare media for the purpose of fare distribution or validation will include a contactless validator that supports all common ISO-14443 (Type A and B), ISO-18092 (NFC), and closed-loop (e.g., the entire MIFARE product line) media formats, in addition to all open payment contactless standards, including but not limited to: • Apple Pay • Android Pay • Samsung Pay • VISA payWave® • MasterCard PayPass® • American Express ExpressPay® • Discover Zip® • Contactless EMV			
3.1.14.1-1	The System will be designed to include the appropriate elements and processes to manage, monitor, and quickly address security issues, consistent with the expectations outlined in above, to support the operation of the region's Information Security Management System (ISMS).			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.1.14.1-2	All devices and elements accepting bank cards for payment will be designed to facilitate compliance with (and potentially certification) all applicable industry and government standards and best practices governing payment processing systems. This will include, but not be limited to PCI-DSS and EMV. The SI shall be fully responsible for acquiring all required certifications, including PCI and EMV certifications, for the interfaces to the payment processor and the System as a whole. The region's ISMS requires that all standards of mandatory compliance are observed and all respective controls implemented to minimize the System's risk profile, and the potential impact to the Agencies.			
3.1.14.1-3	The connection between the frontend devices and back office will be over a routable IP network. Where required, the connections will be secured using Transport Layer Security (TLS) and strong encryption, such as TDEA or AES. All data sent via the internet will be TLS-encrypted using the HTTPS protocol. Any IP communications must not preclude components of the System utilizing IPv6.			
3.1.14.1-4	Security-sensitive information will be submitted separately, outside of the normal document deliverables process, and in accordance with procedures to be jointly developed between the SI and the Agencies. Security-sensitive information will include: • Information that would allow an individual to create, duplicate, skim or counterfeit fare media • Information that would allow an individual to overcome security features or interlocks intended to prevent access to sensitive information • Information that would allow an individual to divert revenue, whether electronic or cash, from the System			
3.1.14.1-5	System security features will be maintained and security issues will be addressed as they arise throughout the terms of the warranty and SMA. Operating system updates, software patches, bug fixes, and system enhancements to address identified security issues will be provided.			
3.1.14.1-6	All fare payment data will be secured and private from the point when it is captured to when it is received by the processor. When communications are over public networks, approved secure methods will be used.			
3.1.14.1-7	A regional ISMS will be deployed to manage security and monitor the status and version of all security standards applicable to the next gen ORCA System. The Program needs the SI to ensure that the necessary information to establish compliance with the controls identified by the ISMS is provided to facilitate its operation. The Program needs the SI to also ensure that all applicable standards, regulations, and best practices identified by it are accounted for in the region's ISMS.			
3.1.14.1-8	The Program needs the SI to provide cryptographic key management services and tools. Key management in this context includes but is not limited to: • Key generation: Derived key generation for each manufactured fare media, including card manager key sets, as well as multiple application-related key sets (may include both encryption and authentication keys) • Key storage: Secure storage and retention of card and application key sets • Key updates: Capability to update, or roll, all cryptographic keys used within system • Key sharing: Secure sharing of application key sets with third-parties for use in multi-application environments			
3.1.14.2-1	System must provide for configurable, role-based user access, so that users will only be able to access data and functionality pertaining to their respective job functions.			
3.1.14.2-2	There will be a single common login across all SI built components of the System (users will not need a separate login to perform administrative functions).			
3.1.14.2-3	The System will have the capability to establish an unlimited number of security roles.			
3.1.14.2-4	The System administrator will have the ability to see all activity by user including at least last log in, reports opened, and other non-data submission activities.			
3.1.14.2-5	The System will have the ability to set up access types (e.g., edit & read only) on an individual, role or group basis.			
3.1.14.2-6	Some access types will have access to maintain and update customer accounts.			
3.1.14.2-7	The Agencies will have read-only access to transactional databases with no data usage or ownership restrictions.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.1.14.2-8	Access to the back office applications will be controlled through the individual applications where Commercial off the Shelf (COTS) applications are concerned. For custom built application access will be controlled through the System using passwords and strict access privileges.			
3.1.14.2-9	The System will manage and monitor all user accounts and access privileges. The System will have records of access rights to COTS software applications but not control. The System will control access to all custom applications.			
3.1.14.2-10	Logical access to all supplied systems will require multi-factor authentication and be centrally managed using an Agency-provided, managed user authentication and access control platform based on an approved vendor-neutral, industry standard protocol, such as Lightweight Directory Access Protocol (LDAP) or equivalent.			
3.1.14.2-11	Physical and logical access to components that contain Personally Identifiable Information (PII) and/or financial data will be restricted. Physical and logical security will be sufficient for compliance with the PCI standards in effect at the time of Final System Acceptance.			
3.1.14.2-12	The System will allow new security roles to be immediately reassigned upon role change of employees.			
3.1.14.3-1	The SI shall use approved security in generating, storing, deploying, and transmitting cryptographic keys. The SI shall submit a cryptographic key management plan for agency review and approval during design review.			
3.1.14.3-2	Solution must provide adequate controls for user access and encryption for sensitive information stored in and exported to and from the System.			
3.1.14.3-3	The fare media format will support strong cryptography standards, such as Transparent Data Encryption (TDEA), Advanced Encryption Standard (AES) and RSA encryption to protect access to and modification of all data encoded to the media.			
3.1.14.3-4	All data in the CRM will be encrypted using strong cryptography. Ciphers in use must meet or exceed the set defined for use in the United States National Institute of Standards and Technology (NIST) publication FIPS 140 2, or any superseding documents according to the date of implementation. The use of the AES is strongly recommended for symmetric encryption. Algorithms in use must meet the standards defined for use in NIST publication FIPS 140-2 or any superseding document, according to date of implementation. The use of the RSA and Elliptic Curve Cryptography (ECC) algorithms is strongly recommended for asymmetric encryption. Encryption ciphers and algorithms to be used will be approved by the ORCA Chief Information Security Officer. Additionally, all payment data must be stored in a tokenized form, whenever storage is required to support the functionality of the System.			
3.1.14.3-5	If the System design requires the card manufacturer to encode the cryptographic keys to the fare media, the cryptographic key management plan will identify trusted card manufacturers with appropriate security mechanisms in place to certify that the cryptographic keys remain safe and secure.			
3.1.14.3-6	The Program needs the SI to provide detailed specifications for the generation and management of all cryptographic keys used within the System. The key generation algorithms will be fully owned by or licensed to the Agencies, including the right to distribute specifications to third-parties for media production and to support multi-application smart card implementations without further approval, license, or payment.			
3.1.14.4-1	The System and its applications must be in compliance with all applicable regulatory standards such as PCI-DSS, and recognized best industry practices for the protection of PII at the time of deployment.			
3.1.14.4-2	All equipment provided or purchased by the SI that will capture, store, transmit, or process bank card data will be certified, by the OEM or SI, as compliant with all applicable provisions of the PCI DSS standard at the start of revenue service.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.1.14.4-3	The Program needs the SI to be responsible for providing a PCI compliance plan during design review, and for obtaining certification for the entire system. The Program needs the SI to employ a certified Qualified Security Assessor (QSA), and be responsible for conducting all testing required to achieve certification prior to Final System Acceptance.			
3.1.14.4-4	The approach to system security will include avoiding the storage of bank card data and PII on field devices whenever possible, and only storing and transmitting such data in a tokenized or encrypted form.			
3.1.14.4-5	The Program needs the SI to be responsible for providing that the System as delivered is compliant with all applicable PCI standards at the time of Final System Acceptance, and with all Agency, state, and local policies for the handling of PII.			
3.1.15-1	The System will support fraud prevention policies, including the ability to automatically identify suspect usage patterns based on sales and ridership data, and block the use of fare media, transit accounts, and fare products based on configurable fraud rules.			
3.1.15-2	The System will support Agency-configurable velocity checks, and other fraud prevention measures, that identify excessive or potentially fraudulent use of stolen or compromised fare media.			
3.1.15-3	The System will support the setting of a configurable upper limit of rides for unlimited ride products (e.g., 50 rides for a one-day pass) that will generate an automated alert within the System, and optionally block the fare media or product, when the limit is reached.			
3.1.15-4	The System will detect, and generate an automated alert for potential fraudulent duplication of fare media, if the same fare media or transit account is used for payment in two geographically separated locations within a configurable period of time.			
3.1.15-5	For transit accounts with stored value, the System will support the configuration of a "floor limit," or value below which the balance is not allowed to fall (so long as the device generating a fare payment is online). The floor limit may be configured to be a zero or negative balance. Transit accounts with balances at or below the floor limit will be able to be automatically blocked by the System.			
3.1.15-6	The System will support configurable rules to prevent the sharing of fare media and accidental payments through "passback protection," or a configurable time period in which fare media will not be accepted for payment at a device after an initial tap. Passback protection will be configurable by fare media type, fare product, Agency, mode, and passenger type, and will be enforceable at the bus, rail station, and individual device level.			
3.1.15-7	The System will support the placing of credentials and transit accounts into "observation mode", which will generate an automated alert when the credential or transit account is used. This may be used by fare enforcement staff to monitor known stolen or compromised credentials or transit accounts.			
3.1.15-8	The blocking of credentials, transit accounts, and individual fare products will be able to be performed automatically and manually, and on an individual and bulk basis (i.e., if a known batch of cards was lost, the entire batch may be blocked).			
3.1.15-9	Additional fraud prevention policies may be defined during design review.			
	Section 3.2 System Architecture			
3.2.1-1	The SI shall design, develop, and implement an account-based electronic fare collection system. The account-based back office will be the system of record for fare calculations and enforcement and take priority over any media that may hold account information.			
3.2.1-2	An account-based back office supporting the System will manage transit accounts that store fare value loaded by customers, and enable use of that value for the payment of transit fares and transit-related services.			
3.2.1-3	The account-based back office will process all transactions generated by the System devices, including loading transit accounts upon request from fare distribution devices, and performing fare calculation and balance updates at the time of fare payment based on established business rules. All fare processing and updating of transit accounts will be performed in real-time.			



Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.2.1-4	The fare media including but not limited to smart cards and NFC enabled smartphones will serve as a credential for accessing transit accounts, and data will only be written to the media when loading or using fare value to support risk mitigation techniques.			
3.2.1-5	The Account-based Transaction Processor (ATP) will have a module to configure and maintain apportionment rules based on fare products purchased and used, number and value of trips taken, and Agency associations.			
3.2.1-6	The ATP apportionment module will have a user friendly interface to allow the rules to be securely maintained and updated, including the ability to change current rules and add new rules based upon new fare products, trip types, or Agencies being added to the next gen ORCA program.			
3.2.2-1	Each fare validation and distribution device will be equipped to support real-time communications with the back office.			
3.2.2-2	The communication interfaces will support real-time loading of fare value through all distribution channels.			
3.2.2-3	All network connections will be supported by a high speed communication network provided by the Agencies. The Program needs the SI to provide a system that will function within each Agency provided network.			
3.2.2-4	The communication interfaces will support real-time processing of closed-loop fare payments onboard vehicles.			
3.2.2-5	The communication interfaces will support processing of closed-loop fare payments at ferry terminals.			
3.2.2-6	The System will support the offline operation of field devices according to defined business rules and transmit stored transaction information as soon as communications are reestablished.			
3.2.2-7	The communication interfaces will support real-time processing of closed-loop fare payments at rail stations.			
3.2.2-8	The Program needs the SI to accommodate potential improvements provided by the Agencies over time.			
3.2.3-1	The System will support the limited writing of data to closed-loop fare media for the purposes of fraud mitigation, displaying accurate and timely account information, and risk management. The information written to the fare media may include: • Recent transaction information (e.g., transaction timestamps) • Transit account balance information (e.g., low balance/load indicators) • Transit account status information (e.g., passenger type, organizational program, or blocking indicators) Data to be written to the media will be determined during design review and subject to Agency approval.			
3.2.3-2	When network communications are reestablished, the communications interface will support the capability for each field device to transmit stored transaction information and receive messages from the back office based on configurable prioritization business rules.			
3.2.3-3	The SI shall provide a non-proprietary method to recover the data on each validator in the event of a device failure. The method will not require a network wired or wireless connection, i.e., a separate port or other mechanism for data transfer.			
3.2.3-4	Data will be able to be written to the closed-loop fare media at time of manufacture, loading, and use. All data will be secured for both reading and writing using approved cryptography.			
3.2.3-5	The System will support the distribution of lists to be maintained locally at the field devices and used for fare validation and inspection. The lists will be managed within the back office and distributed to the devices via the System Management API.			
3.2.3-6	Any data written to the closed-loop fare media will be used to supplement back office account data, and will be limited in nature. The data will be able to be interpreted by the devices with minimal or no business rules logic (i.e., no knowledge of fare policies and products will be required).			
3.2.3-7	List updates will be distributed to field devices at a frequency of no less than every five (5) minutes and include version control to confirm timely and accurate synchronization.			
3.2.4.1-1	The SI shall implement strong security controls to prevent fraudulent use of the APIs and authenticate all users, meeting the baseline outlined by the frameworks described in section 3.1.14.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.2.4.1-2	The System will be designed using open standards for software design, communications protocols, fare media, and other relevant design components.			
3.2.4.1-3	The full range of APIs provided by the SI will support all interfaces within the fare collection system, and is not limited to the specific APIs described in this section. Any additional APIs that are required will be identified during design review. The Program needs the SI to provide Interface Control Documentation (ICD) for each system interface that describes the interface and APIs used to support it.			
3.2.4.1-4	Each API will be developed using modern architecture and formats (e.g., REST/JSON). The specific architecture and format to be used will be identified and agreed upon during design review.			
3.2.4.1-5	The Program needs the SI to develop Hypertext Transfer Protocol Secure (HTTPS), or Agency approved modern alternative, based functional (e.g., not device- or system-specific) API that support core system functions and enable access to those functions for any device or system that requires use of them. Devices and systems may make use of more than one API to support required functionality.			
3.2.4.1-6	The Program needs the SI to publish full API specifications that document all API calls and the process for making those calls, may include: • Detailed call descriptions • Use cases • Call structure • Data elements and format • Error handling • Timing capabilities • Use of required security protocols • Sample code			
3.2.4.1-7	The Program needs the SI to demonstrate use of the API as part of system implementation and testing. The Program needs the SI to perform API-specific testing, which will be witnessed and validated by Agency representatives prior to Final System Acceptance. Any changes to the APIs as a result of testing will result in the API specifications being updated by the SI.			
3.2.4.1-8	The Program needs the SI to be responsible for providing the following APIs at a minimum: • Fare Distribution API • Fare Payment API • Fare Inspection API • Transit Account Management API • Customer Account Management API • System Management API • Onboard Integration API • Central Payment Processing API Alternative categorization of APIs may be permitted, as long as the functional capabilities are met and demonstrated.			
3.2.4.1-9	The API and Interface Control Documentations (ICD) will be fully owned by or licensed to the Agencies with the right to use and distribute the specifications without further approval, license, or payment.			
3.2.4.1-10	The Program needs the SI to update the API and Interface Control Documentation (ICD) specifications as necessary throughout the warranty and Software Maintenance Agreement terms.			
3.2.4.1-11	The SI will provide and publish for Agency use the detailed specifications for all fare media and transaction formats used within the System.			
3.2.4.1-12	The System will support the distribution of multiple lists to be maintained locally at the devices and used for fare validation and inspection. The lists will be managed within the back office and distributed to the devices via the System Management API.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.2.4.1-13	The open architecture will encompass all media and devices deployed within the System, and include all fare media formats, security protocols, authentication requirements, and communications necessary to support critical system functions.			[redacted]
3.2.4.1-14	Media list updates will be generated at a configurable interval and include version control. At a minimum the list will be updated every 5 minutes.			
3.2.4.1-15	The program needs all APIs that facilitate communication with field devices to be able to accept transactions in an offline mode, and accommodate scenarios where a full communication cannot be received within the configured timeframe. In these scenarios, risk mitigation strategies will be employed to limit exposure for declined payments and an asynchronous response needs to be gracefully handled.			
3.2.4.2-1	The Customer Account Management API will support the querying and management of data maintained within the CRM, and will be utilized by all devices and systems that require access to those functions, including but not limited to: • Customer service terminals • CRM • Customer website • Customer mobile app Not all devices/systems will require or be granted access to all Customer Account Management API functions.			
3.2.4.2-2	The Customer Account Management API will support the following functionality at a minimum: • Create new customer account • Query customer account status and data • Modify customer account data • Register (e.g., associate) a transit account to a customer account • Unregister (e.g., disassociate) a transit account from a customer account • Add, update, or remove a funding source associated with a customer account • Close a customer account			
3.2.4.2-3	The Customer Account Management API will include API calls for the passing of data between the devices/systems and the back office to perform all functions.			
3.2.4.2-4	The Customer Account Management API will allow devices/systems to create customer accounts within the CRM, and associate or disassociate existing transit accounts with those customer accounts.			
3.2.4.2-5	The Customer Account Management API will allow devices/systems to query and modify all customer account data, including but not limited to name, address, date of birth, phone number, email address, organization and administrator contact information, username, password, security questions/answers, funding sources, and program registration details (such as RRFP, ADA Paratransit and low income fare programs).			
3.2.4.2-6	The Customer Account Management API will allow authorized personnel to close customer accounts. Closing of a customer account will not affect the associated transit accounts. Other business rules such as impact on registered media, re-opening conditions, and data retention will be finalized during design review.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.2.4.2-7	The Customer Account Management API will capture all required information to generate a detailed transaction within the back office for all functions performed, including at a minimum: • Date/time • Agency • Sales/customer service channel ID • Device/system ID • Device/system location • Operator/administrator ID • Fare Media identifier (if associated with a customer account) • Transit account number (if associated with a customer account) • Customer account number • Customer account data • Details of action performed			[redacted]
3.2.4.2-8	The Customer Account Management API will return a confirmation of the actions taken by the back office. If any action was unsuccessful, a denial and associated reason code will be provided. All response types and error handling will be described in detail in the Customer Account Management API specification.			
3.2.4.2-9	The Customer Account Management API will support the querying and management of customer account data maintained within the CRM.			
3.2.4.3-1	The Transit Account Management API will support the querying and management of data maintained within back office transit accounts, and will be utilized by all devices and systems that require access to those functions, including but not limited to: • VMs • Customer service terminals • CRM • Customer website • Customer mobile app (as appropriate for customer account type) • Agency mobile apps Not all devices/systems will require or be granted access to all transit account management API functions.			
3.2.4.3-2	The Transit Account Management API will support the following functionality at a minimum: • Query transit account status (e.g., associated passenger type, active/inactive, blocked/unblocked) • Query fare payment transaction history • Query sales transaction history • Query adjustment transaction history • Enable fare product for autoload (requires funding source in customer account) • Generation of fare payment reversal (e.g., cancellation) • Generation of sales reversal (e.g., refund) • Generation of an account adjustment (i.e., add or remove E-purse value or product) • Transfer of balance between two transit accounts • Block/unblock fare media, account, or individual fare product • Lost, stolen, or damaged fare media replacement (i.e., associate new card with existing transit account) • Generation of an opt-out refund (i.e., close account and issue refund)			
3.2.4.3-3	The Transit Account Management API will include API calls for the passing of data between the devices/systems and the back office to perform all functions.			

Capability Number	Capability	Fully Conforming	Non-Conforming	
3.2.4.3-4	The Transit Account Management API will allow devices/systems to query a transit account status and return the sales, fare payment, and adjustment transactions that were conducted over a specified timeframe, or a specified number of past transactions.			
3.2.4.3-5	The Transit Account Management API will allow devices/systems to setup autoload for an existing fare product. Enablin autoload will require a valid funding source to be stored in an associated customer account, and may be performed using the Customer Account Management API instead.			
3.2.4.3-6	The Transit Account Management API will allow authorized personnel to perform adjustment, reversal, transfer, and refund transactions to modify transit account balances.			
3.2.4.3-7	The Transit Account Management API will allow authorized personnel to generate blocking (and unblocking) and replacement transactions to close or prevent use of transit accounts, fare media, and fare products.			
3.2.4.3-8	The Transit Account Management API will capture all required information to generate a detailed transaction within th back office for all functions performed, including at a minimum: • Date/time • Agency • Sales/customer service channel ID • Device/system ID • Device/system location • Operator/administrator ID • Fare media identifier • Transit account number • Details of action performed			
3.2.4.3-9	The Transit Account Management API will return a confirmation of the actions taken by the back office. If any action wa unsuccessful, a denial and associated reason code will be provided. All response types and error handling will be described in detail in the transit account management API specification.			
3.2.4.3-10	Using the Transit Account Management API an external system will be able to charge a stored value E-purse for purchas of a product.			
3.2.4.3-11	Using the Transit Account Management API an external system will be able to determine the balance of stored value in transit account.			
3.2.4.3-12	Using the Transit Account Management API an external system will be able to query purchase of a product including th location where the product was purchased.			
3.2.4.4-1	The Fare Distribution API will support the sale of all available fare media and fare products, and will be utilized by all fa distribution devices and systems, including but not limited to: • VMs • Customer service terminals • CRM • Customer website • Customer mobile app (as appropriate for customer account type)			
3.2.4.4-2	The Fare Distribution API will support the following functionality at a minimum: • Retrieval of available fare media and associated pricing and expiration dates • Retrieval of available fare products, and associated pricing • Sale of all fare media types, and creation or activation of an associated transit account • Sale of all available fare products (e.g., stored value, passes and multi-ride products), and update of an associated transit account			

Capability Number	Capability	ully Conforming	on-Conforming	
3.2.4.4-3	The fare media and products available for sale, and the associated pricing, will be configured and maintained in the back office. The Fare Distribution API will return this information upon request from a fare distribution device/system. The results provided will be configurable to be specific to the sales channel, device/system location, or individual device/system making the API call.			
3.2.4.4-4	Fare distribution devices such as VMs and CSTs will be able to communicate with the back office using the Fare Distribution API to enable the creation, activation, and updating of a transit account.			
3.2.4.4-5	Unique fare media and/or transit account identifiers will be used securely by the distribution devices/systems and passed to the back office to create or activate a new transit account (e.g., in support of new media issuance), or initiate the loading of value to an existing transit account. All fare media and product sales will be processed by the back office in real-time to enable immediate use by the customer.			
3.2.4.4-6	The Fare Distribution API will support the generation of sale and payment transactions within the back office by capturing all information required to appropriately record the sale, including at a minimum: • Date/time • Agency • Sales channel ID • Device/system ID • Device/system location • Fare media identifier • Transit account number • Product(s) sold • Payment amount(s) • Payment type(s) The Fare Payment API will support the sale of multiple products (e.g., fare media and value) in a single transaction with a single payment, and the use of multiple payments (e.g., split payments) in a single sales transaction.			
3.2.4.4-7	The Fare Distribution API will return a confirmation of the actions taken by the back office to complete a sale. If the sale was unsuccessful, a denial and associated reason code will be provided. All response types and error handling will be described in detail in the fare distribution API specification.			
3.2.4.5-1	The Fare Payment API will support the processing of closed-loop fare payments across all Agencies and modes using all supported fare media and fare products, and will be utilized by all fare payment devices, including but not limited to: • Onboard validators • Wayside validators • Customer mobile app – payment presentation • Agency mobile app – fare validation			
3.2.4.5-2	The Fare Payment API will include API calls for the passing of data between the fare payment devices and back office to initiate a fare payment transaction, which will result in a fare calculation being performed and processing of a payment against a transit account.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.2.4.5-3	The Fare Payment API will support the generation of fare payment transactions within the back office by capturing all information required to calculate and appropriately record the payment, including at a minimum: • Date/time • Agency • Vehicle/station ID • Operator ID (bus and mobile only) • Device ID • Stop ID • Geolocation information (bus and mobile only) • Pattern (bus and mobile only) • Block (bus and mobile only) • Route (bus and mobile only) • Run (bus and mobile only) • Direction/platform • Fare media identifier • Transit account number • Other data encoded to the media (e.g., passenger type) • Authorization mode (e.g., online or offline)			[redacted]
3.2.4.5-4	The Fare Payment API will return a confirmation of the actions taken by the back office to complete a payment and account status information, including at a minimum: • Payment status (e.g., success or failure) • Transit account passenger type • Fare product used • Fare charged • Remaining balance • Transfer time remaining If the payment was unsuccessful, an associated reason code will be provided. All response types and error handling will be described in detail in the fare payment API specification.			
3.2.4.5-5	The Fare Payment API will support the passing of a pre-calculated fare to support programs such as Washington State Ferries, where third-party devices or systems may calculate the amount due. The back office will process pre-calculated fare transactions based on the fare structure configured for the associated mode or customer. The request passed will include location.			
3.2.4.5-6	Using the Fare Payment API an external system will be able to query the use of a product (such as a transportation connection) including location.			
3.2.4.6-1	The Fare Inspection API will query closed-loop transit accounts to support the inspection of fares paid across all Agencies and modes using all supported fare media and fare products, and will be utilized by the mobile fare inspection devices.			
3.2.4.6-2	The Fare Inspection API will include API calls for passing data between the Mobile Fare Inspection application and back office to initiate a fare inspection transaction, which will result in confirmation or denial of payment made using a closed-loop transit account and open payments using all supported payment network branded cards and NFC-enabled devices.			
3.2.4.6-3	Unique fare media and/or transit account credential identifiers will be securely captured by the mobile fare inspection devices and passed to the back office to perform a fare inspection. The back office will query transit account ride history and use Agency-defined business rules to determine fare payment status in real-time.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.2.4.6-4	All fare inspections will result in a recorded transaction. The Fare Inspection API will support the generation of transactions by capturing all information required to determine the status of a fare payment and appropriately record the inspection, including at a minimum: • Date/time • Agency • Vehicle/station ID • Device ID • Stop ID • Geolocation information • Pattern (bus inspection only) • Block (bus inspection only) • Route (bus inspection only) • Run (bus inspection only) • Direction/platform • Fare media Identifier • Transit account number Other data encoded to the media (e.g., passenger type)			[redacted]
3.2.4.6-5	The Fare Inspection API will return fare payment status information, including at a minimum: • Payment status (e.g., valid or invalid) • Account passenger type • Fare product used (if valid tap is found) • Fare charged (if valid tap is found) • Transfer time remaining (if valid tap is found) • Account balance • Fare payment transaction history If the payment is determined to be invalid, an associated reason code will be provided (e.g., no tap, blocked card). All response types and error handling will be described in detail in the Fare Inspection API specification.			
3.2.4.7-1	The System Management API will be utilized by all devices deployed within the System, including but not limited to: • Onboard validators • Wayside validators • Driver display units • Vending machines • Customer service terminals • Mobile fare inspection devices • Mobile fare validation devices			
3.2.4.7-2	The System Management API will support the passing of data between the devices, the Asset Incident Management application (AIM), and the System Manager to enable the monitoring of system performance during operations. The device events and alarms reported via the System Management API will provide enough detail to support proactive device maintenance at the module-level, and support accurate reporting on all system performance capabilities. The System Management API will not preclude being interfaced with a decision support system in the future.			
3.2.4.7-3	The System Management API will support the passing of data between the System Manager and devices to enable remote control and issuance all commands supported for each device type. All commands will be able to be issued and executed in real-time.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.2.4.7-4	The System Management API will support the real-time distribution of device software and configuration parameter updates. Device configuration will include real-time updates to any positive and negative lists maintained locally at the devices. Updates will be distributed on an increment-basis so that only updates since that last time stamp/version received by an individual device are transmitted.			
3.2.4.7-5	A universal System Management API will be created and used wherever possible; however, the SI may create device-specific System Management APIs or calls as necessary.			
3.2.4.7-6	All configuration parameters distributed to the devices, including positive and negative list updates, will be distributed using the SI-provided System Management API.			
3.2.4.8-1	The Onboard Integration API will be utilized by the onboard validators to exchange information with the CAD/AVL system to support single sign-on.			
3.2.4.8-2	The Onboard Integration API will support the capture of operator login and route data from CAD/AVL system, including but not limited to: • Operator ID • Pattern • Block • Route • Run • Direction The onboard validator will append this information to all fare payment transactions generated by the device.			
3.2.4.8-3	The Onboard Integration API will support the capture of geolocation data from CAD/AVL system geolocation data, including but not limited to: • GPS coordinates • Stop ID The onboard validator will append this information to all fare payment transactions generated by the device.			
3.2.4.8-4	The Onboard Integration API will be designed such that it is vendor agnostic; however, the SI will partner with each Agency's existing CAD/AVL supplier and meet all system-specific capabilities.			
3.2.4.9-1	The program needs provide a Central Payment Processing API, including all required security protocols, to connect the back office to the payment processor so that gateway and processor can be switched without reprogramming.			
3.2.4.9-2	The SI supplied and maintained interface to the payment processor will be designed to support the addition of open payments in the future. In particular, the architecture will support a real time connection from field validators to the processor through the Fare Payment API.			
3.2.4.10-1	The program needs to publish specifications for all transactions generated and used within the System but not already covered by the required API.			
3.2.4.10-2	Transaction specifications will include detailed descriptions of the transaction structure, data elements, and data formats, and identify all devices and system that generate and consume the described transactions.			
3.2.4.10-3	Transaction formats will be based on published standards wherever possible, including those used to interface with commercial software packages, such as the SI-provided CRM, financial management, and reporting systems.			
3.2.4.10-4	The transaction formats will be fully owned by or licensed to the Agencies, including the right to distribute the specifications to third-parties without further approval, license, or payment.			
3.2.5.2-1	The onboard validator and DDU will connect to the mobile access router via Ethernet.			
3.2.5.2-2	Onboard validators will connect with onboard mobile network to access the back office system.			
3.2.6-1	If cloud based, or hosted, transferring data between systems will be by a secure protocol.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.2.6-2	If the back office is to be hosted through a cloud-based hosting service (AWS, Rackspace, etc.) it will be subject to approval by the Agency. All hosted data will be owned and accessible by the Agencies.			
3.2.6-3	If the SI hosts the System, the Program needs the SI to provide two (2) separate, identical, and fully functional production back office installations, each able to handle 200% of the anticipated peak processing load, and scalable to support up to 400% of the anticipated peak processing load.			
3.2.6-4	If the SI hosts the System, the two sites will process transactions in parallel in an active-active, load balanced configuration in order to optimize performance and safeguard that if one (1) system fails, or goes into a degraded mode the second system will automatically take over all processing with no downtime. The System will be designed such that a failure at one (1) site will not result in a significant degradation of system performance. This architecture will also support the execution of rolling upgrades across the two (2) sites with no downtime.			
3.2.6-5	If a hosted model is chosen the Program needs the SI to install, configure, and test the two fully redundant back office systems in the production environment. These systems will be installed at two designated, geographically separated locations identified and hosted by SI.			
3.2.6-6	For hosted or cloud-based solutions (i.e., software components reside and execute on SI's infrastructure), mechanisms must be in place to keep ORCA data segregated from other non-ORCA data.			
3.2.6-7	If the SI hosts the System, the mirrored installations will include all customer-facing and operation-critical systems, including but not limited to: • ATP • CRM • System Manager • FMM • Financial Management • Central Payment • Configuration and Change Management • Asset Incident Management • Tariff Management • Web Servers (e.g., supporting customer website) Each installation will include all application servers and databases necessary to independently support each back office system.			
3.2.6-8	All transaction data will be protected against loss whether hosted or cloud based. If the SI hosts the System, each identical and independent installation will be equipped with the appropriate hardware, software, and procedures to mirror data between the two sites in real-time (e.g., simultaneous writes).			
3.2.6-9	If the SI hosts the System, load balancing, automated failover, and data mirroring between the two sites will be provided using COTS hardware and software solutions.			
3.2.7-1	The SI shall provide a system that offers sufficient availability to protect against data loss and system failure.			
3.2.7-2	The SI shall develop and submit for approval a disaster recovery plan that will take effect in the event of a catastrophic event or system failure that impacts one or both hosting sites. The Disaster Recovery (DR) plan will conform to the required service level agreement and be consistent with the Business Continuity Plan and recovery time capabilities that will be provided by the Agencies.			
3.2.7-3	In the DR Plan, the SI shall fully document all procedures to restore system operations.			
3.2.7-4	The Program needs the SI to propose a physical and logical architecture (e.g., virtualized servers, spare load balancers, etc.) that meets all redundancy capabilities for Agency review and approval at design review.			
3.2.7-5	The disaster recovery plan will contain detailed procedures to be followed to restore the System to full operation following a disaster or failover event, including the complete resynchronization of data between the two sites. Agency KPIs including recovery time objectives and recovery point objectives will be part of the disaster recovery plan.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.2.7-6	Means will be provided in the System design to support complete recovery from the loss of any system components at any point during operation.			
3.2.7-7	Program needs the SI to identify the resources (e.g., people, systems, communications, etc.) that must be committed to implement the disaster recovery plan.			
3.2.7-8	The Disaster Recovery Plan will provide recovery procedures from disasters that have varying levels of impact to system operations and detail the steps to be taken to recover from such disasters.			
	Section 3.3 System Integration Services			
3.3.1-1	The integration of Transportation Connections (additional modes) through API will allow for discounted or free transfers between additional modes reported by external systems and primary modes such as fixed route services.			
3.3.1-2	The Program needs the SI to take the lead role in working collaboratively with third-parties to integrate legacy systems as necessary to support the capabilities in this SOW and ultimately be responsible for system performance.			
3.3.2-1	The SI will provide an API Management Plan for approval during design review.			
3.3.2-2	The API Management Plan will be compliant with the control baseline required by the ISMS.			
3.3.2-3	The API Management Plan will include a process for onboarding before connecting an external device or system to the next gen ORCA back office and methods for approving all new versions of devices, firmware, or software prior to their connection to the System.			
3.3.2-4	The API Management application will include consumer certification and key management.			
3.3.2-5	The API Management application will include a service registry with details of the API consumers and contact information for the developers of the consumers.			
3.3.3-1	The SI shall be responsible for integration of the validator with each Agency's existing CAD/AVL or similar onboard system to support transfer of work status information (route/run/trip) and geolocation data.			
3.3.3-2	The onboard modules will be able to communicate over Ethernet and TCP/IP, at a minimum. The communication interface to be used will be determined during design review and must provide adequate support for all system capabilities and integrations. Additional communication standards may be used such as SAE Vehicle communications standards (such as J1708/1939), Bluetooth, USB, etc.			
3.3.3-3	The SI shall be responsible, in collaboration with INIT, the KCM CAD/AVL vendor, for all development, testing, and deployment of the module for exchange of data with the KCM CAD/AVL system.			
3.3.3-4	A detailed Interface Control Document (ICD) detailing message formats and contents, procedures, interfaces, and transport protocols will be provided for the onboard systems integration.			
3.3.3-5	The onboard validator will capture location data generated by the CAD/AVL system, including: • Raw Global Positioning System (GPS) coordinates • Stop ID The geolocation data will be included in every fare transaction generated by the validator.			
3.3.3-6	The design for the exchange system for data with the KCM CAD/AVL system will be a subject of the design review process.			
3.3.6-1	All functional and long term data will be duplicated in an external system, the Data Access and Reporting platform (DARe) which will be initially deployed prior to the main system by a separate vendor. The design and deployment of the DARe is not a part of this contract.			
3.3.6-2	The SI shall be responsible for building and testing a module to transmit data to the DARe, in collaboration with the DARe vendor and the Agencies.			
3.3.6-3	The Program needs the SI to work with the DARe vendor to design a transmission module which is secure and reliable. The transmission system will be subject to the System reliability and recovery metrics for the SI.			
3.3.6-4	The Program needs the SI to work with the DARe vendor to design, build and test the link from the next gen ORCA back office to the DARe.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.3.6-5	Customer and transit account identifiers will be protected with an accepted approach, determined during design, for transmission to the DARe.			
3.3.6-6	The data transmitted to the DARe will be a subset of all the data, focused on the data required for long term reporting. The data to be transmitted will be selected as part of the design review process.			
3.3.6-7	The data transmitted to the DARe will not include any data that would put the DARe in PCI scope. The DARe will be compliant with the control baseline required by the ISMS.			
3.3.6-8	The data transmission to the DARe will occur at least once a day.			
3.3.6-9	The Program needs the SI to be responsible, in collaboration with the DARe vendor, for all development, testing, and deployment of the module for transmission of data to the DARe.			
3.3.6-10	The design for the transmission module for data to the DARe will be a subject of the design review process.			
3.3.7-1	Using the Fare Distribution API an external retail system will be able to create a transit account and add value to the E-purse in a transit account.			
3.3.7-2	The SI shall work collaboratively with the retail contractor to provide the necessary equipment, documentation, and services to support the successful completion of System Integration Testing.			
3.3.7-3	The sale of a next gen ORCA card by a retail merchant will initiate the automatic creation of a transit account within the next gen ORCA back office.			
3.3.7-4	The transaction data will be fully compliant with the control baseline required by the ISMS for the handling of customer PII.			
3.3.7-5	Transaction data elements will be defined by the SI during design review. Transaction data elements will include at a minimum: • Card type • Unique card identifier • Transit account number • Date and time of transaction • Transaction type • Transaction value • Beginning transit account balance • Ending transit account balance • Merchant ID • Merchant name • Merchant location			
3.3.7-6	Retail network provisioning and testing will be completed in coordination with the SI to support operation of a fully functional retail network no later than the commencement of next gen ORCA revenue service.			
3.3.7-7	Program needs the SI to work collaboratively with the retail contractor to develop test scripts that together accurately and completely confirm all features and functionality of contractor's retail network system.			
3.3.7-8	Program needs the SI to work with retail contractor to incorporate retail network functionality into the Agency test facility.			
3.3.7-9	The retail network will allow a merchant to reverse a transaction prior to authorization of the transaction with the next gen ORCA System. Authorization and provision of next gen ORCA refunds will be the responsibility of the Agencies and the next gen ORCA System. Retail network transaction reversals will result in no charge to the customer or the Agencies.			
3.3.7-10	Agency test facility will be connected directly to a contractor-specified payment processor to fully test the processing of next gen ORCA purchases using credit/debit as a form of payment.			
3.3.7-11	Program needs the SI to work closely with the retail contractor throughout the Field Integration Test to help resolve issues and implement fixes on the retail network identified during testing.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
3.3.8-1	The SI shall be responsible for all development, testing, and deployment of the module for exchange of data between the back offices			[redacted]
3.3.8-2	The Program needs the SI to design, build, and test the link from the next gen ORCA back office to the Legacy ORCA back office			
3.3.8-3	The design for the exchange of data with the Legacy ORCA System will be a subject of the design review process.			
3.3.9-1	The System will include a King County Metro Access pass for ADA Paratransit which can only be purchased by customers marked in the System as eligible.			
3.3.9-2	The list of Access eligible customers will be imported into the System on a regular basis from a .csv file.			
3.3.9-3	The System will provide pass sales information for paratransit customers that can be uploaded to Agency paratransit databases.			
3.3.9-4	The System will include the ability to create an Agency-specific pass product that can only be purchased by customers marked in the System as eligible.			
3.3.10-1	When next gen ORCA customers pay vanpool fares via the customer website and/or mobile app, the CRM application will capture relevant transaction information for tracking and reporting. This will include such elements as: payment date, operating Agency, customer account name, customer name, transit account number, vanpool or group ID number, fare amount paid, fare period, and receipt number. This information can be reported on through the back office.			
3.3.10-2	The System will allow next gen ORCA account holders to pay vanpool fares via the customer website, CRM, or mobile app. The amount of the fare is entered by the customer and will vary by customer. There will be configurable minimum and maximum amounts.			
3.3.10-3	When a next gen ORCA account holder pays their vanpool fares via the customer website and/or mobile app and CRM a receipt will be generated and optionally emailed or texted to the customer.			
3.3.10-4	Revenue from the vanpool fare payment and purchase of the joint transit and vanpool pass will be segregated and reported separately by Agency.			
3.3.10-5	The System will allow the creation of Agency-specific and regional joint Transit and Vanpool Pass Products available for addition to any transit account.			
3.3.10-6	The available periods for payment of vanpool fares will be configurable.			
3.3.11-1	The System will support the addition of new agencies, including fare rules that are part of the existing design.			
3.3.11-2	The Agencies will be able to add new transportation connections, modes and products (e.g., parking) with unique fare pricing and all the configurability of existing modes and products without additional development.			
3.3.11-3	Transportation Connections (additional modes) will be supported in the System through APIs that allow third party developers of external applications to communicate with the System in order to manage fare products, transit accounts, and report transactions.			
3.3.11-4	The System will support the addition of a minimum of five (5) additional agencies.			
3.3.11-5	The System will provide scalable framework to support the growth in users and data inherent in adding agencies.			
3.3.11-6	The System will be capable of integrating with Kitsap Fast Ferries reservation system in Phase II.			
3.3.11-7	All agencies added after the initial implementation will use the System's user interfaces, process flows, and business rules as designed during the initial implementation.			
3.3.11-8	Additional agencies will be able to have revenue sharing and apportionment turned on or off according to the existing apportionment rules.			
	Section 4 Field Devices & Equipment			
	Section 4.1 Common Capabilities			
4.1.1-1	All equipment design, including dimensions, mounting options, and installation placement will be subject to review and approval by the Agencies.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.1.1-2	All customer-facing equipment and applications including website will provide a coherent customer experience, with similar look and feel across all modes' validators and VMs. Agency and designated representatives will participate in a design review with the SI to define the customer experience for both hardware and software.			
4.1.1-3	All customer-facing equipment will be designed to adhere to the aesthetic standards of the Agencies, with consistent cross-platform branding. The Program needs the SI to submit designs for review and approval during design review. Final equipment design, including interface display, lettering, lights, colors, tactile feedback, brightness, graphics, animation, screen savers, surface texture, component size and height, and hardware will be subject to Agency approval.			
4.1.1-4	System equipment displays (including the entire surface of the display for the VM), graphics, signage, and all other instructions, labels, and information contained on the equipment will be visually readable within all common positions from a customer point of view.			
4.1.1-5	The Program needs the SI to deliver the latest generation device manufactured by the OEM. If a newer generation device is released following design review, but prior to device procurement, the Agencies shall have the option to upgrade to the newer device.			
4.1.2-1	All equipment will meet the applicable hardware security capabilities.			
4.1.2-2	The SI shall provide PCI compliant hardware and software for payment processing. The PCI architecture will be designed to limit increases in PCI scope, and will be reviewed and approved during design review.			
4.1.2-3	All fare equipment will satisfy all applicable common hardware design capabilities including: • Service-proven design • Nonproprietary technology • Supply and availability • Materials and workmanship • Maintainability and serviceability • Operating environment • Meet or exceed ADA compliance capabilities Code and regulation compliance			
4.1.2-4	Equipment components will be designed, built, and installed to withstand the harsh operating environment.			
4.1.3-1	All equipment will meet the applicable software security capabilities described in this SOW.			
4.1.3-2	Equipment software and firmware will satisfy the common design capabilities in Section 3.1 including: • Service-proven design • Nonproprietary technology • Software design principles • Licensing and ownership • Accessibility and ADA compliance • Code and regulation compliance • Information security Fraud prevention			
4.1.3-3	All equipment will employ the most current version of a COTS operating system at the time of production. The operating system will be capable of performing all tasks necessary to support the equipment and its applications, including the capability to multitask, manage memory, maintain performance without degradation, and communicate with the back office in real-time.			
4.1.3-4	All equipment will maintain local transaction and data records in non-volatile memory in the event that communications to the back office is unavailable. Local records will not be deleted until they have been confirmed as received and recorded by the back office.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.1.3-5	The design of the System will provide a mechanism to recover transactions or other data stored on faulty equipment that has not been transmitted to the back office.			
4.1.3-6	All customer-facing system equipment will incorporate a test mode. In this mode, the equipment will have full functionality and process only test media. Test transactions will be segregated in reporting from revenue transactions.			
4.1.4-1	The System Manager will publish fare media positive and negative lists generated and used by the account-based transaction processor, and distribute to devices to support fraud avoidance and risk mitigation. Positive and negative list updates will be published no less than every five (5) minutes and include version control to confirm timely and accurate synchronization. The frequency will be configurable.			
4.1.4-2	All equipment will receive date/time, configuration, and list updates (as applicable) from the back office automatically at startup and as necessary.			
4.1.4-3	Equipment software and configuration updates, including all valid and invalid card lists, will be managed through the Configuration & Change Management application.			
4.1.4-4	The equipment software and applications will accommodate next gen ORCA's existing fare structure and potential fare policies described in the Fare Policy section (6.2.5) and Appendix 3 of this SOW.			
4.1.4-5	Equipment will receive configuration and software updates when available from the back office. The equipment will not commence updating software until it has received and verified the complete update. If any updates require a reboot, they will occur during non-operating hours, unless specifically approved by authorized service staff.			
4.1.4-6	Each software update will have a unique version number and include an activation date and time if applicable. Updates will be able to be downloaded and applied at that activation time, or activated immediately after download and verification is confirmed.			
4.1.4-7	The software update download process will not interrupt normal equipment operations, or cause data or file corruption if communication is lost. The process will recover from such loss and complete the download without issue.			
	Section 4.2 Onboard & Wayside Validators			
4.2.1-1	The validators will support validation of ISO 14443 compliant contactless smart cards.			
4.2.1-2	Validators will accept all fare media included in the System design, including the following fare media at a minimum: • Agency-issued Extended Use (EU) fare media including Legacy ORCA fare media • Credentials presented by the customer mobile app using NFC technology			
4.2.1-3	Validators will be PCI- and EMV-certified for the acceptance of bank-issued contactless credit and debit cards using all common formats based on the latest version of the standard at the time of Final System Acceptance. Validator will be capable of re-certification with newer versions of the PCI and EMV standards via software upgrades as necessary.			
4.2.1-4	If the onboard or wayside validator is purchased from a third-party, the Program needs the SI to deliver the latest generation device manufactured by the OEM. If a newer generation device is released following design review, but prior to device procurement, the Agencies shall have the option to upgrade to the newer device.			
4.2.1-5	An alternate means of downloading data from the validator will be provided for instances where there is a failure of the wired or wireless communication.			
4.2.1-6	Validators will support a minimum of two (2) Secure Access Modules (SAMs) to facilitate acceptance of multiple fare media formats and the replacement of security keys, should compromise occur.			
4.2.1-7	Validators will have at least three (3) spare universal serial bus (USB), or Agency approved equivalent, ports to support removable memory, SAMs, or future connection of ancillary devices, such as a barcode validator.			
4.2.1-8	Validators will include sufficient embedded storage to hold at least 30 days of fare payment transactions, and all risk mitigation lists as determined necessary during design review.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.2.1-9	Validators will support expandable storage in a common, commercially available format (e.g., USB drive, compact flash, secure digital, etc.) that can be quickly and easily swapped or expanded without modification to the rest of the device components.			
4.2.1-10	Onboard and wayside validator equipment will comply with all applicable hardware and software security requirements contained in this scope of work.			
4.2.1-11	All onboard and wayside validator equipment will comply with the applicable accessibility and ADA requirements contained in this SOW.			
4.2.1-12	The validator will be compliant with and support all open payment contactless standards, including but not limited to: • Apple Pay • Android Pay • Samsung Pay • VISA payWave® • MasterCard PayPass® • American Express ExpressPay® • Discover Zip® • Contactless EMV			
4.2.1-13	Validator software design will allow for accepted media formats, including Agency defined formats, to be enabled and disabled via configurable parameters.			
4.2.2.1-1	The validator will be simple and compact, as determined during system design and testing, while providing the functionality in this section.			
4.2.2.1-2	Validators will be rugged and function under extended severe environmental conditions including: direct sunlight, moisture, dust/grit/sand, humidity, electrical storms, exposure to urban environment, and the range of elevations and altitudes in the operating region.			
4.2.2.1-3	The validator housing will be resistant to corrosion, abrasion, scratching, impacts, and vandalism, and withstand standard bus cleaning materials. Validator housing color and finish will be such that it minimizes reflection and is highly resistant to fading, cracking, and peeling.			
4.2.2.1-4	All validator corners will be rounded, and there will be no exposed bolt heads, nuts, sharp edges, or cracks on outside surfaces. The validator display will be flush-mounted in the housing.			
4.2.2.1-5	Covers on the validator housing for accessing modules and subassemblies will be secured with mechanical locks and keys that are not readily duplicated nor readily available to the public, and uniquely serialized.			
4.2.2.2-1	The Program needs the SI to work with Agency staff to install all mounting brackets, special hardware, electrical and communication wiring and service loops, and terminations/connections required for the installation of SI-provided onboard equipment. To the extent possible existing wiring and hardware will be reused as approved by the Agencies.			
4.2.2.2-2	The Program needs the SI to work with Agency staff to install and perform commissioning testing on all SI-provided onboard equipment on Agency vehicles.			
4.2.2.2-3	Onboard validators will be installed on each bus such that the validator will be in proximity to the vehicle door(s) and will be positioned so that a customer may easily present fare media for payment upon boarding the bus.			
4.2.2.2-4	When installed, the onboard validator will not obstruct the operator's view out the vehicle windows, and will not cause glare on the windshield during bright sun conditions or at night with the vehicle interior lights off.			
4.2.2.2-5	The onboard and wayside validator and components will be securely mounted using stainless steel hardware in a location and manner that is safe for customers and operators.			
4.2.2.2-6	Onboard validator mounting will not interfere with maintenance of other onboard bus systems and components.			
4.2.2.2-7	All required mounting hardware and brackets for each bus type and wayside installation will be provided by the SI.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.2.2.2-8	All validator components, cabling, installation methods, and mounting will be prototyped on each bus/fleet type and subject to written approval by the Agencies before installation.			
4.2.2.2-9	The mounting design will enable the quick and simple removal of the validator by authorized maintenance personnel as determined during system design and testing.			
4.2.2.2-10	The Program needs the SI to work with Agency staff to install and perform commission testing on all wayside validators and mounting systems at Agency transit locations. The Program needs the SI to work with Agency staff to provide and install all cabling (from stub up), connectors, and hardware necessary to properly install and secure the equipment in its planned location.			
4.2.2.2-11	The Program needs the SI to provide all wayside validator support structures, such as pedestals, mounting poles, and mounting brackets, as needed. Use of existing mounting pedestals or stanchions to support wayside validators will be subject to Agency review and approval.			
4.2.2.3-1	The onboard validators will receive 12 or 24 VDC power through a circuit breaker assigned specifically to the onboard validator. External converters or power conditioners may be used with Agency approval.			
4.2.2.3-2	The onboard and wayside validators will be designed to operate using Power over Ethernet (PoE). PoE usage will be confirmed during design review.			
4.2.2.3-3	When bus power is turned off, the onboard validator will remain powered for a configurable time to allow completion of transmission of any and all data files.			
4.2.2.4-1	Onboard validators will contain an Ethernet port that enables connection to existing cellular/Wi-Fi-enabled mobile access routers installed on buses. The mobile access routers will serve as primary means of real-time off-board communication with the back office.			
4.2.2.4-2	Wayside validators will be designed with an Ethernet port that enables real-time connection to the back office.			
4.2.2.4-3	Onboard validators will include Wi-Fi (802.11a/b/g/n/ac/i/r) communications to enable integration with other systems, exchange of non-critical data at designated locations, and sharing of data connections onboard.			
4.2.2.4-4	If additional communications components are required, all such components will be mounted in a secure and sturdy enclosure, with the location and function approved by the Agencies.			
4.2.2.5-1	A customer-facing contactless smart card validator will be installed in the onboard and wayside validators to read, write to, and validate contactless media presented by customers. The validator will have write capabilities as per risk mitigation strategies defined in Section 3.2.3.			
4.2.2.5-2	Validators will include full color displays that support adjustable brightness, contrast, and refresh rate that can be easily read, as determined during system design and testing, under any combination of ambient lighting, including direct sunlight and night-time operation.			
4.2.2.5-3	Validator color displays may be adjacent to or directly in front of the contactless validator. In either case, the tap area will be easily identified and reachable by customers.			
4.2.2.5-4	The validator display will be clearly visible, as determined during system design and testing, in all forms of ambient light on the bus and viewable at a minimum angle of 45 degrees from the display.			
4.2.2.5-5	The validator display will be capable of partial or full video or animation. The animations may be used to indicate fare feedback, relevant customer action, or other general information. Video or animation files will be able to be updated remotely, or installed via removable memory by maintenance staff.			
4.2.2.5-6	Validators will include an audio interface and speakers for customizable audio feedback, including varying tones and full speech. Audio feedback types will be able to be configured and updated remotely. It will be in compliance with or exceed all applicable accessibility and ADA requirements.			
4.2.2.5-7	The decibel levels of the tones on the validators will be programmable locally and remotely, and the emitted tones will be capable of being distinguished up to eight (8) feet away in its operating environment.			
4.2.2.5-8	Onboard and wayside validators will include at least three (3) colors (green, yellow, red) of visual annunciation that can be configured to provide feedback, especially for reduced fare payments, on payment and device status.			

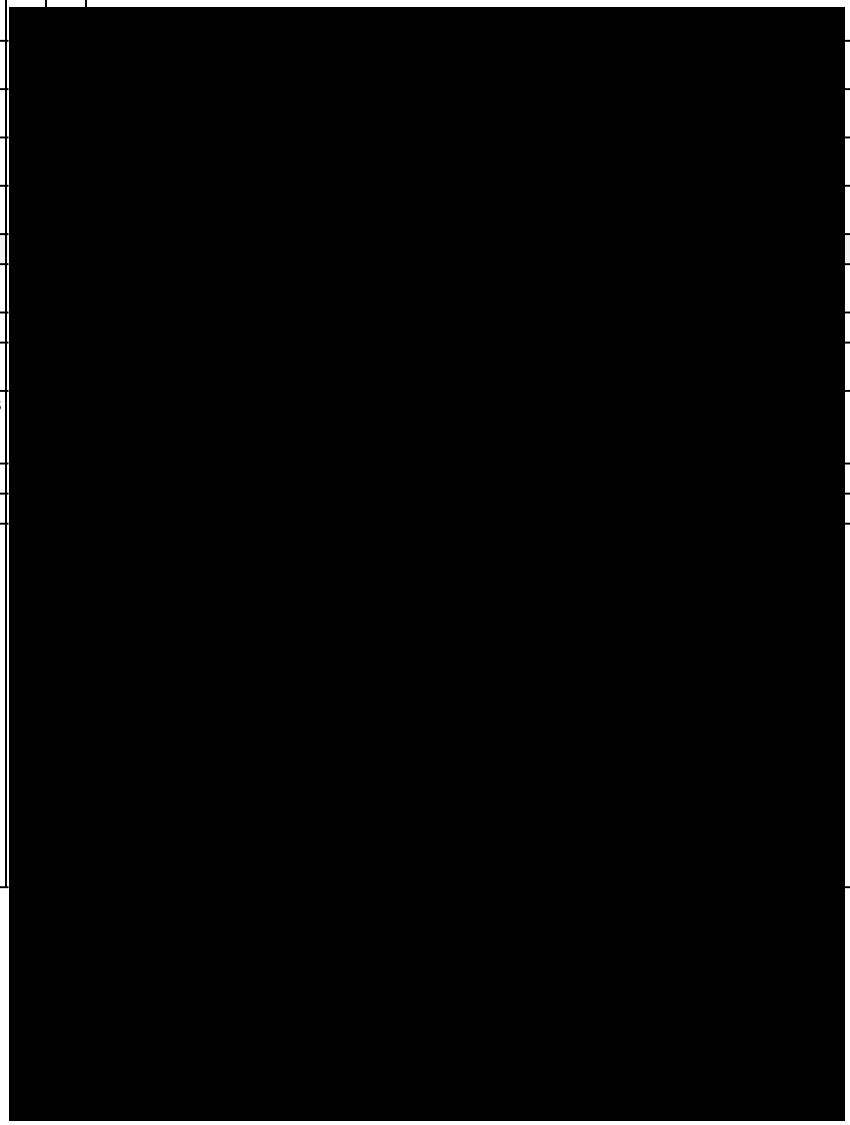
Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.2.3.1-1	Onboard and wayside validators will generate, store, and transmit a discrete data record for each transaction and/or validation performed.			
4.2.3.1-2	Each onboard validator transaction record will be unique and will include the following information, at a minimum: • Date and time • Device ID • Vehicle ID • Operator ID • Bus Stop ID • Geolocation information (GPS data) • Route number • Run number • Block number • Media type • Card number • Transit account number • Passenger type (e.g., adult full fare, youth, senior, disabled) • Action performed • Fare instrument or product used (where applicable) • Transaction value (where applicable) • Transaction result (e.g., success, failure) • Transaction ID Transaction records details will be finalized during design review.			
4.2.3.1-3	Each wayside validator transaction record will be unique and will include the following information, at a minimum: • Date and time • Device ID • Location ID • Route number (where applicable) • Media type • Fare media number • Transit account • Passenger type (e.g., adult full fare, youth, senior, disabled) • Action performed • Fare instrument or product used (where applicable) • Transaction value (where applicable) • Transaction result (e.g., success, failure) • Transaction ID Transaction records details will be finalized during design review.			
4.2.3.1-4	Any offline payment validation will be recorded as such in the transaction data, so that offline transactions can be easily identified and tracked.			
4.2.3.2-1	All validators will provide audit register counts for purposes of data tracking and analysis. The audit registers will store counts of specific events in non-volatile memory and will not be able to be modified or erased.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.2.3.2-2	The audit registers will maintain counts of the following events as applicable: • Total validation counts • Passenger type counts • Count of approved transactions • Count of denied transactions • Count of read failures • Fare products validated (where applicable) • Fare value deducted (where applicable) Final audit register events will be determined during design reviews.			
4.2.3.3-1	Onboard and wayside validators will provide real-time status of device events and alerts reported though the System Manager. The onboard and wayside validators will also maintain local event and alert logs in the event that communications to the back office are unavailable.			
4.2.3.3-2	In addition to transmitting real-time events and alerts, the validator will transmit periodic "heartbeat" messages that confirm communication with the back office and basic status. The "heartbeat" frequency will be adjustable.			
4.2.3.3-3	At a minimum, onboard and wayside validators will generate, store, and forward to the back office an event record for each of the following events with their corresponding date/time: • Power on • Power off • Operator login and logout • Route changed • Back office communications failed/restored • Maintenance parameter changed • New software received/activated • New configuration data received/activated • New list received/activated • Anti-virus definitions and security updates downloaded • Internal clock reset • Validator clock error • Data memory near full/full • Validator "heartbeat" check Final event records will be determined during design review.			
4.2.3.3-4	The onboard and wayside validator will have capacity to store a minimum of three (3) months of local event and alert data.			
4.2.4-1	Onboard and wayside validators will be able to accept fare payments in an offline mode, and accommodate scenarios where a full authorization cannot be received within the required configured timeframe. In these scenarios, risk mitigation strategies will be employed to limit exposure for declined payments.			
4.2.4-2	Upon power up, the onboard validator will be operational and ready for revenue service within three (3) minutes. It will remain operational until a configurable time after power off, subject to normal operating conditions.			
4.2.4-3	The onboard validator will require a valid logon to function. The bus operator will be able to present an employee ID card to the validator to initiate a default login.			
4.2.4-4	The bus operator will be able to present a properly configured employee ID card to the validator to initiate a login.			
4.2.4-5	The onboard validator will interface with the MAR to perform real-time communication with the ATP for the processing of fare payments using the SI-provided Fare Payment API.			
4.2.4-6	After successful logon, the onboard validator will automatically and continuously poll for all supported media formats.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.2.4-7	The onboard and wayside validator will support an anti-collision algorithm to support that payment is only accepted from a single piece of media when multiple valid pieces of media are presented.			[redacted]
4.2.4-8	Prior to transmitting a fare payment transaction to the ATP, the onboard and wayside validator will perform local fare media validity checks, including checks against any locally maintained positive/negative lists, as deemed necessary for security and the efficient processing of transactions.			
4.2.4-9	The wayside validator will be equipped with a real-time communications interface to the ATP for the processing of fare payments using the SI-provided Fare Payment API.			
4.2.4-10	The transaction response from the ATP will include: • Validation result • Fare product used • Fare amount charged • Balance remaining • Fare product expiration date • Fare product remaining rides or days • Passenger type • Transfer time remaining • Low balance warning (threshold to be configurable) • Time-based pass expiration warning (threshold to be configurable) The final list of data elements to be included in the ATP response will be established during system design. Results to be displayed on the validator full color display will be determined during design review. Results will be configurable, set by downloadable configuration parameters from the back office.			
4.2.4-11	Fare validation results will be displayed to the operator through the integrated driver display unit. The driver may be shown additional fare payment details that are not shown to the customer as determined and approved during system design.			
4.2.4-12	Onboard and wayside validators will provide a payment result, including writing required data to the fare media, within 500 milliseconds of valid fare media being presented for all fare payment types.			
4.2.4-13	Onboard and wayside validators will not explicitly indicate to the customer when they are operating in offline mode.			
4.2.4-14	All transactions generated in an offline mode will be sent to the ATP immediately upon restoration of communications.			
4.2.4-15	Onboard and wayside validators will display maintenance screens for troubleshooting and configuration purposes by authorized staff. The method and interface used to perform maintenance functions will be determined during design review.			
4.2.4-16	If a failure is detected that causes the validator to cease functioning or cause transactions to fail, the validator will go out of service and provide visual indication of the device status. The detected failure will be recorded as an event record.			
4.2.4-17	Prior to powering down, the validator will transmit all recorded event records and perform all necessary steps to retain integrity of all stored data.			
4.2.4-18	Replaced validator devices will automatically be programmed with their new location (e.g. vehicle ID or station location) upon installation and their assigned location information updated in the next gen ORCA System Manager.			
	Section 4.3 Driver Display Unit			
4.3.1-1	A Driver Display Unit (DDU) will be provided which will interface with the onboard validators and display fare validation results to the bus operator. The DDU will be connected to the onboard validators, but will not be required for the validator to function.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.3.1-2	The DDU will be as simple and compact as possible, as determined during system design and testing, while providing the functionality in this section.			
4.3.1-3	Communications utilized in the exchange of data between the DDU, the onboard validator, and other onboard systems will be fully documented and the property of the Agencies.			
4.3.1-4	The DDU electrical capabilities will conform to the common design requirements presented in Section 3.1.			
4.3.1-5	Final DDU specifications and performance capabilities will presented for Agency review and approval during design reviews.			
4.3.1-6	The Program needs the SI to work with Agency staff to install all mounting brackets, special hardware, electrical and communication wiring and service loops, and terminations/connections required for the installation of the DDU equipment.			
4.3.2-1	The DDU enclosure and components will be made of material suitable to the service under the full range of the specified bus environmental and operating conditions.			
4.3.2-2	DDU housing will be resistant to corrosion, abrasion, scratching, impacts, and vandalism, and withstand standard bus cleaning materials. DDU housing color and finish will be such that it minimizes reflection and is highly resistant to fading, cracking, and peeling. The device will follow all common design capabilities.			
4.3.2-3	The DDU will include a physical or virtual keypad that supports driver login using a numeric ID and password as well as work assignment. The bus operator will be able to present an employee ID card to the onboard validator to initiate a login.			
4.3.2-4	The DDU will include at least four physical buttons or virtual keypad selections to perform future functions, if needed and as determined during system design.			
4.3.2-5	There will be a "failure" operator key on the DDU to tally events when the onboard validator does not function.			
4.3.2-6	All required DDU mounting hardware and brackets for each bus type will be provided by the SI.			
4.3.2-7	The DDU will be installed in a position to allow bus operators to observe fare transactions without interfering with other bus controls or indicators. The DDU will in no way obstruct the bus operator's view.			
4.3.2-8	The DDU will be designed and mounted so that it can be quickly adjusted by the bus operator for optimal viewing angle. After adjusting, the mounting hardware will not allow the DDU to shake or become loose as a result of shock and vibration encountered during normal bus operation.			
4.3.3-1	The DDU will receive 12 or 24 VDC power through a circuit breaker assigned specifically to the DDU. External converters or power conditioners may be used with Agency approval.			
4.3.3-2	The DDU will not be adversely affected by other onboard systems being turned on and turned off, including the starting of the transit vehicles engine.			
4.3.3-3	When bus power is turned off, the DDU will remain powered for a configurable time to allow completion of transmission of any and all data files.			
4.3.4-1	The DDU will be the primary visual interface for the driver and will display information such as route and direction and fare payment results transmitted from the onboard validator(s), including but not limited to: • Validation results • Fare amount charged • Fare balance remaining • Fare product used • Passenger type • Transfer time remaining • Low balance warning (threshold to be Agency configurable) • Time-based pass expiration warning (threshold to be configurable) • Card/account status (e.g., blocked and reason) The operator may be shown additional fare payment details that are not shown to the customer.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.3.4-2	The DDU will serve as an input device for the bus operator to perform system login and set parameters such as route number and direction, if that data is not automatically received from other onboard systems.			
4.3.4-3	The DDU will allow the driver to tally operational data such as customers with bicycles or wheelchairs, and when a cash fare or fare upgrade is paid.			
4.3.4-4	The DDU will control the onboard validators including volume control, display brightness, and placing units out-of-service, using the SI-provided System Management API.			
4.3.4-5	The information displayed on the DDU will be Agency-configurable and may be different from the information displayed on the onboard validator.			
4.3.4-6	When the DDU is replaced the newly installed DDU will automatically be programmed with its new location and have their assigned location automatically updated in the next gen ORCA System Manager.			
	Section 4.4 Customer Service Terminals			
4.4.1-1	The CST will be modular devices, and will support multiple configurations, depending on Agency use and purpose. The hardware will be optimized for its intended use and configuration.			
4.4.1-2	All CST configurations and peripheral modules will be subject to Agency review and approval.			
4.4.1-3	To accommodate the required variety of installation locations, the CST will be compact and easily positioned for user comfort as demonstrated during system design and testing.			
4.4.1-4	CST will be designed to permit rapid exchange of the device and peripheral modules to restore service in minimal time as demonstrated during system design and testing. Repairs will be performed in the field and no special tools or instruments will be required for exchange of modules.			
4.4.1-5	CST peripherals will communicate over a wireless interface wherever possible.			
4.4.1-6	For any of the SI supplied CST configuration(s) the same SI-supplied application and OEM software will be utilized.			
4.4.1-7	The CSTs installed in Customer Service Offices (CSOs) will provide all functions available. Device modules and key functions may include: • Computer • Keyboard and pointing device • Closed-loop media processing • Secure cash storage • Bank card processing • Customer display • Receipt printing • Image capture • Document scanning • EU fare media printing/encoding • Uninterruptible power supply • Communications interfaces as necessary			



Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.4.1-8	The CST used for customer outreach and special events will support remote sales and card personalization programs at senior centers, social service organizations, special events and other locations where remote fare media issuance and customer account support services are needed. Device modules and key functions may include: • Computer • Closed-loop media processing • Bank card processing • Receipt printing • Image capture • Document capture • EU fare media printer/encoder (does not need to support bulk printing) • Uninterruptible power supply • Communications interfaces as necessary The CST will rely on local power and will connect to the next gen ORCA back office via Agency-supplied network connection.			[redacted]
4.4.1-9	The CST will conduct a variety of functions. At a minimum, these functions include: • Sell all supported fare media, including Legacy ORCA media (and create new transit accounts) • Sell all supported fare products (e.g., stored value and passes) and load fare products to transit accounts • Sell products such as belt buckles and other non-next gen ORCA fare media and properly record these sales as non-next gen ORCA • Sell serialized taxi scrip to qualified customers • Sell serialized Human Services fare products to authorized Human Services representatives • Sell serialized paper tickets individually or in bulk • Query transit account status (e.g., passenger type, active/inactive, blocked/unblocked) • Query fare payment transaction history • Query sales transaction history • Query adjustment transaction history • Enable fare product for autoload (requires funding source in customer account) • Generation of fare payment reversal (e.g., cancellation) • Generation of sales reversal (e.g., refund) • Generation of an transit account adjustment (e.g., credit or debit) • Transfer of balance between two transit accounts • Block/unblock card, transit account, or individual fare product • Lost, stolen, or damaged card replacement (e.g., associate new card with existing transit account) • Make comments on customer accounts and transit accounts • Generation of an opt-out refund (e.g., close transit account and issue refund) • Create new customer account • Query customer account status/data • Modify customer account data • Register (e.g., associate) a transit account to a customer account • Unregister (e.g., disassociate) a transit account from a customer account • Add, update or remove a funding source to/from a customer account • Close or suspend a customer account • Encoding, printing, and issuance of personalized EU fare media (when configured to do so), including the addition of photo			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.4.1-10	The CST will support manual entry and validation of ADA paratransit customer data using a simple graphical user interface.			
4.4.1-11	The CST will enable the CSR to print packing slips and mailing labels.			
4.4.1-12	The CST will allow for every non-next gen ORCA item to be configured with applicable sales taxes. The tax rates will be Agency configurable and be established by sales location.			
4.4.1-13	The CST will support blind reconciliation whereby the user enters at the end-of-shift enters the amount in sales by payment method into the CST. The CST will indicate if the totals entered reconcile with the System information and allow the user to correct the amount up to an Agency configurable amount of times. Supervisory role logon will allow for override of the blind reconciliation feature.			
4.4.1-14	All CST equipment will comply with the applicable hardware and software capabilities contained in this scope of work.			
4.4.1-15	The CST will be able to read and endorse checks. The check read/endorse feature may be accomplished through the printer or other Agency approved solution.			
4.4.1-16	All CST equipment will comply with the applicable accessibility and ADA requirements contained in this scope of work.			
4.4.2.1-1	The CST will include an integrated flat panel touchscreen display with no less than 1080p resolution.			
4.4.2.1-2	The touchscreen will provide suitable touch sensitivity and resolution to satisfy operator selection and input capabilities.			
4.4.2.1-3	The CST will support the use of an external display.			
4.4.2.1-4	The CST will include integrated Ethernet and Wi-Fi (802.11a/b/g/n) to satisfy the capabilities of the configuration.			
4.4.2.1-5	The CST will access the CRM application through open APIs over the internet.			
4.4.2.1-6	Any required peripheral modules will be able to be attached to any CST.			
4.4.2.2-1	The CST will allow for a separate, Agency supplied, full-sized keyboard and a mouse with scrolling wheel to be used if deemed necessary by the Agencies.			
4.4.2.2-2	The CST will include an integrated keyboard and pointing device.			
4.4.2.3-1	The closed-loop media processing module will be a separate module cabled to the CST. In addition to the separate module there may also me an integrated module.			
4.4.2.3-2	The CST will support the capability to interface with two (2) separate closed-loop media processing modules, one (1) each for the customer and the clerk.			
4.4.2.4-1	The cash storage facility will open only under command of the CST, which will monitor the status of the drawer at all times. Cash storage facility installations will be subject to each Agency's approval.			
4.4.2.5-1	The CST will be PCI- and EMV-certified and compliant with other required banking standards for the acceptance of bank-issued credit and debit cards using all common formats based on the latest version of the standard at the time of Final System Acceptance.			
4.4.2.5-2	The bank card processing module will be an integrated or mobile friendly module.			
4.4.2.5-3	The merchant acquirer approved bank card processing module will include: • Magnetic stripe reading • Contactless bank card reading • Contact (or chip) bank card reading • Personal Identification Number (PIN) pad. The Personal Identification Number (PIN) pad must meet or exceed all applicable accessibility and ADA requirements, as well as meet applicable PCI DSS (version 3.2 or current at the time of deployment) and any other relevant security controls included in the ISMS control baseline referenced in Section 3.1.14.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.4.2.5-4	The contactless bank card validator will read and support all open payment contactless standards, including but not limited to: • Apple Pay • Android Pay • Samsung Pay • VISA payWave® • MasterCard PayPass® • American Express ExpressPay® • Discover Zip® • Contactless EMV			[redacted]
4.4.2.5-5	The bank card processing module will employ merchant acquirer approved software and PIN encryption as required in accordance with banking capabilities. The Program needs the SI to supply bank card processing modules with production encryption keys injected in a secure, PCI-compliant manner.			
4.4.2.6-1	The CST will be able to print on a single roll of continuous thermal paper or Agency approved alternative.			
4.4.2.6-2	The receipt printer will provide for easy loading of a new receipt stock as demonstrated during system design and testing.			
4.4.2.6-3	The receipt printer will have a cutting edge to enable the operator to manually separate the receipt from the receipt stock.			
4.4.2.7-1	The CST will have the capability to convey information to customers such as transaction price, status, PII, and other pertinent information. What and how the information gets displayed to the customer will be finalized during design review.			
4.4.2.8-1	When configured to issue personalized fare media, the CST will support the capturing of customer photos.			
4.4.2.8-2	The image capture device will include both a separate camera and an integrated camera.			
4.4.2.8-3	The image capture device will include a built-in flash and an image sensor of no less than 10 megapixels. The image capture device will produce images of suitable resolution, clarity, and contrast to satisfy the capabilities of photo ID cards.			
4.4.2.8-4	If a separate image capture module is required the SI will provide a means for securing the module for optimized image capture.			
4.4.2.9-1	When configured to issue personalized fare media, the CST will include a means for digitizing customer eligibility documents.			
4.4.2.9-2	Digitizing will support the capture of black & white and color images at a resolution of at least 1200 x 1200 dpi.			
4.4.2.9-3	Digitizing will support the auto-feeding of documents and support double-side digitizing at no less than 10 pages per minute.			
4.4.2.10-1	The Extended Use (EU) fare media printer/encoder module for use in the CSO and mail center will utilize re-transfer, or modern equivalent, printing technology, and will encode EU fare media with requisite data in coordination with the printing process.			
4.4.2.10-2	The EU fare media printer/encoder module for use in the CSO and mail center will print edge-to-edge (e.g., “full bleed”) in at least four (4) colors (YMCK), and will apply the printed images to a laminate film and then apply the laminate to both sides of the card.			
4.4.2.10-3	The EU fare media printer/encoder module for use in the CSO and mail center will employ easily replaceable consumables for printing and lamination films as demonstrated during system design and testing.			
4.4.2.10-4	The EU fare media printer/encoder module will provide print resolution no less than 300 dots per inch.			
4.4.2.10-5	The EU fare media printer/encoder module will produce at least 75 cards per hour as approved in design.			
4.4.2.10-6	The EU fare media printer/encoder module for use in the CSO and mail center will include input and output card hoppers with a capacity of no less than 250 cards each, which will be lockable for security.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.4.2.10-7	Upon successful printing and encoding, the EU fare media printer/encoder module will inform the CST of the successful issuance of each card, and the identification number of each issued card.			[redacted]
4.4.2.11-1	The CST will communicate with the next gen ORCA back office via secure, Agency-provided, network connection to send and receive transaction information, event and status information, clock synchronization information, positive/negative lists, and configuration parameters.			
4.4.2.11-2	The CST will be connected to the secure network via an Ethernet port or wireless (Wi-Fi) connection.			
4.4.2.11-3	For all transactions requiring back office access to a transit account, or establishing a new transit account, the CST will communicate with the back office in real-time using the SI-provided API.			
4.4.2.11-4	If the CST has missed scheduled communications with the back office, upon restoration of communications, the CST will automatically initiate communications without interrupting operations.			
4.4.2.12-1	Each CST will receive power from a dedicated Uninterruptible Power Supply (UPS) with sufficient battery capacity to operate the CST and all peripherals for a minimum of 10 minutes.			
4.4.2.12-2	The UPS will allow the CST to perform a controlled shut down without any loss of data whenever the UPS determines that there has been a loss of primary power.			
4.4.2.12-3	The UPS will provide no less than 500 joules of overvoltage (surge) protection for all connected devices.			
4.4.3.1-1	Once installed, the CST will not enter service until it has communicated with the back office to receive application software, administrative and maintenance logins, risk mitigation lists, and other configuration data.			
4.4.3.1-2	Authorized users will be able to remotely monitor and manage the CST using the System Manager. Remote management functions will include: • Changing configuration parameters • Enabling and disabling payment methods • Synchronizing date and time			
4.4.3.1-3	On each CST the Program needs the SI to supply, install, and configure client versions of anti-virus and anti-malware software.			
4.4.3.1-4	The Program needs the SI to submit descriptions of the CST software design for Agency review and approval. CST software design deliverables will include: • Data registers • Transaction, event, login, etc. records • Operator interface • Configuration parameters and their value range • Risk mitigation list storage, update, and processing (if applicable) • Transaction limitation procedures • Setup and administration procedures • Login types and permitted functions • Anti-virus and anti-malware software and procedures			
4.4.3.2-1	The CST will generate transactions and events, including operator login and logout and diagnostics. Each data record will incorporate a unique identification number for that CST and day, and will be date/time stamped.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.4.3.2-2	Each CST customer transaction record will consist of the following, at minimum: • Date and time • Device ID • Location ID • Operator (e.g., clerk) ID • Card number • Transit account • Transaction type (e.g., card sale, value load, account inquiry, refunds) • Cards sold (where applicable) • Stored value or fare products loaded (where applicable) • Passenger type (e.g., adult full fare, youth, senior, disabled) • Transaction value (where applicable) • Payment type and amount • Transaction result (e.g., success, failure) • Transaction ID Transaction records details will be finalized during design review.			[redacted]
4.4.3.2-3	When a user signs on to the CST, the following data will be stored in a data record: • Date and time • Device ID • Location ID • Operator ID • Login attempts When the user logs off the CST, the device will store a similar record.			
4.4.3.2-4	The CST will be capable of detecting basic internal malfunctions and will display failures directly on the operator display and alert the System Manager. The malfunction detection will cover at least failure of power or control circuitry, and any failure of the closed-loop media processing module that could result in a false, incomplete, or corrupted encoding of a smart card.			
4.4.3.2-5	The CST will be capable of recording data locally representing no less than 1,000 events, including changes in status, communication problems, and problems detected during the automatic diagnostic testing. At a minimum, each event record will include: • Date and time • Device ID • Event code • Any associated event data • Identifier of the failed test • Iteration number of test • Reason for test failure (unique code) • Additional information to define the nature of the failure			
4.4.3.2-6	Each CST will contain audit registers that track the following information at a minimum: • The total count and value of all transactions completed by the CST since data was last uploaded to the back office. • The date and time of the last successful data upload to the back office. These registers will be modified only by the CST itself and will not be manually alterable.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.4.3.2-7	CST audit register records will be transmitted to the back office at the end of service day for reconciliation, or upon a configurable time period.			
4.4.3.3-1	When required, modification of the CST application software and any OEM application or operating system software will be performed by downloading new software from the back office. The back office database will record and track the version number of all such software in each CST, and the date that the software versions were downloaded and installed.			
4.4.3.3-2	Each time the CST communicates with the back office, the back office will transmit any updates to the CST application software. The CST will not commence updating its software until it has received and verified the complete software delivery.			
4.4.3.3-3	Upon receipt and verification of the software update, the CST will apply the update (rebooting if necessary) at a time configurable by the Agencies for each CST.			
4.4.3.4-1	Operating parameters will be downloadable to the CST from the back office via the wide area network provided by Agency, as appropriate for each installation or CST configuration.			
4.4.3.4-2	The CST design will support Agency configurability through numerous adjustable parameters. The CST application software will at minimum support Agency configuration for: • Value of deposit to be collected for new or replaced fare media • Fare products and non-next gen ORCA products available for sale and upgrade • Payment method selection • Receipt content • All text and touchscreen labels • Authorized users and passwords (if stored locally at the CST)			
4.4.3.5-1	Upon issuance and/or initialization of a smart card, the CST will record in the back office an issue record, including the date, time, fare category, card identification number, and other pertinent information of the smart card and any associated transit account.			
4.4.3.5-2	The Fare Media Management application (FMM) will track the smart cards distributed to each Agency sales location. Using the list of fare media issued to each sales location and the issuance and/or initialization records previously transmitted to the back office, it will be possible for authorized users to query the FMM for the identification numbers and total quantity of smart media that remain in each sales location's inventory.			
4.4.4.1-1	The CST will remain inactive and unable to perform any functions unless a proper login has been completed.			
4.4.4.1-2	When configured with a cash storage facility the CST will require the operator to identify the cash balance at the start of each shift. The starting balance will be Agency configurable.			
4.4.4.1-3	The CST will support relief shifts, with the replacement of the cash storage facility. The CST will also maintain statistics for the relief shift separately and will not affect the main shift information.			
4.4.4.1-4	If the CST has not been used in a number of minutes configurable by Agency, the user will be automatically logged out.			
4.4.4.1-5	Upon end-of-shift condition, the CST will produce an end of shift report and receipt depicting at a minimum the ending balance of the cash storage facility, summary of transactions, payment methods used, quantity of products sold, reversals, refunds. The report will be approved during design.			
4.4.4.1-6	The CST will store a data record for each successful login, each unsuccessful login, and each logout.			
4.4.4.1-7	The CST will be configurable to use a multi-factor login authentication mechanism that observes the guidelines provided in NIST 800-63, and approved by the ORCA CISO. The CST will support more than one method for additional factors of the authentication process and those methods will be approved during design, always observing applicable industry best practices (such NIST 800-63).			
4.4.4.1-8	The CST will allow the CSR to login using a properly configured smart card. Smart card login will be one factor of multi-factor login authentication.			

Capability Number	Capability	ully Conforming	on-Conforming	
4.4.4.2-1	The CST will function as an intelligent cash register, allowing customers and CSRs to interact in a manner as similar as possible to normal retail sales transactions. Sales transactions will include, but are not limited to: • Purchase of new fare media • Adding of value and products to existing transit accounts • Purchase of non-next gen ORCA products			
4.4.4.2-2	When issuing a new EU fare media, the CST will permit the clerk to override the default, Agency-configurable card fee.			
4.4.4.2-3	The purchase of multiple cards and multiple products, including products that are other than next gen ORCA fare products, will be able to be performed in a single transaction, with payment collected once.			
4.4.4.2-4	When configured to conduct sales, the CST will support a variety of funding methods, including: • Cash • Checks • Agency and third-party issued vouchers • Bank cards (credit and debit) • Mobile wallets • Any combination of the above The CST will also support the payment, or partial payment, for the purchase of a pass or multi-ride product using stored value in same transit account where the pass or multi-ride product is being loaded.			
4.4.4.2-5	The CST will support split payments where up to three (3) funding methods can be used, including multiple bank cards, to complete payment for a single sale.			
4.4.4.2-6	For each sales transaction, the CST will enable the clerk to select the payment method. If the clerk selects more than one (1) payment method, the CST will prompt the clerk to enter the amount to be paid using each payment method.			
4.4.4.2-7	Cash transactions will provide the total amount due, allow the clerk to enter amount tendered, and display the change due.			
4.4.4.2-8	The CST will control and monitor the cash storage facility, and open the cash storage facility upon calculation and display of the amount of change due.			
4.4.4.2-9	The CST will provide an option to either print, text, or email a customer receipt for every completed sales transaction. Receipts will include the resulting status and value of the customer's transit account, where applicable.			
4.4.4.2-10	For each completed transaction, a sales transaction will be stored and transmitted to the System back office using SI-provided Fare Distribution API.			
4.4.4.2-11	The CST will enable a clerk to display and print totals of all completed transactions by that clerk for the current day.			
4.4.4.2-12	The CST will enable an administrative user to display and print totals of all conducted transactions for the current and each of the prior seven (7) days. These totals will indicate daily totals by clerk and payment type.			
4.4.4.3-1	When configured to do so, the CST will include the necessary software and peripherals to enable Agencies to issue personalized fare media.			
4.4.4.3-2	Personalized fare media may include the customer's name and photograph printed on one side of the card, accompanied by other Agency-defined graphics and information.			
4.4.4.3-3	Using the appropriate customized printing template, the CST will print and issue personalized fare media.			
4.4.4.3-4	The SI shall supply printing templates (also known as "masks") using Agency-supplied graphic designs for all personalized fare media. The CST will support no fewer than 25 pre-loaded templates from which the user will select. Where possible, template selection will be automatic based on fare media.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.4.4.3-5	The CST will support the ability for a participating customer account to add a company logo to the card template(s).			
4.4.4.3-6	When printing a personalized fare media, the CST will scale and crop the photo image to fit within the area defined by the printing template without distorting the image or changing its native aspect ratio.			
4.4.4.3-7	The CST will support issuance of personalized fare media in individual and bulk production modes.			
4.4.4.3-8	For fare media personalization, a digital camera controlled by the CST will capture the customer images as necessary.			
4.4.4.3-9	All CSTs will support production runs (using data imported from the CRM or an external source) for bulk fare media personalization in quantities of one (1) to at least 250 cards per batch			
4.4.4.3-10	For bulk fare media personalization production runs, the CST will use data files imported in a SI-specified format. The data files will include the customer name, digital photograph, and other information as required.			
4.4.4.3-11	The CST will support the capture of all data needed to validate, register, and issue personalized fare media for reduced fare and paratransit customers.			
4.4.4.3-12	The CST will support manual entry of reduced fare transit account registration data using a simple graphical user interface.			
4.4.4.3-13	The CST will capture reduced fare applications and supporting documentation using the SI-provided document scanner.			
4.4.4.3-14	The CST will capture reduced fare customer photographs using the SI-provided camera.			
4.4.4.3-15	All customer data captured and used by the CST will be securely stored within the CRM using the SI-provided API and will not be permanently stored locally on the CST.			
4.4.4.3-16	The CST will allow the CSR to override the card printing process. Card printing override functionality will be further defined during design review.			
4.4.4.4-1	Whenever fare media is presented to the CST closed-loop media processing module, the CST will read the fare media and query the back office using the Systems Integrator-provided Transit Account Management API to display the current status and value of the associated transit account on the operator display and customer display if one exists in current CST configuration.			
4.4.4.4-2	If the customer's smart card is not functioning, the CST will permit the clerk to manually enter the card identification number.			
4.4.4.4-3	Upon request, the CST will query the back office for details of the most recent transactions posted to the transit account. Upon receipt of the transaction history, the CST will display the results on the operator display.			
4.4.4.4-4	The number of prior transactions to display when viewing a transit account in the CRM application will be Agency-configurable.			
4.4.4.4-5	For each prior transaction displayed by the CRM, history details will include, at minimum: • Date and time of transaction • Generating device/system (e.g., VM, retail location, autoload) • Transaction type (e.g., sales transaction, stored value usage, pass usage, adjustment) • Transaction value • Payment method • Transaction location (e.g., station name, bus route)			
4.4.4.4-6	Upon request, the CST will print a receipt of the current status, transit account value, transaction history, and current and past transaction receipts.			
4.4.4.5-1	The CST will enable operators to setup and modify customer accounts using the Systems Integrator-provided Customer Account Management API.			

Capability Number	Capability	ully Conforming	on-Conforming	Comments
4.4.4.5-2	The CST will enable the operator to, at a minimum: • Create a new customer account • Register an anonymous transit account • Associate a transit account with multiple customer accounts • Disassociate a transit account from a customer account • Query and edit program registration details			
4.4.4.5-3	The CST will enable the operator to modify any fields in the existing customer accounts that are deemed user-alterable.			
4.4.4.5-4	The CST will enable operators to establish, modify, and cancel customer subscriptions for autoload, including the addition and modification of funding sources.			
4.4.4.5-5	Some reduced fare privileges are subject to expiration. The CST will include a function to re-authorize reduced fare privileges and update the customer's transit account information with a new reduced fare privilege expiration date.			
4.4.4.6-1	The CST will support replacing registered EU fare media by disassociating/ deactivating the lost or stolen fare media from the transit account and associating/activating new fare media in its place. Disassociating the lost or stolen fare media will not prohibit the customer or designated Agency personnel from accessing transaction history associated with that card.			
4.4.4.6-2	Prior to replacing registered EU fare media, customer identity will be verified using information accessible via the CST and in accordance with the applicable security controls established in the ISMS control baseline.			
4.4.4.6-3	If the replacement fare media requires no personalization, the CST will prompt the operator to present the new fare media to the closed-loop media processing module.			
4.4.4.6-4	When replacing a previously issued personalized fare media, the CST will support use of the digital photograph, printing template, and other data from the original issue record to facilitate replacement without requiring the customer's presence, or the use of the digital camera to create and store a new digital image.			
4.4.4.6-5	Upon reading or issuing the replacement fare media, the CST will transmit to the back office an issue record containing the card's identification number, and a corresponding record to block use of the lost card.			
4.4.4.6-6	Replacing a malfunctioning smart card will be possible. Procedures to replace a defective smart card will be similar to those used to replace lost registered fare media, but replacement of a defective card will not require the fare media to be registered. The replacement process will support manual entry of the defective smart card's identification number as the means to initiate replacement.			
4.4.4.7-1	CST operators with appropriate access rights will be able to initiate transit account adjustments by reversing prior sales or fare payment transactions, or directly adding or removing stored value or products.			
4.4.4.7-2	CST operators with appropriate access rights will be able to initiate an opt-out refund that results in the closing of a transit account associated with a customer account and issuance of a cash or check refund to the customer. The System will support the charging of a refund fee that is Agency configurable.			
4.4.4.7-3	CST operators with appropriate access rights will be able to add fare products to a transit account on a goodwill basis resulting in no cost to the customer.			
4.4.4.7-4	The CST will fully record and immediately transmit to the back office all adjustment and reversal transactions.			
	Section 4.5 Vending Machines			
4.5.1-1	The vending machine (VM) will be designed as a simple, low-maintenance, and low-complexity machine in a cost-saving design that provides the functionality specified herein and the common design capabilities.			

Capability Number	Capability	ully Conforming	Non Conforming	Comments
4.5.1-2	The VM will be designed to accommodate first-time or occasional users, as well as regular customers who need to reload their transit accounts. At a minimum, these functions will be supported: • Purchase one or more new smart cards (associated with a new transit account) with and without value • Load stored value or fare product(s) to an existing transit account • Review transit account balance and history • Accept U.S. coins and bills (Agency configurable should some Agencies choose to not accept cash) • Accept authorized magnetic strip, contact, and contactless bank cards • Inserted cash will be held in escrow and returned to the customer should the transaction not be completed for any reason • Display instructions and notices • Provide audio output of messages and instructions • Contain required security and alarm system • Communicate over a network to send and receive transaction data in real-time • A full list of transactions and detailed process flows will be determined during design reviews.			
4.5.1-3	The VM will be modular and have the capability to replace, activate, or deactivate the hardware components individually. The modules and components will be easily serviced.			
4.5.1-4	If a component or function is enabled/disabled, the VM will automatically adjust its display, operation, and maintenance status according to the active components.			
4.5.1-5	The VM will be able to accept credit and debit cards and cash/coin for payment.			
4.5.1-6	The VM will detect when the bill vault is near-full (%) and full (%), and record and transmit an event record. The determination of a nearly full condition will be adjustable by the Agencies for each VM.			
4.5.1-7	The VM will detect when the coin vault is near-full (%) and full (%), and record and transmit an event record. The determination of a nearly full condition will be adjustable by the Agencies for each VM.			
4.5.1-8	The Light Feature Vending Machine (LFVM) will be a simple, low-cost, low-complexity machine that allows first-time and regular customers to purchase and reload EU fare media. The LFVM is expected to reduce the capital costs, maintenance activities, and customer complexity associated with traditional full feature transit VMs. To this end, the LFVM will not issue change. The device will provide Agencies with the flexibility to enable and disable features or components of the LFVM.			
4.5.1-9	The LFVM will not issue change. Any change due to a customer for fare product loads to Extended Use (EU) fare media a an LFVM will be returned (e.g., loaded) as stored value to the same transit account within the same transaction.			
4.5.1-10	All VM equipment will comply the applicable hardware and software security capabilities contained in this scope of work.			
4.5.1-11	All VM equipment will comply with the applicable accessibility and ADA requirements contained in this scope of work.			
4.5.1-12	All VM equipment will comply applicable PCI/PII requirements contained in this scope of work.			
4.5.2.1-1	The VM enclosures will be rugged and function under harsh environmental conditions including: direct sunlight, moisture, dust/grit/sand, humidity, electrical storms, exposure to urban and marine environment, and the range of elevations and altitudes in the operating region.			
4.5.2.1-2	The design of the VM mounting system will be vandal-resistant and will include robust anchoring that prevents the VM from being dislodged.			
4.5.2.1-3	The VM cabinets will be constructed from stainless steel without any visible fasteners. The enclosure finish and corners will be rounded to avoid sharp edges, corners, or protrusions that may cause injury to customers.			
4.5.2.1-4	The VM enclosures will be resistant to corrosion, abrasion, scratching, impacts, and vandalism, and withstand standard cleaning materials. Color and finish will be such that it minimizes reflection and is highly resistant to fading, cracking, and peeling.			

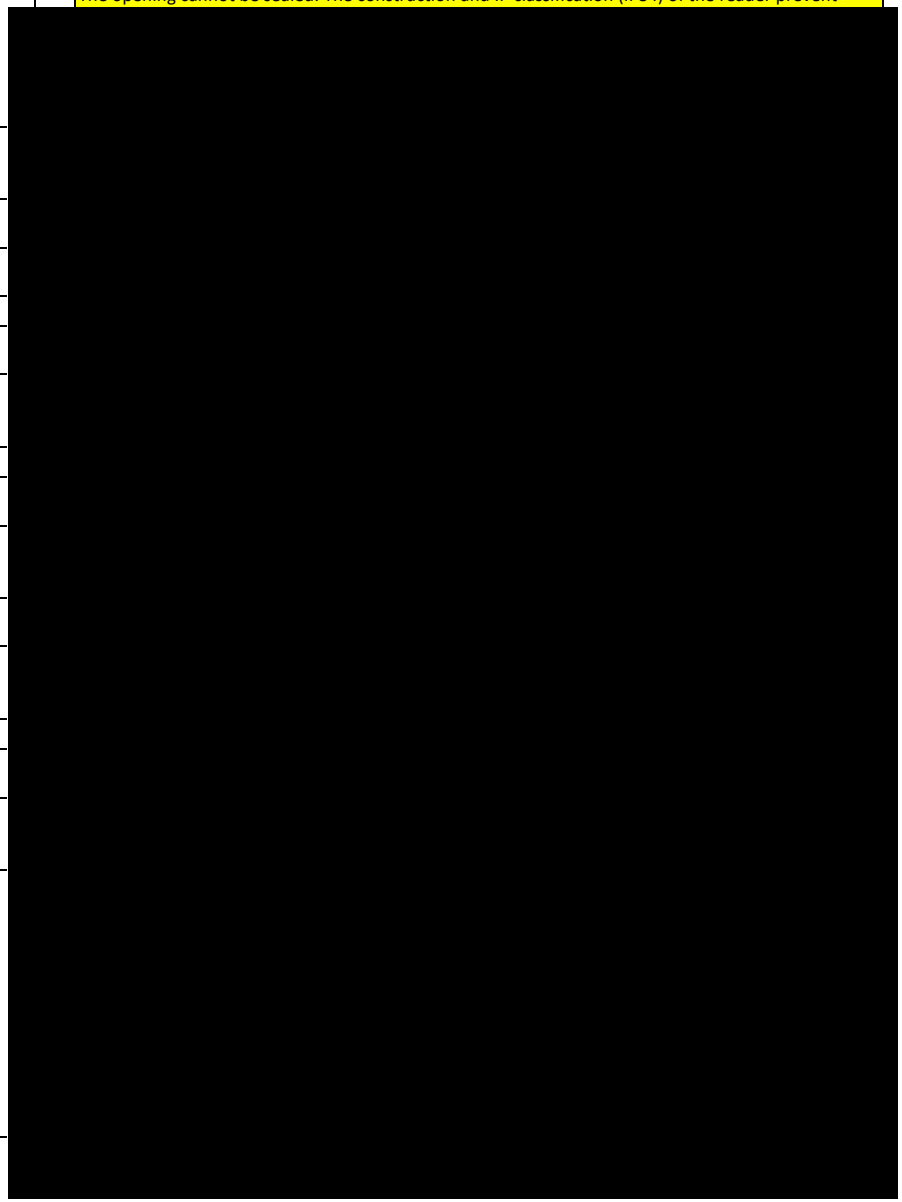
Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.5.2.1-5	The design of the VM enclosure will permit installation as stand-alone units, side-by-side units, back-to-back units, and in recessed areas.			[redacted]
4.5.2.1-6	The VM cabinets will be constructed to provide the highest protection against vandalism and burglary. Reinforcement will be provided at the locations (screen, doors, access ports, etc.) where there is a higher possibility of vandalism. All doors and other access points will be designed to inhibit the use of prying tools to gain access to the interior of the machine.			
4.5.2.1-7	The VM mounting pedestal and any external features (such as button panels, rain shields, and light fixtures) will be weatherized, robust, and vandal-resistant.			
4.5.2.1-8	While all outer doors are secured, the VM will remain operational and undamaged after experiencing any impact resulting in a concentrated load of 400 pounds per one (1) square inch on any part of the enclosure.			
4.5.2.1-9	The VM cabinet and mounting hardware will accommodate variations in station and sidewalk construction. Mounting pedestals will be sized according to need, and specifics will be provided by the Agencies during design review.			
4.5.2.1-10	The VM cabinet will provide controlled levels of access to the interior of the equipment for maintenance personnel, revenue servicing personnel, and cash processing personnel, as defined by the Agencies. Locks must be secured locks, programmable to more than one key.			
4.5.2.1-11	As necessary, blanking plates will be provided for installation over any outer door openings of the VMs resulting from the removal of an external component or module. All such blanking plates will be easily secured, and will provide security against intrusion and vandalism.			
4.5.2.1-12	The VM enclosure and pedestal design will be submitted to the Agencies for review and approval.			
4.5.2.1-13	The LFVM will have a footprint that is approximately half the size of a full-feature VM.			
4.5.2.1-14	The VM cabinets or pedestal will be capable of housing a network switch to enable all devices in one area to be connected through a single connection to the station communications room, and limit the number of Ethernet runs required to each installation location.			
4.5.2.2-1	The VM display screen will consist of a color, transflective backlit flat panel capacitive touchscreen display that is clearly viewable in daytime and night-time conditions.			
4.5.2.2-2	The VM customer display screen will measure at least 10 inches diagonally.			
4.5.2.2-3	The display screen will provide resolution of no less than 1024 by 768 pixels, and at least 65,000 colors (RGB 16 bit) per pixel.			
4.5.2.2-4	The VM display will produce a minimum of 1,000 nits brightness with at least a 750:1 contrast ratio, and provide a level of visibility sufficient to allow all displayed instructions to be read easily by the customer under all ambient light conditions and without the need for any additional peripheral light source or shading device.			
4.5.2.2-5	The visibility and usability of the VM display will be unaffected by precipitation, temperature, sunlight, and other environmental conditions typical of the operating region.			
4.5.2.2-6	The VM display will be protected to be resistant to scratches and other normal wear. Coatings or other materials applied to the outer surface of the display's protective shield will withstand normal customer use, industry standard station cleaning materials, and be easily replaced if necessary.			
4.5.2.2-7	The display screen will be easily replaceable from within the VM interior, and require minimal maintenance effort.			
4.5.2.2-8	All portions of the display screen will be visible and not obstructed by any portion of the VM door, mounting bezels, or other external elements.			
4.5.2.2-9	The display screen will be installed close enough to the VM surface to avoid any parallax effect, or the apparent shift of screen objects relative to customer touches or button placement.			
4.5.2.2-10	The visibility and usability of the VM display will be unaffected by precipitation, temperature, sunlight, and other environmental conditions typical of Puget Sound operating region.			
4.5.2.3-1	The VM Bill Handling Unit (BHU) will accept paper currency, and include a bill validator, escrow module, and bill vault.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.5.2.3-2	The bill validator will be capable of accepting all U.S. Treasury variations of $1, $2, $5, $10, $20, $50, and $100 bills in circulation at the time of Final System Acceptance.			
4.5.2.3-3	As the U.S. Treasury releases new designs of bills, the bill validator will be capable of being programmed to accept the new designs while continuing to accept the current designs.			
4.5.2.3-4	The bill validator will be equipped with a protective shutter to guard against foreign matter so that it does not enter the BHU while the machine is not accepting bills.			
4.5.2.3-5	The bill validator will remain closed until a transaction is selected for which cash payments are available. The shutter will automatically open once the payment due has been displayed.			
4.5.2.3-6	The bill validator will be able to accept bills inserted in any of the four possible length-wise orientations.			
4.5.2.3-7	The bill validator will accept one bill at a time and will determine the denomination and validity of the currency.			
4.5.2.3-8	The bill validator will determine the denomination and validity of both sides of a document by dimension checks and pattern and color recognition.			
4.5.2.3-9	The bill validator will meet the following acceptance rates: • At least 98% of valid bills are accepted upon initial insertion. • At least 99% of valid bills are accepted in no more than two insertion attempts.			
4.5.2.3-10	The bill validator will identify valid acceptable bills with at least 99.999% accuracy.			
4.5.2.3-11	The bill acceptor may reject bills with excessive physical defects.			
4.5.2.3-12	The bill validator will be able to detect counterfeit bills, including copies made in either single or double-sided printing on an electronic copier and those made with color printers.			
4.5.2.3-13	If the bill validator deems the inserted document to be invalid, the document will be returned and gripped so that the VM retains a hold on the item.			
4.5.2.3-14	The bill validator will be designed to reject or expel pieces of paper or other foreign material that can be introduced into the bill insertion slot.			
4.5.2.3-15	The bill validator will be secured via a high-security lock and will be separately removable for servicing.			
4.5.2.3-16	Upon acceptance of each inserted bill, the bill validator will forward the bill to an escrow to be stored temporarily until completion or cancellation of the transaction.			
4.5.2.3-17	The bill escrow module will have the capacity to store a minimum of 10 bills.			
4.5.2.3-18	When the bill escrow is full, or a configurable limit of inserted bills per transaction is reached, the bill validator will cease accepting bills.			
4.5.2.3-19	If the customer cancels the transaction or the VM aborts the transaction, the BHU will return from escrow the bills inserted for the transaction.			
4.5.2.3-20	When a transaction is completed, all bills in the bill escrow module will be transported to the bill vault for retention. Using sensors or other means, the machine will confirm the passage of all bills to the bill vault; failure to detect a bill being deposited into the bill vault will be considered a jam and the machine will cease accepting bills and display an appropriate message to customers.			
4.5.2.3-21	The BHU will be equipped with a removable bill vault. The bill vault will have a capacity of no less than 500 stacked bills in street condition and weigh no more than 50 pounds when full.			
4.5.2.3-22	The bill vault will be constructed of sturdy and tamper-proof material, and will withstand normal handling and regular removal and replacement without deformation that would in any way interfere with the insertion and removal process.			
4.5.2.3-23	It will not be possible to open the bill vault while installed in the BHU, nor will it be possible to install an open or unlocked bill vault into the BHU. When properly installed in the BHU, it will not be possible to access bills in the bill vault without damaging the vault in an obvious manner.			
4.5.2.3-24	The bill vault will remain secure when removed from the VM. Access to the bill vault will be granted only with keys available to revenue staff.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.5.2.3-25	The bill vault will have handles placed to avoid injury and provide adequate hand clearance for easy insertion, removal, and carrying.			[redacted]
4.5.2.3-26	Each bill vault will include a printed and electronically encoded serial number. The serial number will be read by the VM for reporting upon bill vault insertion and removal.			
4.5.2.4-1	VMs will be equipped with a Coin Handling Unit (CHU) including, but not limited to, a coin acceptor/verifier, a coin escrow module or coin recyclers, and a coin vault.			
4.5.2.4-2	The coin acceptor/verifier will accept all variations of U.S. 5-, 10-, and 25-cent and dollar coins in circulation at the time of Final System Acceptance.			
4.5.2.4-3	As the U.S. Treasury releases new designs of coins, the coin acceptor/verifier will be capable of being programmed to accept the new designs while continuing to accept the current designs.			
4.5.2.4-4	The coin acceptor will contain a coin insertion slot that will be sized to limit the dimensions of inserted material to the largest coin accepted. To minimize jams, the coin slot will also be sized to prevent the simultaneous insertion of two coins.			
4.5.2.4-5	The coin insertion slot will be equipped with a protective shutter to guard against foreign matter so that it does not enter the CHU while the machine is not accepting coins.			
4.5.2.4-6	The coin insertion slot will remain closed until a transaction is selected for which cash payments are available. The shutter will automatically open once the payment due has been displayed.			
4.5.2.4-7	The geometry of the coin path and other provisions of the coin acceptor will prevent the retrieval of coins by fishing such as with wire or attached thread.			
4.5.2.4-8	The coin acceptor/verifier will determine the denomination and validity of coin types, and identify invalid or counterfeit objects (“slugs”).			
4.5.2.4-9	The coin acceptor/verifier will meet the following acceptance rates: • At least 98% of valid coins are accepted upon initial insertion. • At least 99% of valid coins are accepted in no more than two insertion attempts. All known counterfeit coins, common slugs, foreign coins, and coins of denominations not accepted by the machine are rejected upon every insertion.			
4.5.2.4-10	The coin acceptor/verifier will identify valid acceptable coins with at least 99.99% accuracy.			
4.5.2.4-11	The coin acceptor/verifier will reject and return to a coin return bin unverified, counterfeit, excessively bent, and foreign coins, as well as slugs and other foreign objects.			
4.5.2.4-12	The coin acceptor/verifier will be key-locked into the machine and will be removable for service and replacement.			
4.5.2.4-13	Upon acceptance of each inserted coin, the CHU will forward the coin to an escrow to be stored temporarily until completion or cancellation of the transaction.			
4.5.2.4-14	The coin escrow module will have the capacity to store a minimum of 35 coins.			
4.5.2.4-15	When the coin escrow is full, or a configurable limit of inserted coins per transaction is reached, the CHU will cease accepting coins.			
4.5.2.4-16	If the customer cancels the transaction or the VM aborts the transaction, and the CHU will return from escrow coins inserted for the transaction.			
4.5.2.4-17	When a transaction is completed, all coins in the coin escrow module will be transported to the coin vault or coin recirculation module, if present. Using sensors or other means, the machine will confirm the passage of all coins to the coin vault; failure to detect a coin being deposited into the coin vault will be considered a jam and the machine will cease accepting coins and display an appropriate message to customers.			
4.5.2.4-18	Each VM will be equipped with a removable coin vault that has a capacity of at least 300 cubic inches and weighs no more than 50 pounds when full.			
4.5.2.4-19	The coin vault will withstand regular removal, replacement and normal handling without deformation or in any way interfering with the insertion and removal process.			

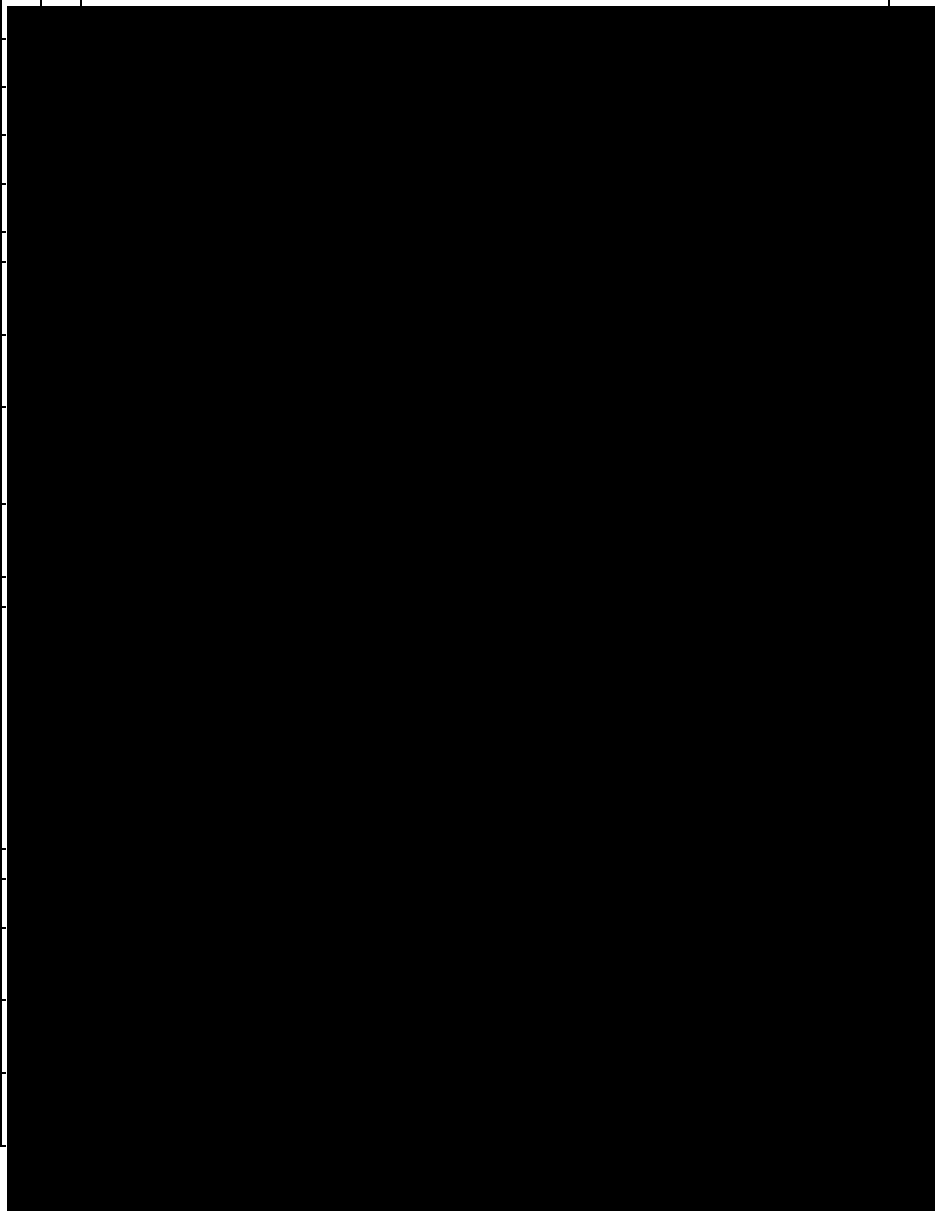
Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.5.2.4-20	It will not be possible to open the coin vault while installed in the machine, nor will it be possible to install an open or unlocked coin vault into the machine. When properly installed in the machine, it will not be possible to access coins in the coin vault without damaging the vault in an obvious manner.			
4.5.2.4-21	The coin vault will be self-locking and self-closing, so that when removed from the machine, it cannot be opened other than through an authorized process. Any coin vault will remain secure when removed from the VM. Access to the coin vault will be granted only by keys available to revenue staff.			
4.5.2.4-22	The coin vault will have a handle or handles placed to avoid injury, which provides adequate hand clearance for easy insertion, removal, and carrying.			
4.5.2.4-23	Each coin vault will include a printed and electronically encoded serial number. The serial number will be read by the VM for reporting upon coin vault insertion and removal.			
4.5.2.4-24	The FFVM will be equipped with a coin issuance system to accommodate cash transactions where over payment occurs. The coin issuance system will be designed to minimize the need to perform revenue servicing of the machines.			
4.5.2.4-25	The FFVM coin issuance system will issue U.S. 5-, 10-, and 25-cent and dollar coins.			
4.5.2.4-26	The maximum amount of change available from the FFVM per transaction will be Agency configurable.			
4.5.2.5-1	The VM will include a Bank Card Processing Unit (BCPU) to process bank cards (credit and debit) for the funding of fare products and media.			
4.5.2.5-2	The VM will be PCI- and EMV-certified for the acceptance of bank-issued credit and debit cards using all common formats based on the latest version of the standard at the time of Final System Acceptance. VMs will be capable of re-certification with newer versions of the PCI and EMV standards via software upgrades as necessary.			
4.5.2.5-3	The magnetic stripe and contact bank card reader will be combined to accept and process standard size cards with ISO/IEC 7811 magnetic data stripes and all EMV-compliant contact (chip and PIN) cards.			
4.5.2.5-4	The magnetic stripe/contact bank card reader will consist of a push/pull (insert/remove) card reader such that the bank card is not captured completely by the reader. Sensors will detect the insertion and removal of cards from the reader unit.			
4.5.2.5-5	The contactless bank card reader will read and support all open payment contactless standards, including but not limited to: • Apple Pay • Android Pay • Samsung Pay • VISA payWave® • MasterCard PayPass® • American Express ExpressPay® • Discover Zip® • Contactless EMV			
4.5.2.5-6	The BCPU will include a secure bank card PIN keypad. The PIN pad will be vandal resistant, weather resistant and not be removable from outside and be easily replaceable. It will have a life expectancy of 5 million cycles.			
4.5.2.5-7	The contactless bank card reader will be separate and apart from the customer facing smart card validator used to process load transactions. Both will be clearly identified to avoid confusion.			
4.5.2.5-8	The PIN keypad will employ encryption as required in accordance with banking capabilities. The Program needs the SI to supply all PIN keypads with production encryption keys injected in a secure, PCI-compliant manner.			
4.5.2.5-9	The PIN keypad will be capable of operating in both an encrypting and non-encrypting or “clear” mode so that it can be used for data entry and customer selection by the visually impaired.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.5.2.5-10	The magnetic stripe/contact bank card reader card slot will be sealed so that no liquids introduced into the slot enter the interior of the machine.			The opening cannot be sealed. The construction and IP classification (IP34) of the reader prevent [redacted]
4.5.2.6-1	The VM will incorporate an internal ISO/IEC 14443 contactless smart card validator/encoder that will be used to encode and issue contactless media stored in the VM. This is in addition to the external contactless smart card validator/encoder used by customers to process load transactions.			
4.5.2.6-2	The EU fare media validator/encoder will be integrated with a media dispensing unit that will issue the EU fare media and together comprise a smart card Encoder/Dispenser (SED).			
4.5.2.6-3	The SED will utilize removable cassettes to store the contactless media stock. The cassettes will securely hold cards and enable service staff to replenish or exchanging cassettes quickly and securely.			
4.5.2.6-4	In total the installed cassettes will have a capacity of no less than 500 cards.			
4.5.2.6-5	The SED will dispense cards into a media dispense tray or slot no more than three (3) seconds after commencing the encode/dispense process.			
4.5.2.6-6	Prior to dispensing a new card, the SED will confirm that the card is functioning properly. If the SED cannot read the Unique Identification Number (UID) or verify the data is encoded correctly, the module will capture the card in a card reject bin and attempt to encode/dispense another card.			
4.5.2.6-7	The VM card reject bin will have a capacity of no less than 10 cards.			
4.5.2.6-8	If the SED fails to issue the media after a configurable number of attempts (initially set to three [3]), the machine will disable the SED module and send a maintenance alert.			
4.5.2.7-1	The VM will be equipped to print and issue receipts for fare transactions and audit tickets for maintenance activities. Receipts will be printed on separate receipt stock using a thermal receipt printer or Agency approved alternative.			
4.5.2.7-2	The receipt printer will issue receipts and audit tickets from paper-based roll stock that is commercially available in the U.S. Receipt stock will follow applicable standards for service and replacement.			
4.5.2.7-3	The receipt printer will be able to print all alphanumeric characters in both upper and lower case and all ASCII characters. Printed characters will be produced with a minimum height of 0.12 inches and a maximum height up to 1 inch.			
4.5.2.7-4	The receipt printer will utilize a thermal print head that provide no less than 100 dots per inch of resolution.			
4.5.2.7-5	Thermal print heads will produce no fewer than 250,000 receipts without misprinted pixels due to wear or electronic failure.			
4.5.2.7-6	The receipt printer will be equipped with a cutting mechanism to cut individual receipts from the roll supply. Each cutter will perform at least 1 million cuts without requiring replacement or sharpening. The cutter will be designed such that no adjustment of the cutting edges will be required.			
4.5.2.8-1	In addition to the display and other modules described in this section, several elements on the front of the VM will comprise the customer interface including, but not limited to: • Contactless smart card validator • Physical push buttons • Audio interface • Headphone jack • Media dispense tray/slot • Instructional graphics and text • Information sign Final VM configurations will be determined during design review.			



Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.5.2.8-2	A customer-facing contactless smart card validator compliant with both Type A and B variants of the ISO/IEC 14443 standard will be installed in the VM to perform the following functions at minimum: • Read contactless media to bring VM out of idle state • Load fare products or value • Check account balance and history The validator will also have write capabilities as per risk mitigation strategies.			
4.5.2.8-3	The validator will be in "read mode" while the VM is in the idle state (to allow initiation of the interface via a contactless read), and during portions of transactions where reading a contactless fare media is necessary.			
4.5.2.8-4	The contactless validator will be separate and apart from the contactless bank card reader that is part of the BCPU. Both will be clearly identified to avoid confusion.			
4.5.2.8-5	Any push buttons that are provided for customer selection functionality will conform to the following characteristics: • Made of stainless steel, hardened aluminum, or other Agency-approved hardened and weather-resistant material • Have tactile movement when pressed • Be accompanied by an audible tone when pressed • Provide appropriate (ADA compliant) resistance when pressed • Be protected against vandalism, including impact from customers • Be liquid-proof and sealed from outside moisture • Not be removable from the outside • Meet or exceed all applicable ADA guidelines			
4.5.2.8-6	VM instructional graphics and text will be modular and able to be changed to match different VM configurations, if applicable.			
4.5.2.8-7	The design of instructions and graphics will minimize glare and other effects of sunlight and ambient lighting.			
4.5.2.8-8	The VM front panel will include an optional convex "fish eye" mirror, which will enable a customer using the VM to see behind them.			
4.5.2.8-9	Instructional graphics will include diagrams that clearly depict proper insertion orientation of bills and bank cards into their respective slots.			
4.5.2.8-10	Conceptual designs of VM instructions and related graphics will be submitted during design review for Agency review and approval.			
4.5.2.8-11	The VM will incorporate a removable information signage holder in a prominent position to display printed information, such as: • Fare pricing and information • Agency contact information • Service announcements			
4.5.2.8-12	The VM will include an audio interface and internally mounted vandal-resistant speaker to provide configurable audio tones and voice annunciation.			
4.5.2.8-13	VM audio volume will be able to be adjusted remotely and by the customer for each machine, and will be audible in all station environments.			
4.5.2.8-14	The VM will include a media dispense tray or bin that will safely hold dispensed media and receipts.			
4.5.2.8-15	The media dispense tray will be recessed and may be covered with a clear polycarbonate spring-loaded or weighted door. The dispense tray and its door will be robust, scratch-resistant, visually prominent, and resistant to intrusion from the outside.			
4.5.2.8-16	The media dispense tray will be designed to drain any liquids that enter.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.5.2.8-17	The layout of the keys on the VM PIN keypad will be in compliance with or exceed all applicable accessibility and ADA requirements.			
4.5.2.8-18	The information signage holder will be suitable for use in an outdoor environment, securely mounted, and may supplement information on the customer display.			
4.5.2.9-1	The VM outer door lock will utilize an electronic high-security lock such as Cyber Lock® or Agency-approved equivalent.			
4.5.2.9-2	The keyways for all high security keys will be registered to the Agencies, and replacements will be available only to authorized personnel, or their authorized representative.			
4.5.2.9-3	Sensors will detect the status of the outer door lock. The VM door will be considered open and unsecure if the outer door lock is not in the fully locked position.			
4.5.2.9-4	All security locks will be designed in such a way that the door cannot remain in a closed and unlocked position.			
4.5.2.10-1	Each VM will be equipped with an alarm unit that will have the ability to monitor machine security conditions and provide alerts to the back office in real-time. If the VM does not have power or is disabled for any reason, the alarm unit will continue to operate independently and monitor the machine for security breaches and impacts.			
4.5.2.10-2	The alarm unit will be disarmed through an authorized entry, and will be triggered by an unauthorized entry. Each time an alarm event is detected, the event record with date and time will be stored and transmitted to the back office.			
4.5.2.10-3	Adjustable sensors will detect direct physical impacts to the VM enclosure, breakage of the customer display, and attempts at unauthorized or forced entry. The alarm unit will activate a local siren as soon as the impact sensor is triggered. The siren will shut off and re-arm after a configurable time period unless continued impacts or attempts at intrusion are detected.			
4.5.2.10-4	Access to the interior of the VM for maintenance and servicing using an authorized key will disable the alarm while service is being performed. If authorized VM access is not followed, the intrusion alarm will be activated and the VM will record and transmit a security event.			
4.5.2.10-5	A security and alarm process for VM access will be submitted for review and approval by the Agencies.			
4.5.2.11-1	The VM will communicate with the back office through a secure communications interface to send and receive and data including but not limited to: • Transaction information • Event (alarm and maintenance) status alerts • Time synchronization information • Positive/negative lists • Configuration parameters • Remote commands or status inquiries The list of communications information will be finalized during design reviews.			
4.5.2.11-2	All communications between the VM and the next gen ORCA and VM back offices will be via the Ethernet interface.			
4.5.2.11-3	If required for PCI certification, a second Ethernet port will be provided to transmit payment data separate from other transaction data.			
4.5.2.12-1	The VM will be equipped with a modular, filtered power supply which will be connected to the incoming grounded electrical service. The power supply will be connected to the incoming electrical service (120 V) and deliver all of the necessary operating voltages for the machine. Voltages internal to the VM will not exceed 125 V.			
4.5.2.12-2	A power switch will turn the power supply on or off, and will be separate from the main circuit breaker that removes all power to the VM. There will be no safety risks to maintenance personnel with the machine power turned off.			
4.5.2.12-3	A GFCI duplex convenience outlet will be installed within the interior of each cabinet. This outlet will be protected by a separate circuit breaker internal to the machine enclosure and will be grounded. Current rating of GFCI will be defined at design review.			



Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.5.2.12-4	Appropriate warning labels will be provided on or near any components or cables that may have hazardous voltages present.			
4.5.2.12-5	If the VM shuts down due to loss of power, upon restoration of power the machine will automatically resume operations.			
4.5.2.12-6	The VM will be equipped with a supplemental battery power supply. This battery power supply will be used to allow a controlled shut down, including a transaction in process to be completed, in the event the incoming voltage falls below the reliable machine operating voltage or in the event of loss of alternating current (AC) power to the machine. Once primary power is restored, the backup battery will be recharged.			
4.5.2.12-7	The supplemental battery will be rated at four (4) years or 500 discharge and charge cycles.			
4.5.3.1-1	VMs will generate, store, and transmit a discrete data record for each transaction performed.			
4.5.3.1-2	Each sales transaction record will be unique and will include the following information, at a minimum: • Date and time • Device ID • Station/Location ID • Card/account number • Transaction type (e.g., card sale, value load, account inquiry) • Cards sold (where applicable) • Stored value or fare products loaded (where applicable) • Passenger type (e.g., adult full fare, youth, senior, disabled) • Transaction value (where applicable) • Payment type and amount • Transaction result (e.g., success, failure) • Transaction ID Transaction records details will be finalized during design review.			
4.5.3.1-3	VMs will maintain local data records in non-volatile memory in the event that communications to the back office system is unavailable. The local records will only be removed when verification of database storage of each record is received from the back office.			
4.5.3.1-4	Each VM transaction record will be unique and will include the following information, at a minimum: • Date and time • Device ID • Station/location ID • Fare media number • Transit account • Transaction type (e.g., card sale, value load, account inquiry) • Cards sold (where applicable) • Stored value or fare products loaded (where applicable) • Passenger type (e.g., adult full fare, youth, senior, disabled) • Transaction value (where applicable) • Payment type and amount • Transaction result (e.g., success, failure) • Transaction ID Transaction records details will be finalized during design review.			
4.5.3.2-1	The VMs will provide audit register counts for purposes of data tracking and analysis. The audit registers will store count of specific events in non-volatile memory and will not be able to be modified or erased.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.5.3.2-2	The audit registers will maintain counts and value of the following events as applicable: • New fare media issued • Fare product sold • Stored value loaded • Transit account inquiries • Cash transaction, by amount and denomination • Credit card transactions, by amount • Debit card transactions, by amount • Count of approved and denied transactions • Count of read failures Final audit register events will be determined during design reviews.			
4.5.3.2-3	Audit register records will be transmitted to the back office at the end of service day for reconciliation, or based on a configurable time period.			
4.5.3.2-4	VM audit register records will be transmitted to the back office at the end of service day for reconciliation, or based on a configurable time period.			
4.5.3.3-1	The VMs will provide real-time status of device and module level events and alarms through the System Manager. The VM will also maintain local event and alarm logs in the event that communications to the back office is unavailable.			
4.5.3.3-2	In addition to transmitting real-time events and alarms, the VM will transmit periodic “heartbeat” messages that confirm communication with back office and basic status. The “heartbeat” frequency will be adjustable by VM.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.5.3.3-3	The VM will generate, store, and transmit alert information for relevant events, including but not limited to: • Power on • Power off • Reboot • Back office communications failed/restored • Maintenance parameter changed • New fare table received/activated • New software received/activated • New configuration data received/activated • New list received/activated • Anti-virus definitions and security updates downloaded • Internal clock reset • VM clock error • Data memory near full/full • Low battery • Failed bank card authorization request • Defective media captured in reject bin • Maintenance technician login and logout • Maintenance parameter changed • Revenue service technician login and logout • Bill vault removed/installed • Coin vault removed/installed • VM "heartbeat" check • Software update from removable media initiated • Software update failure • Machine hardware configuration change • Module faults (coin/bill/card jams, low stock and change) • Security events • Vibration alert Final events and alerts will be determined during design reviews.			
4.5.3.3-4	The VM will monitor the contents of the media stock and transmit an event to the back office when the inventory is below a configurable threshold, and when the inventory is empty.			
4.5.3.3-5	The BHU will cease to accept bills and indicate a "no bills accepted" message on the display when the bill vault becomes full.			
4.5.3.3-6	The BHU will automatically reset all appropriate counters when the bill vault is removed and/or replaced.			
4.5.3.3-7	The coin acceptor will not accept coins once the vault has reached 90% capacity, or configurable amount.			
4.5.3.3-8	The smart card encoder/dispenser/SED will monitor the contents of the card stock and transmit an event to the back office when the inventory is below a configurable threshold, and when the inventory is empty.			
4.5.3.3-9	Whenever the local alarm siren is active, the VM will go out of service. When the alarm condition ends, the VM will perform self-diagnostics, and resume normal operations. Events that are linked to the local siren and other alarms that result in the VM going out of service will be defined during design review.			
4.5.3.3-10	The VM will have capacity to locally store a minimum of one (1) year of event and alarm data.			
4.5.4.1-1	Each voice annunciation message will occur as close as possible to the event or change in transaction status as possible, and be as brief as possible to convey the necessary information.			
4.5.4.1-2	The voice annunciation will support multiple languages including at least Simplified Chinese, Spanish, and English. Required languages will be finalized by the Agencies during design review.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.5.4.1-3	When the headphone jack is used, a voice annunciation system with adjustable volume will provide context-sensitive voice messages, in audio form, conveying information shown on the device display to meet or exceed all applicable accessibility and ADA requirements.			
4.5.4.2-1	The SI shall hire a third-party to provide audio and text translations. The audio/text translations will be submitted for Agency review and approval.			
4.5.4.2-2	English will be the default language while the VM is in idle mode and the VM will return to English after a transaction is completed or cancelled.			
4.5.4.2-3	Supported languages will be provided by the Agencies during design review.			
4.5.4.2-4	The VM will include a selection button to change the display and the voice annunciation language between English and up to six (6) other available languages.			
4.5.4.2-5	The alternate language button will be active at all times and available on all screens while the VM is in service. Pressing an alternate language button at any time will cause the display and audio messages to the selected language.			
4.5.4.3-1	For all transactions, the VM will display a progression of screens to the customer that will be easy to understand and intuitive.			
4.5.4.3-2	All information presented by the VM will be capable of being modified by authorized Agency staff. Modifications will be able to be made remotely or by removable storage media.			
4.5.4.3-3	The VM will provide the following core functions to support customer operations: • Sell one or more new fare media in a single transaction where the associated transit accounts are initialized only (no value) or are loaded with value • Load stored value and all available fare products to previously issued fare media (e.g., transit accounts) • Query the back office to retrieve the balance and transaction history for existing transit accounts			
4.5.4.3-4	The operating status and configuration for each VM will determine the available options. Only options that are enabled will be shown to the customer.			
4.5.4.3-5	A detailed customer operations document, including screen flows depicting “snapshots” of each screen layout arranged as a logical flow chart will be provided during FDR for Agency review and approval.			
4.5.4.3-6	Each VM will be ready to respond to a customer input when in the idle condition. Input may be a physical button push, touch screen input, or touching fare media to the contactless validator.			
4.5.4.3-7	The VM “home” or starting screen, will include the following options at a minimum: • Purchase a new fare product • Reload an existing account • Check account/product balance • Language preference • Help button • “Express” purchase of a card/ticket with one (1) ride (configurable)			
4.5.4.3-8	The VMs will have clear instructions to indicate the steps a customer must follow to perform any transaction. The sequence of steps will be clearly indicated by the use of graphics and text. Wherever possible, universal graphics and symbols will be used that can be understood without having to read the displayed text.			
4.5.4.3-9	The VMs will have Agency-configurable distinctive audio tones to provide feedback each time a button is pressed.			
4.5.4.3-10	English-speaking customers will be able to purchase new fare media (with stored value or a pass) or load value to an existing card in a maximum of three (3) screens.			
4.5.4.3-11	For new fare media purchase transactions, the VMs will read and/or encode media as necessary to capture account numbers and initialize the media. The VMs will send the media data to the back office, along with all relevant fare purchase and payment information, to create and load the associated transit accounts, and generate sales transactions.			

Capability Number	Capability	ully Conforming	onConforming	
4.5.4.3-12	For fare media reload transactions, the external contactless validator will read (and, if necessary for risk mitigation, encode data to) the customer's card. The VMs will send the fare media data to the back office, along with all relevant fare purchase and payment information, to load the associated transit account, and generate a sales transaction.			
4.5.4.3-13	For balance check transactions, the external contactless validator will read the customer's fare media. The VMs will send the fare media/ticket data to the back office to retrieve the associated balance and transaction history information.			
4.5.4.3-14	All transactions will be individually recorded, stored, and transmitted to the back office by the VMs using the SI-provided API.			
4.5.4.3-15	All transactions will initiate communication with the account-based transaction processor (ATP) to query or modify transit accounts associated with the fare media in real-time.			
4.5.4.3-16	In offline mode, the VMs will be able take cash payments to sell single rides or other limited fare products, in order to provide a means for customers to access transit services. The details of which products will be sold in offline mode, and the risk mitigations strategies to be employed (such as writing to the media), will be determined during design review.			
4.5.4.3-17	When payment is required, the VM will automatically detect what form of funds the customer has inserted. Customers will not have to choose whether the transaction will be by cash or bank card.			
4.5.4.3-18	If the VM loses communications with the back office, upon restoration, the VM will automatically initiate communications and send any data generated in offline mode.			
4.5.4.3-19	When paying by cash, the VM will permit the customer to deposit coins and bills in any sequence.			
4.5.4.3-20	Prior to authorizing a bank card transaction, the VM will prompt the customer to choose whether the purchase is a credit or debit transaction. For debit transactions, the VM will prompt for PIN entry.			
4.5.4.3-21	The VM will support Address Verification System (AVS) for bank cards in a configurable manner that allows the AVS feature to be turned on or off by the Agencies and accommodates acceptance of both U.S. and non-U.S. issued cards. When a U.S. bank card is used for payment, the VM will prompt the customer to enter the billing address ZIP code.			
4.5.4.3-22	All bank card transactions will be authorized prior to dispensing media or loading fare products. If a bank card is declined for any reason the VM will display related information to the customer and cancel the current transaction.			
4.5.4.3-23	If bank communications are unavailable, bank card transactions will be disabled, and the VM will enter "cash only" mode.			
4.5.4.3-24	The customer will have the capability to cancel a transaction at any point before full payment has been inserted in cash or a bank card authorization has been received.			
4.5.4.3-25	If any failure occurs during a transaction, the VM will automatically cancel the current transaction and indicate the cancellation on the screen.			
4.5.4.3-26	If a transaction is canceled automatically or by the customer, all inserted cash will be returned and credit/debit card transactions will be reversed as necessary.			
4.5.4.3-27	The VM will be configurable to provide receipts: • Upon customer request • Automatically for transactions above a configurable dollar value, or optionally for transactions below the configurable value • For every transaction • Never (when receipt stock is empty)			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.5.4.3-28	All receipts will have a printed indication that the receipt is not a valid ticket, and will contain at least the following information: • Machine number – up to eight (8) alphanumeric characters • Date – month, day, and the last two (2) digits of the year, totaling nine (9) characters • Time – four (4) digits separated by a colon and followed by two (2) letters "AM" or "PM," using a 12-hour clock • Station name or location where purchased – up to 16 characters • Card/account number • Last four (4) digits of credit/debit card number (PAN), if used as the form of payment • Value purchased and remaining balance (if applicable) • Transaction amount • Machine-unique transaction sequence number Final receipt information will be determined during design review.			
4.5.4.3-29	Receipts for bank card transactions will also include information as identified in Federal Regulations E and Z, and other information necessary to comply with banking and Federal regulations.			
4.5.4.3-30	The VM will employ an adjustable time-out period to return the VM to the idle state if no input is received between transaction steps. The time-out period will be adjustable by authorized staff.			
4.5.4.3-31	A screen saver may be activated after a programmable idle period has passed, and will support the following at minimum: • Static image in any common graphics format, e.g., JPG, TIFF, BMP, GIF • A repeating "slide show" of static images • Text messages and imported text-based files • Webpages and other dynamic markup language files • Pre-recorded video in any common format, including MPEG, WMV, MOV, AVI, H.264 • Any combination of the above			
4.5.4.3-32	The screen saver will automatically terminate and the VM will display the home screen as soon as any button is pressed or a credential is presented to the contactless validator.			
4.5.4.3-33	For all new ORCA card purchase transactions, the time from acceptance of the cash payment or credit/debit card approval to media issuance will not exceed three (3) seconds.			
4.5.4.3-34	Where transactions produce multiple media, the time between successive media being deposited in the return tray will not exceed two (2) seconds each.			
4.5.4.3-35	When applicable, the receipt printer will deposit receipts in the return tray within three (3) seconds of the completion of a transaction.			
4.5.4.3-36	For completed or canceled transactions, VM readiness to begin another transaction will not exceed three (3) seconds.			
4.5.4.3-37	The FFVM will inform cash paying customers when an insufficient amount of change is available and provide the options of either canceling the transaction resulting in a return of the customer's cash from escrow or allow any overpayments associated with the EU fare media to be added as stored value to the associated transit account's E-purse.			
4.5.4.3-38	The VM will include a customer display screen bearing simple and easy to read instructions which sequentially instruct the customer how to perform available functions.			

[redacted]

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
4.5.4.4-1	Each VM will automatically perform self-diagnostic tests upon startup, and at adjustable regular intervals (once per day by default). Self-diagnostic tests will at minimum: • Confirm communications with back office • Check status of all major electronic modules • Exercise all electro-mechanical devices • Confirm all software and configuration files are up to date Any failures or exceptions identified during self-diagnostics will be recorded in the VM's internal audit registers and transmitted to the back office.			[redacted]
4.5.4.4-2	Each VM will be capable of performing diagnostic tests that are manually initiated by service staff while the VM is out of service and the front door is open.			
4.5.4.4-3	Inside the VM will be a keypad and optional display for use by maintenance and revenue service personnel while the outer door is open. The customer display may be used for maintenance purposes if viewable while using the service keypad.			
4.5.4.4-4	The service keypad will be used to enter access (login) codes and maintenance and diagnostic commands. All routine service interaction with the VM will be via this keypad.			
4.5.4.4-5	A failure to login using the keypad after opening the VM door will generate an intrusion alarm.			
4.5.4.4-6	The service display will be used to indicate VM error codes, and will have the capability of displaying multiple error codes, such that one error code will not need to be cleared to display other error codes.			
4.5.4.4-7	The VM will not commence in-service operation until the outer door is closed and the outer door lock is returned to its fully secured position.			
4.5.4.4-8	All access will be traceable through the System Manager and all access transactions will be individually recorded and transmitted to the System Manager at time of occurrence.			
4.5.4.4-9	To support revenue servicing and maintenance authorized technicians, the VM will produce audit tickets, including but not limited to: • Coin vault removal/insertion • Bill vault removal/insertion • Software versions and VM configuration • VM revenue status • VM maintenance alert status Final audit ticket information will be determined during design review.			
4.5.4.4-10	Each audit ticket will indicate at minimum: date, time, VM number, technician name or number, and activity information.			
4.5.4.4-11	Automatic diagnostic test routines (and equipment if necessary) will be included to aid in troubleshooting malfunctions. These test routines will provide the ability to isolate defects down to the LLRU.			
Section 5 Externally Sourced Applications				
Section 5.1 General Capabilities				
5.1-1	The customer website and mobile app will be compliant with all Title VI provisions.			
5.1-2	The System will allow registered and unregistered customers to load stored value and products via the customer website and mobile app using at a minimum credit card, debit card, or bank account (ACH) transfer. The customer website and mobile app will support the entry of transit account information and the selection of fare products and pre-defined or custom stored value amounts, subject to configurable minimum and maximum limits.			
5.1-3	During autoload setup, the customer will be able to select a primary and backup funding source. If payment authorization of the primary funding source fails, authorization against the backup funding source will be attempted. If payment authorization is not received, the autoload will be automatically disabled.			

Capability Number	Capability	Fully Conforming	Non-Conforming	
5.1-4	Registered customers shall be able to enable, disable, and modify the autoload of stored value and products. As part of the autoload setup process, the customer will select the stored value amount or product to be loaded and the type of autoload (e.g., threshold or periodic). Autoload setup will require a funding source to be added or selected and validated.			
5.1-5	The SI shall provide a modern COTS content management system (CMS) for Agencies so that the Agencies can maintain and update the website.			
5.1-6	The website will be built using modern web design and e-commerce best practices.			
5.1-7	The customer website and customer mobile app will integrate with the ATP using the SI-provided Transit Account Management API.			
5.1-8	Customer account creation and transit account registration will be able to be performed using the customer website and mobile app.			
5.1-9	Users will access the customer website and mobile app using the same user login.			
5.1-10	The SI will deliver a customer website and mobile app and provide all back office third-party hosting access and software necessary to support website and mobile app operations, and integrations to internal and external applications needed to perform the required functions.			
5.1-11	Registered customers will have the capability to view and modify customer account data.			
5.1-12	The customer website and mobile app will support the association of multiple transit accounts to a single customer account.			
5.1-13	The customer website and mobile app will be easy to use with simple processes for all transactions as demonstrated in user testing.			
5.1-14	The website and mobile app will have functionality for self-service password resets.			
5.1-15	The website and mobile app vendor will supply metrics that will allow the Agencies to evaluate success of web and mobile app customer interactions.			
5.1-16	The customer website and mobile app will allow customers to perform the following functions, at a minimum: • Purchase new fare media • Create a new customer account • View and manage account settings and customer profile • Register EU fare media (e.g., transit account) • Purchase fare products (e.g., stored value and passes) • Add, modify, or delete a funding source • Set up, modify, and cancel autoload of stored value and products • Transfer transit account balances consistent with adopted business rules • View transit account balance and status information • View and download sales, usage, and adjustment transaction history • Initiate a customer service request (e.g., refund request) • Report fare media lost or stolen • Request an opt-out refund (e.g., close transit account) Final customer mobile app and customer website functions will be determined during design review.			
5.1-17	Registered and unregistered customers will be able to use the customer website and mobile app to view transit account balance (e.g., stored value and pass) and status (e.g., passenger type, active or blocked) information by entering a fare media identifier.			
5.1-18	The customer website and mobile app will be provided in multiple languages, including English and up to six (6) other languages to be identified by the Agencies during design review.			
5.1-19	Registered customers will be able to add new credentials for the transit accounts when logged into the customer website or mobile app.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
5.1-20	Password will be masked when presented on the website and mobile apps.			
5.1-21	The website and mobile app password will have configurable security capabilities, including but not limited to minimum password length, required use of letters/numbers/symbols, and forced password reset after a configurable time period or on demand.			
5.1-22	The customer website will be designed and tested for cross platform compatibility, including popular platforms and browsers. Supported browser versions will include at minimum the most current and 2 previous major versions. Final version support will be determined during design review.			
5.1-23	The website and mobile app will prompt users when a payment is declined and allow entry of an alternate funding source. Failed payments will be recorded in a separate payment exception file (with denial code).			
5.1-24	During creation of a new customer account, the customer website and mobile app will provide the ability to link transit accounts associated with previously issued EU fare media. Fare media (e.g., transit account) linking will not be required to create a customer account.			
5.1-25	Customers will be able to assign each credential a nickname, which will be stored in the transit account and used to differentiate credentials registered to the same customer account.			
5.1-26	The customer website and mobile app will support the payment, or partial payment, for the purchase of a pass or multi-ride product using stored value in same transit account where the product is being loaded.			
5.1-27	The customer website and mobile app will allow registered customers to close a transit account and request a refund or transfer the E-purse balance to another transit account. This action will immediately result in the associated fare media being blocked from further use. The operational policies governing the issuance of a refund or transfer of products will be defined during design review.			
5.1-28	The customer website and mobile app will allow ordering of Agency-issued EU fare media to be delivered by mail. The customer website and mobile app will support the ordering of registered and unregistered fare media.			
5.1-29	The customer website and mobile app will include general information on use of the System, including an FAQ section, information on where to purchase fare media and value, customer agreements, and general program information and updates.			
5.1-30	The customer website and mobile app will allow a customer to move a transit account from one customer account to another. The process will be defined during design review.			
5.1-31	Registered customers will have an Agency configurable option of initiating a customer service request via the customer website and mobile app. This action will automatically generate a request within the CRM application and assign the request to the appropriate customer service staff.			
5.1-32	The customer website and mobile app will include links to the Agencies' websites with schedules, fares, and other general transit information.			
5.1-33	The System will display a notification for account activity, such as successfully completed sales, fulfillment of autoload or low balance alerts. Users will have the option of additionally receiving the notification via push, email, or text.			
	Section 5.2 Customer Mobile App			
5.2-1	The SI will retain a qualified mobile app developer to develop and maintain the customer mobile app for Android and iOS.			
5.2-2	The look and feel of the mobile app will be streamlined, modern, and have a clean, simple design.			
5.2-3	The customer mobile app will follow the current design and accessibility guidelines for each operating system.			
5.2-4	The customer mobile app will be tested and support the two most recent major versions of operating systems on the Android and iOS platforms on the day that the OS is released to the general public.			
5.2-5	The display, instructions, and selection keys of the customer mobile app will be easy to read, understand, and use as demonstrated through user testing.			
5.2-6	The customer mobile app will be available in the app stores, offered and maintained by the SI.			
5.2-7	The customer mobile app will process payments through the System's Central Payment application.			

Capability Number	Capability	ully Conforming	on Conforming	
5.2-8	The customer mobile app will support the sale of all retail ORCA fare products in a similar manner to the customer website.			
5.2-9	The customer mobile app will make it easy for customers to purchase fare products as demonstrated through user testing.			
5.2-10	The customer mobile app will accept payment via mobile wallet.			
5.2-11	The customer mobile app will allow for multiple types of fare products from multiple Agencies to be purchased in one transaction.			
5.2-12	The customer mobile app will support the display of transaction history and other transit and customer account attributes in a similar manner to the customer website.			
5.2-13	The customer mobile app will have the ability to act as a fare payment credential at onboard, wayside, or mobile validators. This will be done using a next gen ORCA closed-loop credential stored on an NFC-enabled device.			
5.2-14	The customer mobile app will allow a customer to procure a mobile closed-loop credential through in-app provisioning without the need for a physical card. The customer mobile app will also enable conversion of a physical credential to a mobile credential if a card has already been procured by the customer.			
5.2-15	The customer mobile app will communicate with the validators via ISO/IEC 14443 and the back-end system to recognize, log, and report on the usage.			
5.2-16	System must be able to validate fare products presented via the customer mobile app with no interaction from operators. It must not require that Agency personnel touch customer devices.			
5.2-17	Fare presentation and validation must be able to occur when the customer mobile device is not internet-connected.			
5.2-18	The customer mobile app will generate and transmit additional data that enables and supports comprehensive reporting and analytics including mobile platform information and geocoding.			
5.2-19	The System will be able to report on anonymized usage patterns of the customer mobile app by authorized users.			
5.2-20	The customer mobile app will enable the addition of marketing and advertising on mobile platform for increased revenue opportunities for the Agencies.			
5.2-21	The customer mobile app will include functionality to offer promotions to customers from local retail partners.			
5.2-22	The customer mobile app will include functionality to manage promotions based on geofences.			
5.2-23	The customer mobile app will include surveys that will facilitate the gathering of customer service metrics and ease of use.			
5.2-24	The customer mobile app will include functionality to send Agency messaging outside of the alert functions on mobile phones, e.g. via email or SMS.			
5.2-25	The customer mobile app will include links to trip planning applications (e.g., Google Maps, Apple Maps, Transit App, an Puget Sound Trip Planner). The links will be configurable centrally and by the customer on their device.			
5.2-26	The customer mobile app will include links to transportation network company applications (e.g., Lyft and Uber). The links will be configurable centrally and by the customer on their device.			
5.2-27	The customer mobile app will enable integration with social media functions, including marketing, promotions, discounts, route information, etc.			
	Section 5.3 Agency Mobile Apps			
5.3-1	The SI will retain a qualified mobile app developer to develop and maintain the Agency mobile app(s) to be used by Agency personnel to perform next gen ORCA activities.			
5.3-2	The Fare Validation mobile app will be able to collect closed-loop fares using a NFC-equipped handset.			
5.3-3	The Fare Inspection mobile app will enable the inspection of closed-loop electronic fare media.			
5.3-4	Download and use of the Agency mobile apps will be controlled so access is limited to authorized Agency personnel/devices.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
5.3-5	The Program needs the SI to provide a means of updating the Agency mobile apps that is fully consistent with the next gen ORCA change management process. The updates will be delivered electronically over network connections and will not require user intervention unless called for in the change management process.			
5.3-6	The Fare Inspection and Fare Validation mobile apps can be combined. If they are combined user access will allow for users with full access (both applications) and users with access to only inspection or validation.			
5.3-7	The Fare Inspection mobile app and the Fare Validation mobile app will be in native Android version only.			
5.3-8	The Agency mobile apps will be designed to be used on any device meeting the to-be specified capabilities, and will work on a variety of devices (both phones and more traditional fare inspection devices) of the Agency's choosing.			
5.3-9	The Agency mobile apps running on Agency-provided devices will require remote management. The Agencies will approve the specific method during design. Management could be through the System Manager, an SI-provided Mobile Device Management (MDM) solution or an MDM already in place at the Agencies.			
5.3-10	The Program needs the SI to provide a System Manager and/or MDM solution which will include remote management and Over The Air (OTA) capability to lock or disable the Fare Validation and Fare Inspection mobile apps. Agencies will maintain MDMs to locate, lock, disable, or erase mobile devices.			
5.3-11	The Fare Inspection and Validation mobile apps will support user login and identify service type and location.			
5.3-12	The Fare Validation mobile app will operate in a similar fashion to the onboard and wayside validators. All interactions with fare media will be identical to interactions driven by onboard and wayside validators. All data returned to the back office will use the same APIs and be as similar as possible to that returned by wayside and onboard validators.			
5.3-13	Fare validation and inspection mobile apps must be capable of operating when the mobile device is not internet connected.			
5.3-14	The Fare Validation mobile app will utilize the mobile device's GPS source.			
5.3-15	The Fare Inspection mobile app will use a real-time connection via the SI provided Fare Inspection API to process fare inspections.			
5.3-16	The Fare Validation mobile app will use a real-time connection to the ATP through the SI provided Fare Payment API for processing payments.			
5.3-17	The Fare Validation and Inspection mobile apps will provide a visual and audio indication for validation results as approved during system design and demonstrated during user testing.			
5.3-18	The Fare Validation mobile app will keep a transaction history for offline recording of fare payments.			
5.3-19	Enforcement rules for fare inspection will be received from the ATP through the System Management API. The rules will be clearly presented on the inspection device.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
5.3-20	All mobile inspections will generate transactions for reporting, analysis, and traceability.			
	Section 5.4 Customer Website			
5.4-1	The SI will contract with a web design firm or developer with extensive experience developing e-commerce, retail, and social media websites to develop the customer website.			
5.4-2	The System will provide, at a minimum, the capability for customer account management business rules to be different for different types of customer accounts for the purposes of: • Payment for services as defined by mode, including precedence of fund usage (for example, you cannot use pre-tax funds to pay for an auto on ferries). • Refunds and fund transfers to customers. • Employer and employee contributions of both tax-free/pre-tax funds and non-tax benefit funds. Any pre-tax funds will be added to the account by the employer.			
5.4-3	The functionality will comply with the Commuter Tax Benefits legislation requirements as defined in Section 132(f) of the Internal Revenue Code for pre-tax funds.			
5.4-4	The look and feel of the customer website will be streamlined, modern and have a clean, simple design.			
5.4-5	Access to customer website functions, features, and data by customers will be controlled by user roles. The roles will vary from administrative roles to roles with very limited rights.			
5.4-6	Registered customers will be able to view no less than 18 months of prior transaction history, showing all sales, usage, and adjustment transactions. The transaction history will be viewable and sortable on the customer website, and able to be downloaded in PDF and Excel formats.			
5.4-7	Customer accounts will be created using the customer website. Customers wanting to purchase products that require documents or forms will go through an approval process prior to products being added to the transit accounts.			
5.4-8	The customer account sign-up process will capture all necessary customer account data (e.g., username, password, contract, address, payment methods) as required for the customer account type.			
5.4-9	The customer website will support the administration of transit benefit programs by customer administrators and third-party administrators.			
5.4-10	The customer website will allow employers, schools, social service agencies, and other organizations to order fare media and load transit accounts.			
5.4-11	The customer website will have the ability to support pre-tax transit programs.			
5.4-12	The customer website will provide the following functions at a minimum. Availability of some of these functions will be configured by customer account type and user role. Design activities will determine the functions that will be configurable: • Register a new account (e.g., create a new individual or business customer) • Associate transit accounts with a customer account • Disassociate transit accounts from a customer account • Load value (e.g., stored value E-purse and products) to transit accounts • Block transit accounts (e.g., fare media) and/or use of loaded value • Bulk order EU fare media • Make a payment • View order history, invoices, and payment status			
5.4-13	The System will provide a process for ordering and tracking bulk media purchases. Customer account administrators will be able to manage bulk sales through the website (if bulk sales have been configured for the customer account type).			
5.4-14	The customer website will allow customer account administrators to manage the association and disassociation of transit accounts individually or in bulk.			

Capability Number	Capability	lly Conforming	nConforming	
5.4-15	The System will assign a unique account ID to each customer account.			
5.4-16	The customer website will have the ability to manage organization- provided parking benefits.			
5.4-17	If configured for their customer account type, the customer website will enable customers to add value to transit accounts and subsidize part or all of a stored value E-purse, multi-ride product, or pass purchase made by their employees or members through any customer interface within the next gen ORCA system.			
5.4-18	The customer website will provide customer account administrators the ability to place orders for any approved next ge ORCA fare product, and manage the transit accounts associated with their customer account.			
5.4-19	The System will support employer programs directly administered by customers as well as those administered by third parties contracted to customers to provide commuter tax benefits.			
5.4-20	The System will have the ability to add new products through a configurable interface.			
5.4-21	The customer website will allow a customer account administrator to add additional users or third-party administrators to manage the customer account, transit accounts and programs.			
5.4-22	The effective date of Passport Products will be updated when the end date of the customer's contract changes.			
5.4-23	The customer website will allow customer account administrators to manage product validity duration and the expiration of Business Passport fare products.			
5.4-24	The customer website will integrate with the CRM application using the SI provided APIs.			
5.4-25	The customer website will use the following APIs for integration: • Transit Account Management API to integrate with the ATP • Customer Account Management API to integrate with CRM application and Accounts Receivable (AR) and Billing			
5.4-26	The System will allow rules related to dollar limits and qualified services to be configurable by the Agencies for both Business Choice and Business Passport programs.			
5.4-27	The customer website will provide administrators the capability to view summary level reports on their organization's activities including usage. However, customer account administrators will not be able to see individuals' transactions.			
5.4-28	The System will have the ability to provide reports on customer account product usage.			
5.4-29	The customer website will have the ability to track the status of orders.			
5.4-30	The customer website will support the import of data, such as employee lists, for customers applying for a reduced fare classification. Imports include basic data, scans of applications and supporting documentation, eligibility parameters, an fare media personalization information, such as a customer photograph. Access to this ability will be controlled by customer account configuration.			
5.4-31	Customer account administrators will be able to view current payment status (e.g., balance due, accrued interest, and due date) and at least 25 months of invoices, and order and payment history, via the customer website. The invoices, orders, and payment history will be viewable and sortable on the website, and able to be downloaded in PDF and Excel formats.			
5.4-32	The System will provide the capability for the creation of a hierarchy of customer accounts with parent child relationships.			
Section 6 Back Office Applications				
Section 6.1 General Capabilities				
6.1-1	The SI shall develop and submit for Agency approval during design review a back office hardware design specification that provides a detailed description of all hardware components that will comprise the back office, and the purpose, functions, interdependencies, configuration, and communication capabilities of each component.			
6.1-2	Back office applications and data structures will all be able to expand to support additional agencies without reprogramming.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.1-3	The back office system will provide access to no less than seven (7) years of historical data. Deletion and archiving of da will be supported as agreed by the Agencies.			
6.1-4	The back office will retain detailed active transactions for at least 25 months.			
	Section 6.2 Account-based Transaction Processor			
6.2.1-1	The ATP will enable core system functions, including but not limited to: • Fare media sales and issuance, and the creation of new transit accounts • Fare product sales and the loading of fare products (e.g., stored value, multi-rides, and passes) to transit accounts • Maintenance of transit account status, balance, and transaction history • Real-time fare calculation and payment processing (e.g., validation) for closed-loop fare payments • Real-time fare payment inspection for closed-loop fare payments • Automatic reloading of value to transit accounts (e.g., autoload) • Modification of transit account balances based on adjustments, refunds, reversals, and balance transfers • Blocking/unblocking and closing of transit accounts • Setting of all specified transit account management configuration parameters (e.g., fraud detection parameters, negative balance limits, etc.)			
6.2.1-2	The fare distribution, payment, and inspection devices, and supporting back office applications, will access the ATP functions using the SI-provided API and a direct, real-time connection to the ATP.			
6.2.1-3	The ATP will maintain transit accounts that store all stored value, multi-rides, and passes loaded by customers, and deduct value in real-time as accounts are used for payment.			
6.2.1-4	The ATP will support all customer service functions impacting transit account status and balance that are available through all customer service channels using SI-provided devices and systems, including the CST, CRM application, customer website, and customer mobile app.			
6.2.1-5	Transit account balance information will include the current stored value balance and the state (e.g., active/inactive) an remaining validity (e.g., expiration date or rides remaining) of all products.			
6.2.1-6	Minimal transit account personalization information (e.g., customer/card name, passenger type, and DOB) may also be stored securely in the transit account to support fare processing and allow for the individual tracking of fare media associated to the same customer.			
6.2.1-7	The sale of specific types of fare products and the issuance of transit accounts by passenger type may be optionally restricted to transit accounts that are associated with customer accounts only. Restrictions will also be configurable according to customer account type.			
6.2.1-8	All equipment will be able to receive multiple lists from the back office including, but not limited to, positive and negative lists. These lists will help improve passenger dwell time and mitigate risks from offline operation. All local lists will be updated based on changes since the last update at a configurable interval of no less than every five (5) minutes.			
6.2.2-1	All payment will be accepted or authorized prior to the loading of any fare value or products. Following payment confirmation, the ATP will update the transit account balance in real-time to allow for immediate use by the customer.			
6.2.2-2	The ATP will support the real-time loading of fare products through all fare distribution channels. No loading of fare value to a transit account will be permitted without an active connection to the ATP.			
6.2.2-3	The ATP will manage the automatic reloading of value or fare products that are configured for autoload. Autoload will based on configuration parameters, and will require the transit account to be registered with a valid funding source, such as a credit or debit card or bank account (ACH) stored in the associated customer account			
6.2.2-4	The account-based nature of the System will allow for autoload payment authorization to occur prior to the loading of any value, and immediate use of the value by the customer once the load occurs. If payment authorization fails, appropriate action will be taken as approved during design review.			

Capability Number	Capability	ully Conforming	on-Conforming	
6.2.2-5	A customer account will be able to have two (2) funding sources associated with a transit account autoload, a primary funding source and a secondary funding source. The customer may split payment between them or use the secondary funding source as a backup in the event that the primary fails.			
6.2.2-6	The autoload feature will support both threshold-based triggers (i.e., reloading when the stored value balance, remaining trip balance, or remaining validity period falls below a configurable threshold), and calendar-based triggers (i.e., reloading on a configurable date every month).			
6.2.2-7	The System will have the ability to segregate any value loaded using pre-tax dollars, including the segregation of value purchased using pre-tax transit funds and pre-tax parking funds.			
6.2.2-8	The System will have the ability to restrict the use of pre-tax and tax-free funds to qualified services (for example, transit/vanpool and commuter parking).			
6.2.2-9	The System will allow after-tax E-purse to be used on all services, including transportation connections that have payment integration.			
6.2.3-1	The real-time fare calculation performed by the ATP will be based on the fare tables. The calculation will incorporate all attributes of the ride being taken, such as transit account passenger type, transit account balance, available fare products and order of precedence rules, transfer status, and all other factors that influence the fare to be charged. The fare payment calculation algorithm will be presented for Agency review and approval at design review.			
6.2.3-2	The Program needs the SI to design, develop, and implement the ATP to include a fare calculation engine, and the configurable fare sets, business rules, and transaction processing necessary to support the current fare structure and all of the fare structure configuration capabilities.			
6.2.3-3	The System will support refunds of unused or partially used products. An Agency may at their discretion close a transit account and block the stored value E-purse or product in the transit account and refund the money to the customer.			
6.2.3-4	When processing a fare payment, the ATP will provide an online server authorization in less than 500 milliseconds, and will query the transit account, perform fare calculation, and update the account balance, prior to providing an approval or denial response to the fare payment device.			
6.2.3-5	The online-mode fare payment response generated by the ATP will include at minimum: • Payment status (e.g., success or failure) • Transit account passenger type • Fare product used • Fare charged • Remaining balance • Transfer time remaining • Product expiration date Other relevant transaction data may be included and identified during design review.			
6.2.3-6	When real-time communications are not available, device-level fare payment authorization may occur using the risk mitigation techniques. Transaction data will be sent to the ATP, and processed to update the transit account status and balance, as soon as communications are reestablished. Any device-authorized transactions will be recorded as such, so that offline transactions can be easily identified and tracked. The offline fare payment authorization algorithm will be presented for Agency review and approval at design review.			
6.2.3-7	The fare calculation process will check the transit account's passenger type. If passenger type is not applicable to an Agency or is expired, the System will apply the configurable default passenger type to the fare calculation.			
6.2.3-8	The ATP will accommodate late arriving transactions through the recalculation of individual fare payments, or the total fare due for a prior accounting period. Transactions occurring within an accounting period may remain in a pending stat until that account period (e.g., service day) is closed. Transit account transaction history and balance information will be updated in real-time as transactions are received, and reflect any recalculation performed as a result of late arriving transactions.			

Capability Number	Capability	lly Conforming	nConforming	
6.2.3-9	The ATP will support the tracking of negative stored value balances that occur as a result of offline fare payment acceptance or Agency configured fare policies.			
6.2.3-10	Pass products will be able to be configured to grant a full, partial credit or no credit towards a fare for a premium service. In this scenario the remainder of the fare, or "upgrade fare," will be deducted from stored value. If the customer does not have enough stored value E-purse in their transit account to cover the upgrade fare, the upgrade fare may be paid with cash or transaction could be declined, depending on configurable business rules.			
6.2.3-11	The System will calculate whether an upgrade for a pass product is required (i.e., if the fare is higher than the face value of the pass) and deduct it automatically from stored value E-purse. If there is insufficient stored value, then pass holders will also have the option to pay upgrades using cash.			
6.2.3-12	For trips paid with stored value E-purse, the System will support the granting of transfer fare credits for all boardings that occur within a specified time of the initial tap at a validator for fare payment. The transfer period (i.e., time during which a boarding is eligible for a transfer) and Agency participation will be configurable.			
6.2.3-13	The System will support inter-agency transfers for free or with an upgrade. For Agencies participating in regional transfers, inter-agency transfers will be free for customers transferring to routes or services with the same or lower fares. For customers transferring to routes or services with higher fares, an upgrade fare will be charged equal to the difference between the applicable fares. Upgrade fares may be paid from stored value or with cash. If cash not paid or accepted for upgrade, transaction would be declined.			
6.2.3-14	The System will limit inter-agency transfer credits to the Agencies participating in regional transfers. Agency participation in regional transfers will be configurable. Transfer rules regarding allowable connecting trips will be configurable by the region.			
6.2.3-15	The System will restart the transfer window time anytime that stored value E-purse is used (i.e., when a customer pays an upcharge when transferring to a more expensive service, the transfer window is reset).			
6.2.3-16	The System will support intra-agency transfers for free or with an upgrade. For Agencies with intra-agency transfers, the intra-agency transfers will be free for customers transferring to routes or services with the same or lower fares. For customers transferring to routes or services with higher fares, an upgrade fare will be charged equal to the difference between the applicable fares. Upgrade fares may be paid from stored value or with cash. If cash is not paid or accepted for an upgrade, the transaction would be declined. For Agencies not participating in regional transfers, intra-agency transfer policies will be configurable by Agency.			
6.2.3-17	The System will support intermodal transfers between transit services and transportation connection services. Transfers will be configurable to grant full or partial credit towards a fare. Transfer policies will be configurable for each transportation connection service and by Agency.			
6.2.3-18	For fare payment, the System will have defined business rules related to conditions under which each product can be used. Agency products will be configurable by each Agency.			
6.2.3-19	Transfer credits will be applied to transit accounts.			
6.2.3-20	Order of precedence rules will be configurable to identify the order in which valid fare products will be used (i.e., first check for business pass, then for local Agency pass, then for regional pass before using stored value E-purse). The order of precedence rules, to be defined during design review, will determine which fare products are used first and under which scenarios.			
6.2.4-1	Real-time fare inspection determination by the ATP will be based on the fare structure configuration. The determination will incorporate fare payment transactions (e.g., approved and denied) recorded by the ATP, transit account passenger type, available fare products, transfer status, and all other factors that influence possible payment by the customer. The online fare inspection algorithm will be presented for Agency review and approval at design review.			
6.2.4-2	When processing a fare inspection, the ATP will provide an online server response in less than 500 milliseconds and will query the transit account to determine the inspection result prior to providing a confirmation of fare payment. Server authorization rate capabilities are specified in the Performance Measurement section.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.2.4-3	The online fare inspection response generated by the ATP will include at minimum: • Payment status (e.g., valid or invalid) • Transit account passenger type • Fare product used (if valid tap is found) • Fare charged (if valid tap is found) • Transfer time remaining (if valid tap is found) • Transit account balance • Fare payment transaction history If the payment is determined to be invalid, an associated reason code will be provided (e.g., no tap, blocked card). Other relevant transaction data may be included and identified during design review.			[redacted]
6.2.4-4	When real-time communications are not available, device-level fare inspection may occur using the risk mitigation techniques. Local positive and negative fare media lists will be refreshed frequently from the ATP. Transaction data will be sent to the ATP as soon as communications are reestablished.			
6.2.5.1-1	The Regional Reduced Fare Permit is an identification card issued on an ORCA card for use as proof of eligibility to pay a reduced fare. An RRFP card is required for senior or disabled passengers paying a reduced fare. Medicare customers are also eligible for the permit. The permit holder must pay the amount of the reduced fare on each Agency used, and use of the permit is subject to any time restrictions in effect for each system. The System will support the use of the RRFP by individuals who are age 65 or older or meet the disability eligibility criteria.			
6.2.5.1-2	The System will support stored value, which will serve as an electronic cash-equivalent, and will be accepted for payment across all modes and services. When stored value is used for payment, the System will deduct the correct fare at each boarding or entry in real-time from the transit account, based on the fare pricing configuration.			
6.2.5.1-3	A transit account may only have one passenger type associated with it.			
6.2.5.1-4	The System will support rolling products that are valid for unlimited rides on services costing at or below the face value of the product for a pre-defined period starting at product activation, which may occur upon sale or first use. Rolling products will be configurable to be valid for a continuous duration from 30 minutes to two (2) years (e.g., valid for 24 hours from first use), or bounded by a service period (e.g., valid from first use through the end of the service day).			
6.2.5.1-5	A passenger type must be defined for each transit account. The default passenger type that will be associated with a transit account will be the Adult full fare passenger type. Passenger types include but are not limited to: • Adult full fare • Senior • Disabled • Youth • Low-Income Additional passenger types will be able to be defined.			
6.2.5.1-6	Adult full fare customers will have the option of associating a transit account with a customer account or remaining anonymous.			
6.2.5.1-7	Passenger types will be able to be modified and configured manually, or automatically based on customer date of birth or the granting of a temporary classification with a configurable end date.			
6.2.5.1-8	Not all Agencies offer a separate fare for all passenger types. The System will determine the applicable fare associated with each passenger type for each transit Agency.			
6.2.5.1-9	Each transit account will be designated by passenger type (e.g., adult full fare, youth, senior, disabled, low income) and the transit account will be charged when fare is paid.			
6.2.5.1-10	For age-based passenger types, the date of birth will be stored in the transit account only.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.2.5.1-11	For passenger types that are issued on a temporary basis (e.g., temporary disabilities, low income, youth), the System will generate automatic notification (via email and/or text) to the account holder that the fare discount will be expiring and renewal is required. Content of the notification will be configurable. Notification will be reviewed and approved during system design.			
6.2.5.1-12	When a youth turns 19, the System will convert the passenger type from youth to adult full fare automatically.			
6.2.5.1-13	All customers will each be required to have and present their own fare medium.			
6.2.5.1-14	The System will be able to support a variety of fare structure configurations at system launch and in the future. Fare structure includes the supported fare policies, fare media, fare products, and distribution channels through which customers purchase fare media and products. The fare structure will be configurable by the Agencies, and designed to create a simple, unified system that enables interoperability across current and future transit modes without additional development. The fare policies will be supported, along with the detailed fare structure configuration capabilities.			
6.2.5.1-15	The System will support single-tap or "flat" fare pricing that is fully configurable based on the following parameters at a minimum: • Agency • Passenger type • Mode • Service type • Route • Trip • Location • Day and time • Discounts These fare pricing parameters will also govern the acceptance or denial of fare products being used for payment and the granting of transfers.			
6.2.5.1-16	The System will support zone-based fares.			
6.2.5.1-17	The System will support route-based and service-based fares for premium pricing for certain types of service (e.g., express service). Fare pricing will be able to be configured for a single route or groups of routes.			
6.2.5.1-18	The System will support location-based fares, or the capability to price fares based on the location of payment (e.g., boarding at specific stop locations). Location-based fare pricing will be able to be configured based on the stop location associated with wayside validators.			
6.2.5.1-19	The System will support fare pricing based on the time of day and day of week (e.g., peak and off-peak fares). Peak/off-peak fare pricing will be able to be configured for specific fare products, passenger types, modes, and service types, and put into effect at all times or on a scheduled basis (e.g., every weekday). In addition to time of day, the System will support peak/off-peak pricing for specific trips.			
6.2.5.1-20	For distance-based fares, the maximum fare from boarding location will be deducted from stored value E-purse at tap on. Upon tap off, final fare would be calculated and customer will receive credit back to their stored value E-purse, if applicable.			
6.2.5.1-21	The System will support station-to-station fares and the ability to price fares based on the location of boarding and alighting. This distance-based fare pricing will be able to be configured based on the station location associated with wayside validators.			
6.2.5.1-22	Each Agency will be able to configure fare structure and pricing for each mode and service type.			
6.2.5.1-23	The service day will be configurable by each Agency.			
6.2.5.1-24	The System will have the flexibility to support Agency fare changes without software modifications. All fare changes will be through fare table and other configuration changes.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.2.5.1-25	The bus operator will be able to override the default fare via the DDU in order to support zone-based fares.			[redacted]
6.2.5.1-26	The System will support both Agency-specific and regional fare policies and products, including stored value E-purse, transfers, reduced fares for eligible customers, regional daily and monthly pass products, multi-ride products, programs that require riders to pre-qualify (e.g., RRFP, youth fares, low-income program), regional programs by customer account type, and Agency-specific programs.			
6.2.5.1-27	The capability to load a particular fare product to a transit account will be configurable based on the fare product type and passenger type associated with the account.			
6.2.5.1-28	The System will support regional products such as the following for all participating Agencies: • Regional Monthly Pass: regional ORCA calendar monthly passes available in face values that correspond to transit Agencies' fares, accepted by participating Agencies for payment of trip fares up to the face value of the pass. • Regional Day Pass: regional ORCA rolling day passes accepted by participating Agencies for fares up to specified face values. Additional fares are required for one-way fares higher than the specified face values.			
6.2.5.1-29	The System will support date-based and promotional pricing that offers discounted fares on a temporary and permanent basis, up to and including the offering of free fares. Discounted fare pricing will be able to be configured for specific fare media types, passenger types, modes, service types, and routes, and put into effect indefinitely or for a defined period.			
6.2.5.1-30	The System will provide the ability to manage value for multiple transit accounts in a single customer account. The customer account will permit the payment of multiple fares by associating transit accounts to the customer account.			
6.2.5.1-31	The System will enable customers to use stored value E-purse to purchase fare products.			
6.2.5.1-32	Customers will be able to define threshold and calendar-based autoloads for transit accounts based on parameters set by Agency staff.			
6.2.5.1-33	The System will enable a customer to set up autoload to reload stored value E-purse and/or fare products.			
6.2.5.1-34	The loading of stored value will be restricted based on configurable parameters, including the minimum and maximum amount that can be loaded in a single transaction.			
6.2.5.1-35	Customers will be able to load value to their stored value E-purse (including via autoload) as long as the E-purse value does not exceed the regional maximum allowable value.			
6.2.5.1-36	Customers will be able to load value to their stored value E-purse via autoload as long as a regionally-determined configurable minimum number of days have elapsed since the last autoload of the E-purse.			
6.2.5.1-37	Customers will be able to load value to their stored value E-purse via autoload as long as the number of E-purse autoloads does not exceed the regional configurable maximum allowable number of autoloads for the month.			
6.2.5.1-38	All parameters governing threshold and calendar-based autoloads will be fully configurable by Agency staff, including the enabling or disabling of an autoload, threshold value (e.g., trigger), funding source, and fare product and/or amount to be loaded. Final configuration parameters will be defined during design review.			
6.2.5.1-39	The System will support calendar products that are valid for unlimited rides during a pre-defined calendar period for rides on services costing at or below the face value of the pass. Calendar products will be configurable to be valid for any calendar period from one (1) day to two (2) years, including periods that are bounded by specific dates (e.g., valid from Aug. 16 through May 14).			
6.2.5.1-40	Monthly passes and fixed period products expire at the end of the validity period.			
6.2.5.1-41	The System will enable the configuration of vending windows for monthly passes and fixed period products (e.g., summer youth pass). Vending windows may vary for Agency-specific and regional fare products. No discounts on prices for partial months will be offered.			
6.2.5.1-42	Monthly products will be configurable to extend the validity to the end of the last service day. This validity period will be configurable by Agency.			

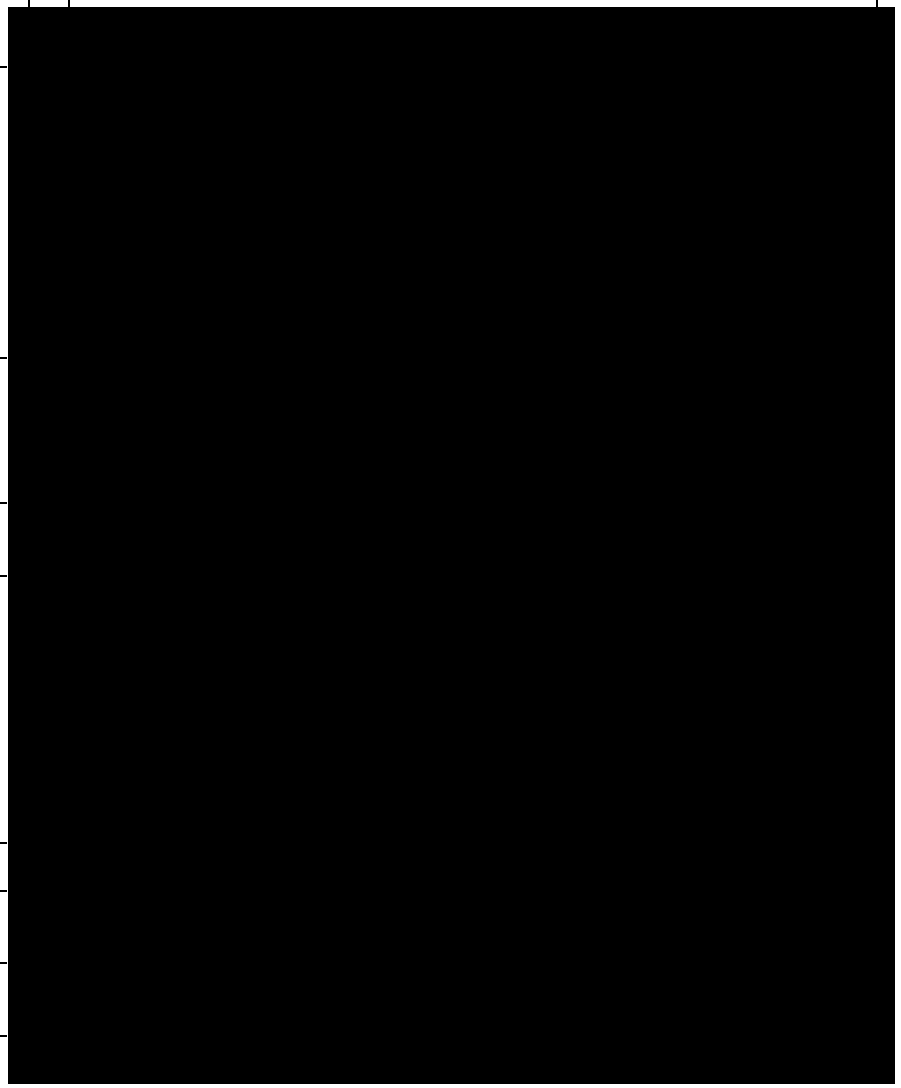
Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.2.5.1-43	Certain reduced fare passenger types will require association to a customer account.			[redacted]
6.2.5.1-44	Unused rolling period pass products (e.g. short-term Passport products, day passes) can expire. Expiration will be configurable. Validated rolling period pass products expire at the end of the validity period.			
6.2.5.1-45	Day products will be able to be configured to extend the validity to the end of the service day. This validity period will be configurable.			
6.2.5.1-46	Day passes and short-term Passport products (e.g., convention passes) will activate upon first tap and the validity period will be configurable to accommodate specified transit days.			
6.2.5.1-47	The System will support trip-based multi-ride products that are valid for a pre-defined number of trips. Multi-ride products will be configurable to be valid for anywhere from one (1) to 100 trips, and to include transfer privileges or not.			
6.2.5.1-48	Unused multi-ride products will expire a number of days from date of purchase, configurable by product.			
6.2.5.1-49	The System will allow special products for a group of customers (e.g., school field trips) represented on a single closed-loop EU card.			
6.2.5.1-50	The System will support the sale of fare products sold in bulk at both face value and at special discounted prices to approved users, configurable by fare product.			
6.2.5.1-51	Transit accounts will be able to contain multiple fare products simultaneously (e.g., stored value and a pass product).			
6.2.5.1-52	A transit account may contain multiple rolling period pass products (e.g., day passes). However, only one product of the same type will be able to be active at a time.			
6.2.5.1-53	A transit account may not contain two fixed period pass products of the same type that are valid for the same or overlapping periods (e.g., fare media may contain May and June PugetPasses, but not $2.75 and $3.50 PugetPasses for May).			
6.2.5.1-54	Stored value E-purse and fare products will be subject to a passback delay period at the point of fare payment, configurable by Agency, device type, and mode.			
6.2.5.1-55	The System will accept Agency-issued next gen contactless ISO-14443 compliant smart cards, as well as existing smart cards, that are associated to next gen transit accounts and may be used to pay fares using stored value or fare products.			
6.2.5.1-56	The System will support replacement card fees, which will be able to be configured based on passenger type and replacement thresholds (e.g., the first replacement is free and each successive replacement associated with the same transit account is $5).			
6.2.5.1-57	Business Passport is a program that will provide transit passes for all transit services under a Business Passport agreement, with the ability to configure products to be valid only on specified transit Agencies and for a specific period of time.			
6.2.5.1-58	When adding value to transit accounts associated with customer accounts, customer account administrators will be able to select from the available fare products configured for their customer account, and choose whether to initiate a one-time or recurring load (e.g., autoload), on an individual or group basis. The period for recurring loads will be defined in the customer account configuration.			
6.2.5.1-59	Lead Agency representatives and customer account administrators will be able to initiate the loading of value (e.g., stored value and products) to customers' transit accounts individually or by group, and through a bulk process using an imported file in a common Agency-defined format.			
6.2.5.1-60	The System will enable configuration of duration of short-term Passport products.			
6.2.5.1-61	The Business Passport program will accommodate subsidies provided by employers for vanpools. These subsidies will be included in the billing and apportionment of Business Passport agreements.			
6.2.5.1-62	One transit account will be able to support at least 15 distinct fare products of the same type. Distinct fare products or product categories will be determined by Agencies.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.2.5.1-63	The configurable service day may be longer than 24 hours and service day hours may overlap.			
6.2.5.1-64	In the Business Choice program, organization customers may provide members with stored value E-purse and/or fare products.			
6.2.5.2-1	The System will handle revenue apportionment according to the apportionment rules.			
6.2.5.2-2	The System will allocate actual revenue received from a customer using stored value E-purse among Agencies providing service to that customer on a per-trip basis and in proportion the value of the services provided. The value of services provided is calculated as the fare the customer would have paid in the absence of an intra-agency and/or inter-agency transfer agreement.			
6.2.5.2-3	The System will allocate actual revenue received from a regional monthly or day pass among Agencies providing service to that customer, for the duration of the pass product, in proportion to the value of services provided, which include the calculation of transfers. Revenue-sharing provisions will be configurable by the region.			
6.2.5.2-4	Calendar monthly pass products will be valid for the designated month purchased. The revenue will be available for distribution whether or not the product is used.			
	Section 6.3 Customer Relationship Management Application			
6.3.1-1	The SI shall deploy a CRM application that provides central management for all customer data, customer service operations, and fare media and product ordering and fulfillment, as well as cradle-to-grave tracking of all customer service contacts and requests. The CRM application will be a COTS solution, and there is a preference for a web-based CRM solution.			
6.3.1-2	The core function of the CRM application will be to support call center operations with a tool that provides a 360-degree view of the customer, and enables creation, viewing, and modification of customer service records related to contacts and requests, and the actions taken to resolve those requests.			
6.3.1-3	The CRM will have functionality that allows for the creation of incidents related to assets in the AIM.			
6.3.1-4	The CRM will support the issuance of refunds for fare media and product sales as needed and create the appropriate transactions in the Financial Management application (accounts payable) using the Customer Account Management API.			
6.3.1-5	The CRM will allow customer account creation and transit account registration.			
6.3.1-6	The Program needs the SI to deploy a CRM application that provides access to all transit and customer account information, and the ability to track all customer service contacts and requests, including escalation from initiation through resolution.			
6.3.1-7	The CRM application will provide central order management and fulfillment functionality for the distribution of fare media and products sold through all fare distribution channels, including but not limited to orders placed through the customer website and mobile app. The CRM application will interface with the FMM to maintain proper fare media inventory controls.			
6.3.1-8	Access to the CRM application will require multi-factor authentication or other Agency-approved authentication technology that meets the criteria outlined in NIST 800-63, and allowed functions will be restricted based on centrally defined user-access privileges.			
6.3.1-9	The CRM application will be able to track and flag risky forms of payment including credit/debit cards that are on a system hot list, previously denied personal and corporate checks, and purchase orders linked to customer accounts with a poor payment history.			
6.3.1-10	The CRM application will connect to the ATP using the SI-provided API, and provide a fully integrated interface for customer service staff to view and modify customer and transit account data.			
6.3.1-11	The CRM application will accept credit cards, debit cards, and bank account (ACH) transfers for funding during fare media and product sales online and the setup of autoload.			
6.3.1-12	The CRM application will support split payments where up to three (3) funding methods, including multiple bank cards, can be used to complete payment for a single sale.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.3.1-13	The SI shall deploy a CRM application that provides the ability to email/text message customer accounts. Communications can be distributed based upon business rules using information in the application, for example autoload customers, customer account type, and product type.			
6.3.2-1	The CRM will maintain customer accounts that store all customer data, including all personal, contacts, members and payment information associated with customer accounts.			
6.3.2-2	The CRM application will have the ability to define and categorize customer accounts by type (e.g. individual, family, university, non-profit, business, corporation, elementary school).			
6.3.2-3	The CRM will be able to serve as the repository for all information on customers applying for a reduced fare classification, including applications and supporting documentation, eligibility parameters, and fare media personalization information, such as customer photographs.			
6.3.2-4	The CRM application will be supported by a customer information repository that is fully compliant with all applicable PCI standards and the region's ISMS control baseline at the time of Final System Acceptance, and with all agency, state, and local policies and regulations for the handling of PII.			
6.3.2-5	Each transit account will only be associated to one (1) active piece of fare media at a time. The System will support fare media replacement in the event that a media is lost, stolen, or damaged, which will associate a new piece of fare media to an existing transit account and block use of the old fare media.			
6.3.2-6	The CRM will serve as the repository for all information on employees, contractors, and other organization members who are issued fare media by a customer account, including fare media personalization information, such as customer photographs. Actual repository content/structure may vary according to customer account type.			
6.3.2-7	The System will allow multiple transit accounts to be associated with the same customer account for consolidated transit account management through all customer service channels.			
6.3.2-8	The System will allow a customer account to be created without associating a transit account.			
6.3.2-9	Customer data maintained in a customer account will include identity and contract information at a minimum. Actual content will be defined during design, and made available for operations by customer account type configuration. The following is an initial list of generalized information that will be captured • Customer account type • Names (organizational and individual) • Addresses (such as Primary, Billing, and Customer Service) • Phone numbers • Texting phone numbers • Email addresses • Website/Mobile usernames/encrypted password • Security questions and answers			
6.3.2-10	The CRM application will be able to capture passenger type (such as Adult, Senior, and Youth) and capture one or more additional classifications (such as Access eligibility). The source for this information will be determined during design.			
6.3.2-11	The Agencies will be able to use the CRM to serve as administrators for their own customer accounts and other organizational programs as necessary.			
6.3.2-12	The CRM application will allow transit account customers to be disassociated with customer accounts.			
6.3.2-13	The CRM application will support adding fare products including E-purse value to a transit account that contains a current or expired business product.			
6.3.3-1	The CRM application will support customer account programs that allow for tracking and management of business rules for distribution channels, fare products, and special programs. The ability to perform this function is configurable by customer account type.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.3.3-2	Customer account program administrators will be able to associate transit accounts to their customer accounts individually using credentials, and through a bulk process using an imported file in an Agency-defined format. The ability to perform the bulk process will be configurable by customer account type.			
6.3.3-3	The CRM application will allow customer accounts with appropriate privileges to remove fare products supplied by customer accounts from associated transit accounts and block remaining use of passes. This will be possible without the deletion of the transit account or removal of any E-purse value or passes purchased directly by the transit account holder.			
6.3.3-4	When fulfilling a bulk EU fare media order for a customer account, the System will automatically generate an import file pre-populated with the credentials to support the addition of customers by the customer account. The ability to perform this function is configurable by customer account type.			
6.3.3-5	The CRM application will enable the placement of bulk orders for fare media to be delivered by the mail center. Bulk sales may include media where the associated transit accounts are pre-loaded with value. The ability to perform this function is configurable by customer account type.			
6.3.3-6	Read and write permissions by the customer account administrator will be determined by preset permissions associated with their credentials and customer account type.			
6.3.3-7	The CRM will support contracted pricing for Business Passport agreements, including both fixed and per-trip pricing.			
6.3.3-8	The CRM application will enable the bulk sale and issuance of fare media, including the initialization and loading of the associated transit accounts, through entry of a transit account/fare media identifier range or upload of a file.			
6.3.3-9	At a minimum, the following configuration parameters will be supported to govern participation in customer account programs: • Program type (e.g., Business Choice, Passport) • Qualifying customer account types • Available fare media • Available fare products • Fare media and product pricing • Fare media and product ordering windows • Payment type (e.g., prepay or invoice) • Payment terms The customer account program configuration parameters will be set by the Agencies during registration of a customer account customer and will be stored in the customer account.			
6.3.3-10	Customer account programs will include post-bill programs where the account is invoiced based on the customer's actual usage of the System. For these programs, the customers' transit accounts will be loaded with an unlimited-ride pass (i.e., Passport), and the System will calculate the amount due on-a-monthly basis using pass ridership data and an Agency-defined formula.			
6.3.3-11	The Agencies may use the CRM application to register a customer account and configure all parameters governing the customer account's participation.			
6.3.3-12	All data associated with customer accounts will be stored securely and associated with the Accounts Receivable and Billing, CRM application and the customer website.			
6.3.3-13	When associating transit accounts, the customer account will be able to provide fare media personalization information (e.g., employee name or ID) that uniquely identifies the customer in possession of the associated fare media. If personalization information is provided, it will be stored in the transit account and serve as a unique identifier separate from customer registration data, should the customer choose to register the transit account.			
6.3.3-14	Customer account program administrators will be able to disassociate transit accounts from their customer account program, individually by selection and through a bulk process using an imported file in an Agency-defined format. The actual individual transit account will remain.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.3.3-15	The CRM application will support the management of customer account programs, which will allow transit accounts to be associated to a customer account (e.g., employer or school) for account management and the loading of value.			
6.3.3-16	The CRM application will support the current range of business (organizational) account programs offered by the Agency, and future programs, including but not limited to: • U-Pass and other college programs • School (K-12) programs • Corporate and employer programs • Government and military programs • Social service agency programs • Local attraction and tourist programs • Partner programs supporting transit-related services, including parking • Agency promotional programs • Residential pass programs			
6.3.3-17	The CRM application will allow customer accounts with appropriate privileges to provide a means of funding transit accounts that will charge the funding source only for value used by the associated transit accounts. This could be achieved by a customer providing a funding source to transit accounts that has a configured maximum that can be drawn on by each transit account, or by a method to reclaim funds that are used to pay for unused E-purse or products by a configurable date or time period. Customers will be able to perform this function for an individual transit account or a group of transit accounts.			
6.3.4-1	The CRM application will support call center and in-person customer service operations by providing a complete view of the customer and related transit and customer account activity, including all activity associated with anonymous transit accounts.			
6.3.4-2	The CRM application will allow customer service staff, based upon security roles and customer account type, to perform customer account actions, including but not limited to: • Create new customer account • Assign customer account type designation to the customer account • View customer account status and data • Modify customer account data • Associate a transit account to a customer account • Disassociate a transit account from a customer account • Add, update and delete a funding source from a customer account • Close or suspend a customer account			
6.3.4-3	The CRM application will provide the capability to store all customer account correspondence related to invoicing and/or payments.			
6.3.4-4	The CRM application will allow Regional Reduced Fare Permits (RRFPs) for persons with disabilities to be associated with a transit account configured with a Personal Care Attendant (PCA) designation. PCA designation will be reflected on the printed RRFP cards.			
6.3.4-5	Agency/customer service staff will have the ability to set up fare products (e.g., stored value, multi-ride products, and passes) for autoload, or to automatically reload based on time or value thresholds. The Program needs the SI to enable this functionality through the CST, CRM application, customer website, and customer mobile app.			



Capability Number	Capability	ully Conforming	on Conforming	
6.3.4-6	The CRM application will enable customer service staff to perform transit account actions, including but not limited to: • Sell all supported fare media (and create new transit accounts) • Sell all supported fare products (e.g., stored value and passes) and load fare products to transit accounts • Query transit account status (e.g., associated passenger type, active/inactive, blocked/unblocked) • View fare payment transaction history • View sales transaction history • View adjustment transaction history • Enable fare product for autoload (requires funding source in customer account) • Generate fare payment reversal (e.g., cancellation) • Generate sales reversal • Generate sales refund • Generate an account adjustment (e.g., credit or debit) • Transfer balance between two transit accounts • Block/unblock card, account, or individual fare product • Replace lost, stolen, or damaged card (e.g., associate new card with existing account) • Generate an opt-out refund (e.g., close transit account and issue refund) • Capture open-ended notes (size to be determined during design)			
6.3.4-7	The CRM application will enable the bulk registration and loading of transit accounts in support of special fare programs through entry of a transit account/fare media identifier range or upload of a file.			
6.3.4-8	The CRM application will enable the bulk blocking of transit accounts and issuance of transit account adjustments through entry of a transit account/fare media identifier range or upload of a file.			
6.3.4-9	The CRM application will enable the CSR to print packing slips and mailing labels.			
6.3.4-10	The CRM application will track all customer service contacts and requests, and the actions taken to resolve those requests, in customer service records that can be created, viewed, and modified using the CRM tool.			
6.3.4-11	Customer service records will be created automatically based on customer-initiated actions performed through the customer website and customer mobile app.			
6.3.4-12	All actions performed by customer service staff that result in a change to a customer or transit account will automatically generate a customer service record.			
6.3.4-13	Customer service staff will be able to manually create or update (e.g., add notes) a customer service record when responding to customer service requests in person, over the web, or by phone.			
6.3.4-14	Customer service records will be created for actions associated with both anonymous and registered transit accounts, and will be indirectly associated all linked customer accounts whenever possible.			
6.3.4-15	The CRM application will support the classification of customer service records by type and severity, using pre-defined selections and Agency-specific custom text fields.			
6.3.4-16	The CRM application will allow viewing and modification of all customer account data. A request by the customer to reset a password will require the answering of security questions set at the time of registration. For password resets, a temporary password will be automatically emailed or texted to the customer.			
6.3.4-17	The CRM Application will enable the bulk uploading of customer information using an Excel or .csv file. This can be used by appropriately configured customer account types and by Agency staff to load large numbers of individual customers at one time.			
	Section 6.4 Asset Incident Management application (AIM)			
6.4-1	The SI will deploy an Asset Incident Management application (AIM) to support the management of all ORCA assets, including spares, and incidents associated with the assets.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.4-2	The AIM will have workflow functionality to support the addition, commissioning, testing, and retirement of assets. Workflow will also support the incident process and routing of incidents to the right departments and approval for closing.			
6.4-3	The AIM will have security functionality to support the management of access which is configurable by user role.			
6.4-4	The AIM will have functionality to support the configuration of assets for fields including Agency, manufacturer, asset type, location, owner, etc.			
6.4-5	The AIM will have functionality to support the configuration of incident information including owner, status, origination, type, severity etc.			
6.4-6	The AIM will have standard and ad hoc reporting capabilities to monitor assets and incidents. Ad hoc reports will be easy and intuitive to build and run.			
6.4-7	The AIM will be accessible over the web using any commonly available browser and mobile friendly using either a native app or browser capability.			
6.4-8	The AIM will have workflow functionality to support the incident process. Workflow will allow for routing of incidents to the right departments and review, resolve, approve, and closure process.			
6.4-9	The AIM will use the SI-provided API to allow remote systems (such as CRM to create customer service initiated incidents) to query and create incidents.			
6.4-10	The AIM will use the SI-provided API to integrate with the System Manager for asset information and events that create incidents.			
6.4-11	The AIM will provide a user-friendly interface that can be learned quickly by end users with minimal training.			
6.4-12	The AIM will have functionality that allows remote systems (such as the CRM) to create incidents for an asset in the AIM or link to the incident if it already exists.			
6.4-13	The AIM will allow for incidents to be linked together and unlinked.			
6.4-14	The AIM will have mapping capability to link assets to locations and incidents to locations and assets at that location.			
6.4-15	The AIM will have functionality to support incident management that includes creation, management, resolution, closure, and reporting.			
6.4-16	The AIM will have functionality to support incident categorization and prioritization.			
6.4-17	The AIM will have functionality to support logging information and activity associated with an incident.			
6.4-18	The AIM will provide for manual .csv or Excel upload of device inventories by the Agencies of new equipment received.			
6.4-19	The AIM design will not preclude future integration through an API or industry standard center-to-center interface with the Agency enterprise asset management, maintenance, or decision support applications for static and real time device information.			
6.4-20	The AIM will have fields for basic device inventory information including but not limited to device name, serial number, location, model, Agency owner, maintenance history, break history, device type, date in service, date out of service, etc. The addition of user defined fields will be possible.			
6.4-21	The AIM will provide for manual .csv or Excel download of device inventories by the Agencies.			
6.4-22	The AIM will have operational lookup capabilities on any of the fields or combination of fields within the application, including device, owner, alert type, devices type, location, etc.			
6.4-23	The AIM will provide a tool to perform ad hoc reporting and build configured reports available to end users.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.4-24	The AIM application will provide the "next number" to issue when adding new assets to the inventory.			
	Section 6.5 System Manager			
6.5-1	The System Manager will monitor and display in real-time the status of all back office systems, subsystems, applications, databases, and processes. Details of which processes will be monitored will be provided during design review.			
6.5-2	The System Manager will have functionality that allows for the creation of incidents associated with certain events related to assets in the AIM.			
6.5-3	The System Manager will automatically monitor asset status, record asset problems and failures, notify selected staff an initiate appropriate action.			
6.5-4	All equipment will be remotely monitored, configured, and managed through the System Manager using the SI-delivered API.			
6.5-5	The System Manager will have user security to allow different roles with different levels of access.			
6.5-6	The System Manager will have the means to provide for a controlled shutdown of a device or system component and create a maintenance event.			
6.5-7	The System Manager will monitor the operational status and performance of the devices and their components, including but not limited to: • Onboard and wayside validators • Mobile access routers • Driver displays units • Vending machines • Customer service terminals • Mobile validation and inspection devices			
6.5-8	System Manager queries will include tables and graphical charts showing the current and historical performance of each device under measurement. Queries will include but not be limited to device type, Agency, location, and individual device.			
6.5-9	The SI shall deploy a System Manager that enables the central monitoring and management of all next gen ORCA system devices.			
6.5-10	Equipment software and configuration updates, including all valid and invalid card lists, will be managed through the System Manager application.			
6.5-11	The System Manager dashboard will include a system map that can be drilled-down into by location or Agency to view and control that status of system components. The System map will be dynamically updated when devices or systems are added and removed, and configurable to allow editing of device groups, locations, and location names as the System expands.			
6.5-12	The System Manager will include a web-based interface that provides access to all monitoring and management functions, and provides all information in a clear, organized dashboard using color graphics and text as approved during the System design.			
6.5-13	The System Manager will provide integration to the electronic monitoring and fault detection systems associated with devices.			
6.5-14	The System Manager will have the means to detect failure of any device (including cooling device) and provide for a controlled shutdown of the System components and generation of a maintenance event.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.5-15	Device status reported by the System Manager will include operational status (e.g., in service, degraded mode, out of service, or no communications), maintenance alarms associated with individual device modules, and revenue alerts (e.g., vault almost full/full and low stock/out of stock), as described in the equipment sections of this SOW.			
6.5-16	Events will be configurable with different severity and actions based upon severity.			
6.5-17	The System Manager will have the ability to monitor devices trying to connect to the next gen ORCA system that are not in the inventory list ("rogue" devices).			
6.5-18	For each alarm event, a corresponding event to clear the alarm will be transmitted by the VM as soon as the alarm condition is no longer present. Alarm conditions may be cleared either automatically by the VM or manually by service staff.			
6.5-19	Processor load, memory utilization, errors, and other system performance indicators will be available in real-time to help prevent performance degradation and troubleshoot back office issues. Alarm types and thresholds will be able to be configured to allow for custom alerts.			
6.5-20	Field devices or systems that are not reporting status for any reason will be easily identifiable in the System Manager, and the last known status and history will be available as approved during system design and accepted during user testing.			
6.5-21	The System Manager will display device attributes, including but not limited to device type, device ID, location, status, events, and alarms.			
6.5-22	The System Manager will provide real-time performance and status monitoring for all devices, back office applications, and network nodes using the SI-provided System Management API.			
6.5-23	The System Manager will support the real-time issuance of device commands, and device configuration, using the SI-provided System Management API.			
6.5-24	The System Manager will support the issuance of device commands system-wide and by device type, Agency, location, and individual device.			
6.5-25	Command sets will vary by device, but will include configuration, maintenance, revenue, and customer service functions, as described in the equipment sections of this SOW. Commands will be defined during design review.			
6.5-26	System Manager commands will utilize an appropriate command protocol based on industry standards, such as SNMP3, or a modern functional equivalent. The protocol chosen will be supported by all devices and systems, and take into account expected network traffic and potential for intermittent communications.			
6.5-27	The System Manager will support the setting and distribution of all configuration parameters stored locally at the devices, including positive and negative lists, as described in the System specifications.			
	Section 6.6 Fare Media Management Application			
6.6-1	The SI shall deploy a Fare Media Management application (FMM) that maintains a full inventory of all fare media procured and issued by the Agencies.			
6.6-2	The FMM will maintain an inventory of all serialized Agency-issued fare media (e.g., EU media) as it is held by the Agencies, regional partners, and third-party distributors, and eventually issued to customers.			
6.6-3	The FMM will track the current and historical status of all media in inventory. Whenever a transaction causes a change in media status, the FMM will update all records accordingly. A history of all updates will be maintained to provide an audit trail.			
6.6-4	The FMM will maintain the item number and type of inventory at all locations (including consignment locations) at all times. Tracking will include type of inventory, ID numbers, and counts at each location.			
6.6-5	The System will have the ability to record all sales at each location by type of inventory, type of sale (e.g., cash, credit, or check), identifying inventory number of each sale item, amount of sale, date, customer account and other applicable data.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.6-6	The fare media inventory data maintained within the FMM will include at a minimum: • Media serial number • Media type • Media status • Transit account status • Expiration date • Batch ID • Order ID • Location • Ship date Final data fields used for inventory management purposes will be determined during design review.			[redacted]
6.6-7	The FMM will support the bulk issuance of EU fare media by identifying appropriate batch IDs and serial number ranges to fulfill orders placed by regional distribution partners, and through the AR/Billing Module/CRM/customer website.			
6.6-8	The System will be able to issue EU fare media associated with transit accounts with preloaded fare product in bulk for special promotions.			
	Section 6.7 Financial Management Application			
6.7.1-1	The System will have the ability to allow online inquiry of balances (MTD, YTD) or for any timespan.			
6.7.1-2	The System will have the ability to support suspense account utilization with a user entered reference code for analysis and account tracking.			
6.7.1-3	The System will have the ability to require each journal entry to have a unique number by type of journal.			
6.7.1-4	The System will have the ability to support standard calendar or fiscal year of 12 periods or 13 periods as defined by the user. The System will have the ability to establish 13 or more accounting periods in a single fiscal year.			
6.7.1-5	The System will have the ability to assign general authorization journal processing and rules by account code, amount, company, and user.			
6.7.1-6	The System will have the ability to support calendar or fiscal business year accounting.			
6.7.1-7	The System will have the ability to allow authorized users to make additions and changes to the GL accounts without program or system changes.			
6.7.1-8	The System will provide the ability to capture the following accounting line item detail on all documents: line item number, line item amount, and line item accounting classification information.			
6.7.1-9	The System will have the ability to generate error reports for any data failing validation.			
6.7.1-10	As part of design review, the SI shall be responsible for mapping each transaction type generated by the System to the appropriate GL entries to support automated categorization and summarization by the System.			
6.7.1-11	The System will have the ability to provide a mechanism to correct out-of-balance conditions.			
6.7.1-12	The System will have the ability to save a transaction prior to posting and to continue processing the transaction at a later date. The System will make sure that journal entries are balanced before final posting to the GL. The System will allow saving of incomplete and unbalanced journals; however, posting can only occur when journal is valid and balanced			
6.7.1-13	The System will have the ability to prevent transactions from posting to GL accounts that have been de-activated.			
6.7.1-14	The System will have the ability to prevent transactions from posting that would cause GL debits and credits to be out-of balance at any level of the organization's accounting classification structure specified on a transaction.			
6.7.1-15	The System will have the ability to allow real time validation of all transaction related data coming from integrated systems against the GL tables (e.g., account, Agency, active/inactive date) and create exception reports for all transactions.			
6.7.1-16	The System will have the ability to allow an authorized user to reprint a journal entry.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.7.1-17	The System will have the ability to support user-defined accounting periods.			
6.7.1-18	The System will have ability to generate next account for chart of accounts additions.			
6.7.1-19	The System will have ability to inactivate accounts within chart of accounts, while maintaining archive status and ability to retrieve, review, and/or reactivate.			
6.7.1-20	The System will have the functionality to create and maintain allocations. Allocations will be configurable using any financial account or statistical account in the Financial Management application, formulas, prior periods/years, multiple input/output sources, effective dates, account ranges, accounting period and existing balances to create the pools and targets of allocation. Allocations can be single and multi-step with no limit to the number of allocations. The Financial Management application will automatically create the journal entries for each allocation referencing the date and allocation name with a full transaction trail in each transit account impacted.			
6.7.1-21	The System will have the ability to identify which ledger to post journal entries through configuration rules.			
6.7.1-22	The System will have the ability to make sure that total debits equal total credits for a single journal entry (e.g., double-entry accounting).			
6.7.1-23	The System will have the ability to accept and post only balanced journal entry transactions (debits equal credits).			
6.7.1-24	The System will have the ability to view date, amount, account name, account number, user ID, user name, and description when processing journal transactions.			
6.7.1-25	The System will have the ability to provide full audit trail of allocations.			
6.7.1-26	The System will have the ability to download results of allocations and reports to Excel for further analysis.			
6.7.1-27	The System will have the ability to track source information during journal transaction processing.			
6.7.1-28	The System will have the ability to display in real time running totals when inputting debit and credit journal entries.			
6.7.1-29	The System will have the ability to create journal entries for current period, any future periods and prior periods subject to user access limits.			
6.7.1-30	The System will have the ability to copy description and accounting from a previous line to the next line.			
6.7.1-31	The System will have the ability to capture user defined attributes including journal category, journal source, create by user, create date, updated by user, update date, etc.			
6.7.1-32	The System will have the ability to capture description at header level and line level.			
6.7.1-33	The System will have the ability to batch, edit, post, and search journal entries in real time.			
6.7.1-34	The System will have the ability to auto generate offsetting accounting entries based on user defined business rules.			
6.7.1-35	The System will have the ability to allow the creation of templates for standard journals.			
6.7.1-36	The System will have the ability to add multiple lines to a journal entry.			
6.7.1-37	The System will have the ability to search Chart of Accounts (COA) by code or description.			
6.7.1-38	The System will provide the ability to generate recurring entries in future accounting periods.			
6.7.1-39	The System will have the ability to create multiple charts of accounts -- global, local statutory, and consolidation for all divisions and Agencies.			
6.7.1-40	The System will have the ability to use a chart of accounts consistent with the basic numbering structure provided by the FTA and allow for expansion of accounts segments.			
6.7.1-41	System will have ability to accept automated recording of journal entries directly from subsidiary ledgers.			
6.7.1-42	The System will have the ability to automatically number journal entries.			
6.7.1-43	The System will have the ability to enter statistical journal entries for posting data such as head count, square feet, ridership and/or unit volumes or fixed percent rates to be used in allocations or reporting.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.7.1-44	The System will have the ability to perform auto generation of serial number and batch number for the journal entry.			
6.7.1-45	The System will have the ability to validate that the total amount of the batch transactions is equal to the batch header total. The System will allow for automatic validation rather than manual.			
6.7.1-46	The System will have a financial data architecture that allows for elements to code transactions. These include financial accounts, products, Agency, sales channel, department and at least two additional configurable elements. The elements will be available in the GL and all subsidiary ledgers and modules for use in coding and reporting.			
6.7.1-47	The System will perform the revenue distribution based upon calculations from the ATP and provide the necessary reporting to enable the settlement of funds.			
6.7.1-48	The System will be implemented using a COTS, SaaS if possible, enterprise-level financial management software that interfaces with SI-designed software modules as necessary to provide the required functionality.			
6.7.1-49	The Program needs the SI to employ an expert with the accounting and technical knowledge necessary to fully setup and configure the Financial Management application based on accounting best practices and the specific design of the delivered system.			
6.7.1-50	The System will have the ability to perform allocations by any data within the Financial Management application (e.g., account, department, Agency) including statistical accounts.			
6.7.1-51	The System will have the ability to define workflow rules for journal approval routing based on amount or other criteria.			
6.7.1-52	The System will have the ability to allow users to decide whether changes will update real-time or in batch.			
6.7.1-53	The System will have the ability to use standardized rules (e.g., GL posting rules, edits, etc.) identified by reference codes to control transaction editing and posting to the appropriate GL account, and updating other information maintained.			
6.7.1-54	The System will have the ability to validate all accounts again during posting.			
6.7.1-55	The System will have the ability to validate accounts in all input transactions, including online entries, spreadsheet uploads and interfaces. The System will validate all portions of the account key.			
6.7.1-56	The System will have the ability to change error handling default (i.e., error recycle or suspense) at the journal entry level.			
6.7.1-57	The System will have the ability to assign responsibility and ownership of accounts for reconciliation.			
6.7.1-58	The System will have the ability to allow authorized users to correct out-of-balance conditions discovered during the reconciliation process. The System will maintain an audit trail of any such corrections.			
6.7.1-59	The System will provide the ability to automatically post to GL weekly or more frequently if needed.			
6.7.1-60	The System will perform integrity checks on batches received via interfaces. Checks will include a batch number and amount, and make sure amounts in header agree with records in the batch.			
6.7.1-61	The System will have the ability to allow establishment of permanent (balance sheet) accounts in GL that can only be updated by subsidiary systems with allowance for authorized override.			
6.7.1-62	The System will provide the ability to restrict the accounting date to open periods.			
6.7.1-63	The System will have the ability to suspend a batch if a journal entry transaction is not balanced.			
6.7.1-64	The System will have the ability to restrict, based on security level, who can change error handling defaults on journals.			
6.7.1-65	The System will have the ability to reprocess suspended journal for posting.			
6.7.1-66	The System will have the ability to reject journals in error, correct errors online, and reprocess journal for posting.			
6.7.1-67	The System will have the ability to allow an authorized user to delete an unposted journal entry.			
6.7.1-68	The System will have the ability to allow an authorized user to copy journals.			

Capability Number	Capability	ully Conforming	Non Conforming	Comments
6.7.1-69	The System will have the ability to view online whether or not a journal is reversing as well as if the transaction line is reversing.			
6.7.1-70	The System will have the ability to restrict posting unapproved journals.			
6.7.1-71	The System will have the ability to create a future dated journal to closed periods.			
6.7.1-72	The System will have the ability to edit all entered, but not posted journals.			
6.7.1-73	The System will have the ability to conduct journal entry and posting in separate stages.			
6.7.1-74	The System will have the ability to capture processing date together with effective date of journal entry.			
6.7.1-75	The System will have the ability to rollup expenses for the same cost center/Agency across business units.			
6.7.1-76	The System will have the ability to apply allocations to both actual and budget fields.			
6.7.1-77	The System will have ability to review journal entries in workflow and approve them prior to entry into GL.			
6.7.1-78	The System will have the ability to capture comments on transactions at the lowest level (i.e., comments can be both text and attachments).			
6.7.1-79	The System will have the ability to define skeleton journals where the amounts change monthly, but the accounts remai the same.			
6.7.1-80	The System will have the ability to drill down (e.g., to descriptions, from journal to source activity).			
6.7.1-81	The System will have the ability to enter a journal entry without authority for posting it.			
6.7.1-82	The System will have the ability to enter and maintain statistical information either along with or independently of journal entries.			
6.7.1-83	The System will have the ability to provide a free-form notes section to attach to a journal entry or transaction.			
6.7.1-84	The System will have the ability to create and approve journals.			
6.7.1-85	The System will have the ability to reverse a posted journal entry manually or systematically.			
6.7.1-86	The System will have the ability to schedule automated, integrated, and recurring journals to run and post without user intervention.			
6.7.1-87	The System will have the ability to view or print journals online in a summary or detail format.			
6.7.1-88	The System will provide the ability to capture start dates, end dates, and posting frequency for recurring entries.			
6.7.1-89	The System will provide the ability to capture the date a transaction is effective in the GL (i.e., the date a financial event is recognized).			
6.7.1-90	The System will provide the ability to generate and modify online reversing entries in future accounting periods.			
6.7.1-91	The System will include a user access management tool that will control and configure user access privileges to each module or component of the entire system.			
6.7.1-92	The System will support business rules and procedures that provide fast and efficient month end close processing including workflow for approvals and messaging, and subsystem posting.			
6.7.1-93	The System will have the ability to reopen the final accounting period to post audit adjustments.			
6.7.1-94	The System will have the ability to allow authorized users to define general ledger posting rules and the logic associated with each transaction.			
6.7.1-95	The System will provide a method to create transaction corrections in a manner that allows subsystems to update the GL keeping it in sync.			
6.7.1-96	The System will provide the ability to process year-end adjustments.			
6.7.1-97	The System will have the capability to carry forward into the new fiscal year GL account balances and updates for current activity prior to the final year-end closing.			
6.7.1-98	The System will have the ability to allow authorized end users to add/change/delete business logic, based upon design and testing, within Chart of Account and report hierarchies.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.7.1-99	The System will support the full auditing of all system financial activity, including reconciliation of all Agency revenue and customer accounts, and end-to-end tracking of revenue as it is generated and recognized by the participating Agencies.			
6.7.1-100	The System will support daily cash settlement to Agency bank accounts.			
6.7.1-101	The Agencies will have the capability to generate manual GL postings to support corrections and the tracking of activity that is not performed by the System.			
6.7.1-102	Summary entries will be posted to the GL automatically at the end of each closeout period, no less than daily.			
6.7.1-103	The System will support the reconciliation of the stored value deferred revenue GL account balance to the total transit account balances maintained within the ATP at any point in time.			
6.7.1-104	The System will provide support for current and future standard banking formats such as SWIFT and BAI.			
6.7.1-105	The System will provide interfaces or related files to support banking capabilities such as positive pay and monthly reconciliation for checks issued.			
6.7.1-106	The System will have the capability to reconcile checks/wire transfers.			
6.7.1-107	The System will have the capability to produce a file containing all rejected check reconciliation transactions which could be available for corrections.			
6.7.1-108	The System will have the capability to identify un-reconciled customer account check payments online and from reports.			
6.7.1-109	The System will have the capability to determine online if a customer account check has cleared at the bank based upon reconciliation data.			
6.7.1-110	The System will have the capability to allow for automatic bank reconciliation via bank interface of bank cleared funds, direct debits, receipts compared to system payment records.			
6.7.1-111	The System will provide the capability to define unlimited number of banks and unlimited bank accounts for each bank and capability to pay from different banks.			
6.7.1-112	The System will provide the ability to assign a transaction number.			
6.7.1-113	The System will have the ability to trace back from allocated to original source of the cost.			
6.7.1-114	The System will have the ability to support Excel spreadsheet upload and download of journals.			
6.7.1-115	The System will have the ability to capture descriptive information on journals.			
6.7.1-116	The System will have the ability to maintain an audit trail from the original postings to the final posting when the accounting structure is modified.			
6.7.1-117	The System will have the ability to automatically reclassify accounting data when a reorganization of the classification structure is necessary, such that manual reversals of previously recorded detailed transaction activity is not needed.			
6.7.1-118	The System will have the ability to auto-generate a new chart of account combination if it meets the segment combination validation rules defined.			
6.7.1-119	The System will provide the ability to automatically close the subledgers on scheduled dates.			
6.7.1-120	The System will have the ability to rollover GL account balances after closing. (Note that this includes sub-accounts.)			
6.7.1-121	The System will have the ability to perform automated month-end closing of GL accounts, with approval.			
6.7.1-122	The System will have the ability to close subsystems on a different schedule from GL.			
6.7.1-123	The System will have the ability to allow selected transactions for closing, e.g., adjustments, to be processed.			
6.7.1-124	The System will have the ability to re-open prior periods and make adjusting financial entries; re-run allocations using the appropriate allocation methodology which may not be the current month's methodology.			
6.7.1-125	The System will have the ability to open/close prior closed periods multiple times based on business rules (not externally reported).			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.7.1-126	The System will have the ability to support at year-end close that all entries are in balance and that all periods have been closed.			
6.7.1-127	The System will have the ability to close accounting periods and prevent the posting of new transactions to any closed period.			
6.7.1-128	The System will process transactions originating in other systems, recording and keeping track of such transactions and related information, in order to provide the basis for central financial control.			
6.7.1-129	The System will support the management of monthly and annual accruals. Include automated accruals to the general ledger, ability to enter accrual journal and automatically post reversal in future period and ability to link the accrual to the reversal.			
6.7.1-130	The System will have the ability to set up standard journal entries with multiple line items and debits and credits lines may be uneven.			
6.7.2-1	The Accounts Receivable (AR) module will provide the capability to allow invoices to contain pertinent information (e.g. date of invoice, date of delivery, due date,) that will be defined and approved during design.			
6.7.2-2	The AR module will have capability to update GL accounts for all accounts receivables, sales, receipts, and other adjustments originating in the subsidiary ledger.			
6.7.2-3	The AR module will be fully installed and configured by the SI, and will support the creation and management of receivables and customer accounts with integration to the GL.			
6.7.2-4	The AR module will provide capability that allows default customer account data such as terms to automatically populate when invoices are being entered. Default data will be configured according to the customer account type.			
6.7.2-5	Data available for a customer account will include at a minimum: • Customer account name • Administrator name • Multi addresses (mailing, shipping, billing, etc.) • Phone numbers • E-mail addresses • Special Instructions • Contract account agreements • Customer account ID			
6.7.2-6	Payment terms for customer accounts will be configured as part of the account setup. The Agencies will be able to configure customer accounts such that payment is required at the time an order is placed, or to allow the customer account to be invoiced based on established payment terms.			
6.7.2-7	The AR module will provide functionality to manage multiple payment terms of the course of a contract with customer accounts.			
6.7.2-8	The AR module will allow customer accounts to be assigned to a specific Agency and allow for customer accounts to be managed by the Agency.			
6.7.2-9	The AR module will provide the capability for Agencies to configure custom business rules and terms for their customer accounts.			
6.7.2-10	The AR module will have the capability to differentiate customer account sales and inventory sold by cash, credit card, check, and ACH as well as totals.			
6.7.2-11	The AR Billing module will have the capability to capture multiple contacts for every customer account.			
6.7.2-12	The AR module will support the aging of receivables and an automated, fully auditable write-off process to be defined during design review.			
6.7.2-13	For customer account orders where invoicing is configured, an invoice will automatically be generated in the AR module, available for display on the customer website, and sent electronically.			
6.7.2-14	For customer accounts where prepayment is required, the customer will be required to provide a funding source in the form of a credit card, debit card, or bank account (e.g., ACH). Funding source information will be stored securely within the CRM in a tokenized form.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.7.2-15	The AR module will have the capability to post credits to customer accounts.			
6.7.2-16	The AR module will support the automatic generation of invoices and monthly statements detailing account activity, including consolidation of multiple AR accounts on a single customer account statement.			
6.7.2-17	The AR module will have the ability to calculate amount of invoice based on products sold, ridership use or contractual agreement.			
6.7.2-18	The AR module will have ability to calculate amount of invoice utilizing customized pricing.			
6.7.2-19	The AR module will provide the ability to include invoice transaction details such as any applicable surcharges, discounts, extended price, penalties, price, product/service code, volume, Agency, and mode.			
6.7.2-20	The AR module will provide the ability to include advances and prior collections received on invoices.			
6.7.2-21	The AR module will provide the ability to track original invoice amounts and remaining balance after receiving partial payments.			
6.7.2-22	The AR module will provide the ability to allow for invoices to be canceled, deleted, or voided.			
6.7.2-23	The AR module will provide the ability to allow historical data to be viewed online for amounts invoiced, amounts paid, credit memos, debit memos, adjustments, and tolerance written off.			
6.7.2-24	The AR module will provide the ability to automatically print copies of previously issued invoices at any time without recalculation or regeneration.			
6.7.2-25	The AR module will provide the ability to print current and cumulative invoice totals on the same page within the specified invoice template.			
6.7.2-26	The AR module will provide the ability to define different invoice formats for different types of invoices or different Agencies.			
6.7.2-27	The AR module will provide the ability to print free-form recurring text on each invoice page.			
6.7.2-28	The AR module will provide the ability to customize the text and data elements to be displayed on system-generated invoices, by customer type, receivable type, or billing method.			
6.7.2-29	The AR module will provide the ability to define reason codes and related descriptions for invoice processing actions such as invoice adjusted, invoice held for payment schedule, and invoice canceled.			
6.7.2-30	The AR module will provide the ability to derive the invoice date from the System date.			
6.7.2-31	The AR module will provide the capability to support a system link to trace voided (original) invoice to the revised invoice.			
6.7.2-32	The AR module will provide the ability to store a complete copy of the contract with online review and print capability.			
6.7.2-33	The AR module will not reuse voided invoice numbers.			
6.7.2-34	The AR module will provide the capability to allow default customer account data such as name to automatically populate when invoices are being entered.			
6.7.2-35	The AR module will provide capability that allows customer data such as customer account number to automatically populate when invoices are being entered.			
6.7.2-36	The AR module will provide capability for comments to be entered against an invoice.			
6.7.2-37	The AR module will have the capability to capture unlimited document line items per invoice.			
6.7.2-38	The AR module will provide the capability to update the invoice date on each record.			
6.7.2-39	The AR module will provide the capability to store journal ID, user, paid date, posted date, transaction amount, transaction ID, transaction type, etc. for all invoice transactions.			
6.7.2-40	The AR module will provide the capability to produce invoices to any customer account for NSF checks received.			
6.7.2-41	The AR module will have an option to generate a receipt for customer account payments.			
6.7.2-42	The AR module will have the capability to record cash receipts and apply to a GL account.			
6.7.2-43	The AR module will provide the capability to reconcile any payments to the appropriate invoice.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.7.2-44	The AR module will support the capability to record billing items (e.g., fare media and products) by line item in order to identify unique accounting classification codes.			
6.7.2-45	The AR module will support the setting of configurable credit limits for customer accounts. The AR module will support the automated generation of credit holds, and disabling of order privileges within the customer website, when the credit limit is reached.			
6.7.2-46	The AR module will support the application of payments (full and partial), credit memos, and adjustments against customer accounts. The process will support batch entry of receipts and lockbox functionality. The AR module will provide the capability to apply partial payments against an invoice and the ability to apply one payment to multiple invoices.			
6.7.2-47	The AR module will provide the capability to track and post refunds to a customer account against the applicable contract and/or invoice.			
6.7.2-48	The AR module will provide the capability to track check number, payment reference (for electronic payments), check date, check amount, contract number, account name, address, point of contact name when duplicate payment returned to issuing customer account.			
6.7.2-49	The AR module will provide tracking and collection processes for open accounts receivable.			
6.7.2-50	The AR module will provide the capability to store a copy of demand letter for payment.			
6.7.2-51	The AR module will have the option of sending a form letter along with any statement either electronically or physically.			
6.7.2-52	The AR module will provide automated write-offs capability based on user defined criteria.			
6.7.2-53	The System will have the capability to generate statements on request, categorized by month, displaying history, invoice number and date, check number received and amount, customer, and amount due.			
6.7.2-54	The AR module will support the automatic generation of interest charges for charges that are past due, and generate dunning (e.g., collection) letters for overdue receivables when they become delinquent.			
6.7.2-55	Accounts Receivable and Billing reports will be created and used to make manual entries in the participating Agencies' financial applications. All reports can be exported to .csv or excel and can include invoice amounts, customer account name, amounts paid, outstanding balances and other information in The AR module.			
6.7.2-56	The AR module will track receivables for prepaid, post-bill fare media and product sales initiated through the CRM application and customer website to support bulk sales and special fare programs.			
6.7.2-57	The AR module will provide the capability to perform online queries of account activity (e.g., billing, collection, and adjustment) by customer account and receivable to support the display of invoice, account, and payment status in the CRM application and on the customer website.			
6.7.3-1	The Accounts Payable (AP) module will support the issuance of customer account refunds via check or wire transfer depending on transaction amounts.			
6.7.3-2	The AP module will prohibit a vendor from having more than one Vendor ID in the System. The System will also provide the ability to define parent/child/partner/other relationship fields/categories to facilitate vendor-based reporting.			
6.7.3-3	The AP module will provide the ability to process refunds from Accounts Payable or CRM. The Customer Account Management API will provide integration with the Financial management application through Accounts Payable for the issuance of customer account refunds.			
6.7.3-4	The AP module will have the ability to create vendors and maintain the necessary information for correspondence, payment and 1099 tracking (e.g., name, address, contract, payment terms, payment method, tax ID).			
6.7.3-5	The AP module will allow assigning payment method (check, ACH, wire transfer, etc.) to the vendor and only authorized users can make changes.			
6.7.3-6	The AP module will provide the ability to default vendor payment terms and capture payment terms on an invoice that are different than those specified on the associated vendor record.			
6.7.3-7	The AP module will have the ability to produce letters for vendors who have not yet provided a tax id.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.7.3-8	The AP module will provide the ability to update payment status after confirmation from bank interface.			
6.7.3-9	The AP module will provide the ability to access vendor list when processing invoices.			
6.7.3-10	The AP module will provide fields to differentiate the invoice date from the received date for vouchers.			
6.7.3-11	The AP module will provide the ability to do paperless matching between invoice, purchase order and/or receipt.			
6.7.3-12	The AP module will provide the ability to void a payment and reissue without rekeying the invoice.			
6.7.3-13	The AP module will provide the ability to either withhold, transfer, or release retainage and costs.			
6.7.3-14	The AP module will provide the ability to enter comments while processing invoices.			
6.7.3-15	The AP module will provide the ability to enter invoices and code them to specific projects, departments, or Agency.			
6.7.3-16	The AP module will provide the ability to establish funding schedules for each bank account.			
6.7.3-17	The AP module will provide the ability to link bank wire number to invoice number.			
6.7.3-18	The AP module will provide the ability to make accounting adjustments to invoice after posting but before payment.			
6.7.3-19	The AP module will provide the ability to record internal comments on invoices that will not appear on the check remittance advice and the ability to record external comments that will appear on the check remittance advice.			
6.7.3-20	The AP module will provide the ability to categorize invoice types.			
6.7.3-21	The AP module will provide the ability to default accounting fields for payments.			
6.7.3-22	The System will provide the capability to create a positive pay file for the bank.			
6.7.3-23	The AP module will support partial payments to vendors.			
6.7.3-24	The AP module will provide the ability for vendors to participate as an ACH payee.			
6.7.3-25	Payment will be considered to be made on the settlement date for an EFT payment or the date of the check for a check payment. Payments falling due on a weekend or federal holiday may be on the following business day without incurring late payment interest penalties.			
6.7.3-26	The AP module will provide the ability to identify payments to be disbursed in a particular payment cycle based on their due date.			
6.7.3-27	The AP module will provide the ability to record payments made on behalf of another Agency, citing the other Agency.			
6.7.3-28	The AP module will provide the ability to void payments and reverse invoices.			
6.7.3-29	The AP module will provide the ability to modify recurring payments schedules.			
6.7.3-30	The AP module will have the ability to link a copy of a check to a corresponding invoice.			
6.7.3-31	The AP module will provide the ability to allow check remittance advice prints with the check.			
6.7.3-32	The AP module will provide the ability to allow processing of prepayments (advances) and applying prepayments to invoices once invoices are received.			
6.7.3-33	The AP module will provide the ability to prevent the creation of EFT (Fedwire, ACH, or CTX) funding that does not contain a RTN, bank account number and account type (checking or savings).			
6.7.3-34	The AP module will provide the ability to process debit/credit memos.			
6.7.3-35	The AP module will provide the ability for the starting payment number to be entered when printing checks.			
6.7.3-36	The AP module will provide the ability to pay from multiple bank accounts.			
6.7.3-37	The AP module will provide the ability to pay invoices individually (one check per invoice).			
6.7.3-38	The AP module will have the ability to show both pending and released payments.			
6.7.3-39	The AP module will provide the ability to perform multiple check runs in a given day.			
6.7.3-40	The AP module will provide the ability to prevent payment to vendors with a debit balance (AR/AP netting).			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.7.3-41	The AP module will be able to attach supporting documentation, such as receiving documents and correspondence relating to the invoice.			
6.7.3-42	The AP module will provide the ability to assign unique application-generated document numbers to invoices along with the vendor invoice number.			
6.7.3-43	The AP module will provide the ability to scan and store invoice documents.			
6.7.3-44	The AP module will provide the ability to automatically create invoice and line detail from a corresponding purchase order/receipt.			
6.7.3-45	The AP module will provide the ability to allow for user-defined treatment of matching differences to include: payment hold, payment with debit memo, or payment after workflow routing for proper authorization.			
6.7.3-46	The AP module will provide the ability to allow partial approval of invoices.			
6.7.3-47	The AP module will provide the ability to assign invoices to individuals for approval.			
6.7.3-48	The AP module will provide the ability to enable workflow for approval routing of invoices and vendors.			
6.7.3-49	The AP module will provide the ability to identify and resolve matching exceptions.			
6.7.3-50	The AP module will provide the ability to include reason codes and a comment field on invoices that are not approved.			
6.7.3-51	The AP module will provide the ability to apply credit memos to existing invoices or on the vendor's account.			
6.7.3-52	The AP module will provide the ability to specify multiple approvers with business rules within workflow.			
6.7.3-53	The AP module will provide the ability to apply the credit to any transit account specified regardless of the actual disbursement against which the credit may be applied.			
6.7.3-54	The AP module will provide the ability to process future dated invoices.			
6.7.3-55	The Financial Management application will provide the ability to use multiple inter-company accounts for accounts payable purposes			
6.7.3-56	The AP module will provide the ability to calculate discounts based upon invoice date.			
6.7.3-57	The AP module will provide the ability to calculate multiple due dates when items on an invoice have different payment terms.			
6.7.3-58	The AP module will provide the ability to notify vendors of payments that have been offset by credit memos. Specifying the invoice number, invoice amount, payment amount, and payment date.			
6.7.3-59	The AP module will provide the ability to split invoice lines between 1099 and non-1099 lines.			
6.7.3-60	The AP module will provide the ability to prevent payments without corresponding invoices.			
6.7.3-61	The AP module will provide real-time visibility of vendor payment status to authorized users.			
6.7.3-62	The AP module will provide the ability to view outstanding vendor balances.			
6.7.3-63	The AP module will have the ability to retain cleared checks in a database for inquiry and/or reporting purposes.			
6.7.3-64	The AP module will have the ability to perform online query to provide payment information via accounts payable transactions by an invoice number.			
6.7.4-1	The System will have the ability to allow users access to historical general ledger entries and be able to sort them by financial data architecture elements (e.g., account, department, product, Agency).			
6.7.4-2	The Financial Reporting and Query Module will have functionality to run custom queries and provide a dashboard that can be configured.			
6.7.4-3	Financial reports will have access to all data and fields in the financial, accounts receivable, and billing modules.			
6.7.4-4	The Financial Reporting and Query Module will have an easy-to-use interface as defined during design review and user acceptance testing. The interface will allow end users to create (select a title, add fields, add parameters such as dates), save, and “keep private” or “make public” based on security and access. The user interface will have simple look-ups to find fields or create parameters.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.7.4-5	The Financial Management application will include a robust reporting tool that generates canned and custom reports. The reporting tool will allow the viewing, running, and scheduling of predefined reports, as well as the creation of custom reports.			
6.7.4-6	The System will provide audit history and reports to clearly track changes in data.			
6.7.4-7	The Financial Reporting and Query Module will allow for all reports to be exported to pdf, .csv, Excel, or other defined format.			
6.7.4-8	Financial Reporting and Query Module will allow for configured, ad hoc queries, saved queries and pre built reporting.			
6.7.4-9	Access to the Financial Reporting and Query Module will be controlled through the same role based security model as the financial, accounts receivable and billing modules.			
6.7.4-10	Reports built by the SI as part of the initial implementation will include at minimum: • Trial balance • next gen ORCA financial Statements • Revenue and expenses by Agency • Revenue by product • Revenue by sale channel • Revenue by Agency • Revenue by customer account • Accounts receivable aging • Customer account invoice • Customer account invoices by date • Customer account statement • Customer account statements by date			
6.7.4-11	Financial reports will be created and used to make manual entries in the participating Agencies' GLs. The reports will provide the accounting details required to make the journal entries in the Agencies' financial management applications. No electronic interfaces between the fare collection and the Agencies' existing financial systems will be required.			
	Section 6.8 Central Payment Application			
6.8-1	The System will use solution that meets the ISMS security control baseline for all funding sources stored within the System. The SI shall make use of a third-party service so that no payment data, encrypted or otherwise, is stored within the System.			
6.8-2	The integration to the payment processor will be built using an API. All devices and systems processing payments will use the API to connect to the SI-provided Central Payment application.			
6.8-3	All devices and systems accepting payments will support a configurable amount for limits associated with a signature on credit card transactions.			
6.8-4	If a payment authorization is not completed within a configurable time period, or is interrupted, the ATP will cancel the transaction and notify the customer if possible and/or Agency staff. Any canceled transactions will be recorded.			
6.8-5	The System will maintain payment records to support the auditing of all payments processed, and to support payment dispute and chargeback resolution.			
6.8-6	The SI shall be responsible for integrating with the bank card processor/processing service for sales through all fare sales channels processed by the back office that uses a single merchant account with a transit merchant category code.			
6.8-7	The customer mobile app and customer website will support refunds. The refund process will be detailed and approved during design review. Refunds for bank card purchases will be available for automatic refund without having to re-enter the bank card number.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.8-8	Devices and systems requiring an interface to the payment processor include, but are not limited to: • ATP • VMs • CSTs • CRM application (for the call center) • Customer website • Customer mobile app • Validators (for open payments in the future) The System will be able to support open payments if accepted in the future.			
6.8-9	All devices and systems accepting payments will support split payments, with the use of up to three (3) funding sources to complete payment for a single sale, including use of multiple credit/debit cards, ACH funding sources, and cash.			
6.8-10	All devices and systems accepting payments will support configurable minimum and maximum payment amounts. The minimum and maximum amounts will be able to be independently set by distribution channel and payment type, including by credit/debit card type (e.g., Visa, MasterCard, American Express, and Discover).			
6.8-11	During payment processing, the System will be able to identify pre-tax benefit cards issued by the government and pre-tax benefit providers based on the Issuer Identification Number (IIN). Stored value and products loaded using this fare media will be identified as such and segregated within the transit account to support compliance with all applicable IRS regulations.			
6.8-12	The System will accommodate the ability to change bank processors in the event that the Agencies wish to do so. The Program needs the SI to be responsible for integration tasks.			
6.8-13	Bank card processing for the retail network and WSF toll booths will be performed through their separate point of sale systems.			
6.8-14	The Central Payment application will accept credit and debit cards through all channels, including customer service offices, VMs, call centers, and customer website.			
6.8-15	The Central Payment application will accept ACH transfers through the customer website, customer mobile app, and the CRM.			
6.8-16	The System will support full transaction-level reconciliation of all bank card payments processed through the System, including those accepted for customer account orders. This reconciliation will be automatic with any exceptions reported, the process will be approved during design.			
6.8-17	The Program needs the SI to provide all labor and materials required for Central Payment application testing, including but not limited to all bank cards, and all support services and facilities required to stage, inspect, and test all hardware and software being supplied.			
6.8-18	Chargebacks will be automatically processed so that any remaining value associated with the purchase will be blocked.			
6.8-19	The Central Payment application will incorporate any services supported by the payment processor for the automated update of card data on file.			
	Section 6.9 Configuration & Change Management Application			
6.9-1	The SI will deploy a COTS, preferably SaaS, solution for software configuration management and version control.			
6.9-2	All workflow functionality and setup within the Configuration & Change Management application will be drag and drop to support simple administration and implementation.			
6.9-3	The Configuration & Change Management application will support the maintenance and consistency and updates within each software release.			
6.9-4	The Configuration & Change Management application will have functionality to track the physical attributes, design, and operational information for each environment throughout its life.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.9-5	The Configuration & Change Management application will support the planning, designing, development, and release for all software development.			
6.9-6	The Configuration & Change Management application will have functionality to allow for collaborative team software development.			
6.9-7	Software updates to back office software, databases, and associated modules will be centrally managed with appropriate version control in place. Software releases will only be released by authorized system administrators following Agency approval.			
6.9-8	Functionality will allow for issue and resolution tracking.			
6.9-9	Functionality will allow for prioritization of tasks and development			
6.9-10	Each update will have a unique version number and include an activation date and time if applicable. Updates will be able to be downloaded and applied at that activation time, or activated immediately after download and verification is confirmed.			
6.9-11	The Configuration & Change Management application will have functionality to manage and monitor software capabilities, development, testing, environments, and migrations between environments.			
6.9-12	The Configuration & Change Management application will have workflow functionality to review and approve tasks, assign tasks, and monitor workloads.			
	Section 6.10 Tariff Management Application			
6.10-1	SI will design, build, and deploy a Tariff Management application that integrates with all the back office components allowing fare product changes and updates to be controlled by the Agencies.			
6.10-2	The fare tables will be easy to view, review, and test when entering during creation of initial tables and any future fare updates. This will be addressed during design and testing.			
6.10-3	The Tariff Management application will allow configuration by Agency, sales channel, location, and individual device.			
6.10-4	The Tariff Management application will integrate with frontend devices including the website and physical equipment where applicable.			
6.10-5	The Tariff Management application will have role-based security access to control who can access what based upon role.			
6.10-6	The Tariff Management application will allow a separate workflow process for each Agency and regional fare product so that changes can go through a formal review and approval process.			
6.10-7	The Tariff Management application will allow for design of fare sets. This includes all fare tables, fare rules, and other parameters necessary to support the fare structure by Agency by product. Different rules and structures will be available by Agency by product. Regional fare products will be configured centrally.			
6.10-8	The Tariff Management application will be able to manage, store, and deploy an active fare set and at least two (2) pending fare sets. An active fare set will become effective immediately upon publication. Pending fare sets will be able to be activated manually, or automatically based on a future activation date configured.			
6.10-9	The Tariff Management application will have an online manual and training guide.			
6.10-10	The Tariff Management application will allow Agencies to view and compare draft fare sets and changes to active and pending fare sets by Agency and regionally, by sales channel, and by fare product.			
6.10-11	The System will have the flexibility to support Agency fare changes without software modifications. All fare changes will be through fare table and other configuration changes.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
6.10-12	The back office will be capable of supporting at least four (4) fare tables (one current, two future, and one past), which includes all fare and configuration data required to sell and validate fare products.			[redacted]
6.10-13	The Tariff Management application will have the ability to roll back to a previously used fare set.			
6.10-14	All fare product configurations will be able to be performed by the Agencies, as well as by the SI during implementation and throughout the warranty and software maintenance agreement terms.			
6.10-15	The System will allow fare set changes on a frequent, including daily, basis without regard to additional pending changes. For example, an Agency could change fare rules regardless of other Agency changes that are pending.			
	Section 7 Fare Media			
	Section 7.1 General Capabilities			
7.1-1	Smart card media will be available for competitive purchase from multiple U.S. sources. The SI shall provide the specifications and associated documentation necessary to support the Agencies' future procurement of smart card media from third-parties.			
7.1-2	All fare media will be designed for use in an account-based system, and serve as a credential for accessing closed-loop transit accounts maintained within the back office. No data will be written to the media when loading or using fare value, with the exception of data required to support risk mitigation techniques.			
7.1-3	The SI shall provide the initial supply of fare media to support the first year of operation following system launch.			
7.1-4	The System will support a one-time charge, or "card fee," for issuance of new fare media. This card fee will be able to be configured based on fare media type, passenger type, and distribution channel, and may be set to zero for specific fare media types, specific passenger types, or sales through specific channels.			
7.1-5	Agency-specific and regional fare products will be sold for use on next gen ORCA media.			
7.1-6	Sales channels and fare distribution devices will have the capability of issuing EU fare media. The System will also support other media types such as LU fare media should they be needed in the future.			
7.1-7	The Program needs the SI to design, develop, and provide manufacturing and delivery of all fare media required for successful deployment of the new System. The Program needs the SI to deliver all graphics files and related materials required for manufacture of the fare media to the Agencies for review and approval no less than 120 calendar days prior to the start of fare media production.			
7.1-8	All supplied fare media will undergo a comprehensive quality assurance process prior to delivery to confirm adherence to all required performance standards and certifications. Media that fail to meet these capabilities will be replaced by the SI at their own expense.			
	Section 7.2 Fare Media Format			
7.2.1-1	All contactless fare media will comply with the most recent versions of ISO/IEC 14443-1 for physical characteristics and ISO/IEC 7810 ID1 for physical dimensions. Thickness and other physical characteristics not defined by these standards will be finalized during design reviews.			
7.2.1-2	EU fare media will be constructed of appropriate durable materials for a minimum useful life of 10 years. The media will comply with the most recent versions of ISO/IEC 10373 and ANSI INCITS 322 for durability. Media supplied by the SI that fails to meet these capabilities will be replaced by the SI at their own expense.			
7.2.1-3	The System will support the printing of personalized and customized media using the CST.			
7.2.1-4	In the future, the System may accept media issued by third parties, including but not limited to: • Reduced fare media (youth, senior, disabled, low income, etc.) • Employee IDs • College and school IDs			
7.2.1-5	The fare media will have read/write performance of not less than 200,000 read/write cycles.			
7.2.1-6	In addition to the contactless interface, EU fare media may be produced with barcodes and/or magnetic stripes to allow interaction with third-party systems outside the scope of the new System. If required, the format and data content of any barcodes or magnetic stripes will be defined during design review.			

Capability Number	Capability	Fully Conforming	Non-Conforming	Comments
7.2.1-7	All fare media will include an etched, unique non-sequential serial number for the purposes of traceability that is separate from the credential and smart card Unique Identification Number (UID) and a three-digit security code.			
7.2.1-8	Fare media will be produced based on branding developed by the Agencies and a card design developed jointly with the SI. Fare media will also be produced with one or both sides left blank for custom printing following manufacture.			
7.2.1-9	All pre-printed graphics will be protected by a clear coat that covers the entire surface of the card. This coating will not prevent secondary printing of cards.			
7.2.1-10	EU fare media will be printed using a four-color process, front and back, and support edge to edge printing.			
7.2.2-1	The transit payment application will be compatible with all modern MIFARE formats, including but not limited to: Ultralight C, MIFARE Plus, DESFire, and SmartMX. The specific platform to be used for the Agency-issued fare media will be proposed by the SI and approved during design review.			
7.2.2-2	The fare media will support account-based closed-loop fare payments in both single- and multi-application smart card environments.			
7.2.2-3	The fare media format will support a minimum of a 7 byte smart card Unique Identification Number (UID).			
7.2.2-4	In addition to the 14443 contactless interface, EU fare media may be produced with Indala 125KHz, 26 bit Weigand proximity technology to support King County Metro issuing a single card for ORCA use and its access control for employees. If required, the format and data content of any additional contactless interface will be defined during design review.			
7.2.2-5	The transit payment application will support the secure storage of a unique credential used to access a transit account maintained within the back office. The secure transit account credential will not be the smart card UID or transit account number used within the back office, and will not be printed on the media or otherwise accessible using a non-system device.			
7.2.2-6	The transit application will support the encoding of additional data at the time of manufacture and use to support risk mitigation techniques.			
7.2.2-7	The SI-developed transit payment applications and formats will be fully owned by or licensed to the Agencies, including the right to distribute specifications to third-parties for media production and to support multi-application smart card implementations without further approval, license, or payment.			
7.2.2-8	The Program needs the SI to publish bit-level specifications for all transit payment applications across all supported fare media within the System, including information on all security protocols necessary to access and encoded data on the media. The software specifications will be subject to Agency review and approval during design review.			

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SECTION 00 – AGREEMENT FORM

THIS AGREEMENT between CENTRAL PUGET SOUND REGIONAL TRANSIT AUTHORITY ("Sound Transit"), on behalf of the Regional Fare Collection System, and [Contractor name], hereinafter called the "Contractor" agree as follows:

The Contractor, for the consideration specified in the Contract Documents, shall in strict accordance therewith perform all the activities required by the Contract Documents for the following project:

SYSTEMS INTEGRATOR FOR NEXT GENERATION
ORCA
Contract No. RTA/RP 0119-17

Sound Transit agrees to pay the Contractor for fulfillment of the Work and performance of the covenants set forth ~~in Attachment A, Scope of Work and~~ the ~~other~~ Contract Documents.

The Contract Documents consist of the documents listed below issued prior to execution of this Contract Agreement and all Change Orders issued subsequent to execution of this Contract Agreement. The following is an enumeration of the documents, not in their order of precedence:

- Change Orders
- This Agreement Form ~~and Attachment A Scope of Work~~, [DATE]
- Addenda, issued for RFP No. RTA/RP 0119-17
- RFP No. RTA/RP 0119-17
- Contractor's Negotiated Proposal Submittal, [DATE]
- ~~Addenda, submitted to revise Contractor's Proposal Submittal, [DATE]~~
- Systems General Conditions, [DATE]
- All other Agreement Sections, [DATE]

Such Contract Documents form the Contract and all are as fully a part of the Contract as if attached to this Contract Agreement or repeated herein.

The Contractor agrees to complete the Work, furnish all tools, materials, facilities, and equipment necessary on the terms and conditions specified in the Contract Documents. ~~The Contractor further agrees to assume and perform all of the covenants and conditions required of the Contractor pursuant to these Contract Documents, for the total not-to-exceed Contract Price of [$AMOUNT].~~

Except as expressly provided in the Contract Documents, no liability shall attach to Sound Transit by reason of entering into this Contract Agreement.

Commented [BA1]: This contract will not include a total not-to-exceed PRICE because of its regional nature. Fixed pricing (lump sum and unit) is contained within this document and is billed per the negotiated milestone/partial payment schedule and units delivered.

IN WITNESS WHEREOF, the parties have caused this Contract Agreement to be executed as of the dates indicated below.

SOUND TRANSIT:	CONTRACTOR:
By: _____	By: _____
Michael Harbour Deputy Chief Executive Officer	_____ Print Name and Title
Date: _____	Date: _____

Approved as to Form:

_____
Sound Transit Legal Counsel

END OF FORM

SECTION 01 - SYSTEMS GENERAL CONDITIONS

ARTICLE 1 GENERAL

1.01 DEFINITIONS

A. **Acceptance** – ~~The~~ A written notice from Sound Transit to Contractor indicating full and satisfactory physical completion of specific Work ~~all~~ or part of the Work including all physical Punch List work.

B. **Addenda/Addendum** – Written modifications issued by Sound Transit to the Request for Proposals (RFP) that make changes to the Instruction to Proposers and /or Contract Documents.

C. **As-Built Drawings** – Neatly and legibly marked set of Contract Drawings, maintained by the Contractor with up to date information, showing all Changes in the Work, including final locations of all items of Work.

D. **Change** – A~~n~~ written alteration that modifies the scope of Work, equipment, materials, facilities, services, site, performance, schedule, or other material provision of the Contract.

E. **Change Notice** – Request for Proposal (CN-RFP) - A written request by Sound Transit to the Contractor for a Cost and Schedule proposal for a Change to the Contract. A CN-RFP does not authorize the Contractor to commence performance of the changed Work

F. **Change Notice** – Work Directive (CN-WD) - A written directive by Sound Transit to the Contractor to immediately proceed with a Change in the Work. Work Directives are incorporated into the Contract by a subsequent Change Order~~s~~.

G. **Change Order** – A signed written document ~~signed by Sound Transit the parties~~ that alters the scope of the Work, the Contract Time, the Contract Price, or makes any other change to the Contract.

H. **Claim** – A written demand by the Contractor seeking (1) the payment of money or adjustment to the Contract Price; (2) an extension of Contract Time; (3) an adjustment of Contract terms; and /or, (4) other relief arising under or relating to this Contract.

I. **Contract (aka "Agreement")** – Written agreement executed by Sound Transit and the Contractor which sets forth the rights and obligations of the parties in connection with the Work.

J. **Contract Documents** – The Change Orders, Agreement Form with attachments, Special Conditions, General Conditions, Contract Specifications, Contract Drawings, Diversity Program Provisions, any materials referenced therein, and any other documents listed in the Contract as embodying the legally binding obligations between Sound Transit and the Contractor for completion of the Work.

K. **Contract Drawings** – Plans, profiles, typical cross sections, general cross sections, elevations, schedules, and details listed or included in the Contract Documents.

Commented [Legal2]: The change to this definition makes it clear that acceptance notice should be in writing and that it relates to specific Work. Such changes would reduce the risk of any uncertainty as to when Acceptance takes place and it clarifies what Work it relates to.

Commented [BA3R2]: Edit accepted as proposed.

Commented [Legal4]: The added language clarifies the paragraph. The change would reduce the risk of confusing the change details.

Commented [BA5R4]: Edit rejected. The Change Order is the written document; this is the definition of the term "Change".

Commented [CL6R4]: Rejection accepted.

Commented [Legal7]: The added/changed language clarifies the paragraph and makes it more balanced. The change would make it clear that both parties need to sign a Change Order. This will clarify any Change Order and reduce risk of uncertainties.

Commented [BA8R7]: The is no edit proposed; however, this definition should stay as-is.

Commented [CL9R7]: Agree except for marked typo.

Commented [Legal10]: The changed/added language clarifies the paragraph. The change would make it clear that both parties need to sign a Change Order. This will reduce risk of uncertainties.

Commented [BA11R10]: Proposed edit rejected. Unilateral and bilateral change orders are defined in Article 4.04.

Commented [CL12R10]: ALL change orders are to be in writing; one option being bilateral and one unilateral by ST. However both are signed. See my proposed modification to avoid ambiguity in the definition here while 4.04 will describe the difference.

L. **Contract Milestone** – A date specified in the Contract by which the Contractor is required to complete a designated portion, delivery or increment of the Work.

M. **Contract Price** – The amount payable to the Contractor under the terms and conditions of the Contract based on lump sum prices, unit prices, provisional sums, or combination thereof, with adjustments made in accordance with the Contract.

N. **Contract Specifications** – The part of the Contract Documents containing written directions or requirements that specify the requirements which have to be fulfilled for the completion of the Work.

O. **Contract Time** – The time allotted in the Contract Documents for completion of the Work. The Contract Time begins upon the ~~receipt by Contractor~~ ~~effective date~~ effective date contained in ~~of~~ the Notice to Proceed and ends on the date of Final Acceptance. Contract Time incorporates the Contract Milestones established for the Contract.

P. **Contractor** – The person, persons, partnership, joint venture, company or corporation which enters into this Contract with Sound Transit for the performance of Work required by this Contract.

Q. **Contractor's Project Manager** – Contractor's authorized representative designated to perform technical and administrative functions of this Contract, ~~that is charged with the professional execution of this Contract,~~ as designated in writing to Sound Transit.

R. **Cost and Schedule Proposal** – A document prepared by the Contractor at the request of Sound Transit, which proposes in detail changes to the Work and/or adjustments to the Contract Price and/or Contract Time.

S. **Critical Path** – The longest, continuous sequence of activities that begins at the start of the Contract (~~effective date~~ ~~receipt by Contractor~~ effective date contained in ~~of~~ the Notice to Proceed) and concludes with the completion of the Contract Milestone(s). This path represents the longest chain of interrelated activities throughout the network from beginning to end. These activities are critical because delay to an activity on this path ~~will~~ may extend the Contractor's attainment of one or more Contract Milestone(s).

T. **Days or days** – Calendar days, unless otherwise specified.

U. **Defective Work** – Specific elements of the Work that do not conform to the requirements of the Contract and that will not be accepted by Sound Transit, at Sound Transit's discretion.

V. **Equitable Adjustment** – An adjustment to the Contract Price and / or Contract Time to compensate the Contractor for Extra Work, as part of a negotiated Change Order.

W. **Equivalent** – Equal or better quality and performance to that specified in the Contract Documents.

X. **Extra Work** – Furnishing of materials and equipment and the performance of Work neither directly nor by implication called for in the Contract Documents that is necessary for the Contractor's timely completion of the Work through no fault, error, omission, negligence, neglect, lack of planning, or lack of diligence of the Contractor.

Commented [Legal13]: The addition clarifies that the time for completion only starts when the contractor receives the Notice to Proceed.

Commented [BA14R13]: See alternative language. The Notice to Proceed will include an effective date which is separate than the date of the Notice itself.

Commented [CL15R13]: See comment on Notice to proceed below.

Commented [Legal16]: The changed/added language would make the term consistent with Sound Transit's own definition of the duties for its Regional Project Manager. (RFP Article – "Definitions" – UU.)

Commented [BA17R16]: Edit accepted as proposed.

Commented [BA18]: Proposed edit rejected. If it's deemed critical path, it will affect it.

Commented [CL19R18]: Rejection accepted.

Commented [Legal20]: The changed/added language clarifies the clause. The change will provide clarity as to when the Critical Path starts, as well as making it clear that this may extend the Contractor's attainment of one or more Contract Milestone(s).

Y. **Field Clarification** – a document prepared by Sound Transit and issued to the Contractor that clarifies and/or corrects minor discrepancies in the Contract Documents that do not affect the cost or schedule of the Work.

Z. **Final Acceptance** – Written notice from Sound Transit acknowledging that the Contractor has fulfilled all of its obligations under the Contract and that Sound Transit has accepted the Work as of the date stated in the Notice. Final Acceptance is a condition precedent to Final Payment.

AA. **General Conditions** – Sound Transit's standard general contractual provisions for contracts which, as augmented and supplemented by other Contract Documents, describe the contractual relationship of the parties and their rights and responsibilities to each other.

BB. **Hazardous or Contaminated Substance** – (a) any substance, product, waste, or material of any nature whatsoever which is or becomes listed, regulated, or addressed pursuant to the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. Section 9601, et seq. ("CERCLA"); the Hazardous Materials Transportation Act, 49 U.S.C. Section 1801, et seq.; the Resource Conservation and Recovery Act, 42 U.S.C. Sections 6901, et seq. ("RCRA"); the Toxic Substances Control Act, 15 U.S.C. Sections 2601, et seq.; the Clean Water Act, 33 U.S.C. Sections 1251, et seq.; or any other federal, state, or local statute, law, ordinance, resolution, code, rule, regulation, order, or decree regulating, or imposing liability or standards of conduct concerning any hazardous, toxic, or dangerous waste, substance, or material, as now or any time thereafter in effect; (b) any substance, product, waste, or other material of any nature whatsoever that may give rise to liability under any of the above statutes or under any reported decision of a state or federal court; (c) petroleum or crude oil, excluding de minimus amounts; and (d) asbestos.

CC. **Industry Standards** – Drawings and specifications or portions thereof published by industry organizations, which are not Contract Documents unless specifically listed as such in a Specification.

DD. Milestone or **Partial Payment Schedule** - The breakdown of the Contract Price into incremental performance stages or deliveries~~.~~.

EE. **Non-Conforming Work** – Specific elements of the Work that do not conform to the requirements of the Contract but that otherwise may be acceptable to Sound Transit, at Sound Transit's discretion.

FF. **Notice** – Communication in writing, unless otherwise specified, which complies with the notice requirements of the Contract Documents, to provide or issue any information, warning, announcement, instruction, consent, approval, certificate or determination by any person or party to the Contract.

GG. **Notice of Intent to Claim** - A written notice of a potential claim submitted by the Contractor to Sound Transit within the time limits and in accordance with the conditions specified in the Contract Documents.

HH. **Notice to Proceed** – Written notice delivered by overnight courier, issued by Sound Transit which, on the date received by the Contractor establishes the date on which the Contractor may commence Work and directs the Contractor to proceed with all or a portion of the Work.

Commented [Legal21]: Should be moved to be in alphabetical order – consistent with other definitions.

Commented [BA22R21]: Inserted "milestone" – requested a milestone/partial payment schedule to be proposed as part of revised proposal 2.

Commented [CL23R21]: Repaired typo and accept.

Formatted: Highlight

Commented [Legal24]: The change clarifies the timing of when Notice to Proceed is received and would reduce uncertainty. The definition heading is not in alphabetical order as the rest of the defined terms, and for clarification should be moved to be consistent.

Commented [BA25R24]: Proposed edit rejected. See previous comments regarding this above.

Commented [CL26R24]: Your proposal does not take into account the non or late arrival of the Notice to Proceed. If you wish to adopt your process you will need to take into account the delivery issue. Perhaps the delivery could be by hand and signed for.

II. **Partial Payment** – Payment of a portion of the Contract Price before the contract is completed for delivery or performance in increments. Delivery and performance incremental stages are defined in the Milestone or Partial Payment Schedule.

JJ. **Product Data** – Information furnished by the Contractor to describe materials used for some portion of the Work, such as written or printed descriptions, illustrations, standard schedules, performance charts, instructions, brochures, and diagrams.

KK. **Project** – Sound Transit's Project, of which this Contract is a part.

LL. **Project Schedule** – The schedule, prepared by the Contractor in accordance with the requirements of the Contract and accepted by Sound Transit, setting forth the logical sequence of activities required for the Contractor's orderly performance and completion of the Work in accordance with the Contract and specifically to meet the specified Contract Milestones.

MM. **Proposal** – The written proposal submitted to Sound Transit as required by the Request for Proposals.

NN. **Proposal Documentation** – Any and all work papers, spreadsheets, takeoffs, material lists, subcontractor quotes, vendor or material quotes, lists of wage rates and equipment rates (both rented and owned) and any and all papers, documents and electronic information or computer files created or used by Contractor when preparing its Proposal.

OO. **Proposer** – An individual, firm, partnership, corporation, joint venture or other legal entity submitting a proposal for the work.

PP. **Provisional Sum or Allowance** - An amount established in the Contract Documents for inclusion in the Contract Price to cover the cost of prescribed items not specified in detail, with provision that variations between such amount and the finally determined cost of the prescribed items will be reflected in Change Orders appropriately adjusting the final Contract Price. Any amount included in the Contract Price but not used in the course of the Work shall be returned to Sound Transit by way of deductive Change Order.

QQ. **Punch List** – The list(s) of elements of the Work that remain to be completed or corrected after achievement of Substantial Completion of the Work or portions of the Work which must be completed as a condition of Acceptance.

RR. **Reference Documents** – Drawings, specifications, and other documents that do not specify Work required by the Contract, but which provide supplemental information regarding the Contract.

SS. **Reference Specifications** – Specifications prepared by or belonging to Utilities or third parties (including but not limited to other governmental bodies) in whose rights-of-way, easements or properties all or part of the Work is to be executed.

TT. **Request for Information (RFI)** – The document by which the Contractor requests clarification, verification or information on a portion of the Work.

UU. **Regional Program Manager** – Sound Transit's authorized representative designated to perform

Commented [BA27]: Keeping consistent with the definition above.

technical and administrative functions of this Contract.

VV. **Safety Certification** – A formal process implemented to ensure that all ~~of Sound Transit's Rail~~ Transit System facilities, equipment, and training programs conform to the established requirements. This includes reviewing and certifying items for compliance with operational safety requirements prior to the start of revenue service to ensure a safe operating ~~Rail~~ Transit System.

WW. **Safety Critical Item** – Any submittal, installation, inspection, or test identified in the Specification Conformance Checklist that has been determined by Sound Transit to have an impact on the safe operation of ~~its~~ the ~~Rail~~ Transit System.

XX. **Samples** – 1) Representative quantities of materials taken in specified amounts and frequencies for subsequent testing in accordance with specified procedures; or 2) physical examples of materials to be supplied or workmanship, which shall, when approved by Sound Transit, establish standards by which the Work shall be compared and evaluated.

YY. **Site (aka Project Site)** – The areas that are occupied by or used by the Contractor, Subcontractors, Consultants, Subconsultants during performance of the Work in the Puget Sound area of Washington, and are indicated in the Contract Documents as being within the project limits. This includes any areas outside the project limits, which are designated in writing by Sound Transit as being part of the Project Site. For purposes of the Contract Documents, and not for prevailing wage determinations, off-site precast factories/facilities will not be considered part of the Site.

ZZ. **Software System** – A term used for a system software, written programs or procedures, or rules, and associated documentation designed to perform an intended purpose and identified in the contract documents and requirements. This system may be made up of multiple software programs that are developed by Contractor and licensed ~~for~~ to Sound Transit, and/or third party software applications.

AAA. **Sound Transit** – The Central Puget Sound Regional Transit Authority.

BBB. **Special Conditions** – A part of the Contract Documents, which modify the General Conditions and provide information specific to this Contract.

CCC. **Specification Conformance Checklist** – A document that provides evidence that the Sound Transit's Rail Transit System will operate safely in accordance with safety critical requirements for documentation, installation, inspection and testing referenced in the Contract Specifications.

DDD. **Subcontract** — Any Contract between the Contractor and a Subcontractor, or between Subcontractors of any tier, to perform a portion of the Work.

EEE. **Subcontractor** – An individual, firm, partnership, or corporation that has a contractual obligation with a Consultant, Contractor or other Subcontractor to perform some part of the Work required for the completion of the Contract, and whose principals or employees are actively performing such Work at the Project Site.

FFF. **Submittal** – Written or graphic document or sample that is required by the Contract Documents

Commented [BA28]: Removed due to regional nature of this contract

and is prepared for the Work by the Contractor, a Subcontractor or Supplier, and submitted to Sound Transit by the Contractor, including shop drawings, product data, samples, certificates, schedules of material or other data. Submittals are not Contract Documents.

GGG. **Substantial Completion** – The time at which the Work or a portion thereof has progressed to the point where it is sufficiently complete in accordance with the Contract Documents, so that the Work, or a specified portion thereof, can be utilized for the purpose for which it is intended.

HHH. **Substitution** – An item of significant difference in material, equipment or configuration which functionally meets the requirements of the Contract Documents but does not meet the Specifications and is equivalent to the specified item.

III. **Suppliers** – Any person, firm, partnership, corporation, joint venture, or combination thereof, other than a Subcontractor, contracting with the Contractor, either directly or through a lower-tiered contractual relationship, to furnish goods or services in connection with the Contract.

JJJ. **Intellectual Property of Contractor** ~~**Technical Data**~~ - Any plans, drawings, designs, specifications, technical reports, operating manuals, notes, data, documentation, and computer software (in source code and object code form), ~~not specifically~~ other than those licensed by ~~designated as existing proprietary know-how of the~~ Contractor, its Subcontractors or Suppliers~~, which are required~~ to be supplied as part of the Work.

KKK. **Third Party Software** – Any software, firmware, or program reasonably necessary to operate or maintain any part of the System that does not constitute Contractor Software.

LLL. **Unknown Hazardous and Contaminated Substances** – Hazardous or Contaminated Substances that were not indicated in the Contract Documents that were present on the Site, and that are unexpectedly encountered by the Contractor during the performance of the Work.

MMM. **Utility or Utilities** – All public and private facilities, other than the Sound Transit system facilities, which relate to 1) the conveyance and supply of water, sewage, gas, chemicals, steam, petroleum products, and other piped installations; or 2) electrical energy, telephone, telegraph communications, radio, television, and public transit installations.

NNN. **Utility Standards** – Drawings and specifications for Utilities published or issued by municipalities or utility companies.

OOO. **Work** – The requirements of the Contract as specified, shown, indicated or implied in the Contract Documents, including all alterations, amendments or extensions thereto made by Change Orders.

1.02 INTENT AND INTERPRETATION OF CONTRACT DOCUMENTS

A. The intent of the Contract Documents is to describe the Work and completion of the Work. Where the Contract Documents describe portions of the Work in general terms, but not in complete detail, the Contractor shall use ~~its~~ best practice as used by the electronic fare collection industry ~~shall be followed~~ and, unless otherwise specified herein, Contractor shall use only materials and workmanship that it considers of best quality ~~shall be used~~. Unless otherwise specifically stated

Commented [Legal29]: These changes make it clear that it is the Intellectual Property of Contractor that is referenced. Moreover, that such property is the property of the Contractor, and that Contractor has agreed to license said IP to Sound Transit. If the change of description for heading is accepted, the term needs to be moved to be in alphabetical order under "Definitions".

Commented [BA30R29]: Proposed edit is rejected. The intent of this definition is to define Technical Data that is provided by the Contractor and its subcontractors or suppliers.

Commented [CL31R29]: Agree, however there needs to be a definition of Contractor's IP; either here or in Section 7.13

Commented [Legal32]: It makes it clear that it is Contractor's best practice which is referred to. The second change reflects that there could be references in other documents as to the type of materials and/or workmanship to be applied.

Commented [BA33R32]: Proposed edits rejected. Industry best practices shall be used; Contractor's existing best practices is too arbitrary.

Commented [CL34R32]: This recent revision meets your criteria. "Industry" is unacceptably general.

in the Contract, the Contractor shall furnish, deliver, provide, and pay for all materials, labor, professional services, tools, equipment, water, light, power, heat, transportation, supervision, temporary Work of any nature, consumables, and other services and facilities of any nature, whatsoever necessary, to execute, complete and deliver the Work within the Contract Time. The Work shall be executed in strict conformance to the Contract requirements.

B. The Contract Documents set forth the requirements as to the nature of the completed Work and do not purport to control the means and methods of performing Work, unless specifically set forth in the Contract Documents. The Contractor is wholly responsible for making its own decisions about the means and methods of performing the Work. If any references have been made in the Contract Documents to responsibilities of work by crafts and specialty or trade contractors, these references were made for the convenience of preparing the Contract Documents and are not intended to limit any responsibility of the Contractor to provide a complete installation under the Contract.

1.03 CONTRACT IS SUBJECT TO FEDERAL PROVISIONS

The Contract is partially funded by the Federal Transit Administration ("FTA") and/or the Federal Highway Administration ("FHWA") is therefore subject to certain federal provisions. Further, the FTA and FHWA require that certain terms and conditions of the Contract Documents be included in all Subcontracts. The Contractor shall be responsible for ensuring all applicable mandatory Federal provisions are included in all Subcontracts. These mandatory Federal provisions are set forth in Section 02 Federal Provisions.

1.04 CONFORMITY TO CONTRACT DOCUMENTS

The Work in all cases shall conform to the Contract Documents or approved modifications thereto, and shall be within the tolerances specified, or, if no tolerance is specified, as determined by the Regional Program Manager.

1.05 ORDER OF PRECEDENCE

A. The Contract Documents are intended to be complimentary and to describe and provide for a complete Work. They are also to be interpreted in harmony so as to avoid conflict, with words and phrases interpreted consistent with design industry standards. The documents identified below are listed in order of precedence. To the extent that there are different provisions in Contract Documents that address the same matter or subject and these different provisions conflict, the document having the highest priority that addresses the matter or subject shall control. If conflicting provisions within the same level of Contract Documents exist, and one is more stringent than another, the more stringent provision will prevail.

- Change Orders (bilateral and unilateral)/Contract Amendments with the most recent taking precedence over earlier dated
- Section 00 Agreement Form with Attachment(s), [DATE]
- Section 01 Systems General Conditions, [DATE]
- Section 02 Federal Provisions, [DATE]
- Section 08 End-User License Agreement [DATE]
- Section 07 Contractor's Negotiated Proposal Submittal [DATE]

Commented [Legal35]: Language added since Contract Amendments may not be considered Change Orders.

Commented [BA36R35]: Proposed edit rejected. Contract Amendments are not separate from Change Orders; they are defined as unilateral or bilateral change orders.

- Section 03 Insurance Requirements, [DATE]
- Section 04 Liquidated Damages, [DATE]
- Section 05 Labor Compliance Manual, [DATE]
- Section 06 Prevailing Wage Rates, [DATE]
- Addenda to RFP No. RTA/RP 0119-17 [DATES]
- RFP No. RTA/RP 0119-17 [DATE]
- ~~Contract Drawings, [DATE]~~
- Industry Standards, only when specifically incorporated into a Contract Scope of Work
- Reference Specifications
- Reference Drawings
- ~~Contractor's Proposal~~

Commented [BA37]: Not applicable

Commented [Legal38]: In accordance with Section 01 Agreement Form – Contract Documents.

B. In case of differences between small and large-scale drawings, the large-scale drawings shall govern. Schedules on drawings shall take precedence over conflicting notations on drawings. In the event of discrepancy between any drawing and the figures written thereon, the figures, unless otherwise indicated, shall govern over-scaled dimensions.

C. References to Industry Standards, material specifications, test methods, or other publications of the Washington Department of Transportation (WSDOT), American Association of State Highway and Transportation Officials (AASHTO), Federal Railroad Administration (FRA), American Association of Railroads (AAR), American Railroad Engineering and maintenance of Way Association (AREMA), Institute of Electrical and Electronic Engineers (IEEE), America Society for Testing and Materials (ASTM), other governmental agencies, or other recognized national organizations are those officially adopted by those agencies and organizations. Industry Standards (if specifically incorporated by any Specification) apply only to material, workmanship and procedure. Commercial terms (e.g. Control of Work, Temporary Traffic Control, Legal Relations and Responsibilities to the Public, and Measurement and Payment) are not included in the reference. All material, equipment and workmanship specified by the number, symbol, or title of a referenced Industry Standard shall comply with the latest edition or revision thereof and all amendments and supplements thereto in effect on the date of the Request for Proposals, except where a particular edition or revision thereof is indicated in the reference.

1.06 REQUESTS FOR INFORMATION / FIELD CLARIFICATIONS

A. Request for Information

1. If the Contractor discovers, or in the exercise of reasonable diligence should have discovered, that the Work to be performed is not sufficiently detailed or explained in the Contract Documents, or that there is an apparent conflict or inconsistency between any part of the Contract Documents, the Contractor shall promptly apply a Request for Information in writing to the Regional Program Manager for such further written explanations as may be necessary. The Regional Program Manager ~~will~~ shall promptly address the RFI in writing. Before submitting a RFI, the Contractor shall diligently and thoroughly examine the Contract Documents. Costs incurred by Sound Transit to respond to RFIs which could have been avoided had the Contractor examined the Contract Documents shall be the responsibility of the Contractor. The Contractor shall also plan its

Commented [Legal39]: Language is added/changed for clarification of the paragraph. Time is of essence to both parties and words indicating action timing have been added.

Commented [BA40R39]: Deletion of "will" rejected as it is a preferred term. Insertion of "promptly" accepted as proposed.

Work in an efficient manner so as to allow for timely responses to RFIs. If requested by the Regional Program Manager, the Contractor shall prioritize its RFIs and explain the reasons for such priority. The Contractor's submission of an RFI shall be a condition precedent to a Contractor submitting a claim related to any conflict or inconsistency, and the Contractor's failure to apply to the Regional Program Manager for interpretation or clarification of any known conflict or inconsistency shall bar any subsequent claim related to the conflict or inconsistency. The Contractor's submission of an RFI does not fulfill the requirements of Article 10 for timely Notice of Intent to Claim or Notice of Delay and shall not constitute a Claim.

2. Sound Transit will reply to the RFI with reasonable promptness. If Contractor submits an RFI on an activity less than twenty (20) days prior to the commencement of that activity, Contractor shall not be entitled to any time extension or adjustment to the Contract Price due to the time it takes Sound Transit to respond to the RFI.

3. Responses by Sound Transit to RFIs are not changes to the Contract. If Contractor believes a response to an RFI constitutes changed work or causes an adverse impact to performance of the Work or schedule, the Contractor is required to submit a Request for Change in accordance with the requirements of Article 4.02.

B. Field Clarification

If Sound Transit identifies minor discrepancies in or a need to clarify information contained in the Contract Documents, Sound Transit may issue a Field Clarification to so correct the minor discrepancies or provide the clarification. Because Field Clarifications should not have any effect on the cost or time of performance of the Work, they do not provide for either a time extension or a change in the Contract Price. If Contractor believes that a Field Clarification constitutes changed work for which a time extension or additional compensation is necessary, the Contractor is required to submit a Request for Change in accordance with the requirements of Article 4.02.

1.07 SITE INVESTIGATION AND CONDITIONS AFFECTING WORK

A. By submitting its Proposal for the Work and executing the Contract, the Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the condition of the site itself, including without limitation the general and local conditions which can affect the work or its costs, including but not limited to local weather, traffic patterns, availability of labor, available utilities, local requirements, adequacy and accuracy of Contract Documents, the character of equipment and materials required to perform the Work, and conditions bearing upon utilities as relates to temporary or permanent relocation or installation thereof.

B. The Contractor acknowledges that any equipment or site reports referenced in the Contract Documents are only intended to describe the conditions at a particular point in time, and are not guaranteed to represent the actual conditions the Contractor will encounter during the course of the Work. The Contractor acknowledges that it has satisfied itself as to the character, quality and quantity materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the equipment or site and information available to the

Contractor in the Contract Documents or Reference Documents.

C. Any failure of the Contractor to take actions described and acknowledged in this Article will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the Work, or for proceeding to successfully perform the Work without additional expense to Sound Transit.

D. By submitting a Proposal for the Work and by executing the Contract, the Contractor certifies that it has carefully reviewed, has had clarified, and understands all of the Contract Documents; has inspected the equipment and site as needed to evaluate and assess all pertinent existing conditions applicable to the Work, and is satisfied as to its ability and intention to conduct and complete the Work required in the Contract Documents on the terms and conditions stated in the Contract. In particular, the Contractor certifies that it has reviewed the requirements for the format and detail of records to be maintained at all times during the performance of Work, and that it has instituted or will implement the preparation and maintenance of all such records. In particular, the Contractor represents as follows:

1. It is familiar with and is satisfied as to all Federal, state and local laws and regulations that may affect the cost, progress, performance and furnishing of the Work;

2. It has correlated with the Contract Documents the information known to the Contractor, information and observations obtained from visits to the site, and reports and drawings identified in the Contract Documents; and

3. It has given Sound Transit written notice of all conflicts, errors, ambiguities or discrepancies that the Contractor has discovered in the Contract Documents and that the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 2 AUTHORITY AND RESPONSIBILITY

2.01 CONTRACT IS BETWEEN CONTRACTOR AND SOUND TRANSIT

The Contractor is an independent contractor with respect to the performance of all Work hereunder, retaining control over the detail of its own operations and the Contractor shall not be considered the agent, partner, fiduciary or trustee of Sound Transit. The Contractor shall not conduct itself as nor claim to be an officer or employee of Sound Transit. The Contractor will not make any claim, demand or application to or for any right or privilege applicable to an officer or employee of Sound Transit, including, but not limited to, worker's compensation coverage, unemployment insurance benefits, social security coverage or retirement membership or credit. No employee of the Contractor or any Subcontractor is or shall be deemed to be an officer or employee of Sound Transit. Subcontractors to the Contractor will not be recognized as having a direct relationship with Sound Transit, nor are Subcontractors intended or incidental third-party beneficiaries to this Contract.

2.02 DUTY OF CONTRACTOR

A. The Contractor has sole authority and responsibility to employ, discharge and otherwise control its employees and has complete and sole responsibility as a principal for its agents, for all

Subcontractors and for all other persons that the Contractor or any Subcontractor hired to perform or assist in performing the Work.

B. The Contractor shall enforce strict discipline and good order among its employees at all times and shall not employ on the Work any unfit person or anyone not skilled in the task assigned to him or her. Any person employed on the project by the Contractor or any of its Subcontractors who, in the opinion of Sound Transit, is not needed to perform assigned work, is not qualified or licensed, does not perform his or her work in a proper and skillful manner or is intemperate, disorderly, reckless, or engages in any abuse or harassment, shall, at the written request of Sound Transit, be removed forthwith by his or her employer, shall not again be employed on the project without the approval of Sound Transit, and shall at the Contractor's own expense be replaced by a suitably qualified person.

2.03 AUTHORITY OF REGIONAL PROGRAM MANAGER

A. Sound Transit will designate a Regional Program Manager prior to or concurrent with Sound Transit's issuance of the Notice to Proceed. The Regional Program Manager is Sound Transit's point of contact for the Contractor. The Regional Program Manager shall have the authority to manage the Contract so that the completion thereof may be accomplished in accordance with the contractual requirements.

B. The Regional Program Manager may designate technical support staff to perform functions under the Contract, such as inspection of the Work, review and/or inspection and acceptance of materials, supplies, services, witness of functional testing, and other functions of a technical or administrative nature.

C. Sound Transit and the Regional Program Manager, or a designee, shall have access to the Site and the Work at all times. Should the performance of the Contractor, or the quality of the Contractor's work or materials furnished, not meet the standards specified, the Regional Program Manager may take or require such measures as the Regional Program Manager deems necessary to ensure compliance with contractual requirements. Any failure by the Regional Program Manager to take these actions shall not relieve Contractor from performing its Contract obligations. The Contractor shall carry out the instructions of the Regional Program Manager or any person to whom the Regional Program Manager delegates authority and gives the Contractor written notice of said delegation, concerning the Work.

2.04 CONTRACTOR'S PROJECT MANAGEMENT AND SUPERVISION

A. The Project Manager shall be Sound ~~Point~~Transit's main point of contact for the Contractor. The Project Manager shall have the authority to manage the Contract so that the completion thereof may be accomplished in accordance with the contractual requirements. ~~shall have complete authority to represent and to act for the Contractor.~~ If for any reason and at any time, the Project Manager and/or Lead Engineer submitted by the Contractor is not acceptable to Sound Transit, or becomes unacceptable, the Contractor shall propose additional candidates within ten (10) days of receiving written notice from Sound Transit. If the Contractor wishes to replace its Project Manager or Lead Engineer at any time during the performance of this Contract, it first shall submit the résumé of its new candidate to Sound Transit for Sound Transit's approval, which shall not be

Commented [Legal41]: Change made to make it clear who is Contractor's Project Manager point of contact during the Project.

Commented [BA42R41]: Proposed edit rejected. The ORCA Agencies need the Contractor's PM to have the authority to act for and represent the Contractor, not just manage.

unreasonably withheld or delayed. The Contractor shall not make the substitution without Sound Transit's prior written approval. Sound Transit shall have the right to require the Contractor to remove the Project Manager or Lead Engineer from the Site in the event either fails to uphold or meet the requirements of the Contract or fails to perform in a competent, qualified or professional manner. Failure by Sound Transit to remove such personnel shall not relieve Contractor of its Contract obligations.

B. The Contractor's Project Manager, or a designee, shall be present at the site of the Work at all times while the Work is actually in progress. The Contractor's Project Manager shall notify the Regional Program Manager of the name(s) and means to contact the individual(s) who have the authority to act for the Contractor's Project Manager at such times that the Contractor's Project Manager is not present on any particular part of the Work. In the absence of such notification, the Regional Program Manager may give direction to the superintendent or foreman in charge of the particular part of the Work in reference to which the directions are given so long as said directions are confirmed by the Regional Program Manager in writing to the Contractor's Project Manager.

C. The Contractor was awarded the Contract due in part to the Contractor's submittal of qualifications for key personnel. Contractor's failure to use such key personnel after award of the Contract shall (subject to the exception in Article 2.04D) constitute a breach of Contract entitling Sound Transit at its option to any and all remedies, including but not limited to specific performance, revocation of the Contract Award, refusal to authorize Notice to Proceed, suspension of Work for such time period as is necessary for Contractor comply with the Contract by mobilizing the specific individuals, and/or termination of the Contract. If Sound Transit elects to continue the Work with Contractor's replacement key personnel, Sound Transit may, in addition to all other remedies available to it, deduct ~~0.3~~1 percent of the initial Contract Price as damages for such substitution of one or more of the key personnel. Contractor acknowledges that in that event such amount is not a penalty and constitutes a reasonable estimate of damages to Sound Transit associated with the replacement of the key personnel on which Sound Transit relied for the award of this Contract.

D. Sound Transit will not enforce the provisions in Article 2.04C in the event compliance becomes impossible or commercially impracticable, provided Contractor first submits substitute key personnel of equivalent skills, credentials and experience for approval by Sound Transit which shall not be unreasonably withheld or delayed.

2.05 SUBCONTRACTING

A. The Contractor was awarded the Contract due in part to the Contractor's submittal of qualifications for major Subcontractors and suppliers. Contractor's failure to use such Subcontractors after award of the Contract shall (subject to the exception in Article 2.05B constitute a breach of Contract entitling Sound Transit at its option to any and all remedies, including but not limited to specific performance, revocation of the Contract Award, refusal to authorize Notice to Proceed, suspension of Work for such time period as is necessary for Contractor comply with the Contract by mobilizing the specific individuals, and/or termination of the Contract. If Sound Transit elects to continue the Work with Contractor's replacement Subcontractor, Sound Transit may, in addition to all other remedies available to it, deduct 0.3 percent of the initial Contract Price as damages for such substitution of one or more of the

Commented [Legal43]: Term added since time is of essence to the parties and any cause of action which is delayed may negatively impact the time-line for the project, and therefore such approval should not be delayed.

Commented [BA44R43]: Edit accepted as proposed.

Commented [BA45]: Part --> Article edit accepted

Commented [BA46]: Risk mitigation – The damages are being increased as a result of major concerns about key individual swapping (PM and Lead Engineer) and the firm's general lack of bench strength.

Commented [CAC47R46]: 1% is not acceptable or consistent with the statement below "amount is not a penalty and constitutes a reasonable estimate of damages". $450,000 is well beyond reasonable damages for a single personnel change. Even your comment suggest that it is a punitive penalty because of concerns about our staffing levels.

Commented [Legal48]: The first change is just a clarification to use the term Article instead of Part. (Article is used otherwise in the Contract.) The second change is explained above under changes to 2.4, as with regards to delay, and is added to make it clear that delay is not a proper cause for not acting since such action may prevent Contractor to continue work on the project in a timely manner.

Commented [BA49R48]: Part --> Article edit accepted
Edit accepted as proposed.

Commented [Legal50]: Term changed to be consistent with the use of Article otherwise in the Contract.

Commented [BA51R50]: Part --> Article edit accepted

Subcontractors. Contractor acknowledges that in that event such amount is not a penalty and constitutes a reasonable estimate of damages to Sound Transit associated with the replacement of the Subcontractor on which Sound Transit relied for the award of this Contract.

B. Sound Transit will not enforce the provisions in Article 2.04A in the event compliance becomes impossible or commercially impracticable, provided Contractor first submits substitute Subcontractor of equivalent skills, credentials and experience for approval by Sound Transit which shall not be unreasonably withheld or delayed.

C. The Contractor shall be responsible for obtaining from its Subcontractors and submitting to Sound Transit all required certifications, documentation, and submittals, including but not limited to technical submittals, federal certificates, small business compliance forms, or other documentation that is required to be submitted under the terms of this Contract. The Contractor shall be responsible for ensuring that all Contract requirements provided for in the Contract Documents that are specific to subcontracting will be included in Subcontracts, including but not limited to all reporting requirements and mandatory Federal provisions set forth in Section 02, Federal Provisions.

D. The Contractor is responsible for evaluating each of its Subcontractors under this Contract and shall award subcontracts only to responsible Subcontractors. All Subcontractors shall be properly licensed, registered, or certified, as applicable, to perform the assigned Work. If requested by Sound Transit, the Contractor shall provide documentation regarding the Contractor's evaluation of any Subcontractor's responsibility and that the Subcontractor is properly licensed, registered or certified, as applicable. The Contractor shall require all Subcontractors to comply with all provisions of this Contract and shall pass down the requirements of this Contract to its Subcontractors so that all the applicable provisions of this Contract are fully effective.

E. Within thirty (30) days of the signing of each subcontract, the Contractor shall submit to Sound Transit a ~~Business~~ Subcontractor Participation Plan. The ~~Business~~ Subcontractor Participation Plan shall identify the Subcontractor, provide the data on which the responsibility determination was based, and provide the socio-economic profile data of the Subcontractor. The Contractor shall include a copy of the subcontract (or at least that portion of the subcontract that demonstrates that all required federal clauses were included in the subcontract) with the Subcontractor Participation Plan. The copy of the subcontract that is submitted to Sound Transit shall have been signed by both the Contractor and the Subcontractor. Proprietary provisions may be redacted but will be made available for review if a non-disclosure agreement is executed. A sample Subcontractor Participation Plan form will be provided by Sound Transit.

F. Contractor shall submit a Monthly Report on Subcontractors, on a form provided by Sound Transit, as part of its monthly partial payment request. Submission of a completed Monthly Report of Subcontractors shall be a condition precedent to Sound Transit processing partial payment requests.

G. If the Contractor believes that a Small Business / Disadvantage Business Enterprise (SB/DBE) Subcontractor that was listed at any tier to fulfill the Contractor's SB/DBE commitment may not be able to successfully complete any portion of the subcontracted Work, the Contractor shall immediately identify to the Regional Program Manager the Subcontractor at issue, the reason for

Commented [Legal52]: Language was changed to reflect the use of the term Article as used otherwise within the Contract. The second change as to "delayed" is explained above (2.4.A & D.) and is added to make it clear that delay is not a proper cause for not acting since it may prevent Contractor to continue work on the project during the delay.

Commented [BA53R52]: Part --> Article edit accepted
Edit accepted as proposed.

Commented [BA54]: Edit accepted as proposed.

Commented [Legal55]: The change reflects the need for Sound Transit to define the term. The term is capitalized but not defined in section "Definitions", nor is it defined within the article(s) in which the term is used.

Commented [BA56R55]:

Commented [Legal57]: The change adds language to protect any proprietary information in the Subcontract.

Commented [BA58R57]: What if we need to review? See counter-language.

Commented [CL59R57]: Agreed

believing such subcontractor may not be able to perform the subcontracted Work, and any actions being taken by the Contractor to mitigate such possibility.

H. No Work shall be subcontracted to new Subcontractors without written notification to Sound Transit, on a form provided by Sound Transit. No substitutions shall be made for any Small Business/Disadvantaged Business Enterprise Subcontractor that was listed to fulfill the Contractor's SB/DBE commitment without written notification to, and approval by, Sound Transit; such approval to be neither unreasonably withheld or delayed. The Contractor's Request for Substitution of Subcontractors shall be made on a form provided by Sound Transit.

I. Subcontracting shall create no contract between Sound Transit and the Subcontractor, nor shall the Subcontractor have any rights against Sound Transit by reason of its Subcontract with the Contractor. The Contractor shall be responsible for all Work furnished, and no Subcontract shall relieve the Contractor of any of the Contractor's obligations or liabilities under the Contract.

J. The Contractor shall be fully responsible and liable for the acts or omissions of all Subcontractors and Suppliers including persons directly or indirectly employed by them, their guests, and invitees. The Contractor shall have sole responsibility for managing and coordinating the operations of its Subcontractors and Suppliers, including the settlement of disputes with or between them.

K. If a Subcontractor's work fails to meet Contract requirements or demonstrates careless or unacceptable workmanship and the Subcontractor fails to respond to notice of such defective work or to improve workmanship, the Regional Program Manager may direct the Contractor to replace the Subcontractor, in which event the Subcontractor shall not again be employed on the Work under the Contract.

L. The on-site production of materials produced by other than the Contractor's forces shall be considered as subcontracted. The erection, establishment, or reopening of on-site facilities for production of materials and the operation thereof in the production of said materials for use on the Work shall conform to the requirements relating to labor and insurance set forth in the Contract Documents.

M. The performance of the Work may require Sound Transit or other ORCA partner agencies to work and/or communicate directly with Subcontractors from time to time. As such, Sound Transit or other ORCA partner agencies shall not direct Subcontractors to do work without advance written permission from the Contractor.

Commented [Legal60]: Language added to make sure that work continues as soon as possible.

Commented [BA61R60]: Edit accepted as proposed.

Commented [Legal62]: The term is added to clarify that such notice needs to be provided before such communication is attempted.

Commented [BA63R62]: Proposed edit rejected. Provide further reasoning for the need for advance written permission.

Commented [CL64R62]: The subcontractor is Contractor's responsibility, therefore Contractor must have advance notice of a new instruction that is required to be communicated BY CONTRACTOR to subcontractor.

2.06 CONTRACTOR'S FACILITIES AND EQUIPMENT

The Contractor shall furnish facilities and equipment that shall be of adequate number, size, and condition to produce satisfactory quality of Work, including without limitation all applicable federal requirements. All facilities and equipment used by the Contractor shall meet all applicable safety, noise, and emission regulations and permit requirements as well as other requirements of the Work. Facilities and equipment that fails to meet the requirements of the Contract or to produce a satisfactory product or result shall, upon written order by Sound Transit, be removed immediately and not used again on the Project without Sound Transit's prior written approval. All additional costs, delay or impact resulting from Contractor's use of facilities or equipment failing to meet Contract requirements shall be at Contractor's expense.

2.07 ACCEPTANCE OF EXISTING CONDITIONS

If any part of the Contractor's Work depends on proper execution of the work of other forces or existing conditions, the Contractor shall report to the Regional Program Manager, before using the work, all defects found in such work that render it unsuitable for the Contractor's Work. Such report shall be in writing and shall be submitted within thirty (30) days of being granted access to the work. Failure of the Contractor to report such defects shall constitute an acceptance of the other forces' work or existing conditions as fit and proper for the execution of the Contractor's Work and shall preclude any claim for additional compensation or schedule extension for uncovering the Work or correcting defects, except for defects in the other force's work which are latent and not reasonably discernible. Any request for additional compensation based on defective work of others or existing conditions shall be governed by the procedures of Article 4, Changes and Change Order Process.

ARTICLE 3 CONTROL OF THE WORK

3.01 NOTICES AND COMMUNICATIONS

A. Sound Transit

All notices, communications, product data, submittals, and other documentation (hereinafter "Communications") submitted by the Contractor to Sound Transit during the course of Contract performance shall be in writing and in English. The Contractor shall deliver Communications to the Regional Program Manager either in person or at his/her designated office via courier, U.S. Postal Service, or overnight delivery service. Communications by facsimile and e-mail shall be confirmed with original documents properly numbered and delivered.

B. Contractor

Communications from Sound Transit shall be delivered through the Regional Program Manager and shall be deemed to be well and sufficiently given to the Contractor if delivered to its project office, if mailed or delivered to the Contractor's post office box or address as stated in the Contract, or if faxed to the Contractor at a designated fax number or emailed, followed up by hard copy.

C. Communications shall be numbered and marked in accordance with specifications related to Document Control in the Contract Documents.

3.02 COORDINATION WITH OTHERS

A. Sound Transit reserves the right to perform work not included in the Contract or let other contracts to third parties to perform other work in the vicinity of, or relating to, this Contract. Other government agencies may also be performing other work in the vicinity of or relating to this Contract such as inspections, maintenance / relocation / equipment installation / and other activities. Private developers or businesses may be engaged in activities in the vicinity of, or relating to, this Contract. The Contractor shall cooperate with Sound Transit, other agencies, and other contractors or developers in scheduling and coordinating the Contractor's Work with the work of others in order to minimize conflicts, avoid interruptions or delays to others and promote the orderly completion of the Work as a whole. The Contractor shall not commit or permit any act that will interfere with the performance of work by any government agency, contractor,

developer, or Sound Transit. In the event Contractor incurs additional costs or extended delays as a result of such compliance Contractor shall be entitled to make claim for additional time and/or compensation.

B. Unless specifically identified otherwise, the Contractor may not have exclusive access to or use of work areas. Unless the Contractor has exclusive access to a work area, the Contractor may be required to use facilities and areas concurrently with others. When other forces are employed on related or adjacent work, the Contractor shall conduct its operations in such manner as to cause the least possible delay and hindrance to the other forces. The Contractor shall be responsible to Sound Transit for all damage to the Work, persons, and property caused to other forces by Contractor's operations and for loss to other forces caused by the Contractor's unnecessary delays and for failure to finish the Work within the time specified for completion.

C. If the Contractor is unreasonably delayed by others, immediate notification shall be made in writing to the Regional Program Manager. Any request for a time extension or additional compensation allegedly resulting from such delay shall be made in accordance with the procedures of Article 4, Changes and Change Order Process and Article 10.02 B, Delays. The Contractor shall mitigate and minimize any such delay by other forces.

3.03 CONTRACT RECORDS

A. The Contractor shall keep and maintain comprehensive records and documentation relating to the Work under this Contract, as well as documents related to the Contractor's proposal for this Contract. The Project Records shall include, but are not limited to, submitted Proposal, Contract Documents, subcontracts (if any), purchase order(s), employment records, payrolls, project cost accounting records, prevailing wage records, plans, specifications, addenda, shop drawings, Change Orders, and all working documents leading to Change Orders, field test records, quality control documents, daily logs by all field supervisors and project management personnel, correspondence relating to the Contract, and drawings labeled as as-built. Project records shall be maintained and retained by the Contractor for the audit period required under Article 3.04 below.

B. EEO/Non-Discrimination Documentation. The purpose of this sub-section is to ensure that the Contractor and all of its subcontractors at every tier maintain sufficient written documentation so that Sound Transit can easily and quickly verify that all hiring and termination decisions related to workers fully complies with applicable Title VI, equal employment opportunity and non-discrimination laws, regulations, and policies. When any employee or prospective employee of the Contractor or in the event Contractor becomes aware a subcontractor at any tier (including, but not limited to, an apprentice or journey-level worker sent by the appropriate union hall) is terminated, turned away without the opportunity to work, or otherwise denied the opportunity to work on the Site for any reason other than completion of all work to be performed by individuals with the skills of the particular worker, the Contractor shall retain, and make available to Sound Transit within 5 business days of a request to review, the following documentation:

1. Written documentation explaining why the specific individual was terminated, turned away, or otherwise denied the opportunity to work on the Site; and

Commented [Legal65]: Sentence added, since it is reasonable that Contractor should be entitled to make a claim for additional time and/or compensation for these types of incidents not caused by the Contractor but by the actions of Sound Transit and/or its agents and/or other partners of Sound Transit.

Commented [BA66R65]: Proposed edit rejected. Cooperation with ST, other agencies, and third parties is part of the intent of this contract and all of the above should be considered during project scheduling.

Commented [CL67R65]: Agree with your reasoning, however, require the language in the event cooperation is not exhibited by other parties.

Commented [Legal68]: This addition is added in the event a Subcontractor fails to keep such records.

Commented [BA69R68]: Proposed edit rejected. It is the Contractor's duty to manage its subcontractors.

2. Written objective, non-discriminatory criteria used to determine whether such individual was sufficiently qualified to perform the work and how such criteria relates to the particular work.

If, without excusable event, Contractor fails to provide complete and detailed documentation to Sound Transit within 5 business days of receipt of Sound Transit's written request, liquidated damages not exceeding ~~in~~ the amount of $10,000 in total will be assessed ~~per business day that such documentation has not been provided to Sound Transit~~. Contractor acknowledges that liquidated damages will not be considered a penalty and constitutes a reasonable estimate of damages to Sound Transit associated with the Contractor's failure to timely submit the required documentation and Sound Transit's inability to publicly demonstrate that the Contractor is fully complying with Title VI, EEO and non-discrimination requirements in the Contract.

C. Cost records shall be kept in accordance with generally accepted accounting principles and the Contract Documents and shall include all records reasonably necessary, as reasonably determined by Sound Transit and provided in writing, in advance to Contractor, to verify all costs incurred and any schedule revision required.

D. The Contractor shall ensure each of its Subcontractors maintains and retains for said audit period all Project Records pertaining to the performance of the Subcontractor's Work under this Contract in full compliance with Article 3.03A and B. In the event this Contract is funded in part with federal funds, and the federal grant requires different reporting or retention periods, the more stringent requirement will apply.

Commented [Legal70]: The additions and/or changes are made to provide the Contractor with some protection if it relates to an excusable event, and that the clock does not run until the written request from Sound Transit is received by Contractor. This refers to the duties imposed on the Contractor under this paragraph. The amount of damages for a breach of this clause should not exceed $10,000 in total since this sum bears a more reasonable relationship with the alleged harm.

Commented [BA71R70]: Proposed edit rejected. This is standard Sound Transit EEO policy.

Commented [Legal72]: The words added are to ensure that Contractor has adequate notice.

Commented [BA73R72]: Proposed edits rejected. This contract shall serve as notice that all cost records shall be kept as provided herein.

Commented [CL74R72]: Agreed

3.04 AUDIT ACCESS TO RECORDS

The Contractor shall permit, and shall require Subcontracts to permit, authorized representatives of Sound Transit, the U.S. Department of Transportation, and the Comptroller General of the United States to audit, inspect, examine, and copy the Project Records that are maintained by Contractor, any affiliated company or any Subcontractor involved in the Contract at any reasonable time and shall provide such assistance as may be reasonably required in the course of such inspection, including the right to interview personnel. Sound Transit further reserves the right to examine and re-examine the Contract Records during the six (6) year period following the Final Payment and until all pending matters are closed. Such audit(s) may include examination of the Contract Records for evaluation of any Change Order or Claim, or any issue related to performance of the Work. The Contractor shall in no event dispose of, destroy, alter, or mutilate said Contract Records in any manner whatsoever for six (6) years after Final Payment and until all pending matters are closed. No additional compensation will be provided to the Contractor for compliance with the requirements of this Article.

3.05 SUBMITTALS AND SHOP DRAWINGS

A. Where required by the Contract Documents, the Contractor shall submit specified information that will demonstrate that the Contractor's proposed materials, equipment, or methods of Work are in compliance with the Contract Documents. Sound Transit will not be obligated to accept or pay for materials, equipment or Work for which submittals are required herein, unless and until all submittals have been submitted and reviewed in accordance with the Contract Documents.

B. Review and other appropriate action with regard to Submittals by Sound Transit shall be for

general conformance with the Contract requirements and shall not relieve the Contractor of responsibility for any errors or omissions in such Submittals, nor from compliance with the requirements of the Contract Documents; and further, the Contractor shall have no claim under the Contract on account of the failure, or partial failure, of the method of work, material, or equipment so reviewed. Review by Sound Transit shall not constitute approval of the safety precautions employed by the Contractor or constitute approval of the Contractor's means or methods of the Work. The Contractor shall not deviate from shop drawings, product data, samples, or similar submittals that have been reviewed with a finding of "No Exception Taken" without submitting the proposed deviation for Sound Transit's review and appropriate action.

C. Sound Transit reserves the right to charge the Contractor for all, or some portion of, the costs of excessive or unreasonable costs of reviewing submittals repeatedly rejected for being incomplete or inadequate.

D. Submittals offered to demonstrate methods, procedures, sequences, or duration for performing the Work or to detail temporary elements such as shoring or formwork, shall be reviewed by Sound Transit for general compliance with applicable requirements of the Contract. Such review will not include a detailed analysis of the design or an evaluation of the adequacy of the method, procedure, resource commitments, or time allocated for performance.

E. Contractor shall make Submittals to Sound Transit only after (1) reviewing all Contractor and Subcontractor Submittals for accuracy and compliance with the Contract and (2) coordinating all Submittals with all Work by other trades.

3.06 CUTTING AND PATCHING

The Contractor shall be responsible for all cutting, fitting, and patching required to complete the Work or to make its parts fit together properly. The appearance following any cutting, fitting, or patching shall conform to the appearance of adjacent like materials or surfaces and be consistent with the overall appearance of the Project. The Contractor shall be responsible for any damages caused by its cutting, fitting, and patching, whether of its own Work or of other work affected by the cutting, fitting or patching. The Contractor may not alter any work other than its own except by permission by Sound Transit. Such permission by Sound Transit shall not relieve the Contractor from responsibility for the Work affected by the cutting, fitting, or patching.

3.07 INSPECTION, SAMPLING, AND TESTING

A. Contractor Testing

1. It is the Contractor's responsibility to provide materials, supplies, equipment and workmanship that conforms to the Contract Documents. Unless specifically provided otherwise in the Contract Documents, the Contractor shall be responsible for demonstrating and documenting that the materials or equipment to be incorporated into the Work comply with the Contract Documents. Materials testing shall be performed by an ~~Independent Testing Laboratory~~the Contractor in accordance with the Contract Documents. The Contractor shall bear all costs of said tests.

2. In the event that a third-party public agency has authority over materials or equipment,

Commented [Legal75]: The term is capitalized but not properly defined in the paragraph used, nor it is defined in "Definitions" under Article 1, and as such needs to be defined by Sound Transit.

Commented [BA76R75]: Revised the language to match align with the Contract Documents.

approval must be obtained from said third-party public agency prior to Sound Transit's approval. Approval by a third-party public agency does not constitute approval by Sound Transit. The Contractor shall provide Sound Transit, and any applicable third- party public agency, with a schedule by which any testing will be conducted as well as timely notice of the time and place of any such tests. The Contractor shall maintain complete test records and submit them to Sound Transit upon request or as required elsewhere by the Contract Documents.

3. Any mechanical, electrical and instrumentation systems which function as a completed system must be tested or inspected as a complete system in addition to any tests or inspections conducted for the component parts.

4. If conformance of materials or equipment to the requirements in the Contract is not determinable through inspection and tests, the Contractor shall provide properly authenticated documents, certificates, or other satisfactory proof of conformance. Such documents, certifications, and evidence shall include performance characteristics, materials, and the physical and chemical characteristics of materials. All costs associated with such certification shall be paid by the Contractor.

B. Sound Transit Inspection and Testing

1. Sound Transit reserves the right to sample, inspect, or test the materials, equipment, and Work, as it deems necessary at any reasonable time during the Work. Said testing and inspection may occur on or off the site. Sound Transit shall conduct such tests or inspections in a manner that will cause no undue delay in the Work. The Contractor shall provide Sound Transit with sufficient notice, access, and assistance to allow Sound Transit's representative to inspect, sample, and test materials and equipment prior to their incorporation into the Work or to inspect, sample, or test Work prior to covering the Work. Re-inspection or re-testing required because of non-conformance to specified requirements will be charged to the Contractor.

2. Sound Transit, at any time prior to Final Acceptance, may require the Contractor to uncover either portions of or all of the Work for inspection, sampling, and testing. The Contractor shall restore these portions of Work to the standard required by the Contract. The uncovering and restoration shall be done at the Contractor's expense, if the Work uncovered does not comply with the Contract, if it complies but was done without required documentation, or if Sound Transit was given insufficient notice to allow adequate time for inspection, sampling, or testing. If the Work uncovered meets the Contract requirements and was done with sufficient notice to Sound Transit, the costs of uncovering and restoration shall be paid by Sound Transit in accordance with Article 4, Changes and Change Order Process.

3. The Regional Program Manager may inspect the production of material or the manufacture of products at the source of supply. Facilities inspection, however, will be undertaken with the cooperation and assistance of both the Contractor and the material producer. The Regional Program Manager or the Regional Program Manager's authorized representative shall have reasonable entry at all times to such parts of the facilities as

concern the manufacture or production of the materials. Adequate facilities shall be furnished free of charge to make the necessary inspection. The Regional Program Manager assumes no obligation to inspect materials at the source of supply. The responsibility for incorporating satisfactory materials in the Work rests entirely with the Contractor, notwithstanding any prior inspections or tests.

4. The Regional Program Manager's inspection is conducted to verify that the Contractor has performed its work properly. Any observation, verification, inspection, or approval of the Work or materials by Sound Transit shall not relieve the Contractor of any of the Contractor's obligations to fulfill the Contract as prescribed. Work and materials not meeting Contract requirements shall be made acceptable to Sound Transit. Unsuitable work or materials may be rejected, notwithstanding that payment for such Work or materials may have been previously authorized and included in a Partial Payment.

5. Unless the subject items are expressly accepted by Sound Transit in writing, any inspection and testing done by Sound Transit is for the sole benefit of Sound Transit only and does not constitute or imply acceptance; relieve the Contractor of responsibility for providing adequate quality control measures; relieve the Contractor of responsibility for risk of loss or damage to the Work, materials, or equipment; relieve the Contractor of its responsibility to comply with the requirements of the Contract Documents; or impair Sound Transit's authority to reject defective or non-conforming Work or invoke any remedy to which it may be entitled.

3.08 NON-CONFORMING WORK AND DEFECTIVE WORK

A. Defective Work - If Sound Transit determines that material, equipment, or workmanship proposed for or incorporated in the Work does not fully comply with the requirements of the Contract and will not be accepted by Sound Transit (Defective Work), Sound Transit may reject such Work upon written notice to the Contractor. In such event, Sound Transit may, at its discretion, (1) require the Contractor to promptly repair, replace or correct all Work not performed in accordance with the Contract; (2) require the Contractor to provide a suitable corrective action plan, which shall only be performed if approved by Sound Transit; or (3) provide a suitable corrective action plan and direct the Contractor to execute it, and in such case Contractor shall have the option of (i) implementing the Sound Transit plan or (ii) promptly repairing, replacing or correcting all Work not performed in accordance with the Contract. Regardless of the option chosen by Sound Transit, the Contractor shall implement such plan with no delay to the Project Schedule, at no additional cost to Sound Transit, and within a period provided by Sound Transit. If the corrective action plan as accepted or directed by Sound Transit does not remedy the Defective Work, the Contractor shall remain responsible for remedying the Defective Work to Sound Transit's satisfaction and at no additional cost or schedule delay to Sound Transit. The Contractor shall also be responsible for repairing all property and work damaged by the Contractor at no cost or schedule delay to Sound Transit.

B. Non-Conforming Work - Sound Transit may at its option retain Work that does not fully comply with the requirements of the Contract. Sound Transit shall provide Contractor promptly with detailed written notice of the manner in which it considers the Work not fully in compliance with

the requirements of the Contract. Failure to do so shall be considered full compliance by Contractor of its obligation to provide Work fully in compliance with Contract specifications. A reasonable value for such Non-Conforming Work will be determined by Sound Transit, and appropriate deductions will be made in the payments due or to become due to the Contractor. Final ~~acceptance~~ Acceptance will not act as a waiver of Sound Transit's right to recover from the Contractor an amount representing the deduction for retention of Non-Conforming Work.

C. Sound Transit's inspection of the Work or right to reject Work that does not fully comply with the Contract shall not relieve the Contractor of its responsibility for performing the Work in full conformance with the Contract Documents. Other than as set forth herein, ~~N~~no failure or forbearance of Sound Transit in notifying the Contractor of Work that does not fully comply with the Contract shall relieve the Contractor of its Contract responsibility to ensure that the Work is performed in accordance with the Contract Documents.

3.09 ACCEPTANCE OF WORK

A. Inspection - When the Contractor has concluded the Work or a designated portion thereof, the Contractor shall notify Sound Transit in writing that the work is complete and ready for inspection. Upon receipt of the notification, Sound Transit will promptly by inspection determine the actual status of the Work in accordance with the terms of the Contract. If Sound Transit finds materials, equipment, or workmanship not in conformance with the Contract, Sound Transit will prepare a punch list of such corrective items and submit the list to the Contractor. At any time prior to Acceptance, Sound Transit may add punch list items. The Contractor shall complete all punch list items and notify Sound Transit that the Work is ready for Acceptance. Upon such notice, Sound Transit will verify that the Work has been completed. If such Work has not been completed and additional inspections become necessary because of the acts or omissions of the Contractor, the Contractor shall reimburse Sound Transit for its costs related to such inspections. Following completion of the corrective Work and inspection by Sound Transit, Sound Transit shall issue a Notice of Acceptance of the Work or a designated portion thereof.

B. Substantial Completion - At the Contractor's request or as determined by Sound Transit, Sound Transit will conduct an inspection and review of required documents to determine Substantial Completion of all or a designated portion of the Work. If upon inspection and document review, Sound Transit determines that the Contractor has in fact achieved Substantial Completion, Sound Transit will issue to the Contractor a Notice of Substantial Completion. The Notice of Substantial Completion will provide the Contractor with a punch list of corrective actions or other work to be completed for Acceptance. The Contractor shall complete all punch list work within thirty (30) days after receiving the Substantial Completion Notice. Failure to do so may result in a determination by Sound Transit to have the work done by others. The Contractor will be responsible for all costs associated with completing the punch list work. Further, Sound Transit reserves the right to commence use of any portion of Work that has been substantially completed. In such event, Sound Transit will assume care, custody and control of said portion of the Work, including responsibility for operation and maintenance costs associated with use of said Work. In no case shall the Notice of Substantial Completion be construed as relieving the Contractor from liquidated damages due to delay for any portion(s) of the Work not specifically referenced therein, or any other requirement under the Contract Documents. Such Notice shall not constitute

Commented [Legal77]: The changes made are so the Contractor have full notice of concerns Sound Transit may have as to the work.

Commented [BA78R77]: Proposed edits rejected. The notice of non-compliant Work will be addressed in the acceptance process.

Commented [CL79R77]: Do not accept. Good business practice requires Contractor notification as soon as ST determines a non-compliance. Permits quicker and more cost and time effective action.

Commented [Legal80]: Language added for clarification, and it refers to the change made under subparagraph B.

Commented [BA81R80]: Proposed edits rejected. The notice of non-compliant Work will be addressed in the acceptance process.

Commented [CL82R80]: See comment above.

Acceptance or Final Acceptance.

Prior to Sound Transit granting Substantial Completion for any Contract Milestone, the Contractor is required to have submitted acceptable copies of all as-built drawings, operation and maintenance manuals, test report and warranties, and Contractor must have provided and completed all training of operations and maintenance personnel required by the Contract that are associated with the Milestone for which Substantial Completion is being requested.

C. Acceptance -A written Notice of Acceptance issued by Sound Transit shall constitute Acceptance of a designated portion of the Work. A Notice of Acceptance shall not waive claims by ~~or rights of~~ Sound Transit ~~to revoke acceptance or~~ for any unauthorized, Non-Conforming or Defective Work, nor shall the making of any Partial Payment be deemed a waiver of claims or rights of Sound Transit under this Contract. Sound Transit shall not be barred from requiring the Contractor to remove, replace, repair, or dispose of any unauthorized, Non-Conforming or Defective Work or from recovering damages for any such Work. Contractor shall remain responsible for site security where it has sole access through the date of Acceptance. Sound Transit's rights hereunder shall exist and remain to the full extent permitted by law and as set forth in this Contract. The Contract Warranty shall commence upon Acceptance.

D. Final Acceptance - A written Notice of Final Acceptance shall constitute Sound Transit's acknowledgement that the Contractor has fulfilled all of its obligations under the Contract and that Sound Transit has accepted the Work as of the date stated in the Notice. The Contractor may request Final Acceptance from Sound Transit upon full and satisfactory completion of all Contract Work and fulfillment of all obligations under this Contract.

Commented [Legal83]: The change is made since the Contractor should not be responsible where other parties have access to such area. Multiple access gives Contractor no control but could result in penalty as the paragraph was initially written.

Commented [BA84R83]: Proposed edit rejected. These rights need to be retained by the ORCA Agencies.

Commented [CL85R83]: Not accepted. If Init controls right of access then Init can deal with the responsibility. Without control over access the responsibility is unreasonable.

3.10 USE OF COMPLETED OR PARTIALLY COMPLETED PORTIONS OF THE WORK

A. Sound Transit shall have the right to take possession of or use completed or partially completed portions of the Work notwithstanding that the time for completing such portions may not have expired. Such use by Sound Transit shall in no case be construed as Substantial Completion, Acceptance or Final Acceptance of the Work, and shall neither relieve the Contractor of any of its responsibilities under the Contract, nor act as a waiver by Sound Transit of any of the conditions thereof. Such use shall not trigger the commencement of Warranty provisions under this Contract or as provided by manufacturers, unless specifically provided otherwise in writing by Sound Transit. Operations and maintenance costs, as well as responsibility for all Work incurred as a result of Sound Transit's use of such portions will be borne by Sound Transit.

B. If such use increases the cost or delays the completion of remaining portions of the Work for which Contractor seeks payment and/or additional time, the Contractor must notify Sound Transit of its Request for Change in writing as required by the Contract and may be entitled to such additional compensation or extension of time, or both, as determined in accordance with Article 4, Changes and Change Order Process. Any disputes regarding such entitlement shall be resolved in accordance with the provisions of Article 10, Delays and Claims. The Contractor shall not be entitled to extra compensation for Sound Transit's possession of portions of Work that are specifically required in the Contract to be placed into use and operation or that are required to be turned over to Sound Transit upon a given Contract Milestone date before completion of the

Commented [Legal86]: Language added to clarify that any such use will be on the responsibility of Sound Transit.

Commented [BA87R86]: Need further explanation.

Commented [CL88R86]: If in ST use and damaged then ST bears cost and time

entirety of the Work.

C. In the course of such use, if the Work proves to not be in compliance with the Contract, Sound Transit shall have the right to continue such use until such portion of the Work can be taken out of service so that the Contractor can, at no additional cost to Sound Transit, correct defects, errors, omissions, or replace unsatisfactory materials, as necessary for such portions of the Work to comply with the Contract. Upon notice and opportunity to cure by the Contractor, Sound Transit, at its option, may perform or have another entity perform the corrective work. The Contractor shall remain responsible for the cost of the corrective work. In the event that the Work is determined to be in compliance with the Contract at the time Sound Transit takes possession Sound Transit shall be fully responsible for all costs of whatever nature required to return the Work to its original state.

Commented [Legal89]: The language is added to protect Contractor in case the work was originally in compliance with Contract.

Commented [BA90R89]:

3.11 LOSS OR DAMAGE TO WORK AND MATERIAL

Other than as provided above, ~~U~~until Sound Transit's Acceptance of any completed or partially completed Work, the Contractor shall have the responsibility for care, custody and control of the Work and of the materials to be used therein, including materials for which the Contractor has received partial payment, materials in transit, and materials which have been furnished by Sound Transit, and shall, unless excused elsewhere herein, bear the risk of injury, loss or damage to any part thereof by the action of the elements or from any other cause. The Contractor shall replace, rebuild, repair or restore all damage to any portion of the Work and materials occasioned by any unexcused cause before its completion and Acceptance, at no additional cost to Sound Transit. Contractor shall, at the Contractor's expense, provide suitable drainage and erect such temporary structures as are necessary to protect the Work and materials as herein specified. A suspension of Work shall not relieve the Contractor of responsibility for the Work and materials as herein specified. The Contractor shall properly store materials for which partial payments have been made by Sound Transit or which have been furnished by Sound Transit. Such storage by the Contractor shall be on behalf of Sound Transit and Sound Transit shall at all times be entitled to possession of such materials, and the Contractor shall promptly return the same to the site of the Work when requested. The Contractor shall not dispose of any of the materials so stored except on written authorization from the Regional Program Manager.

Commented [Legal91]: Added language to clarify paragraph. The change is provided to make it clear that only work that is unexcused needs to be repaired etc. This clarification is fair in that it provides liability on the Contractor for such work, and it is consistent with the other changes in the paragraph.

Commented [BA92R91]: Proposed edits rejected. Where are excused causes defined?

Commented [CL93R91]: Excused events are throughout the contract e.g. force majeure. If the term is used and agreed it needs no additional definition.

3.12 WARRANTY OF WORK

A. The Contractor warrants that the Work and any portion thereof: (a) shall meet the requirements of the Contract, (b) shall be free of defects in material and workmanship, and (c) shall be free of defects in design(s) where such design(s) is performed or provided by the Contractor, Subcontractors or Suppliers. This Warranty shall apply to Defective Work and Non- Conforming Work that is discovered within twelve (12) months after the date of Acceptance. If corrective work is performed by the Contractor under this Warranty, the Warranty shall also apply to discrepancies and defects in the corrective work that are discovered within twelve (12) months after the corrected work is again placed in operation. These warranty terms shall be extended for any period that a portion of the Work cannot be used for the purpose intended as a result of discrepancies or defects. This Warranty shall apply whether or not designs, data or information have been reviewed or approved by Sound Transit or the Regional Program Manager, but shall not apply to defects caused by vandalism, misuse and/or improper operation or maintenance of

the Work by Sound Transit.

B. Sound Transit will notify the Contractor in writing or facsimile confirmed in writing, on discovery of Defective Work or Non-Conforming Work covered by this Warranty in accordance with the provisions of Article 3.08, Non-Conforming Work and Defective Work. The Contractor shall commence to remedy the Defective Work or Non-Conforming work in accordance with the provisions of Article 3.08, Non-Conforming Work and Defective Work.

1. The Warranty provided under this Article shall be in addition to those specific warranty requirements for particular equipment or work items indicated in the Contract Documents, and in addition to other rights or remedies available to Sound Transit under this Contract ~~or at law~~. Warranties shall be secured by the Performance Bond, or in Sound Transit's sole discretion, other financial security acceptable to Sound Transit, such as a warranty bond or letter of credit. In circumstances in which Sound Transit determines that it would be inefficient or impracticable for the Contractor to perform the corrective work, Sound Transit reserves the right to select another firm to perform the corrective work or to perform the corrective work itself upon notice to the Contractor. Such corrective work by another firm, or by Sound Transit, shall be at Contractor's expense, provided that Contractor is kept fully informed as to the details and costs of any such corrective work. If the Contractor performs work at the job site under these guaranty provisions, the Contractor shall furnish insurance coverage therefore as specified in Section 03 Insurance Requirements. Prior to beginning such work the Contractor shall furnish certification of insurance satisfactory to Sound Transit.

2. Unless otherwise required by Sound Transit, the Contractor shall commence to perform the corrective work required to satisfy this warranty within fifteen (15) days from the date of written notification. The Contractor shall at its sole expense perform the corrective work on an overtime and/or shift work basis, and shall procure required materials using the fastest means available when necessary to minimize the impact to other Sound Transit contractors or Sound Transit's loss of operating time. The Contractor shall diligently prosecute the corrective work and shall complete such corrective work within the time frame stipulated by Sound Transit.

3. If the Contractor fails to make or undertake the corrections or removal/replacement with due diligence within the time periods specified above, Sound Transit is hereby authorized to make such corrections. In case of an emergency, whereby delay could cause serious loss or damage in the opinion of Sound Transit, corrections or replacement may be made prior to or concurrent with notice being sent to the Contractor. All expenses in connection with such corrections or replacement by Sound Transit, including the cost for professional services, will be charged to the Contractor.

C. Nothing in this warranty is intended to limit any manufacturer's warranty, which provides Sound Transit with greater warranty rights than set forth in the Contract Documents.

3.13 WARRANTY OF TITLE

A. The Contractor shall have no property right in the materials and equipment used after they have

Commented [Legal94]: The additional term is added and is a reasonable event to be exempt for this type of warranty.

Commented [BA95R94]: Edit accepted as proposed.

Commented [Legal96]: Change made since the parties have agreed on the type of Warranty for the Work.

Commented [BA97R96]: Proposed edit rejected. We will not waive our rights under other laws. UCC provides other protections.

been attached or affixed to the Work or existing real property, or after ~~any~~ full payment has been made by Sound Transit towards the value of materials delivered to the site of the Work, or stored subject to or under the control of Sound Transit. Title to all such materials shall become the property of Sound Transit upon being so attached or affixed or after ~~any~~ full payment towards the value of materials stored off site or delivered to the site of the Work or stored subject to or under the control of Sound Transit, whichever occurs earlier.

B. No material, supplies, equipment, or items for the Work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein, or in any part thereof is retained by the seller or Supplier. The Contractor shall warrant good title to all materials, supplies, equipment, and items installed or incorporated in the Work. Upon completion of all the Work, the Contractor shall deliver the same together with all improvements and appurtenances constructed or placed thereon by the Contractor to Sound Transit free from any claims, liens, or charges. ~~Neither~~ Other than the Contractor no~~r any~~ person, firm, or corporation furnishing any material or labor for any Work covered by this Contract shall have any right to lien upon any improvement or appurtenance thereon. This Article shall not defeat or impair the right of the persons furnishing materials or labor to recover under any payment bond given by the Contractor for their protection, or any rights under state law permitting such persons to look to retained funds due the Contractor in the hands of Sound Transit.

C. The provisions of this Article shall be inserted or referenced in or otherwise made a part of all subcontracts and material contracts, and notice of its provisions shall be given to all persons furnishing materials for the Work whenever no formal contract is entered into for such materials. Additionally, as a part of the subcontract, material contract, or notice, the Contractor shall provide to such Subcontractors and Suppliers the name, address, and phone number of the Contractor's bonding company and the bond number applicable to the Contract under which the Subcontractor or Supplier would make its claim.

3.14 MANUFACTURER'S WARRANTIES

The Contractor shall furnish to Sound Transit any manufacturer's or Supplier's guarantee or warranty furnished in connection with the purchase by the Contractor or any Subcontractor of any equipment, materials, or items required, provided such guarantee or warranty shall be in addition to those specific guarantee or warranty requirements for particular equipment or Work items indicated in the Specifications and shall not relieve the Contractor of its obligations under Article 3.12, Warranty of Work.

ARTICLE 4 CHANGES AND CHANGE ORDER PROCESS

4.01 CHANGES

A. Sound Transit reserves the right to make by written order, designated ~~or indicated~~ to be a Change Order, alterations to, deviations from, additions to, or deletions from the Contract Documents. Such changes may be made without notice to any surety(ies) or guarantors. Within the Performance and Payment Bonds and any financial guarantees, the surety(ies) and guarantors must waive notice of any Change Orders and agree to be bound in all ways to Sound Transit for any such Change Orders as if it (they) had received notice of the same. Change Orders are required to make any changes to the Contract Price, Contract Documents, or Contract Time. All

Commented [Legal98]: The added language makes it clear that title does not vest until payment is done in full.

Commented [BA99R98]: Proposed edits rejected.

Commented [Legal100]: The changes made are to clarify the paragraph.

Commented [BA101R100]: Proposed edit rejected.

Commented [CL102R100]: Contractor has a statutory lien for unpaid work by ST. This will not be waived.

Commented [Legal103]: Term deleted. Redundant.

Commented [BA104R103]: Proposed edit rejected.

Commented [Legal105]: The term "Performance and Payment Bonds" which is capitalized indicates that it should have been defined by Sound Transit. There is no definition of the term in Article 1, "Definitions," nor in the paragraphs where the term is used.

Commented [BA106R105]: Will revisit this language to match proposed risk mitigation solution.

additions, deductions, or changes to the Work as directed by Change Orders shall be executed under the conditions of the Contract.

B. Pending resolution of any issue or dispute related to a Change Order, RFC, CN-RFP and/or CN-WD, Contractor shall continue to perform all Work, including the Contract Work associated with the pending change unless Sound Transit explicitly waives this requirement in writing. Contractor shall also be governed by all applicable provisions of the Contract related to compensation and/or additional time for changed work, inclusive of Article 10.

C. Adjustments in the Contract Price - One of the following methods shall be used to determine the cost and/or value of any work covered by a Change Order, RFC, CN-RFP, CN-WD or Claim. Sound Transit and the Contractor shall negotiate in good faith to determine an equitable adjustment of the Contract Price. The available methods are:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities involved in the changed Work; Where Provisional Sums are provided for work items, the provisional sums shall be applied to changes for those work items;

2. By establishment of new unit prices and related quantities for the changed work;

3. By reference to catalog prices or other published prices offered to the public in the open marketplace;

4. By mutual acceptance of a firm fixed price (also referred to as lump sum);

5. On a time and materials basis in accordance with Article 9.09, Payment on Time and Material Basis.

In the event of disagreement, Sound Transit shall determine the method for calculating the adjustment to increase or decrease the Contract Price.

D. All Change Orders (CO) and Change Notices (CN) shall be issued through Sound Transit. No other order, statement, act of omission or conduct of any representative of Sound Transit or third party will be treated as a change hereunder. Nothing in this Article shall be construed to bind Sound Transit for acts of its employees or agents exceeding their authority.

E. Nothing in this Article shall be deemed to require a change in Contract Price or Contract Time when additional, extra, or changed work is the result of actual conditions or performance differing from that assumed by the Contractor (except for differing site conditions) or as a result of the Contractor's error in judgment or mistake in designing, estimating, contracting, constructing or otherwise performing the Work. The Contractor shall not be entitled to a change in the Contract Price or Contract Time for delays caused by the Contractor or its Subcontractors, employees, or agents or for any non-compliance with any Contract provisions, applicable law, regulations, or permit requirements affecting the Work.

F. The Contractor's records pertaining to Changes pursuant to this Article are subject to audit as set forth in Article 3.04, Audit Access to Records.

G. Where the firm fixed price/lump sum method is used, the Contractor shall provide a detailed cost breakdown supporting its requested compensation and any additional cost documentation requested by Sound Transit. Any adjustment to the Contract Price made under the firm fixed price/lump sum method shall include all applicable costs for labor, equipment, material, overhead and profit.

H. Where the firm fixed price/lump sum method is used and the cost of the Change is negotiated after completion of the Work, the allowed profit and overhead markup shall not exceed that for work performed on a time and material basis as permitted in Article 9.09, Payment on a Time and Material Basis.

I. Where the firm fixed price/lump sum method is used and the cost of the Change is negotiated before completion of the Extra Work, the negotiated profit and overhead markup is not subject to a fixed maximum and is to be based on a reasonable calculation of direct and indirect costs incurred in executing the Extra Work, including any delays, impacts or inefficiencies. Where any unit price method is used, the applicable unit price shall include reimbursement for all direct and indirect, onsite and offsite, costs of the changed Work, including profit and overhead.

4.02 REQUEST FOR CHANGE

A. If the Contractor believes it is entitled to an adjustment of the Contract Price or Contract Time for any reason, Contractor shall submit a Request for Change (RFC) to Sound Transit in writing (in a format reasonably acceptable to Sound Transit) in accordance with the provisions of the Contract. The Contractor in the RFC must specify the reasons for such change, including relevant facts and any impacts on the cost and / or schedule.

Commented [Legal107]: The added language clarifies the form of the request.

Commented [BA108R107]: Proposed edit rejected. Qualifier is not appropriate; either it is accepted or not.

Commented [CL109R107]: Agreed

B. The Contractor may request additional compensation and/or time through a RFC, but only in the event Contractor provides a written Notice to Sound Transit no later than fourteen (14) days after the onset or occurrence of the event or condition giving rise to the RFC.

C. The Contractor in its RFC shall provide Sound Transit with a reasonably detailed explanation of the nature and cause of the event or condition giving rise to the RFC, a reasonably accurate calculation of the adjustment to the Contract Price and/or Contract Time, and the reasons why Sound Transit is responsible for the relief sought. Sound Transit shall review the RFC and may require additional information or cost documentation from Contractor to help determine the validity and / or value of the requested change.

D. Any RFC that is approved by Sound Transit will be incorporated into a Change Notice or a Change Order. If the RFC is denied, but the Contractor believes that it does have merit, the Contractor must submit a Notice of Intent to Claim in accordance with Paragraph 10.01A, Notice of Intent to Claim, if it wishes to preserve its right to seek any adjustment to the Contract Price and/or Contract Time.

4.03 CHANGE NOTICE

A. Change Notice - Request for Proposal (CN-RFP).

1. Sound Transit may issue a Change Notice – Request for Proposal to the Contractor

describing a proposed change and requesting the Contractor to submit a Cost and Schedule Proposal (in a format acceptable to Sound Transit). A CN-RFP does not authorize a Contractor to commence performance of the changed Work. After receipt of the Cost and Schedule Proposal, Sound Transit may:

a. Proceed no further with the proposed change,

b. Issue a Change Notice – Work Directive incorporating part or all of the proposed change, or

c. Issue a Change Order incorporating part or all of the proposed change.

B. Change Notice - Work Directive (CN-WD).

1. Sound Transit may issue a Change Notice - Work Directive ordering the Contractor to proceed with a change in the Work. A CN-WD may be issued under one of the following circumstances:
   a. To execute changes in the Work covered by the unit prices or a lump sum price contained in the Contract;

   b. To execute changes in the Work on a Time and Material basis, in accordance with Article 9.09, Payment on Time and Material Basis; or

   c. To direct the Contractor to execute change(s) in the Work pending resolution of an equitable adjustment to the Contract Price and/or Contract Time. If Sound Transit and the Contractor cannot reach agreement on changes to the Contract Price and/or Contract Time prior to starting on the changed Work, the Contractor shall maintain cost records in accordance with Article 9.09, Payment on Time and Material Basis.

2. The Contractor shall not commence performance of the Work described in the CN-WD, until the CN-WD is issued by Sound Transit. The CN-WD shall expressly specify the:

   a. Intention to treat such items as changes in the Work;

   b. Scope of the changes in the Work; and

   c. Basis under which changes to the Total Contract Price and/or Contract Time will be determined.

3. When the Contractor receives a CN-WD, the Contractor shall promptly proceed with the Work as indicated in the CN-WD. The Contractor shall carry on the Work and adhere to the schedule. No work shall be delayed or postponed pending resolution of any dispute or disagreement except as Sound Transit and the Contractor may otherwise agree in writing.

4. Until such time as resolution of an equitable adjustment is reached, the Contractor shall maintain its records in accordance with Article 9.09, Payment on Time and Material Basis. The CN-WD shall become the basis for a Change Order when the amount of the

adjustment to the Total Contract Price and/or Contract Time can be determined. The issuance of a CN-WD is sufficient authority for a Change Order, but only within the stated limits of the value of the CN-WD.

5. The CN-WD shall contain a Not to Exceed (NTE) amount. Contractor may invoice Sound Transit for changed work performed under the CN-WD but only up to and not in excess of the NTE amount. The Contractor is required to notify Sound Transit at the point at which 80 percent of the NTE amount has been expended, and provide an estimate of the cost to complete the changed Work. If Sound Transit agrees that costs in excess of the NTE amount are justified, Sound Transit may issue a revised CN-WD increasing the NTE amount or negotiate a lump sum amount for the changed Work.

C. Contractor's Cost and Schedule Proposal - If directed by Sound Transit in the Change Notice, the Contractor shall submit a Cost and Schedule Proposal to Sound Transit within fifteen (15) days (or more, if Sound Transit at its option so determines) after receipt of the Change Notice. The Cost and Schedule Proposal shall detail price and scheduling information, showing all of the impacts on the Contract Price and Construction Schedule, and the changes in the level of commitment for Small Business and Disadvantaged Business Enterprises as a result of the

changes identified in the Change Notice. If any prices or other aspects are conditional, such as orders being made by a certain date or the occurrence of a particular event at a specified time, the Contractor shall identify these conditions in its Cost and Schedule Proposal. The cost breakdown shall have separate estimates of the costs of added Work and any deleted Work and shall be prepared using one or more of the cost methods described in Article 4.01C as directed by Sound Transit, and shall be presented in a manner such that all phases of work can be easily identified. The Contractor shall submit detailed cost breakdowns as described above for any Subcontractor proposed to perform Work under the change. The Contractor shall also provide detailed scheduling analysis demonstrating the effect of the changed work on the Contract Milestones.

4.04 CHANGE ORDER

A. The Change Order shall expressly state that it is Sound Transit's intention to treat the items described therein as changes in the Work; identify scheduling requirements, time extensions, prices, and all costs of any nature arising out of the; and shall contain a statement that the adjustment to the Total Contract Price, if any, includes all amounts to which the Contractor is entitled as a result of the events giving rise to the Change Order. The execution of a Change Order by both parties shall be deemed to be an agreement to all costs and time of performance related to the change, including full and complete payment and final settlement of all extensions of time, changes, Claims, damages and costs for all time, direct or indirect overhead costs, profit and any and all other costs associated with delay, disruption, impact, inefficiency, acceleration, stand-by or any other costs related to the Work covered by or affected by the change.

Commented [CL110]: Missing text.

B. Bilateral Change Order: Sound Transit will issue a Change Order as soon as practicable following agreement with Contractor's Cost and Schedule Proposal, if Sound Transit decides to proceed with the changed work. If the Contractor agrees with the terms and conditions of a Change Order, the Contractor shall sign the Change Order and return it to Sound Transit for execution by Sound Transit. There will be no reservation of rights by either party on a bilateral Change Order.

C. Unilateral Change Order: Sound Transit may unilaterally issue a Change Order at any time making changes within the general scope of the Contract, without invalidating the Contract and without providing notice to sureties. In addition, in the event that the Contractor and Sound Transit are unable to agree on the terms and conditions, the amount of any change or adjustment to be made to the Total Contract Price or Contract Time, Sound Transit may execute a Unilateral Change Order. If Contractor disagrees with the adjustment to Contract Price or Contract Time as stated in the Unilateral Change Order, Contractor must file a claim in accordance with the requirements of Article 10, Delays and Claims. If the Contractor fails to follow the claim procedures in Article 10, the Contractor shall not be entitled to any claim for additional compensation or schedule extension arising out of or relating to the Unilateral Change Order other than that specified in the Unilateral Change Order. The Contractor is required to continue with performance of all work associated with the Unilateral Change Order pending resolution of any Claim under Article 10.

D. When a Change Order has been executed by Sound Transit, the Contractor shall promptly proceed with the Work as indicated in the Change Order. The Contractor shall carry on the Work and adhere to the schedule during all disputes or disagreements with Sound Transit. No work shall be

delayed or postponed pending resolution of any dispute or disagreement, except as Sound Transit and the Contractor may otherwise agree in writing.

E. At Sound Transit's request the Contractor shall submit, on a form provided by Sound Transit, a Non-Conflict of Interest Certification for any Change Order

F. Special Rules When Pricing Change Orders

1. If this Contract is subject to the Project Labor Agreement, in accordance with the requirements of the Labor Compliance Manual, the Contractor and its Subcontractors are required to contribute five cents ($0.05) per hour for each hour of contract labor (those subject to prevailing wages requirements) utilized on the Contract to a Pre- apprentice Training Program Fund. Accordingly, the Contractor shall incorporate into each Change Order an amount equal to five ($0.05) per hour for each hour of contract labor.

2. Premium increase(s)/decrease(s) for Performance and Payment Bonds:

a. Premium increase(s) / decrease(s) for Performance and Payment Bonds will not be paid as a part of Change Order payments, but will be paid / deducted as a lump sum in the final payment. Verification of increased / decreased payment, from the surety, must be provided and will be included in the final reconciling Change Order.

b. If the surety should require an immediate payment for the increased Bond(s) value as a result of a large Change Order, the Contractor must supply evidence of the payment made and a copy of the surety's request for early payment.

4.05 SCHEDULE EXTENSIONS

If the Contractor is delayed in completion of the critical path of the Work either by reason of changes made under this Article, or by a delay for which the Contractor is entitled to additional time as specified in Article 10, Delays and Claims, and if Contractor meets all Contract requirements for seeking an increase in time to complete the Work associated with a Contract Milestone(s), the Contractor shall submit a Request for Change within the time allowed by the Contract Documents specifying the number of days of time requested. The Contractor shall demonstrate the schedule impact of changes and delays in order to justify any schedule extensions.

4.06 CONSTRUCTIVE CHANGE ORDER

Except as herein expressly stated, no order, statement, act, or omission of Sound Transit unless provided in writing shall be treated as a change or Change Order under the Contract or entitle the Contractor to an adjustment under the Contract. If the Contractor considers that an act, omission, order or statement by the Regional Program Manager or Sound Transit deviates from the Contract requirements or may entitle the Contractor to extra compensation or a time extension, the Contractor shall submit a Request for Change as provided above. Failure to submit a timely and documented RFC shall constitute a waiver of any Claim associated with the subject of such alleged constructive change. The Contractor shall not proceed with the Work until appropriate directions are received from Sound Transit.

4.07 EXCLUSIVE REMEDIES

The procedures specified herein and in Article 10, Delays and Claims, of these General Conditions are the Contractor's exclusive remedy for any claim against Sound Transit, whether for extension of the Contract Time, an increase in the Contract Price, actual or constructive changes, delays, impacts, inefficiencies, equitable adjustments or otherwise. The requirements of Article 10 cannot be waived except by explicit written waiver signed by Sound Transit and Contractor. No course of conduct or dealings between the parties, no express or implied acceptance of change or alterations to the Work, and no claim that Sound Transit has been unjustly enriched by an alteration or Change to the work, shall be the basis of any other claim for an increase in Contract Price or extension in the Contract Time for completion of the Work.

4.08 CHANGES IN QUANTITIES

A. This Article applies to unit price items on the Contract Price Schedule with an estimated quantity of four (4) or more and the measured quantities required to complete the Work.

B. Increases in Quantities of More than 25 percent.

Should the actual total quantity of a Contract Pay item of work shown on the Price Form exceed the estimated quantity shown on the Price Form by more than 25 percent, the Work in excess of 125 percent of such estimated quantity and not covered by an executed Change Order specifying the compensation to be paid, will be paid for by adjusting the Contract unit price as hereinafter provided or at the option of the Regional Program Manager, payment for the Work involved in such excess will be made on a time and material basis as provided in Article 9.09, Payment on Time and Material Basis.

1. The adjustment of the Contract unit price for such excess quantities will be the difference between the Contract unit price and the actual unit cost to perform the work, as determined in this Article. If the costs applicable to such item of Work include fixed costs, such fixed costs will be deemed to have been recovered by the Contractor by the payments made for 125 percent of the estimated quantity shown on the Price Form for such item, and in computing the actual unit cost; such fixed costs will be excluded. Subject to the above provisions, such actual unit cost will be determined by the Regional Program Manager in the same manner as if the Work were to be paid for on time-and- materials basis as provided in Article 9.09, Payment on Time and Material Basis, or such adjustment as agreed to by the Contractor and the Regional Program Manager.

2. When the total compensation payable for the number of units of an item of Work performed in excess of 125 percent of the estimated quantity is less than $5,000 at the applicable Contract unit price, the Regional Program Manager reserves the right to make no adjustment in said unit price.

C. Decreases of More Than 25 percent.

1. Should the total pay quantity of any item of Work required under the Contract be less than 75 percent of the estimated quantity thereof, an adjustment in compensation pursuant to this Article will not be made unless the Contractor so requests in writing. If the Contractor so requests, the quantity of said item performed, unless covered by an

executed Change Order specifying the compensation payable therefore, will be paid for by adjusting the contract unit price, or at the option of the Regional Program Manager, payment for the quantity of the Work of such item performed will be made on time and materials basis as provided in Article 9.09, Payment on Time and Material Basis.

2. Adjustment of the Contract unit price for such decreased quantities will be the difference between the Contract unit price and the actual unit cost, which will be determined as hereinafter provided, of the total pay quantity of the item, including fixed costs. Such actual unit cost will be determined by the Regional Program Manager in the same manner as if the Work were to be paid for as provided in Article 9.09, Payment on Time and Material Basis, or such adjustment will be as agreed to by the Contractor and the Regional Program Manager.

3. No compensation shall be made in any case for loss of anticipatory profits.

D. If the Contractor disagrees with an equitable adjustment determination by the Regional Program Manager, the Contractor shall strictly follow all procedures in accordance with Article 10, Delays and Claims. Failure to do so shall constitute the Contractor's acceptance of determinations by the Regional Program Manager. When ordered by the Regional Program Manager, the Contractor shall proceed with the Work pending determination of the adjustment in costs or time, as applicable.

E. When Sound Transit has entered an amount for any proposal price item, whether unit or otherwise, solely for the purpose of providing a common proposal price for all proposers, this Article 4.09, Changes in Quantities, shall not apply. Any impact due to an increase or decrease in the amount provided for the purpose of obtaining a common proposal price shall be the sole risk of the Contractor.

4.09 ELIMINATED WORK

A. Sound Transit may, by written order to the Contractor, omit work, equipment and/or material to be provided under this Contract, and the value of the omitted work equipment and/or material (inclusive of associated profit and overhead) will be deducted from the Contract Price. The deducted value will be based upon the applicable unit price or lump sum, or if there is no such price, the deducted value will be a lump sum agreed upon in writing by the Contractor and Sound Transit based on the Contract Price Schedule and other cost information submitted by the Contractor or obtained otherwise by Sound Transit. In the event that no agreement can be reached on a lump sum basis, Sound Transit shall be entitled to a deduction based on the value as if the work were to be paid for on a Time and Material basis as provided in Article 9.09, Payment on Time and Material Basis.

B. Should any Contract item of the Work be eliminated in its entirety, in the absence of an executed Change Order covering such elimination, payment will be made to the Contractor for actual costs incurred in connection with such eliminated Contract item if incurred prior to the date of notification in writing by the Regional Program Manager of such elimination.

C. If acceptable material is ordered by the Contractor for the eliminated work prior to the date of

notification of such elimination by the Regional Program Manager, and if orders for such material cannot be canceled, it will be paid for by Sound Transit at the actual cost to the Contractor. In such case, the material paid for shall become the property of Sound Transit and the actual cost of any further handling will be paid for by Sound Transit. If the material is returnable to the vendor and if the Regional Program Manager so directs, the material shall be returned and the Contractor will be paid for the actual cost of charges made by the vendor for returning the material. The actual cost of handling returned material will be paid for by Sound Transit.

4.10 DIFFERING SITE CONDITIONS

A. The Contractor shall immediately upon discovery and before the conditions are further disturbed, notify the Regional Program Manager, verbally and in writing of:

1. Subsurface or latent physical conditions at the Site which differ materially from the conditions indicated in the Contract Documents;

2. Unknown physical conditions at the site, of an unusual nature, which differ materially from the conditions ordinarily encountered and generally recognized as inherent in the Work of the character provided for in the Contract.

B. In areas not affected by the alleged differing site conditions, the Contractor shall continue with performance of the Work.

C. The Regional Program Manager will promptly investigate the conditions and provide direction with respect to continuing performance of the Work in the area of the alleged differing site conditions.

D. Unless otherwise agreed upon in writing by Sound Transit, within seven (7) days of the Contractor's initial written notification of the Differing Site Condition to Sound Transit, the Contractor shall provide:

1. A detailed description of the Differing Site Condition;

2. A reasonable estimate of the price and time impacts such Differing Site Condition shall cause to the Contract; and

3. Substantive, contractual, and technical basis supporting the existence of the Differing Site Condition and its impacts.

E. Within fourteen (14) days from receipt of the Contractor's detailed description of impacts, Sound Transit shall either:

1. Issue a Change Notice (CN) or a Change Order (CO);

2. Make a written determination that the event or condition does not justify any changes to the Contract;

3. Request additional information, or

4. Respond to the Contractor and indicate when a determination will be made, if it cannot be made within the above stated fourteen (14) days.

F. If Sound Transit finds that conditions are materially different and cause a material increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the Work under this Contract, the Regional Program Manager will make an equitable adjustment in the cost or the time required for the performance of the Work, as provided in Paragraph H below.

G. No request by the Contractor for an equitable adjustment to the Contract or claim for a Differing Site Condition shall be allowed unless the Contractor has fully complied with the written notice required in Paragraphs A and D above, unless by explicit written waiver Sound Transit has agreed to extend the applicable notice deadline prior to its expiration. Such notice shall be a condition precedent to any request for an equitable adjustment or claim, and failure to comply shall waive the Contractor's right to make a request for an equitable adjustment or claim.

H. Cost and time adjustments for a differing site condition accepted as a change by Sound Transit shall be resolved in accordance with this Article and Article 10, Delays and Claims, except to the extent that an equitable adjustment for any condition, otherwise within the scope of this Article, has been addressed by unit price or Provisional Sum item, which shall control if provided. All other provisions and requirements of this Article shall apply to such conditions, including without limitation, notification obligations and investigation requirements with respect to any such conditions.

I. After providing Notice to Sound Transit and upon receiving direction from the Regional Program Manager, the Contractor shall be required to continue with performance of all work and maintain its progress with the Work pending resolution of the Differing Site Condition.

J. If the Contractor does not agree with Sound Transit's determination that the event or condition does not justify any change to the Contract, the Contractor must file a Claim in accordance with Article 10, Delays and Claims, or such right to any adjustment in Contract Price and/or Contract Time shall be waived.

4.11 VALUE ENGINEERING CHANGE PROPOSALS (VECPS)

A. Sound Transit encourages the Contractor to submit Value Engineering Change Proposals (VECPs) in order to avail Sound Transit of potential cost or time savings or increased safety during the Work. The Contractor and Sound Transit will share any savings in accordance with this Article. VECPs may be submitted at any time after Notice to Proceed. A proposal merely to delete or reduce scope of Work does not constitute a VECP.

B. The Contractor shall submit VECPs directly to the Regional Program Manager. As a minimum, the following information shall be submitted by the Contractor with each VECP:

1. Description of the existing Contract requirements that are involved in the proposed change;

2. Description of the proposed change;

3. Discussion of differences between existing requirements and the proposed change, together with advantages and disadvantages;

4. Itemization of the Contract requirements that shall be changed if the VECP is accepted (e.g., drawing numbers and specification);

5. Justification for changes in function or characteristics of each affected item, and effect of the change on performance of the end item;

6. Effect of proposed change on life-cycle costs, including operation, maintenance, replacement costs, and life expectancy;

7. Date or time by which a Change Order adopting the VECP shall be issued in order to obtain the maximum cost reduction, noting any effect on contract completion time or delivery schedule; and

8. Cost estimate for existing Contract requirements correlated to the Contractor's unit price or lump sum breakdown and the proposed changes in those requirements.

9. Costs of development and implementation by the Contractor shall be provided.

10. Additional costs to Sound Transit (e.g., costs of testing, redesign, and effect on other contracts) shall also be estimated.

C. Sound Transit retains the right to reject a VECP without review, without recourse by the Contractor if a similar change is already under review; or if in Sound Transit's sole opinion, the potential savings are unlikely to justify the cost of the review; or if the proposed change is otherwise unacceptable to Sound Transit.

D. Sound Transit shall expeditiously process VECPs accepted for review but shall not be liable for any delay in acting upon any VECP submitted pursuant to this Article. Sound Transit may accept, in whole or in part, by Change Order, any VECP submitted pursuant to this Article. Until an order to proceed is issued on a VECP, the Contractor shall remain obligated to perform in accordance with this Contract. Change Orders made pursuant to this Article will so state. Sound Transit's decisions as to acceptance or rejection of any VECP shall be at Sound Transit's sole discretion and shall be final and not subject to review by a dispute resolution process or otherwise.

E. If a VECP submitted by the Contractor pursuant to this Article is accepted, the Contract Price shall be reduced by an amount equal to 50 percent of the Estimated Net Savings (ENS) to the Contractor plus 50 percent of Sound Transit's Review Costs (STRC) (or the reduction = 0.5ENS + 0.5STRC). The Estimated Net Savings shall be calculated by subtracting the Contractor's Costs from the Contractor's Estimated Gross Savings. For the purposes of this Article, the Contractor's Costs are defined as the reasonable costs incurred by the Contractor in preparing the VECP and making the change, such as cancellation or restocking charges; and the Contractor's Estimated Gross Savings are defined as the difference between the cost of performing the Work according to the existing requirement and the cost to perform the Work according to the proposed change. The Contractor's profit shall not be considered part of the cost and shall not be reduced by application of the VECP.

F. The Contractor shall include appropriate value engineering incentive provisions in all subcontracts of $100,000 or greater, and may include those provisions in any subcontract. In determining Estimated Net Savings for cost reduction proposals that involve a Subcontractor, only actual costs to the Contractor and Subcontractor, as defined in Paragraph E above, will be allowed as Contractor Costs. Incentive payments made to the Subcontractor by the Contractor in connection with the cost reduction proposal will not be allowed in determining Net Savings. Sound Transit is subject to public disclosure of records in accordance with Washington State Law. Material and information, which may be submitted as part of any VECP, will be subject to such public disclosure pursuant to State law.

G. The compensation provisions of this Article shall constitute the Contractor's exclusive and complete compensation for Sound Transit's use of the VECP, and the Contractor shall have no right to additional compensation for future or additional uses of the VECP. Sound Transit shall have an absolute and unrestricted right to use the concepts, ideas, methods, materials, and any other salient feature of a VECP, for any purpose other than on the Contract or contracts for which it was submitted.

H. In the event Sound Transit and Contractor cannot agree on the Estimated Net Savings, Sound Transit may at its option (i) terminate the proposed VECP or (ii) unilaterally determine the Estimated Net Savings. If Contractor disagrees with such unilateral determination and seeks to assert a Claim, Contractor shall comply with the Claim requirements of the Contract Documents.

ARTICLE 5 MATERIALS AND EQUIPMENT

5.01 GENERAL

A. The Contractor shall furnish all materials, including without limitations, equipment and completely or partially assembled items, required to complete the Work, except materials that are designated in the Contract Documents to be furnished by Sound Transit.

B. Material and equipment furnished and installed for this Work shall be new and of a quality equal to or better than that specified.

C. Sound Transit's acceptance of materials on the basis of compliance documentation, inspection or testing shall not relieve the Contractor of its obligation for conformance with the Contract.

D. Manufacturers' warranties, instruction sheets, and parts lists, which are to be furnished with certain materials, shall be delivered to the Regional Program Manager before Substantial Completion.

E. The materials and equipment provided and work performed by the Contractor shall strictly conform to the requirements contained in the Contract Documents. The burden of proof that the completed Work conforms to the Contract Documents shall be on the Contractor.

F. The Contractor shall not use any permanently incorporated materials or equipment unless such use is approved in writing by Sound Transit. Where Contractor's request is granted for the use of certain materials, the Contractor shall properly use and maintain, and upon completion of its use, and at its own expense, recondition such materials or equipment to the satisfaction of Sound

Transit.

5.02 MATERIALS CERTIFICATIONS

A. All materials except materials specified by brand name or mark or manufacturer, furnished for use or incorporation in the Work, shall be covered by quality certifications, test results or other documentation as required by the Contract to establish compliance of the products with Contract requirements. Unless specific tests are required by the specifications, the Contractor may provide certifications to establish acceptability of the products furnished. Materials or products which require certification or other documentation shall not be incorporated until certifications have been delivered and the product approved by Sound Transit for incorporation.

B. When the Contract requires documentation that materials comply with a given specification or Industry Standard, the Contractor shall provide documents that include a certification that the material conforms to all applicable Contract requirements. The documentation shall identify the material, list the applicable specifications and tests covered by the certification, describe the source of the material, and the quantity of material certified. The certifying document shall originate with manufacturer or producer of the material and shall bear the signature of a person qualified to perform the certification and authorized to sign on behalf of the manufacturer or producer. If applicable, the certificate shall list any marking or other identification of the certified material.

C. For fabricated or manufactured materials, in addition to the documentation required by this Article, the Supplier shall furnish documentation that the fabrication or manufacturing process complies with Contract requirements. The documentation shall be comparable to that required by this Article and shall list the name and address of the manufacturer or fabricator, the specific processes covered by the certification and procedures and equipment used, tests performed and testing frequency, and any other pertinent information required to demonstrate Contract compliance.

D. For materials specified or approved by brand name or mark, an identifying label or other marking affixed by the manufacturer, which contains sufficient information to verify that the material furnished is the material specified, will be accepted as documentation in lieu of additional certification. Other physical characteristics or packaging information may be accepted at Sound Transit's discretion to demonstrate compliance.

E. Sound Transit may require testing at the Contractor's expense of materials that are delivered without acceptable identification, certification or other required documentation. Work that incorporates materials for which the required documentation has not been provided will be considered nonconforming work.

F. Sound Transit reserves the right to sample and test any material provided for use or incorporation into the Work. The Contractor shall furnish, at no cost to Sound Transit, all samples requested for testing. If Sound Transit's tests indicate that the material tested does not comply with Contract requirements, all materials covered by the same certification as the test sample shall be considered as non-conforming.

G. If, at any time, Sound Transit deems the Contractor's testing is not adequate, the Contractor shall

immediately take corrective action as directed by Sound Transit.

5.03 EQUIVALENT MATERIALS AND EQUIPMENT

When material or equipment is specified by one or more patents, brand names, or catalog numbers, it shall be understood that this is for the purpose of defining the performance or other salient requirements and shall be understood as if followed by the words "or equal," whether or not such words appear. Should the Contractor propose to furnish an "or equal" material or equipment then Contractor shall demonstrate conformance to the specified performance, testing, quality or dimensional requirements and suitability of the material or equipment for the use intended. The Regional Program Manager shall promptly review and approve or disapprove Contractor's proposed "or equal" material or equipment and any such approval shall not relieve Contractor of its obligations to achieve the specified performance, testing, quality or dimensional requirements and suitability of any approved "or equal" material or equipment for the use intended under this Contract.

5.04 SUBSTITUTIONS

A. If material or equipment is specified as a sole source, Sound Transit will not consider substitutions.

B. Materials or equipment of equal or better capacity, quality, or function may be allowed by Sound Transit, in its sole discretion, upon written request for substitution by the Contractor. Requests for substitution shall be made in accordance with these Contract Documents. Denial of a request for substitution is not grounds for any claim against Sound Transit.

C. Except for sole source materials or equipment, the Contractor may offer material or equipment of equal or better quality and performance in substitution for those specified in the Contract Documents. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor. Sound Transit will consider offers for substitution only from the Contractor and not from Suppliers, distributors, manufacturers, or Subcontractors. If the offered substitution necessitates changes to or coordination with other portions of the Work, the Contractor, as a condition of Sound Transit's acceptance of the substitution, shall perform such changes or coordination at no additional cost to Sound Transit. Substitutions shall be submitted to Sound Transit in sufficient time to avoid delays to the Work. The Contractor shall be responsible for any delay or cost resulting from untimely submittal of substitution requests.

D. The Contractor has the burden of demonstrating that the proposed substitution's function, quality, and performance will be equal in all respects to that of the specified item.

E. A request for substitution constitutes a representation that the Contractor:

1. Has investigated the proposed product and determined that it meets or exceeds the quality level of the specified product;

2. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Sound Transit;

3. Waives claims for additional costs or time extension that may subsequently become

apparent; and

4. Bears all Sound Transit costs of any redesign or modification to other systems, parts, equipment or components of the Contract Work resulting from the substitution.

F. Substitutions will not be considered when they are indicated or implied on Shop Drawings or product data submittals without a separate written request. Substitutions will not be considered when they are due to the Contractor's failure to order the specified items in a timely manner.

G. Sound Transit shall be the sole judge of whether the offered substitution is in conformance with the Contract Documents for the Work and whether the changes to other portions of the Work necessitated by the incorporation of the offered substitution are acceptable. Any savings resulting from the use of a substituted item shall be passed on to Sound Transit in the form of a Value Engineering Cost Proposal.

H. Sound Transit may, at its option, supply hardware, software, licenses, warranties, infrastructure, or materials outside of this Contract in accordance with design specifications provided by the Contractor. In the event that ST supplies any such items, they shall be delivered in new condition and working order and in a timely fashion to the Contractor at a location and date to be determined in advance and agreed in writing.

5.05 MANUFACTURER'S DIRECTIONS

Manufactured articles, materials, solvents, and equipment or other goods shall be transported, stored, applied, installed, connected, erected, adjusted, tested, operated, and maintained as recommended by the manufacturer, unless otherwise specified herein. Items shall be installed by the manufacturer where recommended or directed; however, the Contractor shall not be relieved of responsibility for such installation and costs.

5.06 RESPONSIBILITY FOR PERFORMANCE

Designation of brand names, components, and/or equipment in the Specifications shall not relieve the Contractor from responsibility for performance in accordance with contractual requirements. The Contractor is responsible for notifying the Regional Program Manager of any inappropriate brand name, component, and/or equipment that may be called for in the Specifications, and for proposing a suitable alternate for consideration. Any substitution required by Sound Transit or the Regional Program Manager under this Article shall be implemented in accordance with the procedures set forth in Article 4, Changes and Change Order Process.

ARTICLE 6 PROSECUTION AND PROGRESS OF THE WORK

6.01 CONTRACT TIME

A. All time requirements set forth in the Contract Documents are of the essence in the performance of this Contract. Unless specifically authorized in writing by Sound Transit, the Contractor is not allowed to perform Work or incur costs under this Contract until the effective date of the Notice to Proceed. The Contractor shall proceed with performance of the Work under this Contract immediately after the effective date of Notice to Proceed and shall continuously and diligently

prosecute the Work and specified portions thereof to completion on or before the time or times set forth in this Contract. Any work performed by the Contractor prior to the effective date of Notice to Proceed shall be at the Contractor's risk. The Contract Time shall not be extended or reduced except by Change Order. The Contractor shall not be entitled to receive delay damages or costs for non-realization of anticipated early completion of the Work before a Contract specified Milestone date.

B. The Contractor shall work such hours including overtime operations and/or extra shifts, within the parameters of permitted working days and hours, as may be necessary to meet its performance obligations under the Contract.

C. The Contractor shall comply with all local requirements and permit conditions relating to acceptable hours of operation for work locations, and to noise control and abatement. If the Contractor deems that a waiver of any local requirements is necessary to enable the Contractor to perform the Work in accordance with the Contract requirements, it is the Contractor's responsibility to obtain said waivers, at no additional cost to Sound Transit.

D. All time periods measured in days for Contract Milestones and Notices shall be based upon calendar days, unless specified otherwise. Time periods measured in days for each Contract milestone and notice shall be computed by excluding the day upon which the period begins to run and including the last day of the period unless the last day is Saturday, Sunday or a legal holiday as defined in RCW 1.16.050. If the last day of the period is a Saturday, Sunday or legal holiday, the period shall run until, and shall include, the next day that is not a Saturday, Sunday, or legal holiday.

E. When an extension of time for completion of a milestone is granted, the extended date for completion of that milestone shall be calculated using the sum of the number of days originally allowed plus the number of days extension of time, commencing on the effective date of the Notice to Proceed, unless otherwise noted in the Special Conditions.

6.02 PROJECT SCHEDULES

A. Preparation and Submittal of Schedules

1. The Contractor shall develop and deliver, in accordance with the Contract Documents, the various schedules and progress reports to Sound Transit for review and acceptance. Sound Transit's review shall not constitute approval or acceptance of the schedules' sequencing or time of completion, nor of the Contractor's means and methods.

2. The Contractor shall not be entitled to payment, nor shall Sound Transit be required to make payment for any Contract Work, until the Project Schedule complies with the Contract requirements.

B. Float

1. Float is defined as the number of days by which a Work activity identified in the project schedules could be delayed from its "early start date" until the date upon which the Work activity would become a Critical Path Activity.

2. Any float (other than Sound Transit Controlled Float), slack time, or contingency within the Project Schedules (i.e., the difference in time between the Contract's early completion date and the Contract Milestone(s)) is not for the exclusive use of either Sound Transit or the Contractor, but is jointly owned by both and is a resource available to and shared by both parties as needed to meet Contract Milestones. Use of such jointly owned float shall be on a first come, first served basis and may be applied to delays caused (without limitation) by unmarked utility interferences or third parties.

3. The Contractor shall not sequester shared float through such strategies as extending activity duration estimates to consume available float, using preferential logic, or using extensive crew/resource sequencing, etc. Since float time, other than Sound Transit Controlled Float, within the schedule is jointly owned, no time extensions will be granted nor delay damages paid until a delay occurs which extends the work beyond the Contract Milestone(s). Since float time within the project schedule is jointly owned, it is acknowledged that Sound Transit-caused delays on the Contract may be offset by Sound Transit-caused time-savings. In such an event, the Contractor shall not be entitled to receive a time extension or delay damages until all Sound Transit-caused time-savings are exceeded.

6.03 FAILURE TO MAINTAIN PROGRESS

If, in the opinion of the Regional Program Manager, the Contractor is not maintaining its anticipated progress towards the completion of the Milestones and / or falls behind the approved project schedules, the Contractor shall take any and all steps necessary to improve its progress. If the Contractor fails to implement appropriate remedial actions, the Regional Program Manager may require the Contractor to increase the number of shifts, increase the number of crews and/or operations, initiate or increase overtime operations, increase days of work in the work week, increase the amount of facilities and equipment, or all of the foregoing. Sound Transit may also require the Contractor to submit for approval supplemental progress schedules that detail specific operation changes to be instituted to regain the approved schedule. The cost of the actions necessary to improve the Contractor's progress will be the responsibility of the Contractor and will not be reimbursed by Sound Transit.

6.04 PROTECTION OF PROPERTY

In addition to the requirements set forth elsewhere in the Contract documents, the Contractor shall comply with the following general requirements:

A. Protect all public and private property, insofar as it may be endangered by the Contractor's operations, and take every reasonable precaution to avoid damage to such property.

B. Restore and bear the cost of restoration of any public or private improvement, facility, structure or land and landscaping inside or outside of the right-of-way or easement, which is damaged or injured directly or indirectly by or on account of an act, omission, or neglect in the execution of the Work; restore to a condition substantially equivalent to that existing before such damage or injury occurred, by repairing, replacing, rebuilding, or otherwise affecting restoration thereof, or if this is not feasible, make a suitable settlement with the owner of the damaged property. All restoration shall be governed by the requirements of local authorities, including but not limited

to local codes, standards, and permit conditions.

C. Give reasonable notice through the Regional Program Manager to occupants of buildings on property adjacent to the Work to permit the occupants to remove vehicles, trailers and other possessions as well as salvage or relocate facilities, trees, fences, sprinkler systems, or other improvements in the right-of-way which are designated for removal or which might be destroyed or damaged by work operations.

D. Protect all trees, lawns, and facilities areas within the Right-of-Way or Easements that are designated for preservation.

E. Not operate tracked equipment on the streets that are not scheduled for demolition and repaving under this Contract. In the event tracked equipment is used, the streets shall be fully protected.

Commented [Legal111]: Term misspelled.

Commented [BA112R111]: Edit accepted.

6.05 PUBLIC SAFETY AND CONVENIENCE

The Contractor shall conduct its operations to ensure the least possible obstruction and inconvenience to the public, and the Contractor shall have no greater amount of work than the Contractor can prosecute properly with due regard to the rights of the public.

6.06 EMERGENCY WORK

A. In an emergency affecting the safety of persons, the Work, or adjoining property, the Contractor, without special instructions or authorization from the Regional Program Manager, shall act to prevent such threatened loss or injury. In such an emergency, the Contractor shall perform such additional work as required. Any compensation claimed by the Contractor on account of emergency work shall be governed by Article 4, Changes and Change Order Process, or as deemed appropriate by the Regional Program Manager.

B. If, during the Warranty period or during the progress of the Contract, the Contractor is absent from the locations of the Work at the time when a failure or faulty condition of the Contractor's work requires emergency action in the public interest, Sound Transit shall have the right to make repairs or corrections by itself or with other forces, as required, and Sound Transit may withhold from monies due the Contractor any costs which Sound Transit incurs from such emergency work.

6.07 PROTECTION OF UTILITIES

A. Facilities and installations of various utilities may be present in the area of Work. In general, the locations of existing major utilities, whether aboveground or underground, are indicated on the Contract Drawings. This information has been obtained from utility maps and field surveys. Sound Transit does not guarantee the accuracy or completeness of the information. It is understood that other facilities not shown on the Contract Drawings may be encountered during the course of the work. In any case, most minor lines such as water, gas, electric power and communication, sewer services, and sprinkler irrigation lines may not be indicated. The Contractor shall protect any utility property that is on or adjacent to the Site or affected by the Work. Existing utilities, whether shown on the Contract Drawings or not, shall be maintained, relocated, rerouted, removed, repaired, and restored as may be necessary by the Contractor in a manner satisfactory to owners and operators of the utilities and to Sound Transit. The Contractor shall contact the

utility owners and arrange operations and schedules to minimize any interruption of utility services. The Contractor shall provide utility owners with notice as may be required by said utilities for location of utility services, scheduling of outages, or other utility activities needed to accommodate the Contractor's operations.

B. The Contractor shall comply with the requirements of RCW 19.122, Underground Utilities, and take steps to ascertain the exact location of all facilities prior to doing work which may damage such facilities or interfere with their service. Where the location of a facility is not indicated, or is, in the opinion of the Regional Program Manager, doubtful, the Contractor may be directed to make such excavations and explorations as are necessary to ascertain the correct location.

C. When performing work in streets and easements, the Contractor shall notify all affected utilities and local agencies of its proposed operations and properly coordinate and expedite the Work in such a manner as to cause the least amount of conflict and interference between the work and operations of other agencies. In the event of disruption or threat of disruption to utility services as a result of Work-related activities, regardless of cause, the Contractor shall notify Sound Transit immediately and shall notify and cooperate with the utility as well as any fire, police, or other public authority which may be affected by the disruption, as required by said utility, agency, or authority.

D. The Contractor shall document all incidents of damage or impacts to utilities that are the result of Work activity, and report all such incidents to Sound Transit immediately with the date, time, place and type of property damage.

E. The Contractor shall ensure that unauthorized personnel are strictly prohibited from the operation of utility or agency water valves and hydrants and shall obtain written permission from the applicable proper utility or agency prior to using any water hydrant or operating any water valve. No Work shall be undertaken around fire hydrants until provisions for continued access and service have been approved by the local fire authority.

6.08 TEMPORARY FACILITIES AND UTILITIES

A. Temporary facilities and utilities shall be installed in compliance with federal, state, and local codes and statutes, at the Contractor's expense. The installation and maintenance of all temporary facilities will be subject to the approval of Sound Transit, and unless otherwise authorized in writing by Sound Transit, all such facilities shall be removed before Acceptance of the Work.

B. Before proceeding with the erection of any facilities, including temporary structures, machinery, offices, and warehouses, the Contractor shall, at its expense, notify and furnish Sound Transit with such information and drawings as Sound Transit may request showing locations of such facilities, capacities and capabilities of the machinery and equipment, and projected utility requirements. Such facilities shall be fully adequate for the uses intended and fully comply with the requirements of the Contract.

6.09 TEMPORARY REARRANGEMENT OF UTILITIES

The Contractor may desire to rearrange utilities temporarily for Contractor's convenience. In this case, the

Contractor shall make whatever arrangements are necessary with the owners of such utility or other facility for such rearrangement and bear all expenses in connection therewith. Further, the Contractor shall maintain all utility facilities placed by the Contractor in temporary locations, and all utilities within the work area not required to be permanently rearranged but which are required to be shored or supported during the Work period. Unless otherwise indicated, the cost of such temporary rearrangement and maintenance shall be borne by the Contractor and no other compensation shall be due the Contractor for this work.

6.10 REARRANGEMENT OF UTILITIES BY OTHERS

Some or all of the utilities and other facilities, both above ground and below ground, which are required to be rearranged to accommodate the specified work, may be rearranged by other forces. In the event that rearrangement will be performed prior to the start of the Contractor's operations, or where the rearrangement must be coordinated with the Contractor's Work operations, the existing facilities which are to be rearranged by others will be indicated in the Contract Documents. Where such a rearrangement by others is indicated in the Contract Documents, the Contractor will have no liability for the cost of performing the work; however, the Contractor shall cooperate with those involved in such rearrangement. Wherever necessary, the work of the Contractor shall be coordinated with the rearrangement of utility or other facilities, and the Contractor shall make arrangements with the owner of such facilities for the coordination of the work. The Contractor shall anticipate potential delays by the utility owners and such reasonable delays shall not be the basis for additional compensation or time extensions. Only in the event that the utility owners fail or refuse to relocate or do so in a manner causing unreasonable delays to the critical path of the Work, may the Contractor request a time extension as provided in Article 4, Changes and Change Order Process.

6.11 EXPLORATION FOR UTILITIES

Where excavations or explorations to determine the location of utilities are directed by the Regional Program Manager and where it is determined by the Regional Program Manager that the rearrangement of an underground facility, which is not shown in the Contract Documents, is essential in order to accommodate the Work, the Regional Program Manager will provide for the rearrangement of such facility by other forces or, when so ordered by a CN-WD or CO, such rearrangement shall be performed by the Contractor and will be paid for as provided in Article 4, Changes and Change Order Process. In the event of unscheduled or unanticipated disruption(s) or threat of disruption(s) to utility services as a result of work-related activities, regardless of cause, the Contractor shall promptly notify Sound Transit, the affected utility, and fire and/or police agencies as necessary, and shall cooperate with those authorities. If temporary disruption(s) of utility service(s) is (are) unavoidable pursuant to the Work, the Contractor shall immediately notify the Regional Program Manager and secure authorization from Sound Transit before disrupting the utility service(s). Operation of utility or agency water valves and hydrants by unauthorized personnel is strictly prohibited without obtaining written permission from the applicable authority prior to using any water hydrant or operating any water valve. No work shall be undertaken around fire hydrants until provisions for continued access and service have been approved by the local fire authority.

6.12 SAFETY, FIRST AID AND SECURITY

A. The Contractor shall be solely and completely responsible for conditions of the Site and the safety of all persons and property twenty-four (24) hours per day during the performance of the Work of this Contract. The Contractor shall:

1. Maintain the site and perform the work in a manner that meets statutory, regulatory and common law requirements for the provision of a safe place to work and that does not pose unreasonable safety risks to employees of Sound Transit or the public;

2. Initiate, maintain, and supervise all safety precautions and programs in connection with the performance of the Work;

3. Protect the lives and health of employees performing the work and other persons who may be affected by the Work, and

4. Prevent damage to and theft of materials, supplies, and equipment whether on-Site or stored off-Site.

B. The Contractor shall comply with all applicable local, state and federal laws, ordinances, rules, regulations and orders of any public authority building and codes, and safety regulations bearing on the safety of people and property and their protection from damage, injury or loss. In the case of conflict, the more stringent requirement shall apply. Any review of the Contractor's performance conducted by Sound Transit or its consultants, does not and shall not be intended to include review of the adequacy of the Contractor's safety measures in, on, or near the Site.

C. The minimum safety requirements and procedures for accident prevention, safety and loss prevention, accident and incident reporting, and control for the Work are contained in other Contract Documents. Failure to comply with these minimum requirements may result in a material breach of contract. The minimum safety requirements contained in the Contract are intended to supplement, and not replace the Contractor's Safety and Security Program or Site Safety and Security Plan.

D. Prior to work, the Contractor shall have in place a Contractor's Safety and Security Program (CSSP). From this Program the Contractor shall prepare a Contractor's Site Safety and Security Plan (SSSP) identifying the methods by which all applicable safety and security requirements of this Contract and the applicable Federal, state and local requirements will be met. The Contractor shall ensure its Subcontractors have either a written safety program that conforms to the applicable requirements or formally adopt the Contractor's Safety and Security Program and Site Safety and Security Plan. The Contractor shall designate a Safety and Security Officer who shall be responsible for proper implementation of the CSSP and the SSSP. The Contractor shall submit a copy of its CSSP and SSSP to Sound Transit in accordance with the Contract Documents. Sound Transit's review of the CSSP or SSSP shall not be deemed to constitute approval or acceptance thereof and shall not transfer any responsibility for the safety of the Work site from the Contractor to Sound Transit.

E. The Contractor shall conduct a monthly safety meeting with all on-site Subcontractors and supervisors to discuss general and specific safety matters. The Contractor shall keep a log of such

monthly safety meetings and provide it upon request by Sound Transit, including a sheet on which each attendee signed in and a description of the safety topics discussed at the meeting. The Contractor also shall conduct weekly safety or "tool box" meetings with employees of the Contractor and Subcontractors. The Contractor shall keep a log of such weekly safety meetings and provide it upon request by Sound Transit.

F. As the property owner, Sound Transit retains the right to grant consent to inspections pursuant to State and Federal law. This includes all accident and criminal investigations and general schedule, complaint, and follow-up safety and health inspections conducted by the State of Washington Department of Labor and Industries (WISHA) and the Federal Occupational and Health Administration (OSHA).

6.13 ORDER OF WORK

When required by the Contract Documents, the Contractor shall follow the sequence of operations set forth therein. Full compensation for conforming to such requirements will be considered as included in the prices paid for the various Contract items of the Work and no additional compensation will be allowed therefore.

6.14 LIABILITY FOR EXPENSES

The Contractor shall be liable to Sound Transit for expenses incurred due to the Contractor's failure to perform tasks in accordance with the Contract requirements. Such expenses may include costs to Sound Transit for providing personnel to perform tasks on behalf of the Contractor and shall be subject to an advance notice to the Contractor that such expenses are expected to be incurred. These expenses may be deducted as unilateral credit Change Orders or as part of the Change Orders issued in accordance with Article 4, Changes and Change Order Process.

ARTICLE 7 LEGAL REQUIREMENTS

7.01 HEADINGS

The parties agree that Article and Section headings and other titles used in this Contract are for convenience only, and are not to be used to interpret this Contract.

7.02 WAIVER OF CONTRACT TERMS

No act or failure to act on the part of Sound Transit with respect to the exercise or enforcement of any provision of this Contract (including but not limited to rights or remedies conferred upon Sound Transit under this Contract, performance, or standards) shall be deemed to be a waiver on the part of Sound Transit of any provision of this Contract. No waiver of one provision by Sound Transit shall act as a waiver of any other provision or as a subsequent waiver of the same provision. No waiver shall be effective against Sound Transit except an express waiver in writing.

Commented [LC113]: Needs to be for both parties.

Commented [BA114R113]: Comment rejected. The Contractor is contracted to perform the work.

Commented [CL115R113]: Correct and Sound Transit must allow the Contractor to perform therefore the right to waive once without forever losing the right to enforce needs to be bilateral.

7.03 PROHIBITED INTEREST

The Contractor shall not offer or confer any interest, direct or indirect, in this Agreement or the proceeds thereof (or hire or retain in any way, directly or indirectly) to or on any member, officer, or employee of

Sound Transit or its governing body, or of any of its component agencies during such person's tenure or one year thereafter, unless such interest has been disclosed in writing to Sound Transit and Sound Transit has determined that no prohibited conflict of interest or ethical violation exists in the circumstances.

7.04 SUCCESSOR'S OBLIGATIONS

The grants, covenants, provisos and claims, rights, powers, privileges and liabilities contained in the Contract shall be read and held as made by and with, and granted to and imposed upon, the Contractor and Sound Transit and their respective heirs, executors, administrators, successors and assigns. A Surety under the Performance Bond allowed by Sound Transit to complete the Work in the event of a default, termination, or other failure of the Contractor to perform the Work, shall comply fully with all Contract requirements and shall not use the defaulted or terminated Contractor for continuation or completion of the Work unless Sound Transit consents.

7.05 ASSIGNMENT OF CONTRACT

The Contract shall not be assigned in whole or in part by the Contractor without the prior consent of Sound Transit. To the maximum extent permitted by law, involuntary assignment of the Contract caused by the Contractor being adjudged bankrupt, assignment of the Contract for the benefit of the Contractor's creditors, or appointment of a receiver on account of the Contractor's insolvency shall be considered as a failure to comply with the provisions of the Contract and subject to the termination provisions contained herein.

7.06 JOINT VENTURE CONTRACTOR

A. In the event the Contractor is a joint venture of two or more partners, the grants, covenants, provisos and claims, rights, power, privileges, and liabilities of the Contract shall be construed and held to be several as well as joint. Any notice, order, direction, request, or any communication given by Sound Transit to the Contractor under this Contract shall be well and sufficiently given to all persons being the Contractor if given to any one or more of such joint venture partners. Any notice, request or other communication given by any one of such joint venture partners to Sound Transit under this Contract shall be deemed to have been given by and shall bind all joint venture partners being the Contractor.

B. In the event of the dissolution of the joint venture Contractor, Sound Transit shall have the unqualified right to select which joint venture partner(s), if any, shall continue with the Work under this Contract. Such selected partner(s) shall assume all liabilities, obligations, rights, and benefits of the Contractor under this Contract. Dissolution of the joint venture shall not be effected without prior consultation with Sound Transit. In the event of failure or inability of any joint venture partner(s) to continue performance under this Contract, the remaining joint venture partner(s) shall perform all services and Work and assume all liabilities, obligations, rights, and benefits to the Contractor under this Contract. Nothing in this Article shall be construed or interpreted to limit Sound Transit's rights under this Contract or by law to determine whether the Contractor or any joint venture partner thereof has performed within the terms of this Contract.

7.07 CONFLICT OF INTEREST

By submission of its Proposal, the Contractor covenants that it has no direct or indirect pecuniary or

proprietary interest, and that it shall not acquire any interest that conflicts in any manner or degree with the Work, materials to be provided or services required to be performed under this Contract. Furthermore, the Contractor shall not employ any person or agent having any such conflict of interest. In the event that the Contractor or its agents, employees or representatives hereafter acquires such a conflict of interest, it shall immediately disclose in writing such interest to Sound Transit and take action immediately to eliminate the conflict or to withdraw from this Contract, as Sound Transit requests. The Contractor shall not employ any consultant who is concurrently employed by Sound Transit or by Sound Transit's consultants (including, but not limited to, surveyors, engineers, architects, and testing laboratories), without first obtaining Sound Transit's approval in writing.

7.08 PERMITS, FEES, AND NOTICES

A. Except as otherwise indicated, the Contractor shall procure all necessary permits and licenses, pay all charges and fees, comply with all permit conditions and give all notices necessary and incident to the due and lawful prosecution of the Work. Failure of the Contractor to perform any of the requirements specified herein shall result in the Contractor's liability as set forth herein. Upon written request the Contractor shall furnish Sound Transit with satisfactory documentation evidencing compliance with the applicable requirements. Contractor shall sign as co-permitee on any stormwater permits issued for the Work regardless of whether Sound Transit obtains such permit(s) prior to or after execution of this Contract.

B. The Contractor shall be fully liable to Sound Transit and any permit issuing authority for any costs and damages arising out of or relating to Contractor’s failure to obtain a permit or for any failure to comply with the terms of any permit, including (1) costs associated with completing the Work authorized and/or required by any government permit within the time or times, if any, stipulated in such permit and any fees or penalties assessed by the permit issuing authority, (2) any damages or costs assessed under Article 7.14, and (3) delays to the Work caused by failure to timely complete Work, or any separate part thereof. As used herein, the term “permit issuing authority" includes any authority whose permit or license is necessary and incident to the due and lawful prosecution of the Work.

C. The Contractor shall be responsible for identifying, securing, and paying for all necessary licenses, fees, inspections, waivers, utility connection fees, building and other permits, and similar authorizations from governmental and utility authorities required to fulfill the Contract requirements and the Contractor's obligations except for those identified in the Contract as being furnished or paid for by Sound Transit.

D. The Contractor shall maintain at the Work Site copies of all permits, licenses, certificates, or other documentation demonstrating compliance with any applicable statute, regulation, ordinance, or rule or other requirements of this Contract. The Contractor shall provide copies of such documentation to Sound Transit promptly upon request.

E. The Contractor shall be liable for and shall pay all fines, assessments, and other costs resulting from the Contractor's violation of any applicable federal, state, or local statute, regulation, ordinance, or other restriction.

F. The Contractor shall not be entitled to any additional compensation or extension of time as a

result of the Contractor's violation of applicable regulatory requirements. If a delay results from such a violation, the Contractor shall be responsible for all costs including, but not limited to, overtime premium associated with regaining the time lost as a result of such delay, and any damages, including liquidated damages, which may result from Contractor's failure to comply with the project schedule as a result of such delay.

7.09 PUBLICITY AND ADVERTISING

The Contractor, its Subcontractors, and Suppliers shall not publish nor cause to be published any advertisement or other material, including news releases and technical papers, regarding the subject matter of this Contract at any time without the prior written authorization of Sound Transit. The Contractor shall not display any signs, posters, or any other advertising matter in or on the Work or on or around the site other than those prescribed by the Contract or by law without the prior written authorization of Sound Transit. In addition, advertising or other copy mentioning Sound Transit or quoting the opinions of any of its employees shall not be released before such copy is approved in writing by Sound Transit. Any material proposed for publication shall be factual and shall not state or imply endorsement by Sound Transit of any firm, service or product.

7.10 LIABILITY AND INDEMNIFICATION

A. The Contractor shall comply, and require its subcontractors to comply, with all Sound Transit resolutions, motions and federal, state, and local laws, regulations, and ordinances applicable to the work and services to be performed under this Agreement.

B. Insurance Coverage, whether owner-provided, contractor-provided, or otherwise, shall not relieve the Contractor, Subcontractors or Suppliers of their responsibility for liability or damages to Sound Transit under the Contract Documents.

C. The Contractor shall be solely responsible for any claims for wages or compensation by the Contractor employees, agents, and representatives, including subcontractors, and save and hold Sound Transit harmless therefrom.

D. The Contractor shall indemnify, defend and hold Sound Transit harmless for any costs and pay any damages or judgments related to any claim brought by any person employed in any capacity by the Contractor, Subcontractors, or any agent of Contractor~~cy~~ or Subcontractor on the Work, with respect to the payment of wages, salaries, or other compensation or benefits, including but not limited to benefits such as medical, health, retirement, vacation, sick leave, etc.

E. To the maximum extent permitted by law, the Contractor agrees to defend, release, indemnify and save harmless Sound Transit, its successors and assigns, and its and their shareholders, officers, officials, directors, contractors, and employees, and the ORCA partner agencies (collectively "the Indemnified Parties") from and against any liability including any and all suits, claims, actions, losses, costs, penalties, response costs, and damages of whatsoever kind or nature to the extent arising out of, in connection with, or incident to the Contractor's negligent performance or negligent failure to perform this Contract or the Work including 1) intentional wrongful acts and 2) Contractor's failure to comply with requirements of the Contract Documents; provided, however, that if the provisions of RCW 4.24.115 apply to the Work and any injuries to persons or property arising out of performance of this Agreement are caused by or result from

Commented [Legal116]: Language is added to clarify that it is an agent of the Contractor who it is referred to.

Commented [BA117R116]: Added language to make agreeable.

Commented [CL118R116]: Accept

Commented [Legal119]: The terms are added to clarify that it is a negligent standard applied to this paragraph. Contractor is not an insurer of every contingency regardless of fault.

the concurrent negligence of the Contractor or its Subcontractors, agents or employees, and an Indemnified Party, the indemnification applies only to the extent of the negligence of the Contractor, its Subcontractors, agents or employees.

THE CONTRACTOR SPECIFICALLY ASSUMES POTENTIAL LIABILITY FOR ACTIONS BROUGHT BY THE CONTRACTOR'S OWN EMPLOYEES OR FORMER EMPLOYEES AGAINST ANY INDEMNIFIED PARTY, AND FOR THAT PURPOSE THE CONTRACTOR SPECIFICALLY WAIVES ALL IMMUNITY AND LIMITATIONS ON LIABILITY UNDER THE WORKERS COMPENSATION ACT, RCW TITLE 51, OR ANY INDUSTRIAL INSURANCE ACT, DISABILITY BENEFIT ACT OR OTHER EMPLOYEE BENEFIT ACT OF ANY JURISDICTION THAT WOULD OTHERWISE BE APPLICABLE IN THE CASE OF SUCH CLAIM. THIS INDEMNITY OBLIGATION SHALL NOT BE LIMITED BY ANY LIMITATION ON THE AMOUNT OR TYPE OF DAMAGES, COMPENSATION OR BENEFITS PAYABLE BY OR FOR CONTRACTOR OR A SUBCONTRACTOR UNDER WORKERS' COMPENSATION, DISABILITY BENEFIT OR OTHER EMPLOYEE BENEFITS LAWS. THE CONTRACTOR RECOGNIZES THAT THIS WAIVER WAS SPECIFICALLY ENTERED INTO AND WAS THE SUBJECT OF MUTUAL NEGOTIATION. PROVIDED, HOWEVER, THE CONTRACTOR'S WAIVER OF IMMUNITY BY THE PROVISIONS OF THIS PARAGRAPH EXTENDS ONLY TO CLAIMS AGAINST THE CONTRACTOR BY SOUND TRANSIT, AND DOES NOT INCLUDE, OR EXTEND TO, ANY CLAIMS BY THE CONTRACTOR'S EMPLOYEE DIRECTLY AGAINST THE CONTRACTOR.

F. The Contractor further agrees to assume the defense of the Indemnified Parties with legal counsel acceptable to Sound Transit, whose acceptance shall not be unreasonably withheld or delayed, in all legal or claim proceedings arising out of, in connection with, or incidental to the performance of this Agreement or the Work. The Contractor shall pay all defense expenses, including attorneys' fees, expert fees, and costs (collectively "defense costs") incurred directly or indirectly on account of such litigation or claims, and the Contractor shall satisfy any judgment rendered in connection therewith. In the event that any lien is placed upon the property of any of the Indemnified Parties as a result of such suits or legal proceedings, the Contractor agrees to immediately cause the same to be dissolved and discharged by giving bond or otherwise.

Commented [BA120]: Proposed edit accepted.

G. The Contractor may settle any suit, claim, action, loss, cost, penalty, or damages, subject to the approval of Sound Transit, whose approval shall not be unreasonably withheld, if such settlement completely and forever extinguishes any and all liability of the Indemnified Parties. In the event of litigation between the parties to enforce the rights under this Article, reasonable attorney fees shall be allowed to the prevailing party.

H. The Contractor further agrees that any review and/or approval by Sound Transit and/or others hereunder shall not relieve the Contractor of any of its obligations to perform to generally accepted professional standards applicable to the types of services and work provided hereunder or in any way diminish its liability for the performance of such obligations or its obligations to provide the indemnities hereunder.

I. The foregoing indemnities and duties to defend shall survive the termination of this Agreement and final payment hereunder, and are in addition to any other rights or remedies which Sound Transit and/or any of the Indemnified Parties may have by law or under this Agreement. In the event of any claim or demand made against any Indemnified Party hereunder, Sound Transit may, in its sole discretion, reserve, retain or apply any monies due to the Contractor under the Agreement for the purpose of resolving such claims; provided, however, that Sound Transit may

release such funds if the Contractor provides Sound Transit with adequate assurance of the protection of Sound Transit's and the other Indemnified Parties' interests.

J. The Contractor shall not assign any interest, obligation, or benefit in this Agreement or transfer any interest in the same, whether by assignment or novation, without prior written consent by Sound Transit; provided, however, that claims for money due or to become due to the Contractor from Sound Transit under this Agreement may be assigned to a bank, trust company, or other financial institution without such approval. Notice of any such claim assignment shall be furnished promptly to Sound Transit.

K. Sound Transit's rights and remedies in this Agreement are in addition to any other rights and remedies provided by law.

7.11 OWNERSHIP OF WORK PRODUCT

All information, including drawings, specifications and other data, prepared or developed by the Contractor uniquely and specifically for Sound Transit in performance of the Work, whether or not required to be furnished to Sound Transit, shall be the property of Sound Transit and may be used by Sound Transit without restriction. The Contractor hereby assigns and transfers to Sound Transit any and all copyrights for such materials. Prior to the completion of the Work, the Contractor shall provide Sound Transit with a list of all such information which has not previously been furnished to Sound Transit. Sound Transit will then have thirty (30) days to advise the Contractor which information shall constitute Sound Transit property. Before requesting Acceptance, the Contractor shall deliver to Sound Transit the information that has been identified to constitute Sound Transit property.

Commented [Legal121]: The addition made is for clarification of the paragraph to reflect that the work product is specifically made for Sound Transit. Moreover, such change is consistent with other changes/clarifications made in the Contract as it relates to intellectual property.

7.12 ~~TECHNICAL DATA~~ INTELLECTUAL PROPERTY ~~OF CONTRACTOR~~ WARRANTY OF GOOD TITLE

Commented [AB122]: All proposed edits in this Article are rejected. Rights in Contractor IP is not the intent of this provision. It is unclear what the Proposer's are. Perhaps a separate Article should be proposed to address Proposer's concerns.

Commented [CL123R122]: With respect, each portion must be examined. Leaving aside the title of the clause the purpose is to protect Sound Transit in the event there is a patent or copyright claim against Sound Transit arising from an alleged infringement claim. INIT is entitled to void its warranty in the event infringement occurs because of a fault of Sound Transit.

A. The Contractor shall assume all risks claims of infringement arising from the use of patented or copyrighted materials, equipment, devices or processes not furnished by Sound Transit or any other ORCA partner agency, used on or incorporated in the Work by Contractor, and shall indemnify, defend and hold harmless Sound Transit and any other ORCA partner agency, and all of its directors, officers, employees and agents to the maximum extent permitted by law from and against any and all claims, liabilities, losses, damages or expenses (including attorney's fees and related costs), whether direct or indirect, arising out of or relating to the ownership, possession or use of any patented materials, equipment, devices or processes. In case such material, equipment, devices or processes are held to constitute an infringement and their use enjoined, the Contractor at the Contractor's expense shall:

1. Secure for Sound Transit the right to continue using said materials, equipment, devices or processes by suspension of the injunction or by procuring a license, or licenses, or;

2. Replace such materials, equipment, devices or processes, or

3. Modify them so that they become non-infringing or

Commented [CL124]: The disclaimer must be retained. If there is an infringement caused by ST Init will not be responsible.

4. Remove the enjoined materials, equipment, devices or processes and refund the sums paid therefore without prejudice to any other rights of Sound Transit or the Regional

Program Manager.

B. The preceding Paragraph A shall not apply to and Contractor shall have no obligation or liability with respect to any patent or copyright infringement claim based upon: (a) any product that is manufactured to Sound Transit's or those for whom it is responsible, design; (b) the combination, operation, or use of any product furnished hereunder in conjunction with any other apparatus or material; or (c) any products that have been altered, modified, or revised by any party other than Contractor or Contractor's agent. As to any product or use described in the preceding sentence, Contractor assumes no liability whatsoever for patent infringement or the unauthorized use of Products, including, without limitation, a breach of the provisions of the Contract and the failure of Sound Transit to implement any update provided by Contractor that would have prevented the claim. Notwithstanding the foregoing, with respect to any products, or portions thereof, which are not manufactured or developed by Contractor and are not manufactured to Contractor's design specifications, only the indemnity of the manufacturer/developer, if any, shall apply.

~~to any materials or processes specified by Sound Transit or its Contractors, or manufactured to the design of Sound Transit or its Contractor in accordance with the details contained in the Contract Documents, if authorized by Sound Transit; and for such materials and processes the Contractor assumes no liability whatsoever for infringement, except to the extent that the Contractor knew, or should have known of the infringement and failed to promptly notify Sound Transit thereof.~~ NEW CLAUSE

7.13 RIGHT TO INVENTION

~~B.~~ In respect only of Work performed prepared or developed by the Contractor uniquely and specifically for Sound Transit in performance of the Work ~~i~~If any invention, improvement, or discovery of the Contractor is conceived or first reduced to practice in the course of Work or under this Contract, and such invention, improvement, or discovery may be patented under the laws of the United States of America or any foreign country, the Contractor shall immediately notify Sound Transit and provide a detailed report. The rights and responsibilities of Sound Transit, the Contractor, and the federal government with respect to such invention, improvement, or discovery will be determined in accordance with applicable federal laws, regulations, policies and any grant agreements. Except for Contractor's use in conjunction with the Work required by this Contract, the Contractor may not publish or reproduce such data in whole or in part, or in any manner or form, nor may the Contractor authorize others to do so, without the written consent of Sound Transit.

~~C.~~ This Article shall survive any expiration or termination of this Contract.

7.13 SEVERABILITY

If a provision of this Contract is found by a court of competent jurisdiction to be unenforceable, the validity and enforceability of the remaining provisions shall remain unaffected, and the parties shall negotiate an equitable adjustment of this Contract so that the purposes of this Contract are effected.

7.14 COMPLIANCE WITH LAWS AND REGULATIONS

A. The Contractor shall keep fully informed concerning all governmental requirements, including but not limited to all State, federal, county and municipal laws, ordinances and regulations which in any manner affect the performance of the Work, or the materials and equipment used in the

Commented [Legal125]: The added language is to clarify that there in general is no liability for Contractor and/or Contractor's agents in the event of any patent infringement claim, if Contractor was not responsible for design and or production, or if Sound Transit failed to implement any updates provided.

Commented [Legal126]: Paragraph is deleted since there is no Material licensed. Material is purchased.

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Commented [Legal127]: The language added is to clarify that Sound Transit only will have these rights in Work prepared or developed uniquely and specifically for Sound Transit under the Contract.

Commented [CL128]: What "data" is being referred to here? INIT will not agree to share any invention or improvement it may make in the course of Work. The introductory language must remain to make clear that Sound Transit rights are limited strictly to work of such an unusual and unique nature performed specifically for Sound Transit and no other INIT customers. Please note that the mandatory FTA clause permitting the Government right is also limited to work that is experimental and for which the Government has contributed funds directly for this purpose.

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Work, or which in any way affect those engaged or employed to work in connection with the Work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same including the specific legal requirements referenced in the Contract Documents. The Contractor shall at all times comply with, and shall cause all the Contractor's agents, employees and Subcontractors to comply with all such governmental requirements, and shall indemnify, defend and hold harmless Sound Transit and all of its directors, officers, agents, and employees, and the ORCA partner agencies against all claims, liabilities, losses, damages and expenses (including attorney's fees and related costs) arising from or based on the violation of any such governmental requirement whether by the Contractor or contractor's agents, employees or Subcontractors. If any discrepancy or inconsistency is discovered in the Contract Documents for the work in relation to any such governmental requirements, the Contractor shall immediately report the same to the Regional Program Manager in writing.

B. The Contractor shall comply and, to the best of its ability, shall require its subcontractors to comply with all Sound Transit policies applicable to the Work to be performed under this Agreement (for example Sound Transit's policy on equal employment opportunity, harassment, and ADA compliance). Copies of Sound Transit policies shall be supplied to Contractor~~are available upon request~~ as a condition of the enforcement of this section.

C. The Contractor shall exercise reasonable efforts to stay apprised of changes to said governmental requirements. The Contractor shall bring any such changes to the attention of the Regional Program Manager and identify with particularity the effect of such changes on the Work. Impacts of time or cost from such change will be investigated and managed through the Change Order process. Any such changed law, ordinance, resolution, or regulation supersedes any conflicting provisions of this Contract.

D. Suspected Violation of Governmental Requirements - If the Contractor knows or has reason to know of any suspected violation of Governmental Requirement by itself or any Subcontractor under the Contract, the Contractor must promptly and fully investigate and immediately report the existence of such investigation to Sound Transit. The Contractor shall fully report, in writing, to Sound Transit the facts and information ascertained in the investigation and shall allow Sound Transit to examine all of Contractor's documentation related to the investigation. If Sound Transit reasonably believes access to any individual worker is necessary for a Sound Transit investigation, whether such worker is an employee of Contractor or a Subcontractor of any tier, Contractor must make available, within ~~1~~52 days of a written request, such worker for interview by Sound Transit's representative who has been designated in the written request. The Contractor may withhold communications properly considered attorney-client privileged.

E. The Contractor is liable for all actual costs reasonably incurred by Sound Transit directly related to Sound Transit's response to or necessary actions required for the violation of any Governmental Requirement or a settlement by Contractor associated with such alleged violation, including the total personnel costs of Sound Transit employees and other Sound Transit costs, outside attorneys' fees and costs, and outside consultants' fees and costs. Sound Transit may withhold such amounts from sums otherwise payable to Contractor under the Contract. For purposes of this Article 7.14:

Commented [Legal129]: Language is added. Based on the obligation put on the Contractor in this paragraph, it is only reasonable that these policies are provided to Contractor.

Commented [AB130R129]: Proposed edit rejected. Enforcement of policies are not conditional to supplying them.

Commented [CL131R129]: Is Sound Transit refusing to provide INIT the policies it compels INIT to comply with? Are they posted on the Internet? If so; put the site address in.

Commented [Legal132]: Language is added. Based on the obligation put on the Contractor in this paragraph, it is only reasonable that these policies are provided to Contractor.

Commented [AB133R132]: This comment isn't relevant to the proposed edit.

Commented [CL134R132]: Agree. Comment withdrawn.

Commented [AB135]: Willing to agree to no more than two. It is unclear why an employee of the Contractor or Subcontractor wouldn't be available during an investigation.

Commented [CL136R135]: The question is not one of availability but of attendance at work. For example the individual may be ill, in hospital, on holiday etc. Can we agree upon 10 days?

1. Environmental Violation occurs when any federal, state, or local governmental entity or other applicable environmental permitting authority has found any portion of the Work or Contractor's performance thereof to be in violation of any environmental permit or other applicable federal, state, or local environmental law, regulation, or requirement.
2. Safety Violation occurs when any federal, state, or local governmental entity or other applicable authority has found any portion of the Work or Contractor's performance thereof to be in violation of any applicable federal, state, or local safety law, regulation, or requirement.
3. Violations of Title VI occur (a) when any federal, state, or local governmental entity or other applicable authority has found the Contractor or any subcontractor to have been in violation of Title VI or any other anti-discrimination or equal opportunity law, or (b) when Sound Transit has hired an independent investigator who determines that sufficient facts exist to support a *prima facie* violation of Title VI or any other anti- discrimination or equal opportunity law.

7.15 ~~[INTENTIONALLY OMITTED]~~ CONTRACTOR LIMITATION OF LIABILITY

ANYTHING IN THIS AGREEMENT TO THE CONTRARY NOTWITHSTANDING, THE LIABILITY OF CONTRACTOR, ITS AFFILIATES, EMPLOYEES, SUBCONTRACTORS OR AGENTS FOR ANY LOSS, DAMAGES, COSTS OR EXPENSES OF WHATSOEVER NATURE ARISING OUT OF OR RELATED TO THIS AGREEMENT SHALL BE LIMITED TO THE TOTAL PRICE SET FORTH IN THIS AGREEMENT. UNDER NO CIRCUMSTANCES SHALL CONTRACTOR BE LIABLE FOR CONSEQUENTIAL, PUNITIVE OR INCIDENTAL DAMAGES, INCLUDING WITHOUT LIMITATION, PRODUCTION FAILURE, LOSS OF UTILIZATION, LOSS OF ORDERS, LOSS OF PROFIT, AND ALL OTHER SUCH INDIRECT DAMAGES.

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7.16 [INTENTIONALLY OMITTED]

7.17 [INTENTIONALLY OMITTED]

7.18 ENVIRONMENTAL COMPLIANCE AND SUSTAINABILITY

Sound Transit has an established environmental policy, a sustainability initiative, and an environmental management system certified under the International Standards Organization (ISO) 14000. Sound Transit is committed to protecting the environment for present and future generations. The purposes of these policies are to:

A. Implement environmental stewardship and sustainable development

B. Reduce environmental risks and liabilities

C. Enhance image with public, regulators, agencies and stakeholders

D. Ensure regulatory compliance

E. Improve environmental performance

F. Simplify environmental communication

Sound Transit is committed to meeting or exceeding all environmental commitments during all phases of the project. The purpose is to prevent environmental degradation, reduce work delays and cost increases, minimize negative publicity, and reduce the number of upset citizens, landowners, and regulating agencies.

Within thirty (30) days of effective date of the Notice to Proceed, Sound Transit shall provide to the Contractor a copy of Sound Transit's environmental policy, its sustainability initiative, and its environmental management system.

7.19 TAXES

A. Retail Sales Taxes

~~1. Sound Transit has determined that the work to be performed under this Contract is exempt from the retail sales tax pursuant to RCW 82.04.050(7) and WAC 458-20-171 ("Rule 171"). Consequently, the Contract Price is not subject to Washington State retail sales tax and no retail sales tax shall be invoiced to or collected from Sound Transit with respect to the Contract Price.~~

~~2. The Contractor is advised that it will be considered the consumer of all materials, equipment and supplies, including prefabricated and precast items that are purchased, used or consumed by them in performing the work and all sales taxable services, and must pay the applicable sales/use tax on all taxable items.~~

~~3.~~1. ~~In the event that the Washington State Department of Revenue should determine, on audit or otherwise, that all or any portion of the work does not qualify for exemption under Rule 171, or that Sound Transit is otherwise obligated to pay sales/use tax on the Contract, the Contract and any subsequent invoices will be amended to add and separately state any applicable retail sales tax to the Contract Price. In this event, the Contract Price will be adjusted to eliminate any duplication of retail sales tax for retail sales tax amounts already included in the Contractor's proposal.~~ Sound Transit shall be liable for and hold Contractor harmless from and all penalties, costs and expenses of whatever nature suffered by Contractor or its subcontractors arising out of or related to the failure of Sound Transit to pay sales/use tax related to the Work.

~~4.~~2. If a Contractor has questions regarding the application of Rule 171, the Contractor should contact the Washington State Department of Revenue

B. Federal Excise Taxes - Sound Transit is exempt from Federal Excise Taxes and an exemption certification will be furnished upon request.

C. Other Taxes - The Contract Price includes all other taxes applicable to the Contractor's completion of the Work, including without limitation, B&O taxes applicable to all tiers performing the Work.

D. No increase will be made to the amount to be paid by Sound Transit under this Contract because of any misunderstanding by or lack of knowledge of the Contractor as to liability for, or the

Commented [AB137]: Rule 171 is not applicable to this Work.

Commented [CL138]: This portion of the clause must remain.

Commented [Legal139]: Sound Transit should pay for any penalties caused by Contractor being penalized for Sound Transit's failure to pay these taxes.

amount of, any taxes for which the Contractor is liable or responsible by law or under this Contract.

7.20 LIENS PROHIBITED

~~The~~ Other than liens for monies due and owing to Contractor, Contractor shall not permit any lien or claim to be filed or prosecuted against Sound Transit, its property or its right-of-way on account of any labor or material furnished or any other reason for work arising out of this Contract. If any lien shall be filed, the Contractor shall satisfy, discharge and extinguish or cause such lien to be satisfied, discharged and extinguished immediately, including at Sound Transit's option obtaining a court order extinguishing the lien, as a condition precedent to release of retainage and/or final payment.

Commented [Legal140]: The added language clarifies that the prohibition of liens is not with regards to monies owed Contractor under the Contract.

Commented [AB141R140]: Proposed edits rejected. The available remedies are outlined in this contract.

Commented [CL142R140]: Contractor is entitled to assert its own lien as a materialman for Sound Transit failure to pay. Where is this remedy provided in the contract?

7.21 [INTENTIONALLY OMITTED]

7.22 [INTENTIONALLY OMITTED]

7.23 [INTENTIONALLY OMITTED]

7.24 [INTENTIONALLY OMITTED]

7.25 [INTENTIONALLY OMITTED]

7.26 [INTENTIONALLY OMITTED]

7.27 CONTRACTOR ACQUISITION AND / OR MERGER

If the Contractor executing this Agreement ceases to exist as an independent business entity by means of acquisition by and / or merger with a successor or otherwise, the Contractor shall notify Sound Transit in writing not less than thirty (30) days prior to the effective date of the circumstance causing the cessation of the independent business status. Sound Transit reserves the right to take steps to ensure it has contractual privity with the successor. The Contractor shall cooperate with this effort by agreeing to an assignment, a novation, or other document required to transfer the rights and responsibilities of the Contractor to the successor.

7.28 APPLICABLE LAWS AND JURISDICTION

This Agreement and all provisions hereof shall be interpreted in accordance with the laws of the State of Washington and, to the extent incorporated into (or made applicable to the Work by) the Contract Documents, the laws of the United States of America. Subject to the provisions herein regarding exhaustion of administrative remedies, the Superior Court of King County, Washington, shall have exclusive jurisdiction and venue over any legal action arising under this Agreement.

7.29 INTELLECTUAL PROPERTY PROVISIONS

A. **Definition of Intellectual Property of Contractor**

1. All intellectual property owned, licensed, sub-licensed or otherwise transferred. Wholly or partially to Contractor, Subcontractors, sub Subcontractors existing at the Effective date of the Contract shall be

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owned by the respective parties and Sound Transit interest shall be limited by the terms of any license issued to Sound Transit.

2.Software System

Contractor grants to Sound Transit a perpetual, ~~unlimited~~ site specific, royalty-free, non-exclusive and irrevocable license for Sound Transit (including without limitation its officers, directors, employees, and agents) to install, use, copy, modify, and maintain the Software system (and each and every part of the system) in accordance with the terms and conditions of its End User License incorporated herein as Section 07~~7~~, with no limitation on the number of sites or users. For further clarity, and without limitation to the generality of the foregoing, this grant of license includes without limitation:

1. rights to practice any inventions owned, controlled, or licensed by Contractor (or any of its permitted subcontractors) (or any of its or their parent, subsidiary, sister or otherwise affiliated or related companies) as reasonably desirable or necessary to operate or maintain the Software System (and each and every part of the system);

2. rights to use any know-how disclosed or otherwise provided by Contractor (or any of its permitted subcontractors) (or any of its or their parent, subsidiary, sister or otherwise affiliated or related companies) as reasonably desirable or necessary to operate or maintain the Software System (and each and every part of the system); and

3. rights to use, copy and modify (and create derivative works from) Contractor software, with no limitation on the number of sites or users, as reasonably desirable or necessary to operate or maintain the Software System (and each and every part of the system).

~~A. .Materials~~

~~Contractor further grants to Sound Transit a perpetual, unlimited, royalty-free, non-exclusive and irrevocable license for Sound Transit (including without limitation its officers, directors, employees and agents) to use, copy, distribute, display publicly, perform, and modify (and create derivative works from) all Materials.~~

~~B.~~A. Third Party Software

In providing the Software System, Contractor will use only that Third Party Software that has been expressly approved in writing by Sound Transit. Contractor will procure, maintain, and otherwise be responsible for all licenses for Sound Transit, in Sound Transit's name, for any such Third Party Software reasonably necessary to operate or maintain the Software System. Sound Transit retains sole, ultimate authority on executing and entering into any such licenses. Contractor shall provide to Sound Transit copies of such licenses, along with any related software or license documentation. To the extent that any other licenses or permissions are reasonably desirable or necessary for Sound Transit to operate or maintain the Software System, Contractor hereby grants to Sound Transit to the maximum extent within its rights – or will procure for Sound Transit, in Sound Transit's name, to the maximum extent reasonably negotiable and at Sound Transit's expense – any such licenses and permissions.

Commented [BA143]: Proposed edits rejected. Sites may be added from time-to-time and site specificity is not agreeable.

Commented [CL144R143]: The term "site specific" is commonly used by INIT to mean the geographic area of the current project. In the event the project expands in geographic scope INIT is prepared to sell additional hardware and software with accompanying licenses to Sound Transit. However, INIT will not permit the equipment to be moved to a different state.

Commented [BA145]: Proposed edit accepted.

Commented [Legal146]: The first change clarifies that the license refers to a program site for which Contractor was engaged. The second change reflects that the software system's use is regulated by the End User License agreement between the parties.

Commented [Legal147]: The subparagraphs are deleted because the End User License agreement covers these situations. In case of Materials, there is no applicable license since Materials are purchased.

Commented [BA148R147]: These rights must be reinstated as they are not fully covered in the EULA..

Commented [CL149R147]: The EULA is the determinative document regarding use of the licenses and limitations. If additional rights are required they should be introduced into the EULA text and not here.

Commented [BA150]: Proposed deletion of the Materials paragraph accepted.

~~C.~~B. Right to Sublicense

1. Sound Transit may, in its sole discretion and without incurring any further or additional charges, sublicense any of its rights under this Agreement as reasonably necessary to operate or maintain the Software System, including without limitation: to third-party vendors, contractors, or consultants whom Sound Transit may retain to assist in operation or maintenance of the Software System; and to other transportation entities as reasonably desirable or necessary to implement back-up systems or disaster planning.

2. Licenses Under Bankruptcy Code: All rights and licenses granted under or pursuant to this Agreement are and shall be deemed to be, for purposes of Section 365(n) of the U.S. Bankruptcy Code, licenses of rights to "intellectual property," as defined under Section 101 of the U.S. Bankruptcy Code. The parties agree that Sound Transit, as a licensee of such rights under this Agreement, shall retain and may fully exercise all of its rights and elections under the U.S. Bankruptcy Code; however, nothing herein shall be deemed to constitute a present exercise of such rights and elections.

~~D.~~C. Source Code Escrow

Contractor agrees that as a condition of Final Acceptance it will deposit the source code for any Contractor Software into escrow (including all updates, versions, releases, and upgrades licensed under this Agreement, with a source code agent, nationally recognized, selected by Contractor capable of providing Level 2 certification/~~verification.~~verification. Sound Transit shall become a party to and be governed by the terms of the escrow agreement. Deposit shall be at reasonable periodic intervals based generally on the pace at which the software is being developed or changed – and shall include any and all subsequent updates, versions, releases, and upgrades licensed under this Agreement. The source code escrow agreement shall remain in place, and source code deposits shall be updated and maintained, for as long as Sound Transit and Contractor have entered into a software maintenance or support agreement. The applicable source code will be released to Sound Transit (or any Contractor acting on its behalf) in the event of nonperformance or the inability of Contractor to execute or maintain the portion of the Software System controlled by or through its applicable software. Contractor agrees that Sound Transit (or any Contractor acting on its behalf) may use the source code to maintain, fix, or modify Contractor Software as reasonably necessary to operate or maintain any portions of the Software System. Contractor and Sound Transit will separately execute an escrow agreement concurrently with this Agreement. Contractor shall be solely responsible for any costs related to the source code escrow during the warranty period. Thereafter all costs and expenses related to the source code escrow shall be for account of Sound Transit.

D. Software Developed by Contractor for this Project

Contractor agrees that for any software that is developed and paid for as part of this Project, Contractor shall grant Sound Transit a perpetual, ~~unlimited~~, royalty-free, site specific, non-exclusive and irrevocable license for Sound Transit (including without limitation its officers, directors, employees, and agents) to install, use, copy, modify, and maintain the Software system (and each and every part of the system)) in accordance with the terms and conditions of its End

Commented [Legal151]: The subparagraph is changed from C to B. There is added language to reflect that any cost involved with the obligation referenced will be an expense of Sound Transit.

Commented [BA152R151]: Proposed edit accepted.

Commented [Legal153]: D is changed to C.

Commented [BA154]: Proposed edits accepted.

Commented [Legal155]: The first change is to the subparagraph reference (E is changed to D.) The other changes relate to input as to the escrow material agent to be selected, and that Contractor needs to be a party to any such agreement. In addition, it needs to be clarified that Contractor is only responsibly for costs relating to source code escrow during the warranty period.

Commented [BA156]: Proposed edit rejected. This requirement is part of O&M as well. See note in weaknesses document regarding this topic.

Commented [CL157R156]: Requires further discussion.

User License incorporated herein as Section 07, with no limitation on the number of sites or users. For further clarity, and without limitation to the generality of the foregoing, this grant of license includes without limitation, and without license fees:

1. rights to practice any inventions owned, controlled, or licensed by Contractor (or any of its permitted subcontractors) (or any of its or their parent, subsidiary, sister or otherwise affiliated or related companies) as reasonably desirable or necessary to operate or maintain the Software System (and each and every part of the system);
2. rights to use any know-how disclosed or otherwise provided by Contractor (or any of its permitted subcontractors) (or any of its or their parent, subsidiary, sister or otherwise affiliated or related companies) as reasonably desirable or necessary to operate or maintain the Software System (and each and every part of the system); and
3. rights to use, copy and modify (and create derivative works from) Contractor software, with no limitation on the number of sites or users, as reasonably desirable or necessary to operate or maintain the Software System (and each and every part of the system)

Commented [Legal158]: The first change clarifies that the license refers to a program site for which Contractor was engaged. The second change reflects that the software system's use is regulated by the End User License agreement between the parties.

ARTICLE 8 INSURANCE

See Section 03 for insurance requirements.

ARTICLE 9 PAYMENT

9.01 COMPLIANCE PREREQUISITE TO PAYMENT

A. Sound Transit shall pay the Contractor Partial Payments for completed Work in accordance with the Partial Payment Schedule as described in Section 9.02, Partial Payment Schedule. Payment to the Contractor shall be based upon Work performed in conformance with the Contract as approved by Sound Transit's review of the payment request. Sound Transit will not approve payments for portions of the Work not performed in full compliance with provisions of the Contract, and applicable laws, ordinances, resolutions, regulations, permits and/or easements, and may withhold such payments to the Contractor in accordance with Section 9.06, Withholding Payments.

B. The Contractor shall be responsible, and have no claim whatsoever against Sound Transit, for all costs and effects of delays resulting or arising from suspension and/or Stop Work orders issued by Sound Transit and/or any governmental authority as a result of incidents of non-compliance with the Contract or any laws, ordinances, or regulations by the Contractor and/or its Subcontractors and Suppliers. This paragraph shall be void and of no effect in the event that Sound Transit and or any other governmental authority is found to have unreasonably and/or wrongfully issue a suspension or Stop Work order to Contractor.

Commented [Legal159]: The added language is to protect Contractor against any unreasonable and/or wrongfully suspension or Stop Work order.

9.02 MILESTONE AND PARTIAL PAYMENT SCHEDULE

The ~~Contractor shall submit a~~ Milestone or Partial Payment Schedule for the Contract Price is set forth in Section 08 Negotiated Price Sheet~~which is acceptable to Sound Transit~~. ~~The initial submittal shall be made within thirty (30) days after issuance of the Notice to Proceed.~~ The Milestone or Partial Payment Schedule is prepared in accordance with the requirements of the Contract Documents. The Contractor warrants

Commented [BA160R159]: Proposed edit rejected.

Commented [CL161R159]: Requires further discussion.

Commented [BA162]: This is requested as part of the revised proposal 2 for evaluation.

that such values are accurate representations and allocations of the value of the work in each delivery or performance increment on which Sound Transit may rely. ~~Failure to submit a Partial Payment Schedule that is acceptable to Sound Transit will delay the processing of Partial Payments.~~

9.03 MILESTONE AND PARTIAL PAYMENTS

A. The Contractor shall submit no more than one invoice a month, and each invoice may include any number and combination of delivery or performance increments that are completed that month. Invoices need not be based on sequential delivery or performance increments. Each invoice shall be submitted upon forms provided by Sound Transit, and shall include:

1. Contract number and Purchase Order number;
2. Applicable delivery or performance increment (s) and vehicle(s);
3. Unit and total prices by delivery or performance increment;
4. Total invoice amount;
5. The Contractor's statement regarding payment of prevailing wages as specified in the Labor Compliance Manual;
6. The Contractor's current progress schedules, cash flow projections and reports if specified in the Specifications;
7. A completed Affidavit of Amounts Paid to all businesses participating on the Contract, and additional information related to the Contractor's commitment to Small Business and DBEs, if applicable to this Contract;
8. A Pre-Apprentice Training Program Fund Contribution Report, if applicable to this Contract,
9. A Monthly EEO/Apprentice Utilization Report, if applicable to this contract; and
10. Certification Regarding Alleged Civil Rights Violations.

If requested by Sound Transit, the Contractor shall provide such additional data as may be reasonably required to support the payment for materials and labor, including payments to Subcontractors and Suppliers. The term "materials", as used herein, shall be considered to include those items which are fabricated and manufactured material and equipment. Only those materials for which the Contractor can transfer clear title to Sound Transit will be qualified for Partial Payment, except as specifically provided below.

B. Partial Payment for Materials Purchased and Delivered but not Installed – To receive Partial Payment for materials purchased and delivered but not yet incorporated into the Work, the Contractor shall submit a list with certified invoices of such materials to Sound Transit for approval together with the Contractor's partial payment request. The required documents to support the Contractor's partial payment request for materials purchased and delivered but not installed will be determined by the storage location of the delivered materials: (1) materials delivered to and stored on the Site (aka Project Site) and (2) materials delivered to and stored in a location not on

the Site.

1. For materials delivered to and stored on the site, the Contractor's claimed purchase price shall be supported by (i) certified invoices of Subcontractors or Suppliers (ii) together with proof of payment of such invoices (in the form of cancelled checks or acknowledgment by such Subcontractors or Suppliers of receipt of payment in full for such invoices).
2. For materials delivered to and stored in a location other than the site, For materials delivered to and stored in a location other than the Site, the Contractor's claimed purchase shall be supported by (i) certified invoices of Subcontractors or Suppliers (ii) together with proof of payment of such invoices (in the form of cancelled checks or acknowledgment by such Subcontractors or Suppliers of receipt of payment in full for such invoices), (iii) together with proof that the materials have been delivered to and accepted by the Contractor and are in its possession and control.

   As a condition precedent to making Partial Payment for materials delivered and stored in a location other than the site, Sound Transit shall require that the Contractor, at its expense:

   a. Furnish Sound Transit with an irrevocable letter of credit with terms acceptable to Sound Transit or other security acceptable to Sound Transit. The issuer of the Letter of Credit, if provided, shall be a national bank acceptable to Sound Transit. The amount of the Letter of Credit shall be equal to the amount of the Partial Payment requested for the materials delivered to and stored in a location other than the Site. Sound Transit shall be entitled to draw on the Letter of Credit in one or more draws in any of the following circumstances: (a) the Contractor fails to deliver the materials to the Project Site when required;
   (b) the Contractor, Subcontractor, Supplier or Fabricator, at whose location the material is stored, becomes insolvent, or becomes the subject of a voluntary petition for relief in bankruptcy or other insolvency proceeding (or an involuntary bankruptcy or insolvency proceeding is commenced against the Contractor and not dismissed within thirty (30) days; or (c) Sound Transit receives notice from the issuer that the Letter of Credit will not be automatically renewed or extended; or

   b. Subject to Sound Transit's consent, provide Sound Transit with a first and only priority perfected security interest ("Security Interest") in the materials covered by the payment request, pursuant to a written security agreement in form and substance acceptable to Sound Transit. Such security agreement shall be supported by Uniform Commercial Code ("UCC") financing statements describing the subject materials, UCC searches and other terms and conditions acceptable to Sound Transit in its discretion. Sound Transit may require the Contractor to physically segregate materials from other inventory of the Contractor. The Contractor shall plainly, distinctly, and conspicuously place or cause to be placed upon such other places as may reasonably be designated by Sound Transit from time to time a mark, label, or other identification bearing words that indicate Sound Transit's interest in the material.

Contractor's progress of Work shall not include materials delivered and not installed. Progress shall be determined solely on an estimate of the Work completed. Payment for materials purchased and delivered but not installed shall be at the sole discretion of Sound Transit.

C. Partial Payment for Subcontracted Work - In its payment requests, the Contractor shall include payments for Subcontractors whose work was satisfactorily performed and part of the completed Work covered by the payment request. The Contractor shall not request payment from Sound Transit of amounts for Subcontractors until the Contractor has determined that the Subcontractors are entitled to the payment of such amounts for Work satisfactorily completed. Review of Payment Request - Within ten (10) days after receipt of the partial payment request and the required documentation, Sound Transit will review the request and either indicate approval in writing or indicate in writing to the Contractor specific reasons why part or all of the payment is being withheld and what remedial actions the Contractor must take to receive the withheld amount. Any amounts approved by Sound Transit for payment will, within thirty (30) days of acceptance of the Contractor's properly completed invoice or receipt of the goods or services, whichever is later, pay the Contractor a Partial Payment on the basis of the approved partial payment request. The payments will take into account the retention provisions provided for herein.

D. In the event Sound Transit does not concur with the request, the Contractor may make the changes necessary to obtain Sound Transit's concurrence and resubmit the partial payment request. Sound Transit will, within thirty (30) days of acceptance of the Contractor's properly completed payment request, or receipt of the goods or services, whichever is later, and after the Contractor satisfactorily completes the remedial actions identified in Sound Transit's rejection of the payment request, pay the Contractor a partial payment on the basis of the approved partial payment request.

E. The Contractor shall receive a payment from Sound Transit no more than once per calendar month unless otherwise approved by Sound Transit, at its sole discretion.

F. Notwithstanding the payment provisions of this Contract, Sound Transit may make partial payment against any delivery or performance increment when Sound Transit deems such payment to be appropriate and in the best interest of Sound Transit to the extent of work has been satisfactorily completed.

G. No approval for payment, nor any payment by Sound Transit, shall constitute an acceptance of Contract deliverables that are not in accordance with the Contract.

9.04 RETAINAGE (WHEN APPLICABLE)

A. Pursuant to RCW 60.28.011, Sound Transit will retain 5 percent of all Partial Payments as a trust fund for the protection and payment of any person or persons, mechanic, Subcontractor, or material provider who performs labor upon the contract or Work hereunder, and all persons who shall supply such person or persons or Subcontractors with provisions and supplies for carrying on such Work, and the State with respect to taxes imposed pursuant to Title 82 RCW which may be due from the Contractor. Such funds shall be deemed as public funds under RCW 39.58. In the event that during the performance of the Contract and prior to the expiration of the

claim period as provided in RCW 60.28.011, the amount retained is reduced to an amount below 5 percent, then Sound Transit may retain additional sums from monies earned by the Contractor so as to maintain at all times a 5 percent retained trust fund, unless otherwise reduced or excused by provisions of Chapter 60.28 RCW.

B. Monies reserved under provisions of Chapter 60.28 RCW shall, at the option of the Contractor, be:

1. Retained in a fund by Sound Transit with no interest paid thereon to the Contractor; orDeposited by Sound Transit in an interest-bearing account in a bank, mutual savings bank, or savings and loan association, not subject to withdrawal until after Final Acceptance of all Work, or a portion thereof, as may be approved by Sound Transit; or

2. Placed in escrow in a bank or trust company by Sound Transit. When the monies reserved are to be placed in escrow, Sound Transit will issue a check representing the sum of the monies reserved payable to the bank or trust company and the Contractor jointly. Such check shall be converted into bonds and securities chosen by the Contractor and approved by Sound Transit, and the bonds and securities held in escrow; or

3. Released to the Contractor after the Contractor has provided a ~~R~~retainage ~~B~~bond for the Contract retainage.

Under options 2 and 3 above, interest will be paid to the Contractor as the interest accrues.

C. The Contractor shall designate the option desired on a form as may be provided by Sound Transit. The Contractor in choosing option 2 or 3 agrees to assume full responsibility to pay all costs which may accrue from escrow services, brokerage charges, or both, and further agrees to assume all risks in connection with the investment of the retained monies.

D. In accordance with RCW 60.28.011(5), the Contractor may withhold payment of not more than 5 percent from the monies earned by any Subcontractor or Supplier contracted with by the Contractor to provide labor, materials, or equipment to the Project. The Contractor shall pay interest to the Subcontractors, and Suppliers as required in RCW 60.28.011(5). The Contractor shall inform Subcontractors and Suppliers of their right to receive these interest payments.

E. If the Contractor provides a retainage bond, the Contractor shall comply with the requirements of RCW 60.28.011 with respect to retained funds of subcontractors and suppliers.

F. Sound Transit makes no warranties as to the amount of interest to be paid on any investments. Upon final payment, the Contractor shall be entitled to all retention and accumulated interest, less monies due to Sound Transit.

9.05 RELEASE OF RETENTION (WHEN APPLICABLE)

A. The retention will be held and applied by Sound Transit as a trust fund as required by Chapter 60.28 RCW. Except as provided in Paragraph 9.05C below, payment or release of retention will be made in the ordinary course of business no earlier than forty-five (45) days following Final Acceptance of the Work provided the following conditions are met:

1. If the Contract Price hereunder exceeds $35,000, Certificates approved by the Washington State Department of Revenue, the Washington State Department of Labor and Industries, Washington State Employment Security Department, and other departments and agencies having jurisdiction over the activities of the Contractor have been provided to Sound Transit ~~have been provided to Sound Transit~~.

2. "Affidavits of Wages Paid" for the Contractor and each Subcontractor approved by the Industrial Statistician of the Washington State Department of Labor and Industries have been provided to Sound Transit.

3. No claims or notices of lien, as provided by law, have been filed against the retention and/or that any such asserted liens have been satisfied, discharged and extinguished as required by the Contract.

4. Contractor signs and returns the Release of Retainage and Indemnity form for this Contract.

5. Sound Transit has no outstanding claims under this Contract.

B. If any taxes have not been discharged or any claims, expenses, and fees have not been paid, Sound Transit shall either retain in its fund, or in an interest bearing account, or retain in escrow, at the option of the Contractor, an amount equal to such unpaid taxes and unpaid claims together with a sum sufficient to defray the costs and attorney fees incurred in foreclosing the lien of such claims, and shall pay, or release from escrow, the remainder to the Contractor.

C. If, under Article 9.07, the Contractor released and paid withheld monies to a Subcontractor, the following provisions shall apply.

1. Sound Transit may in its discretion, in furtherance of 49 CFR § 26.29 or otherwise, decline to withhold retainage from the Contractor and prohibit Contractor from withholding retainage from Subcontractors and/or require a contract clause obligating the Contractor to make prompt and full payment of any retainage paid by Sound Transit to Contractor to the Subcontractor within 30 days after the Subcontractor's work is Accepted. The Contractor may request release of a portion of the retainage withheld by Sound Transit under Chapter 60.28 RCW equal to the amount the Contractor released and paid to the Subcontractor under Article 9.07. Sound Transit will release a portion of such retainage following submittal to the Regional Program Manager of the Subcontractor's Affidavit of Wages Paid approved by the Industrial Statistician of the Washington State Department of Labor and Industries, and submittal of a proper and complete Declaration of Completion of Subcontractor's Work and Release of Withheld Amount (including the acknowledgement by the Subcontractor of the declaration form, to be provided by Sound Transit).

2. Upon receipt of a proper and complete Affidavit of Wages Paid and a Declaration of Completion of Subcontractor's Work and Release of Withheld Amount (Declaration), the Regional Program Manager will review the affidavit and any accompanying documentation and may review the work completed by the Subcontractor identified on the Declaration. Review of the Subcontractor's work by Sound Transit shall not relieve the

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Contractor of its responsibility and liability to ensure all Work under the Contract is performed in accordance with the requirements set forth in the Contract and will not commence warranties of Article 3.12, Warranty of Work.

3. If the Regional Program Manager does not concur with the assurances contained in the Declaration, the Regional Program Manager shall notify the Contractor in writing of that conclusion, provide the reasons for that conclusion and identify the remedial actions that the Contractor must take to gain the concurrence of the Regional Program Manager. Sound Transit shall not release any portion of the retainage withheld under Chapter 60.28 RCW until the Regional Program Manager gives his or her concurrence with the assurances contained in the Declaration.

4. If the Regional Program Manager concurs with the assurance contained in the Declaration, the Regional Program Manager shall notify the Contractor in writing of that conclusion and prepare and submit documentation for Sound Transit to release the applicable portion of the retainage withheld under Chapter 60.28 RCW. Sound Transit will release such portion of the retainage within thirty (30) days from the date of the written notice from the Regional Program Manager to the Contractor.

5. Release to the Contractor of any portion of the retainage withheld by Sound Transit under Chapter 60.28 RCW shall not relieve the Contractor of its responsibilities and liabilities for liens and claims duly filed and prosecuted under applicable Washington State law. In consideration of Sound Transit releasing any portion of the retainage withheld by Sound Transit under Chapter 60.28 RCW on account of satisfactorily completion of work by one or more Subcontractors, the Contractor shall defend, indemnify and hold harmless Sound Transit from all responsibilities and liabilities related to such liens and claims. The Contractor acknowledges that failure to make timely payment to the Subcontractor may result in sanctions pursuant to Sound Transit's Diversity Program Provisions, and other legal consequences.

9.06 WITHHOLDING PAYMENTS

A. The Contractor shall only be paid monies earned by fulfilling its responsibilities under this Contract less the 5 percent retention required by 60.28.011 RCW. Monies shall not be considered earned if any of the following conditions applies:

1. The Work for which the Contractor is claiming payment was not performed in accordance with the Contract;

2. The Contractor's pay request does not contain all the required documentation or is otherwise not in conformance with the requirements of this Contract;

3. There is a good faith dispute over all or a portion of the amount due, as detailed in Article 9.07;

4. Failure of the Contractor to make payments owed to Subcontractors, or for labor, materials, or equipment;

5. Failure of Contractor to submit Project Schedule, or updated Project Schedules that are acceptable to Sound Transit and timely in accordance with the Contract;

6. Failure to maintain progress of the Work in accordance with the accepted Project Schedule unless such failure is ~~solely~~ caused by Sound Transit or by Unavoidable Delays, or failure to take necessary steps to regain time or deliver the Work in the prescribed Contract Time;

7. Failure to comply with Contract safety requirements;

8. Imposition of any liquidated damages under the Contract;

9. Defective or Non-Conforming Work;

10. Failure to comply with Governmental Requirements; and/or

11. Third party claims filed or reasonable evidence that third party claims will be filed.

B. In the event Sound Transit withholds all or a part of a payment for deficiencies in either performance, or in a payment request, Sound Transit will notify the Contractor in accordance with RCW 39.76. The Contractor shall have the right to correct all deficiencies that are the basis for the withholding and resubmit the pay request at any time for reconsideration.

C. In the event Sound Transit withholds all or part of a payment because of a dispute, the Contractor may receive the payment by resolving the dispute, or by agreeing to accept the payment tendered by Sound Transit as full and final resolution as between Sound Transit and the Contractor to all claims arising from the dispute.

9.07 PROMPT PAYMENT TO SUPPLIERS AND RELEASE OF AMOUNTS WITHHELD FROM SUBCONTRACTORS

A. When the Contractor receives a payment under this Contract, the Contractor shall comply with the following provisions:

1. The Contractor shall pay to each Subcontractor not later than five (5) business days after the receipt of the payment, amounts paid to the Contractor on account of the work performed by the Subcontractor.

   a. In the event of a good faith dispute over all or any portion of the amount due on a payment from Sound Transit to the Contractor, or from the Contractor or subcontractor to a subcontractor, Sound Transit, or the Contractor or subcontractor, may withhold no more than one hundred fifty percent of the disputed amount. Those not a party to a dispute are entitled to full and prompt payment,

2. If the Contractor fails or neglects to make such payment within five (5) business days, the Contractor shall pay to the Subcontractor interest computed at one percent per month on amounts due for the period beginning on the day after the required payment date and ending on the day on which payment of the amount due is made.

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Commented [BA166R165]: Proposed edit rejected. The removal of "solely" diminishes the effect of this risk mitigation provision.

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3. The Contractor shall include in each of its Subcontracts a provision setting forth the payment and interest penalty clause set forth in this Article 9.07. In addition, the Contractor shall require its Subcontractors to include such a payment and interest clause in each of their Subcontracts and to require each of their Subcontractors to include such clauses in their Subcontracts with each lower tier Subcontractor or Supplier. The time limit for payment under all Subcontracts below the first tier shall be five (5) business days.

B. The payment and interest clauses in this Article 9.07 shall not be construed to impair the right of the Contractor or a Subcontractor at any tier to negotiate and include in their Subcontracts provisions related to retention of a specified percentage or withholding of part or all of Partial Payments without incurring any obligation to pay a late payment interest penalty thereon in accordance with the Subcontract agreement. If the Contractor withholds any portion of payments to a Subcontractor during performance of the Subcontractor's work, whether under Washington State law or otherwise, the Contractor shall comply with the provisions in this Paragraph 9.07B to release such withhold monies following satisfactory completion of the Subcontractor's work.

1. The Contractor shall monitor the work of each Subcontractor to ensure such work is consistent with the terms of the subcontract between the Contractor and Subcontractor.

2. The Contractor shall determine that a Subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required in the subcontract and the Contract between Sound Transit and the Contractor. Upon making such determination, the Contractor shall provide a written notice of such determination to the Subcontractor and submit a copy of the notice to the Regional Program Manager.

3. As required by 49 CFR § 26.29, Contractor shall implement regular and incremental acceptances of portions of the Work as completed by Subcontractors covered by said regulation and shall, within thirty (30) days from and after the date of its determination that a Subcontractor's work is satisfactorily completed in whole or part, the Contractor shall release and make full payment of all monies withheld from Partial Payments to the Subcontractor during performance of all or any incremental part of the Subcontractors work.

9.08 FINAL PAYMENT

A. Sound Transit will make Final Payment, excluding held retention, to the Contractor following Final Acceptance of Work, and submittal of a final Affidavit of Amounts Paid to all businesses participating under the Contract. Final Payment shall include the entire sum found to be due hereunder after deducting therefrom such amounts as the terms of this Contract permit. Prior estimates and payments, including those relating to extra work or work omitted, shall be subject to correction by the Final Payment. Final Payment will be made only for materials actually incorporated in the Work; and, all materials remaining for which Partial Payments have been made shall revert to the Contractor, unless otherwise agreed, and Partial Payments made for these items shall be deducted from the Final Payment for the Work.

B. By accepting Final Payment, the Contractor shall be deemed thereby to have released Sound

Transit from all claims of Contractor and all liability to the Contractor for things done or furnished in connection with the Work and for every act and neglect of Sound Transit and others relating to or arising out of the Work. Payment by Sound Transit shall not release the Contractor or its surety from any obligation under the Contract or under the Performance and Payment Bonds, which obligations shall continue through the Contract Warranty period.

9.09 PAYMENT ON TIME AND MATERIAL BASIS

A. Direct Labor

1. For all labor, foreman and below, engaged in the extra work subject to this Article, the Contractor shall receive:
   a. The applicable wage and fringe benefits on the Contract for each hour that labor is actually engaged in changed work.
   b. The cost of the payroll taxes and unemployment compensation premiums.
   c. The cost of any health, welfare, pension, or collective bargaining agreement benefits paid, including Worker's Compensation.
2. No overtime will be allowed, unless written authorization has been given by Sound Transit.

B. Materials

For all materials and prices approved by Sound Transit used in the extra work subject to this Article, the Contractor shall receive the cost of material, including freight charges and Washington State Sales Tax (if applicable), as shown by the receipted bills for materials and freight.

C. Equipment

1. For all work and automotive equipment required in the performance of the extra work subject to this Article, payment for the use and operation of equipment (owned, leased or rented on a monthly basis by the Contractor) shall be made by Sound Transit under the provisions of this Article. Such charge shall not include any item of equipment or tool with a new cost of less than $500.
2. For Work being performed pursuant to these time and material provisions, reimbursement shall fall into one of two types of equipment ownership (Owned or Rental) and two categories of usage: operated equipment, and standby equipment.
   a. Owned Equipment is defined to include that equipment, owned by or under a lease/purchase or lease/option to purchase agreement with the Contractor, a constituent member of the Contractor, or an entity owned and/or controlled by the Contractor or one of its constituent members.
   b. Rented Equipment is defined to include equipment that is on a short-term rental, long term rental, or lease. Equipment that is on a lease/purchase or lease/option to purchase agreement will be considered as Owned Equipment. If Owned Equipment is not available and Rented Equipment necessary to perform the

changed Work is obtained from an outside source, payment for the "ownership" aspect of the cost will be made as stipulated below. In addition, if the rental rate does not include an "operation" component, the Contractor shall be reimbursed for the estimated hourly operating costs as provided below. The Contractor shall be responsible for monitoring the use of such rental equipment to obtain the overall best rates for its utilization. The Contractor shall use its best efforts to minimize the overall cost of such rentals to Sound Transit.

c. Tunnel Equipment is defined to include the Tunnel-Boring Machines and accessories; tunnel and shaft backup equipment; conveyors (horizontal, vertical, or inclined, either in the tunnel, in the shaft, or on the surface), hoppers or bins; locomotives; all rolling stock; air compressors; shotcrete and grouting equipment; concrete equipment; pumps: water, dewatering, etc.; batch facilities: shotcrete, concrete, grout, etc.; concrete form, travelers, work jumbos; hoists, man or equipment; discharge water treatment facilities and linear facilities; all track and necessary accessories; switches; car dumpers; pipes with valves, couplings, etc.; ventilation line (soft or hard) and fans; electrical (transformers, switch gear, substations, power cable, light lines, etc.); communications equipment and lines; and other fixed or mobile facilities and equipment associated with the tunneling operations.

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3. Cost Computations for Owned Equipment:

a. The basis for cost computations for operated Owned Equipment in the performance of the extra work subject to this Article, shall be as stated in the Cost Reference Guide for Construction Equipment (CRG) by Primedia Information, Inc. or its successor. The CRG version that shall be used will be that which is in effect at the time of performance of the Work. The equipment costs shall be calculated as follows:

1) Charges to Sound Transit for the "ownership" component of the equipment shall be computed and charged to yield the hourly rate based on the sum of depreciation, cost of facilities capital, and overhead components of the CRG for said equipment.

2) After eight (8) hours of equipment use in a twenty-four (24) hour period, and after forty (40) hours of equipment use in a week, the equipment "ownership" rate shall be 50 percent of the rate established in Sub-paragraph (1) above.

3) The costs of fuel, lubricants, tires and other expendables, repairs, parts, service, maintenance, and overhaul (the operating cost) shall be charged at the sum of the Total Operating Cost/Hour plus the Overhaul Costs/Hour (which shall collectively be referred to hereafter as the "Operating Cost/Hour") set forth in the CRG. This rate shall be paid only for hours that the equipment is operated in performance of the changed Work that is subject to these time-and-materials provisions. If the item of

equipment is electrically powered with the electricity being supplied by a public utility and if the CRG does not have an electrical fuel cost per hour component in the Operating Cost/Hour, the cost of electricity to operate the equipment will be calculated and submitted to Sound Transit for approval. The approved rate shall be added to and become a part of the "Operating Cost/Hour."

4) The application of any adjustment factors is hereby excluded.

5) Normal working conditions will be assumed and used as the basis for the rate calculation.

6) Equipment Operators will be paid for as direct labor under Paragraph 9.09A, Direct Labor, above and are not part of the calculated rate for equipment. Compensation for equipment mechanics, oilers (not assigned to a specific item of equipment on a full time basis), and other indirect support (labor or equipment) for the equipment fleet is included within the equipment rates otherwise established herein.

7) Transportation costs to and from the work Site for equipment mobilized to the Site specifically to perform the changed Work, if approved in advance by Sound Transit, will be paid as an item to be billed to Sound Transit. This cost will be treated as a Service when performing the markup calculations. No separate payment for transportation costs will be made if the equipment is brought to the Site for other than changed Work.

8) If a rate is not provided in the CRG, and the Contractor and Sound Transit cannot otherwise arrive at a mutually agreeable rate for its use, the Contractor shall furnish appropriate equipment and cost information to Sound Transit. Sound Transit will calculate an appropriate rate following the principles established in the CRG.

9) If practicable under the circumstances, all equipment rates shall be established in writing before commencing any changed Work. If it is necessary to employ such equipment in performance of the changed Work before it is practicable to provide rates to Sound Transit, the Contractor shall provide rates at the earliest opportunity available to it without hindering the prosecution of the Work.

b. For Owned Equipment on standby in the performance of the extra work subject to this Article, if approved by Sound Transit, the standby rate will be only the ownership portion of the applicable rate. The total standby cost per day will be based on the number of hours that the equipment is on standby in the performance of the changed Work. The standby hours will be calculated as follows:

1) The total standby hours per day will be a maximum of eight (8) hours less the operating hours paid as a result of the changed Work and less the

hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

2) The total standby hours per week will be a maximum of forty (40) less the operating hours paid for the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

4. Cost Computation for Rental Equipment

1) For Rented Equipment that is operated in the performance of the extra work subject to this Article, the cost shall be calculated as follows: The ownership rate per hour shall be calculated by dividing the invoiced amount by the normal hours covered by the invoice. If the normal rental period would be by the month, then Sound Transit shall not approve rental invoices submitted on a weekly, daily or hourly rate basis or allow ownership rates to be calculated on any rate other than a monthly rate. The same logic shall apply for a normal rental period of a week or a day.

2) If the invoice is based on a single shift of operation, then after eight (8) hours of equipment use in a twenty four (24) hour period, and after forty (40) hours of equipment use in a week, the equipment "ownership" rate shall be 50 percent of the rate established in Sub- paragraph (1) above.

3) The costs of fuel, lubricants, tires and other expendables, repairs, parts, service, and maintenance (the "operating" cost) shall be charged at the Total Operating Cost/Hour set forth in the CRG unless the rental invoice is for equipment which is "operated and maintained", in which case there will be no additional payment for operating costs. This rate shall be paid only for hours that the equipment is operated in performance of the changed Work that is subject to these time-and-materials provisions. If the item of equipment is electrically powered with the electricity being supplied by a public utility, the cost of electricity to operate the equipment will be calculated and submitted to Sound Transit for approval. The approved electrical cost per hour shall be added to and become a part of the "Total Operating Cost/Hour.

4) The application of any adjustment factors is hereby excluded.

5) Normal working conditions will be assumed and used as the basis for the rate calculation.

6) Equipment Operators will be paid for as direct labor under Paragraph 9.09A, Direct Labor, and are not part of the rate calculated for rented equipment unless the rental invoice is for equipment which is "operated

and maintained", in which case there will be no additional payment for equipment operators and/or oilers. Compensation for equipment mechanics, oilers (not assigned to a specific item of equipment on a full time basis), and other indirect support (labor or equipment) for the equipment fleet is included within the equipment rates otherwise established herein.

7) Transportation costs to and from the work Site for equipment mobilized to the Site specifically to perform the changed Work, if approved in advance by Sound Transit, will be paid as a discrete item to be billed to Sound Transit. This cost will be treated as a Service when performing the markup calculations. No separate payment for transportation costs will be made if the equipment is brought to the Site for changed Work and is also used on Contract Work items.

8) If a rate is not provided in the CRG and the Contractor and Sound Transit cannot otherwise arrive at a mutually agreeable rate for its use, the Contractor shall furnish appropriate cost information to Sound Transit. Sound Transit will calculate an appropriate rate following the principles established in the CRG.

9) If practicable under the circumstances, all equipment rates shall be established in writing before commencing any changed Work. If it is necessary to employ such equipment in performance of the changed Work before it is practicable to provide rates to Sound Transit, the Contractor shall provide rates at the earliest opportunity available to it without hindering the prosecution of the Work.

b. For Rented Equipment on standby in the performance of the extra work subject to this Article, if approved by Sound Transit, the rate per hour to be paid will be only the ownership portion of the applicable rental rate as calculated above. The total standby cost per day will be based on the number of hours that the equipment is on standby in the performance of the changed Work. The standby hours will be calculated as follows:

1) The total standby hours per day will be a maximum of eight (8) hours less the operating hours paid as a result of the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

2) The total standby hours per week will be a maximum of forty (40) hours less the operating hours paid for the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by

Sound Transit.

D. Markups-Percentage Allowances

The Contractor will be permitted to apply overhead and profit markups, not exceeding the percentage stated herein, to its increased cost resulting from any change in the Work ordered by Sound Transit for which payment is to be made under the time-and-material provisions of this Contract. These overhead and profit markups are maximum allowable percentages subject to reduction by audit.

Markup allowable at the tier for the entity performing the extra work with its own forces, whether the Contractor or a Subcontractor at any tier, shall not exceed 15% of total direct costs of the changed Work. The Contractor's markup allowable to cover the overhead and profit for Work performed by a Subcontractor shall not exceed 6% of the Subcontractor's cost. In no event shall the combined overhead and profit markup paid to Contractor and first tier Subcontractors exceed 21%, unless the work is performed by Subcontractors at the second-tier or lower, in which case an additional 6% markup is allowed at each tier. The markup allowance made shall constitute compensation for all management and supervision above the foreman level, engineering and surveying, safety, administration; use of equipment and tools costing $500 or less; all administrative and overhead expense; insurance premiums not paid herein; profit; other indirect expense; losses of all kinds; home office overhead expense; and all other items of cost not specifically designated herein as items for which specific payment is to be made. No other reimbursement, compensation, or payment will be made for any such services, costs, or other items.

E. Time and Material Records and Invoices

1. All charges related to Time and Material Work authorized by the Regional Program Manager shall be tracked on a daily basis. The Contractor shall complete a comprehensive Time and Material work report form, furnished by Sound Transit or alternate approved by Sound Transit, which details all the labor, services, material and equipment utilized in the course of completing the Time and Material Work. The report shall itemize the materials used, and shall cover the direct cost of labor and materials, and the charges for equipment rental and operation, whether furnished by the Contractor, Subcontractor or other force. The daily report sheets shall provide names or identifications and classifications of workers, the hourly rate of pay and hours worked; quantity, type and cost of materials used; and also the size, type, and identification number of equipment; the hours operated, and the hours of Sound Transit authorized standby.

2. All charges related to Time and Material Work shall be verified in the field by Sound Transit at the end of each Work shift. The Contractor shall complete a field report at the end of each shift that itemizes and summarizes all the charges. The report shall be signed by the Contractor's Representative and, upon verification by Sound Transit, copies of the signed report shall be provided immediately to Sound Transit's representative. The signature of Sound Transit's Inspector shall not be construed as acceptance of the Work or approval of the value invoiced by the Contractor. The Regional Program Manager shall

have the authority to review the charges related to Time and Material Work for reasonableness and efficiency, and to determine if the work for which the Time and Material reports have been submitted is in fact extra work. In the event that certain charges are deemed unreasonable or unnecessary for the Time and Material Work being performed by the Contractor, the Regional Program Manager shall direct the Contractor to delete such charges from the Time and Material Work Records. Evidence of Sound Transit's verification of all field reports shall be submitted by the Contractor with its draft invoice.

3. Invoices for Time and Material Work shall show, in payroll form, the dates, names, hours worked each day, rates of pay, and amounts paid for each individual employed on such Work and shall give in detail the nature of the Work performed by each employee.

4. Invoices for materials and services shall be fully itemized showing dates of delivery, quantities, unit prices, amounts, and discounts, and shall be accompanied by photocopies of vendor invoices covering each item. Such invoices shall be submitted with the daily report sheets. If invoices are not available, they shall be submitted with subsequent daily report sheets; however, except as provided by law, no payment shall be made for material charges until valid copies of vendor's invoices are submitted. Should said vendor's invoices not be submitted within sixty (60) days after the date of delivery of the material or fifteen (15) days after completion and acceptance of the Work, whichever comes first, the Regional Program Manager reserves the right to establish the cost of such materials at the lowest current wholesale prices at which such materials are available in the quantities concerned delivered to the location of the Work, less any discounts provided in these General Conditions.

5. Invoices for Owned or Rented Equipment charges shall be fully itemized showing a complete description including size and capacity of equipment, number of hours operated and/or number of hours at Sound Transit ordered standby for each day, the hourly rates being charged to Sound Transit for both ownership and operating elements, and the total amount charged, for each individual piece of equipment used. If rates were not pre-approved by Sound Transit as specified herein, the Contractor shall also include the rate computation and appropriate back-up materials as described herein.

6. Invoices for Time and Material Work shall be prepared and submitted in accordance with the payment procedures outlined in this Contract. All invoices, payrolls, and other documents which support the invoice for the Time and Material work shall be submitted with the partial payment request, shall state the Contract number, and Contract Item under which the Work was performed.

7. Failure to present complete Time and Material records and invoicing in proper form after the close of the month in which the time and materials Work was performed shall constitute a waiver by the Contractor of its right to present such a billing or invoice thereafter or to receive payment therefore, unless the Contractor promptly corrects and resubmits the Time and Material Records and Sound Transit approves the re-submittal.

F. The Regional Program Manager will compare the Regional Program Manager's records with the

daily report sheets furnished by the Contractor, make any necessary adjustment, and adjust the costs of work paid for on a Time and Material basis on the Time and Material Work forms. When these daily reports are agreed upon and signed by both parties, they shall become the basis of payment for the work performed, but shall not preclude subsequent adjustment based on a later audit.

G. Payment as provided in this Article shall constitute full compensation to the Contractor for performance of work paid for on a Time and Material basis and no additional compensation will be allowed therefore.

H. The Contractor shall maintain its records in such a manner as to provide a clear distinction between the direct costs of Work paid for or required to be paid for on a Time and Material basis and the costs of other operations.

9.10 PROVISIONAL SUM WORK

A. No Provisional Sum Work will be performed, or paid for, without prior issuance of a Provisional Sum Authorization (PSA).

B. Sound Transit may, without request from the Contractor, issue a PSA for work to be performed under a Provisional Sum Contract Pay Item.

C. If the Contractor believes that a PSA is required, the Contractor shall notify Sound Transit. Sound Transit will:

1. Issue a PSA; or

2. Request additional information; or

3. Make a written determination that the event or condition does not justify a PSA.

D. The Contractor shall maintain records and invoices for all costs associated with the Provisional Sum Work in accordance with the requirements specified in Section 9.09 Payment on Time and Material Basis.

E. Any potential time impacts arising from Provisional Sum Work shall be resolved in accordance with Article 4, Changes and Change Order Process, and Article 10, Delays and Claims.

ARTICLE 10 DELAYS AND CLAIMS

10.01 CLAIMS

A. Notice of Intent to Claim

1. In order to receive any recovery or relief in connection with the Contract, the Contractor must submit a written Notice of Intent to Claim to Sound Transit through the Regional Program Manager in accordance with the provisions of this Article. Written Notice as provided herein shall be a condition precedent to the Contractor's right to recover on a claim, and failure to comply with these requirements shall constitute a waiver by the

Contractor on any right, equitable or otherwise, to bring any such claim against Sound Transit.

2. The written Notice of Intent to Claim shall set forth:

   a. Detailed description of the facts and/or conditions giving rise to the Contractor's demand for additional compensation ;

   b. nature of the costs involved;

   c. the Contractor's plan for mitigating such costs; and

   d. the Contractor's best estimate of the amount of the potential claim, and

   e. the Contractor's best estimate of Critical Path(s) impacts.

3. The Notice shall be submitted within ten (10) days after Contractor discovers or ~~becomes aware of~~should have discovered, whichever comes first, the event or occurrence giving rise to the potential claim, or the denial of a Request for Change or the issuance of a Unilateral Change Order by Sound Transit. However, if the event or occurrence is claimed to be an act or omission of Sound Transit, a Notice of Intent to Claim shall be given by the Contractor within ten (10) days after the Contractor discovers or ~~becomes aware of~~should have discovered, whichever comes first, the act or omission ~~and prior to the time for performance of that portion of the Work~~ to which such alleged act or omission relates.

4. The notice requirements of this Article are in addition to any other notice requirements set forth in the Contract.

B. Claims

1. General

   a. The Contractor shall file all claims within sixty (60) days of the submission of the Notice of Intent to Claim, with a reasonably detailed factual statement of the Claim providing at minimum (i) all necessary details, locations and items of Work affected, (ii) the specific causes(s) of the Claim or alleged damages sustained, (iii) an explanation as to how Contractor ~~diligently~~ attempted to mitigate its damages for the Claim, (iv) copies of documents Contractor believes support the Claim, (v) all cost records meeting the requirements of Article 3.03, and (vi) if the claim seeks an extension of the Contract Time, the specific days and dates sought and Contractor's analysis of the Contract Schedule demonstrating entitlement to the time extension. When requested by Sound Transit, the Contractor shall submit such further information and details as may be required to determine the facts and contentions involved in said claim. The Contractor shall give Sound Transit access to its books, records, and other materials relating to the ~~Work~~ claim, and shall cause its Subcontractors to do the same, so that Sound Transit can investigate said claim~~s~~. The Contractor shall provide Sound Transit at its cost, on request, with copies of ~~the~~any and all portions of ~~all~~ such books, records, and other material determined to be pertinent to the claim.

Commented [CL170]: Rejection accepted.

Commented [BA171]: Proposed deletion rejected.

Commented [Legal172]: Language is added to clarify that the clock does not start to run until the Contractor becomes aware of, and/or discovers any potential claims. The other changes are made to reflect the added language in the first sentence and to clarify the overall meaning of the paragraph.

Commented [BA173R172]: See counter-language.

Commented [BA174]: Proposed edit rejected.

Commented [CL175]: These require further discussion.

Commented [BA176]: Proposed edit rejected.

Commented [BA177]: okay

Commented [BA178]: okay

Commented [BA179]: Proposed edit rejected.

Commented [Legal180]: Language has been added to make it clear that the Contractor's responsibilities are to provide sufficient information to make Sound Transit aware of the basis of the claim and not to provide every fact and detail.

b. Failure to submit the reasonably detailed factual statement described above ~~will~~ may result in rejection of the Claim.

c. Each claim the Contractor submits for an adjustment that is related to a delay for any cause shall be accompanied by:

1) a revised project schedule reflecting the effects of the delay; and

2) proposals to minimize these effects.

d. If the Contractor fails to submit any Claim in writing in the time and manner specified herein, it shall waive any relief that might otherwise be due with respect to such claim. Depending upon the grounds for the relief and the nature of the relief sought, additional information and/or conditions of submittal may be specified elsewhere in this Contract.

e. At all times during the course of claim evaluation or dispute resolution, the Contractor agrees to continue to perform the Work with due diligence and in accordance with the Contract, unless a Stop Work Order has been issued by Sound Transit. In the event the disputed matter impedes continuing performance, the Contractor shall inform Sound Transit in writing of the impediment and seek direction as to how to proceed. If the Contractor fails to provide such notice to Sound Transit, it shall be assumed that the Contractor is proceeding with performance of the Contract.

f. Compliance with the cost record requirements related to the Claim is a condition precedent to making of any Claim for recovery of any costs or damages related to or arising from performance of the Contract or the Work. In the event Contractor or any Subcontractor or Supplier seeks to make a Claim without complying with such requirements (inclusive of Article 3.03), such Claim is deemed waived and no adjustment shall be made to the Contract Price or Contract Time with respect to such Claim.

g. Both parties have a duty to take all reasonable steps necessary to mitigate losses resulting from the dispute whether those losses are their own or another party's losses.

h. All claims filed by Contractor or counterclaims filed by Sound Transit shall be verified under penalty of perjury by an officer or principal authorized to act for Contractor or in the case of a counterclaim for Sound Transit (or, in the case of claims made by or for the benefit of any Subcontractors, by an authorized officer or principal of both Contractor and Subcontractor) containing a sworn certification that the Claim is made in good faith after the exercise of reasonable diligence and investigation, that the supporting cost and pricing data are true and accurate based upon reasonable investigation, that the Claim is fully supported by accompanying data and accurately reflects the adjustment in the Contract Price and/or Contract Time for which Contractor believes Sound Transit is liable, and

Commented [BA181]: Proposed edit rejected.

Commented [BA182]: okay

Commented [Legal183]: Language has been added and changed to clarify the paragraph and to make it optional to reject the Claim.

Commented [Legal184]: Language has been added to clarify the paragraph.

Commented [LC185]: Applies when Sound Transit files a counterclaim

Commented [BA186R185]: Proposed edits rejected. If ST has a claim it is not a "contract claim" and it will not follow this process.

Commented [CL187R185]: A counterclaim is a claim filed to offset the original claim and it is likely Sound Transit would want this. In any event the term here is "counterclaim".

that in the event the Claim proceeds to alternate dispute resolution or litigation that the Claim amount will not exceed the amount set forth in the Claim plus any increased costs or expenses of any nature increased as a result of alternate dispute resolution and/or litigation.

2. Claims Processing

a. The Contractor shall submit its claim in writing to the Regional Program Manager for evaluation and resolution. ~~-~~Sound Transit shall respond within sixty (60) days after receipt of the claim. ~~Sound Transit~~ Either party may request in writing, within thirty (30) days of receipt of the claim by Sound Transit, that the ~~Contractor~~ other party provide any additional documentation that may be required to support the Contractor's claim or documentation that may relate to defenses or claims Sound Transit may have against the Contractor. Sound Transit shall respond in writing to the Contractor's claim including any additional documentation as requested by Sound Transit, within either thirty (30) days of receipt of said additional documentation, if the Contractor responds during the initial sixty (60) day period, or within a period no longer than that taken by the Contractor in producing the additional documentation, whichever is greater. In no event shall the extension of the response time resulting from Sound Transit's request for additional documentation and the Contractor's response time be deemed to waive any statutory limits or rights to Sound Transit.

b. The Regional Program Manager shall issue a reasoned written decision regarding the claim and deliver such decision promptly to Contractor. If the claim is found to have merit by the Regional Program Manager, the settlement will be negotiated in compliance with Article 4, Changes and Change Order Process.

3. Claims Two Hundred Fifty-Thousand Dollars ($250,000) and Less.

If Sound Transit finds the claim not to have merit, the Contractor may, within ten (10) calendar days of receipt *of* the finding, submit written appeal to Sound Transit's Director of Construction Management. The finding on the appeal will be provided in writing within sixty (60) calendar days unless a longer review period is deemed necessary, in which case the Contractor will be notified of the response period within the initial 60 days after the appeal.

4. Claims Over Two Hundred Fifty-Thousand Dollars ($250,000)

If Sound Transit finds the claim not to have merit the Contractor may, within ten (10) calendar days of receipt of the finding, submit the claim for dispute resolution in accordance with Article 11, Dispute Resolution.

~~If the Dispute Resolution process finds the claim to have merit and if both parties accept the finding, Sound Transit and the Contractor will negotiate the terms and value of a Change Order in accordance with Article 4, Changes and Change Order~~

Commented [Legal188]: Additional language was added to take into account that the Contract provides for Sound Transit to make a counterclaim and to give Contractor the opportunity to recovery additional legal costs arising from proceeding taking place after the claim was submitted.

Commented [BA189R188]: Proposed edit rejected.

Commented [CL190R188]: Please explain basis for rejection.

Commented [Legal191]: Language has been added/changed to clarify the paragraph and the claims process.

Commented [BA192R191]: Proposed edit rejected.

Commented [CL193R191]: Please explain the basis for your rejection.

Commented [Legal194]: The language is added to clarify the claims process, and to assist and facilitate a settlement.

Commented [BA195R194]: Proposed edits rejected. Response is addressed in paragraph 2.a. above.

Commented [CL196R194]: With respect I do not understand how the comment above addresses this section.

~~Process.~~

5. In no event shall any claims be made, except for claims for Work conducted after Final Acceptance, after Final Acceptance is issued. Failure by the Contractor to submit claims in a timely manner shall result in a waiver by the Contractor as to such claims.

6. Failure to comply strictly with the notice and other procedures set forth in the Contract Documents shall bar the Contractor from asserting any claim or right to compensation, damages, schedule extension, or any other relief.

10.02 DELAYS

A. Liquidated Damages [to be negotiated]

1. For each and every day that Contractor fails to achieve a designated Contract Milestone, as specified in the Special Conditions, damage will be sustained by Sound Transit. These damages may include, but are not necessarily limited to the following:

   a. Delays in completion and operation of the system;

   b. Increased costs of Contract administration, inspection, and other ORCA agency functions related to the design and execution of the Project;

   c. Costs resulting from delays to interfacing Contractors;

2. Because of the difficulty in computing the actual material loss and damages to Sound Transit, it is determined in advance and agreed by the parties hereto that the Contractor will pay Sound Transit the amount(s) set forth in Section 04 Liquidated Damages Amounts for each day of delay as representing a reasonable forecast of the actual damages that Sound Transit will suffer by the failure of the Contractor to complete such Work, or portion thereof, within said time(s). The execution of this Contract shall constitute acknowledgement by the Contractor that it has ascertained and agreed that Sound Transit will actually suffer damages in the amount herein fixed for each and every day during which the completion of the Work or portions thereof is avoidably delayed beyond the specified time(s).

3. Sound Transit may deduct assessed liquidated damages from any monies due or that may become due to the Contractor under the Contract. If such deducted monies are insufficient to recover the liquidated damages owing, the Contractor or the Contractor's surety or sureties shall pay to Sound Transit any deficiency within thirty (30) days after completion of the Work.

4. Where liquidated damages for contractor-caused delays are applicable, Sound Transit shall not seek actual damages for delay; however, to the extent liquidated damages are not applicable, Sound Transit reserves all other rights and remedies provided by law or under this Contract.

B. Extension of Time for Certain Delays

Commented [Legal197]: Second Paragraph deleted since the amount to be awarded must be determined by the trier of fact and not through negotiations.

Commented [BA198R197]: Proposed deletion rejected. A change order still has to be negotiated.

Commented [CL199R197]: Why would a change order need to be "negotiated" if both parties agree. I propose that the language be extended to require the parties to enter into a bilateral change order on the terms. After all, the Sound Transit Regional Program Manager made the decision.

Commented [Legal200]: The language is added to clarify the paragraph.

Commented [BA201R200]: Proposed edit accepted.

1. Notice of Delay or Potential Delay. Immediately, but in any event no more than five (5) days, after the Contractor foresees or should foresee a delay or a potential delay in the prosecution of the Work or upon the occurrence of a delay or potential delay that the Contractor regards as Unavoidable or compensable, the Contractor shall provide notice to Sound Transit of such delay or potential delay. Within five (5) days of such notice the Contractor shall provide in writing the extent of the delay, the specific impacts and effects of the delay on critical path activities and the Project Schedule, and its cause. The notice requirement in this Paragraph 10.02B.1 is in addition to notice required by other parts of this Contract, inclusive of Article 4.02. At a minimum the written notice under this Paragraph shall include:

    a. The facts underlying the potential delay;

    b. The nature of any additional costs which may be caused by the potential delay;

    c. The nature of any additional time which may be needed;

    d. The Contractor's plan for mitigating such costs and delay; and

    e. An estimate of the cost impacts due to the delay or the potential delay and an estimate of the time extension required for mitigation, along with all substantiating facts and supporting data.

2. The Contractor shall take immediate steps to prevent, if possible, the occurrence or continuance of the delay. If this cannot be done, the Contractor and Sound Transit will determine how long the delay will continue and to what extent the prosecution and completion of the Work are being or will be delayed thereby. Sound Transit will also determine whether the delay is to be considered Avoidable or Unavoidable and notify the Contractor of Sound Transit's determination.

3. Compliance with the notice requirements of this Article shall be a condition precedent to the Contractor's claim for delay. The Contractor agrees that no claim shall be made for delays for which timely written notice, as specified above, is not made to Sound Transit.

C. Avoidable Delays

1. Avoidable Delays in the prosecution of the Work shall include delays to the critical path of the Work that could have been avoided by the exercise of due care, prudence, coordination, foresight and diligence on the part of the Contractor, its Subcontractors, or its Suppliers at any tier. Examples of Avoidable Delays include, but are not limited to:

    a. Delays that may in themselves be unavoidable but do not necessarily prevent or delay the prosecution of parts of the Work or the completion of the Work within the Contract Time (e.g., fit within the Float time shown on the Project Schedule(s).)

    b. Time associated with the reasonable activities of Sound Transit, third party stakeholders or other contractors employed by Sound Transit that do not necessarily prevent the completion of the Contract within the Contract Time.

c. Individualized labor actions or strikes within Contractor's control, normal weather conditions, mechanical breakdown, equipment failure, and acts of negligence by the Contractor's forces, including Subcontractors and Suppliers.

d. Delays in the prosecution of the Work due to:

1) The Contractor's failure to provide sufficient resources, including, but not limited to: personnel, equipment, material, or facilities;

2) The Contractor's failure to submit required work products in a timely manner;

3) The Contractor's failure to procure and/or deliver materials and/or equipment in a timely manner.

2. Contractor shall not be entitled to any time extension or additional compensation for any Avoidable Delay. However, Sound Transit may in its sole discretion grant an extension of time for Avoidable Delay, if Sound Transit determines that an extension is in Sound Transit's best interest. Any such discretionary time extension shall be issued through a Change Order.

D. Unavoidable Delay

1. An Unavoidable Delay means a delay to the critical path of the prosecution of the Work that results from causes beyond the control of the Contractor and that could not have been avoided by the exercise of care, prudence, coordination, foresight, and diligence on the part of the Contractor, its Subcontractors or its Suppliers at any tier, and for which no provision is specifically provided in the Contract Documents for managing or mitigating such delay.

2. Examples of Unavoidable Delays include, but are not limited to:

a. Acts of God.

b. Fire or other casualty for which Contractor is not responsible.

c. War.

d. Riot.

e. Unusually Severe Weather. Unusually severe weather conditions shall not be deemed unusually severe if they fall within two (2) standard deviations from the mean of data recorded by the U.S. Weather bureau for the Seattle and Tacoma metropolitan area over the past twenty (20) years. Impacts of on-going weather conditions shall be updated weekly by the Contractor and provided to Sound Transit. To preclude the difficulties of actual measurement the parties hereto agree that weather data at the Site shall be expressly deemed to be the same as that measured at the Seattle-Tacoma International Airport by the Environmental Data and Information Service of the National Oceanic and Atmospheric Administration ("NOAA") of the U.S. Department of Commerce.

f. Epidemic.

g. Earthquake.

h. Terrorism.

i. General industry strikes or labor disputes beyond the reasonable control of the Contractor.

3. Extension of Time - For delays that the Contractor has given notice as required by the Contract, and considers to be Unavoidable Delay, the Contractor shall submit to Sound Transit complete written information demonstrating the effect of the delay on the critical path on the accepted Project Schedule. The submission shall be made within ten (10) days after the end of the occurrence that is claimed to be responsible for the Unavoidable Delay. Sound Transit will review the Contractor's submission and determine the number of days of Unavoidable Delay and the effect of such Unavoidable Delay on such critical path. Sound Transit may grant an extension of time to the extent that Unavoidable Delays necessarily affect the critical path(s) in the Project Schedule. During such extension of time, liquidated damages will not be charged to the Contractor. It is understood and agreed by the Contractor and Sound Transit that time extensions due to Unavoidable Delays necessarily involve critical path operations that would prevent completion of the Work, or portion thereof, within the Contract Time. Time extensions shall be issued via a Change Order. Contractor shall not be entitled to any additional compensation or Equitable Adjustment for any Unavoidable Delay.

E. Concurrent Delay

If Sound Transit determines that there are delays to the project as a result of concurrent delays, Sound Transit may grant a time extension. However, no compensation will be due to the Contractor for this time extension due to the concurrent nature of delays. Concurrent delay means a situation where both Contractor and Sound Transit are responsible for delays affecting the critical path where none of the delay events are utilizing available project float. If a delay for which Contractor seeks compensation under Article 10.02F is caused concurrently with either Avoidable Delay or Unavoidable Delay, then Sound Transit is only responsible for that portion of any compensable delay which it caused in excess of such Avoidable Delay or Unavoidable Delay, provided Contractor is able to prove such apportionment.

F. Compensation for Certain Delays

To the extent that the Contractor ~~proves~~ demonstrates (a) that the Contractor has been delayed in completion of the Work by reason of changes made by Sound Transit under these General Conditions, or a Stop Work Order, or a failure by Sound Transit to comply with its obligations under the Contract;
(b) that the Contractor was not concurrently responsible for the delay; (c) that the Contractor has suffered actual losses as a result of the delay; (d) ~~that but for Sound Transit's actions, the Contractor could not have suffered such actual losses~~; (e) that the Contractor could not have mitigated such actual losses despite taking all precautionary and remedial actions; and (f) ~~that the~~

~~delay was not within the contemplation of the Contract;~~ then Sound Transit shall pay to the Contractor as full compensation for any such delay, and for any actual and real disruption which may have been associated with any such delay which the Contractor can clearly quantify and calculate, the amount of the actual loss as computed in accordance with the Contract Documents, provided that the Contractor shall strictly comply with the notice and other claims procedures set forth in Article 10.01, Claims. Unless the Contractor satisfies the provisions of this Article, the Contractor's sole remedy for Sound Transit-caused delay shall be an extension of time under Paragraph 10.02B, Extension of Time for Certain Delays.

In no event may Contractor or any of its Subcontractors at any tier recover compensation for unabsorbed home office overhead unless (1) Sound Transit directs a suspension of indefinite duration due to Sound-Transit-caused circumstances and (2) Contractor and/or its Subcontractors were unable, in the exercise of reasonable care, to reallocate resources so as to mitigate losses or damages.

Commented [Legal202]: Language has been deleted and added to clarify the paragraph.

Commented [BA203R202]: Proposed edits to paragraph F rejected.

Commented [CL204R202]: Please explain the basis for the rejection.

ARTICLE 11 DISPUTE RESOLUTION

11.01 PURPOSE OF DISPUTE RESOLUTION

The purpose of this Dispute Resolution Article is to provide a structured approach for the parties to resolve disputes fairly at the lowest level possible without incurring significant administrative costs. It is agreed by the parties that the parties shall enter into the dispute resolution process in good faith and that use of the dispute resolution processes for purposes other than resolving a legitimate dispute (e.g. as a delay tactic) shall be evidence of bad faith in the performance of this Contract.

11.02 CONTINUATION OF WORK WHILE DISPUTE RESOLVED

At all times during the course of the Claim, conflict or dispute resolution, the Contractor agrees to continue to perform the Work with due diligence, unless a Stop Work Order under Article 12.01 has been issued by Sound Transit.

11.03 DUTY TO MITIGATE

Both parties have a duty to take all reasonable steps necessary to mitigate losses resulting from the Claim or dispute whether those losses are their own or another party's losses

11.04 PARTNERING

A. Preventing Conflict

1. The parties agree to use the principles of Project Partnering: collaboration and cooperation to identify and engage in measures to prevent and resolve potential sources of conflict before they escalate into disputes, claims, or legal actions. Such measures should extend to all levels of the Work, including lower-tiered Subcontractors, and may include the following:

    a. Conducting a one-day workshop to "kick-off" the performance of the Work by introducing the concepts of Project Partnering and holding follow-up workshops at least annually.

b. Developing and implementing a Partnering Action Plan devoted to developing and maintaining a collaborative atmosphere on the project at all levels.

c. Developing and implementing a Dispute Escalation Process.

d. Conducting facilitated, Executive Partnering Sessions among the senior managers of each party to discuss issues related to potential conflicts and to engage in collaborative problem solving.

e. Conducting training for all parties in teambuilding, collaborative problem solving and conflict resolution skills.

f. Conducting evaluations of the Project's partnering efforts.

g. Including language from this Article in contracts for Subcontractors who become involved in the performance of the Work.

2. Sound Transit will provide the ~~Partnering~~ partnering ~~Facilitator~~ facilitator and ~~Facilities~~facilities. All other costs associated with the Contractor's participation in the partnering program shall be included in the Contract Price.

Commented [Legal205]: Term is capitalized but has not been defined in Article 1, "Definitions," nor in the paragraph where the term is used. Term should to be defined by Sound Transit.

Commented [BA206R205]: Un-capitalized the terms.

B. Resolving Conflicts

1. Sound Transit and the Contractor agree to use their best efforts to resolve disputes arising out of or related to this Contract using good faith negotiations and the principles of Project Partnering by developing and implementing a Dispute Escalation Process that provides for the timely resolution of disputes as close to the their point of origin as possible. It is agreed that the foregoing will not negate any of the Contract requirements for providing timely notice and the timely submission of documents that are required elsewhere in the Contract Documents.

2. In the event the parties are unable to resolve their dispute using the Dispute Escalation Process, if a Dispute Review Board (DRB) has been established for this Contract and if the claim is over $250,000, the dispute shall be referred to a DRB as a condition precedent to mediation. If the claim is $250,000 or less or, if no DRB has been established for this Contract or, if the dispute remains unresolved after a hearing by and recommendation from the DRB, the dispute shall be referred to mediation as a condition precedent to the commencement of a civil action. For mediation, a mediator shall be chosen that is agreeable to all parties involved in the dispute and such agreement shall not be unreasonably withheld. All statements made by parties involved in the dispute to the mediator shall remain confidential and shall not be disclosed by the mediator in any litigation or other claim proceedings. All parties hereby agree to such terms and signature of the Contract provides written confirmation of these terms.

11.05 DISPUTES REVIEW BOARD

A. A Disputes Review Board (DRB) may be established to assist in resolving claims arising out of this Contract. Disputed claims may be heard by the DRB only after the claims process detailed in Article 10.01, Claims, has been exhausted.

B. The provisions for establishing a DRB, if a DRB is to be utilized in this Contract, will be provided in the Special Conditions in the Article entitled Disputes Review Board Procedures. The form of the Three Party Agreement to be used in establishing a DRB will also be provided in that section.

C. Where no approved DRB is currently established or currently operating, the parties will utilize their best efforts to negotiate resolution of claims in good faith.

11.06 EXHAUSTION OF ADMINISTRATIVE REMEDIES/TIME LIMITATION FOR SUIT

It is the intention of this Article that differences between the parties arising under and by virtue of the Contract shall be brought to the attention of Sound Transit at the earliest possible time in order that such matters may be settled without a claim being filed, if possible, or other appropriate action promptly taken. The Contractor agrees to defer, in the absence of special written notice given by Sound Transit, the commencement of any legal action against Sound Transit on a matter required to be covered by written Notice of Intent to Claim pursuant to Paragraph 10.01A, Notice of Intent to Claim, until all of the administrative and dispute resolution processes have been exhausted. ~~Contractor may not sue, cross-claim or bring any action of any kind whatsoever against Sound Transit after the expiration of one hundred eighty (180) days from overall Acceptance, provided, however, that the proper pendency of contract-required dispute resolution procedures shall toll this deadline until thirty~~

~~(30) days after such contract-required dispute resolution procedure is concluded.~~

ARTICLE 12 SUSPENSION AND TERMINATION

12.01 STOP WORK ORDER

A. Sound Transit may at any time and for any reason ~~within its sole discretion~~ issue a written order to the Contractor thereby suspending, delaying, or interrupting all or any part of the Work for a specified period of time ("Stop Work Order"). A Stop Work Order must be in the form of an explicit written Notice and will not be inferred from any oral statement, course of conduct or informal field communication, except in the case of an emergency or exigent safety concern.

B. In the event that it becomes necessary for Sound Transit to suspend all, or a part, of the Work, Sound Transit will deliver a written Stop Work Order to the Contractor, which shall describe the following:

1. Identification of the work to be suspended;
2. The date and time upon which the Stop Work Order shall be effective;
3. The period of time during which Work will be suspended, if known;
4. Directions to be taken regarding subcontracts; and Other instructions required to safeguard the Work and to prevent property damage and personal injury.

C. The Contractor shall comply immediately with any written order it receives from Sound Transit suspending the Work and take all reasonable steps to minimize costs allocable to the Work covered by the suspension during the period of Work stoppage. The Contractor shall resume performance of the suspended Work upon expiration of the notice of suspension, or upon

Commented [Legal207]: Language has been deleted to ensure that delay in the preliminary dispute resolution process does not operate as a bar to bringing a court action.

Commented [BA208R207]: Proposed edits rejected. Delay for dispute resolution process is already carved out.

Commented [CL209R207]: INIT's proposal is reasonable response to the demand of deferral. What is the issue?

Commented [Legal210]: Language deleted since the wording is redundant.

Commented [BA211R210]: Proposed deletion accepted.

direction of Sound Transit.

D. Within the period specified by the Stop Work Order, or within any extension of that period, Sound Transit may:

1. Terminate the work covered by the Stop Work Order;

2. Cancel the Stop Work Order; or

3. Allow the period of the Stop Work Order to expire.

E. Costs Associated with a Stop Work Order

1. If a Stop Work Order is canceled or the period of the Stop Work Order expires, the Contractor shall resume work.

2. The Contractor may be allowed an increase in the Total Contract Price or an extension of time, or both, directly attributable to any suspension, provided that:

a. The Contractor submits a Request for Change in accordance with the requirements of the Contract Documents;

b. The Stop Work Order results in an increase in the time required for, or in Contractor's cost properly allocable to, the performance of any part of this Contract; and

c. The Stop Work Order was not caused by Contractor's default or other act or omission within the control or responsibility of Contractor.

3. No adjustment shall be made under this Paragraph for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an equitable adjustment or extension of time is provided or excluded under any other term or condition of this Contract.

4. The provisions of this Paragraph shall only apply if a written Stop Work Order is issued by Sound Transit.

F. During a suspension of work, Contractor shall take appropriate action to prevent damage to or deterioration of the Work. Contractor shall repair or replace, at no additional cost to Sound Transit Work that is damaged or deteriorated during a Work stoppage due to Contractor's failure to comply with this Paragraph. If Sound Transit finds that the Contractor is not taking appropriate action and the Contractor fails to take the appropriate action within the time frame specified by Sound Transit in written notice to the Contractor, Sound Transit may take appropriate action and recover from the Contractor the reasonable costs of such action.

G. In the event that a suspension of the work is ordered, the Contractor shall do all the work necessary to provide any safe, smooth, and unobstructed passageway through the work as deemed necessary by the Regional Program Manager for use by Sound Transit, other Sound Transit contractors, public agencies or their contractors, and/or public traffic during the period of

such suspension as specified in the Contract Documents. In the event that the Contractor fails to perform the work above specified, Sound Transit will perform such work and the cost thereof shall be deducted from payments due the Contractor. If the suspension is due to some failure on the part of the Contractor, all costs and delays shall be at no additional expense to Sound Transit.

H. In the event of a suspension of the Work, the Contractor shall not be relieved of the Contractor's responsibilities as set forth in Article 7, Legal Requirements.

12.02 TERMINATION FOR DEFAULT

A. Sound Transit will have the right to terminate the Contract in whole or in part, for default, under any of the following circumstances:

1. If the Contractor refuses or fails to prosecute the Work with such diligence as will ensure its completion within the Contract Time and any extension thereof;

2. Material failure of the Contractor to perform any obligation required under the Contract or violation of any duty required of the Contractor, including but not limited to the following:

   a. Violation of a~~n~~ legal authorized order or requirement of Sound Transit by the Contractor;

   b. Abandonment of the Contract;

   c. Failure of the Contractor to pay its undisputed debts owing to any parties performing Work on the Contract, provided that such failure continues for a period of fourteen (14) days after written notice to the Contractor by Sound Transit;

   d. Failure to comply with any law, ordinance, rule, regulation, or order of a legal authority applicable to the Contractor, the Work, the Contract, or the Project;

   e. Failure to indemnify any party that the Contractor is obligated to indemnify under the General Conditions and other provisions of the Contract;

   f. Failure to replace rejected Work or correct rejected workmanship when directed by Sound Transit;

   g. Failure to provide required insurance and/or bonds, or proceeds thereof;

   h. Submittal of false or misleading information or Claims to Sound Transit; or

   i. Disregard of applicable laws, ordinances, rules, codes, regulations, orders, or similar requirements of any public entity having jurisdiction.

~~3.~~B. If the Contractor is adjudged bankrupt or insolvent, or makes a general assignment for the benefit of creditors, or if the Contractor or a third party files a petition to take

Commented [Legal212]: Term added to clarify that the order must apply with applicable law.

Commented [BA213R212]: Proposed edit accepted.

Commented [Legal214]: Change made to clarify the intent of the paragraph.

Commented [BA215R214]: Rejected.

Commented [CL216R214]: Unacceptable. Contractor may have a legitimate disputed claim. Agree that any undisputed debt should be cleared.

Commented [Legal217]: Change made to clarify the paragraph.

Commented [BA218R217]: Proposed edits accepted.

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advantage of any debtor's act or to reorganize under the bankruptcy or similar laws concerning the Contractor, or if a trustee or receiver is appointed for the Contractor or for any of the Contractor's property on account of the Contractor's insolvency, and the Contractor or its successor in interest does not provide adequate assurance of future performance in accordance with the Contract within fifteen (15) days of receipt of a request for assurance from Sound Transit.

~~B.~~C. If, in the opinion of Sound Transit, the Contractor is in default of the Contract, Sound Transit will issue a written Notice of Default to the Contractor and its Surety. If the Contractor, within fourteen (14) days after receipt of such notice, fails to remedy or provide assurance acceptable to Sound Transit of its specific plan and timetable to remedy the default ~~within fourteen (14) days after receipt of such notice~~, Sound Transit may terminate the Contractor's right to proceed under all or such part of the Contract as Sound Transit deems to be in its best interest. Sound Transit shall furnish written Notice of Termination for Default to the Contractor, upon which date the Termination for Default shall be effective. The Contractor and its Surety shall be liable for any damage to Sound Transit resulting from the Contractor's refusal or failure to complete the Work in the specified time.

Commented [Legal219]: Changes made to clarify the paragraph and to provide that the Notice to Contractor should be in writing.

Commented [BA220R219]: Proposed edit accepted.

~~C.~~D. Upon receipt of a Notice of Termination for Default from Sound Transit, the Contractor shall, except as otherwise directed by Sound Transit:

1. Stop all Work under the Contract on the date and to the extent specified in the Notice of Termination for Default.

2. Place no further orders or Subcontracts for materials, equipment, or services except as may be necessary for completion of such portions of the Work expressly excluded from the Notice of Termination.

3. Communicate any Notice of Termination to the affected Subcontractors and Suppliers, and any other parties at any tier, and take reasonable steps to minimize cancellation charges and other costs arising from termination.

4. Terminate all orders and Subcontracts to the extent that they relate to the performance of Work covered by the Notice of Termination or, at the option of Sound Transit, assign to the Surety or any replacement contractor all such Subcontracts and purchase orders.

5. Comply with all other reasonable and legal requirements of Sound Transit as may be specified in the Notice of Termination.

Commented [Legal221]: Language added to clarify paragraph.

Commented [BA222R221]: Proposed edits accepted.

~~D.~~E. Upon Sound Transit's termination of the Contractor's right to proceed with the Work because of the Contractor's default under the Contract, Sound Transit shall have the right to complete the Work by whatever means and methods it deems advisable, including transfer of performance of the work from the Contractor to the Surety. Sound Transit shall have the right to take possession of and use any or all the Contractor's design, goods, facilities, tools, equipment, and property of any kind, at the Project, or related thereto, provided by or on behalf of the Contractor to complete the Work or any portion thereof, without being responsible to the Contractor for fair wear and tear. The Contractor shall have no rights in such property during its use by Sound Transit. Sound

Transit may complete the Work by obtaining the services of another Contractor, or by any other reasonable and legal means that Sound Transit deems in its best interest. Sound Transit shall have the right to exercise its sole discretion as to the manner, method and reasonableness of the costs of completing the work subject to a reasonable duty to mitigate costs. Materials and equipment for which Sound Transit has paid any amount to the Contractor may be incorporated in the Work regardless of whether they are stored at the site or elsewhere.

Commented [Legal223]: Language added to clarify paragraph.

Commented [BA224R223]: Proposed edits accepted.

~~E.~~F. The expense of completing the Work together with a reasonable charge for engineering, managerial, and administrative services arising from the default shall be charged to the Contractor. Sound Transit shall deduct said amount out of any monies that may be due or may at any time thereafter become due the Contractor. In case such expense is in excess of the sum that would otherwise have been payable to the Contractor under the Contract, the Contractor or its Surety shall promptly pay the amount of said excess to Sound Transit upon notice thereof. Sound Transit may, at its sole discretion, withhold all or any part of any Partial Payments or other monies otherwise due the Contractor until completion and final settlement of the Work covered by the Notice of Termination for Default.

~~F.~~G. If Sound Transit terminates the Contractor for default, the resulting damage shall include, but not be limited to, actual and liquidated damages, any increased costs incurred by Sound Transit in completing the Work, and amounts paid to third parties by Sound Transit on account of any claims made against Sound Transit relating to the Work.

~~G.~~H. If the Contract is terminated for default, Sound Transit may require that the Contractor transfer title to and deliver the following items to Sound Transit as directed: any goods, work in progress, tools, dies, jigs, fixtures, plans, drawings, information, contract rights, and other items that the Contractor has specifically produced or acquired for the terminated portion of the Contract and that would have been required to be furnished to Sound Transit if the Contract had been completed. The Contractor shall also protect and preserve property in its possession at its sole expense in which Sound Transit has an interest.

~~H.~~I. If, after Notice of Termination for Default, it is determined for any reason that the Contractor was not in default under the provisions of the Contract, or that the Contractor was properly entitled to an extension of time under the provisions of the Contract, the rights, obligations, and remedies of the parties shall be the same as if the Notice of Termination for Default had been issued pursuant to the Article entitled Termination for Convenience.

12.03 TERMINATION FOR CONVENIENCE

A. Upon written notice to Contractor Sound Transit may terminate the Work under this Contract, in whole or in part, at any time, for the convenience of Sound Transit.

B. After receipt of a Notice of Termination for Convenience, and unless directed otherwise by Sound Transit, the Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due under this clause:

1. Stop performance of Work and meet with Sound Transit to develop a Termination Work Plan, including a scope, schedule and budget to safely terminate the Contractor's progress

of Work.

2. Place no further subcontracts or orders (referred to as subcontracts in this clause) for materials, services, or facilities, except as necessary to complete the continued portion of the Contract.
3. Terminate all Subcontracts or orders to the extent they relate to the work terminated or, at the option of Sound Transit, assign to the Surety or any replacement contractor all such Subcontracts and purchase orders. Assign to Sound Transit, as directed by Sound Transit, all right, title, and interest of the Contractor under the Subcontract(s) terminated, in which case Sound Transit shall have the right to settle or to pay any termination settlements proposal arising out of those terminations.
4. With approval or ratification to the extent required by Sound Transit, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontract; the approval or ratification will be final for purposes of this clause.
5. As directed by Sound Transit, transfer title and deliver to Sound Transit (1) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced or acquired for the work terminated, and (2) the completed or partially completed plans, drawings, information and other property that, if the Contract had been completed, would be required to be furnished to Sound Transit.
6. Complete performance of any Work not terminated.
7. Take any action that may be necessary, or that Sound Transit may direct, for the protection and preservation of the property related to this Contract that is in possession of the Contractor and in which Sound Transit has or may acquire an interest.
8. Use its best efforts to sell, as directed or authorized by Sound Transit, any property of the types referred to in Sub-paragraph 12.03B.5 above; provided, however, that the Contractor (1) is not required to extend credit to any purchaser and (2) may acquire the property under the conditions prescribed by, and at prices approved by, Sound Transit. The proceeds of any transfer or disposition will be applied to reduce any payments to be made by Sound Transit under this Contract, credited to the price or cost of the work, or paid in any other manner directed by Sound Transit.

C. Payment

In the event of a Termination for Convenience, if such termination occurs after the effective date of the Notice to Proceed, Sound Transit will pay the reasonable, verifiable ~~direct~~ costs incurred by the Contractor toward any incomplete item on the Partial Payment Schedule before the termination. Reimbursable costs incurred by the Contractor will be determined by taking into consideration the following facts, circumstances and limitations:

1. ~~The budget established for the Termination Work Plan,~~Penalties charged to Contractor by suppliers for cancellation of hardware and /or software custom designed and to be produced specifically for the Project.

Commented [Legal225]: Term deleted. If costs are found reasonable they should be recovered by Contractor.

Commented [BA226R225]: Proposed edits rejected. The costs should be limited to direct costs only.

Commented [Legal227]: Language deleted. Costs are found reasonable and justifiable since the Termination is for the convenience of Sound Transit.

Commented [BA228R227]: Proposed edit rejected. Fees (WA does not recognize penalties) may be considered as part of the Termination Work Plan.

Commented [CL229R227]: The use of the term penalty was inadvertent. The charge for work performed and costs incurred by contractors is the same as that incurred under the clause.

2. The physical progress of the Work satisfactorily completed to the effective date of the termination, evaluated against the approved Partial Payment Schedule,

3. Costs of removing equipment and materials and otherwise demobilizing,

4. Costs reasonably incurred in anticipation of performing the Work; provided, said amounts are reasonable, verifiable and ~~directly~~ attributed to the Contractor's performance of the Work, Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of the termination inventory,

5. Termination for Convenience notwithstanding anything to the contrary set forth herein, the Contractor shall not be entitled to, and Sound Transit shall not be liable for, any consequential losses or damages incurred by the Contractor including, but not limited to: loss of profits, business opportunity, reputation or financing. Amounts retained and accumulated under RCW 60.28.011 will be held as provided therein for a period of not less than forty-five (45) days following termination.

Commented [Legal230]: Language is deleted to clarify paragraph. If it is reasonable and justifiable, the Contractor should be entitled to recover.

Commented [BA231R230]: Proposed edits rejected. The costs should be limited to direct costs only.

12.04 SOUND TRANSIT'S RIGHTS AND OBLIGATIONS UPON TERMINATION

A. Upon any termination contemplated herein, Sound Transit may take over the Work and prosecute the same to completion by agreement with another party or otherwise complete the Work.

B. Upon any termination contemplated herein, amounts retained and accumulated under RCW 60.28.011 will be held as provided therein for a period of not less than sixty (60) days following termination and consistent with state law.

12.05 CONTRACTOR'S OBLIGATIONS UPON TERMINATION

Upon receipt of Notice of Termination, the Contractor shall immediately discontinue Work, but shall do such Extra Work as may be ordered by Sound Transit to safeguard the Work then completed, to safeguard the materials and equipment then delivered to the site and to leave the Work in a safe and useful condition. The Contractor shall promptly deliver, or otherwise make available to Sound Transit, all Contract Records reasonably necessary for Sound Transit to complete the Work with its own forces, including but not limited to software, data, drawings, specifications, as-built drawings, calculations, reports, estimates, summaries, and other such information as the Contractor or Subcontractors may have accumulated in performing this Contract, whether completed or in progress, and all materials and equipment purchased specifically for the Contract where Sound Transit has reimbursed the Contractor for such costs. The Contractor shall also take all reasonable steps with its Suppliers and Subcontractors to minimize cancellation charges and other costs.

12.06 OWNERSHIP OF EQUIPMENT, MATERIALS AND SUPPLIES UPON TERMINATION

As of the date of termination, all the Contractor's right, title and interest in and to equipment, materials, and supplies ordered by the Contractor prior to the termination (including placement or priority in production runs of materials, equipment, or supplies), whether or not they have been delivered to the site, shall be vested in Sound Transit and the Contractor shall, upon demand of Sound Transit, execute and deliver to Sound Transit all requisite bills of sale, assignments, and other documents of transfer that may be necessary to give effect to the intention of the termination procedures set forth in this Article.

END OF SYSTEMS GENERAL CONDITIONS

SECTION 02 – FEDERAL PROVISIONS

ARTICLE 1 INCORPORATION OF FTA PROVISIONS

1.01 APPLICABILITY OF FEDERAL GRANT CONTRACT

A. This procurement may be subject to one or more financial assistance contracts between Sound Transit and the U.S. Department of Transportation (DOT), which incorporate the current FTA Master Agreement and Circular 4220.1 as amended.

B. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1, as amended, and the Master Grant Agreement, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Contract. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any Sound Transit request that would cause Sound Transit to be in violation of the FTA terms and conditions.

C. The FTA Master Agreement obligates Sound Transit to incorporate certain provisions into this Contract and any lower tier subcontracts at any level and to take appropriate measures to ensure that Contractor and its lower tier Subcontractors at any level comply with certain applicable requirements set forth in the Master Agreement. The following provisions of the FTA Master Agreement are hereby incorporated by reference into this Contract, and the Contractor shall comply with all such requirements.

D. Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement between Sound Transit and FTA, as they may be amended or promulgated from time to time during the term of this contract. Contractor's failure to so comply shall constitute a material breach of this contract.

E. Copies of the FTA Circular 4220.1, as amended, and the Master Grant Agreement are available from Sound Transit.

1.02 FEDERAL FUNDING LIMITATION

The Contractor understands that a portion of the funds to pay for the Contractor's performance under this Contract are anticipated to be made available from the United States Department of Transportation through the Federal Transit Administration (FTA). All such funds must be approved and administered by FTA. Sound Transit's obligation hereunder is, in part, payable from funds that are appropriated and allocated by FTA for the performance of this Contract. If such funds are not allocated, or ultimately are disapproved by FTA, Sound Transit may be required to terminate or suspend the Contractor's services. In such event, the Contract may at Sound Transit's option be terminated for convenience in accordance with these General Conditions.

1.03 NO OBLIGATION BY THE FEDERAL GOVERNMENT

A. Notwithstanding that the Federal Government may have concurred in or approved the solicitation

for this Contract, the Federal Government is not a party to this Contract and has no obligations or liabilities to any entity other than Sound Transit, including the Contractor and its Subcontractors and Suppliers at any tier.

B. The Contractor agrees to include the above clause in each Subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clause shall not be modified, except to identify the Subcontractor who will be subject to its provision.

1.04 CERTIFICATION REGARDING DEBARMENT, SUSPENSION AND OTHER RESPONSIBILITY MATTERS

A. This contract is a covered transaction for purposes of 49 CFR Part 29. As such, the Contractor is required to verify that the Contractor, its principals, as defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945.

B. The Contractor is required to comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CFR 29, Subpart C in any lower tier covered transaction it enters into.

C. By signing and submitting its Bid, the Bidder certifies as follows:

> The certification in this clause is a material representation of fact relied upon by Sound Transit. If it is later determined that the Bidder knowingly rendered an erroneous certification, in addition to remedies available to Sound Transit, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The Bidder agrees to comply with the requirements of 49 CFR 29, Subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The Bidder further agrees to include a provision requiring such compliance in its lower tier covered transactions.

1.05 FEDERAL LOBBYING RESTRICTIONS

A. This Contract is subject to Section 319, Public Law 101-121 (31 U.S.C. §1352) and U.S. DOT regulations "New Restrictions on Lobbying," 49 CFR Part 20, which prohibits Federal funds from being expended to influence or to attempt to influence an officer or employee of any agency, members of Congress, an office or employee of Congress or an employee of a Member of Congress in connection with the awarding of any federally funded contract, the making of any Federal grant or loan, or entering into any cooperative agreement and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

B. Contractors and Subcontractors at any time who apply or bid for an award of $100,000 or more shall file the certification required by 49 CFR Part 20, "New Restrictions on Lobbying." Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or any employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier shall also disclose the name of any registrant under the Lobbying Disclosure Act of 1995 who has made lobbying contacts on its behalf with non-Federal funds with respect to that Federal contract, grant or award covered by 31 U.S.C. 1352. Such disclosures are forwarded from tier to tier up to the recipient.

C. The Contractor shall submit the "Certification Regarding Lobbying," included in the Bid documents.

The Contractor's signature on this certification shall certify that: a) it has not engaged in the prohibited activity and b) the language of the certification shall be included in all lower tier subcontracts, which exceed $100,000, and that all such Subcontractors shall certify and disclose accordingly. Sound Transit is responsible for keeping the certification form of the Contractor, who is in turn responsible for keeping the certification forms of Subcontractors. Further, by executing the Contract, the Contractor agrees to comply with these laws and regulations.

D. If the Contractor has engaged in any lobbying activities to influence or attempt to influence the awarding of this Contract, the Contractor must disclose these activities. In such a case, the Contractor shall complete Standard Form SF-LLL, "Disclosure of Lobbying Activities." Sound Transit must also receive all disclosure forms.

E. The Contractor and any Subcontractors shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of a previously filed disclosure form. An event that materially affects the accuracy of the information reported includes:

1. A cumulative increase of $25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence this federally funded Contract; or
2. A change in the person(s) influencing or attempting to influence this federally funded Contract; or
3. A change in the officer(s), employee(s) or member contracted to influence or attempt to influence this federally funded Contract.

1.06 PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS

A. The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § § 3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to this Contract. Upon execution of the underlying contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract or the FTA-assisted project for which this contract work is being performed. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.

B. The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. § 5307, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Contractor, to the extent the Federal Government deems appropriate.

C. The Contractor agrees to include the above two clauses in each Subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the Subcontractor who will be subject to the provisions.

1.07 ANTI-KICKBACK

A. Sound Transit and contractors are required to comply with the Copeland "Anti-Kickback" Act, 18 USC § 874 and 40 USC § 276(c), as supplemented in U.S. Department of Labor regulations, 29 CFR Part 3. Under state and federal law, it is a violation for Sound Transit employees, proposers, bidders, contractors or subcontractors to accept or offer any money or benefit as a reward for favorable treatment in connection with the award of a contract or the purchase of goods or services.

B. "Kick-Back" as defined by Federal Acquisition Regulations (FAR), means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind that is provided directly or indirectly to any prime contractor, prime contractor employee, subcontractor or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contractor in connection with a subcontract relating to a prime contract.

1.08 CIVIL RIGHTS

In addition to the provisions in Section 00 73 39 00, Diversity Program Provisions, the following requirements pertaining to nondiscrimination and civil rights apply to the underlying contract:

A. Nondiscrimination

In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, Executive Order 11246 as amended, and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, gender identity, status as a parent, marital status, age, or disability. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

B. Equal Employment Opportunity

The following equal employment opportunity requirements apply to the underlying contract:

1. Race, Color, Creed, National Origin, Sex

In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulation, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 et seq., (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Project. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

As required by 41 CFR 60-1.4, during the performance of this Contract, the Contractor agrees as follows:

a. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, marital status, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, gender identity, status as a parent, marital status, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

b. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, marital status or national origin.

c. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this Section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

d. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, as amended, and of the rules, regulations, and relevant orders of the Secretary of Labor.

e. The Contractor will furnish all information and reports required by Executive Order 11246, as amended, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his or her books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

f. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246, as amended, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246, amended, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

2. The Contractor will include the portion of the sentence immediately preceding paragraph 1.a and the provisions of paragraphs 1.a through 1.f in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246, as amended, so that such provisions will be binding upon each

subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance, provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

3. Age

    a. The Contractor and its Subcontractors shall include the equal employment opportunity clause set forth in paragraph 1.a above in each of their non-exempt Subcontracts. In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. §§ 623 and federal transit law at 49 U.S.C. § 5332, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

4. Disabilities

    In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the "Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

5. Federal Equal Employment Opportunity Requirements

    As required by 41 CFR 60-4.2, the Contractor shall take into account the following provisions in performing the Work:

    a. The Contractor shall comply with the Federal Equal Employment Opportunity (EEO) Requirements.

    b. The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows (unless modified by the federal government):

        - Minority participation in each trade (King County) – 7.2%
        - Minority participation in each trade (Snohomish County) – 7.2%
        - Minority participation in each trade (Pierce County) – 6.2%
        - Female participation in each trade (Nationwide) – 6.9%

        These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-

federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the Contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

c. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) Business Days of award of any construction Subcontract in excess of $10,000 at any tier for construction work under this Contract. The notification shall list the name, address and telephone number of the Subcontractor; employer identification number of the Subcontractor; estimated dollar amount of the Subcontract; estimated starting and completion dates of the Subcontract; and the geographical area in which the Subcontract is to be performed.

d. As used in this Notice, and in this Contract, the "covered area" is Snohomish, King and Pierce Counties of the State of Washington.

6. EEO Construction Contract Specifications

As required by 41 CFR 60-4.3, the Contractor shall comply with the following:

Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246)

a. As used in these specifications:

(1) "Covered area" is Snohomish, King and Pierce Counties of the State of Washington.

(2) "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

(3) "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

(4) "Minorities" includes:

(a) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(b) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(c) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification.

b. Whenever the Contractor, or any Subcontractor at any tier subcontracts a portion of the Work involving any construction trade, it shall physically include in each Subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which are set forth in this Contract.

c. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

d. The Contractor shall implement the specific affirmative action standards provided in paragraphs g(1) through g(16) below. The goals set forth in this Contract are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

e. Neither the provisions of any collective bargaining agreement, nor the failure by a union with which the Contractor has a collective bargaining agreement, to refer

either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

f. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

g. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

(1) Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

(2) Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

(3) Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

(4) Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor minority persons or women sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

(5) Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and training programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under g(2) above.

(6) Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

(7) Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

(8) Disseminate the Contractor's EEO policy externally by including it in any advertising in the new media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipate doing business.

(9) Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

(10) Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

(11) Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

(12) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

(13) Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

(14) Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

(15) Document and maintain a record of all solicitations of offers for subcontract from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

(16) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

h. The Contractor is encouraged to participate in voluntary associations which assist in fulfilling one or more of its affirmative action obligations (paragraphs g(1) through g(16) above). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under g(1) through g(16) of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

i. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the

Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

j. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.

k. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

l. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

m. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph g of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

n. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

o. Nothing herein provided shall be construed as limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

7. The Contractor also agrees to include these requirements in each Subcontract financed in whole or in part with Federal assistance provided by FTA, modified only if necessary to identify the affected parties.

C. Flow Down

The Civil Rights requirements flow down to the Contractor and its subcontractors at every tier.

1.09 BUY AMERICA REQUIREMENTS

A. The Contractor agrees to comply with the requirements of section 165(a) of the Surface Transportation Assistance Act of 1982, as amended, and the applicable regulations in 49 CFR Part 661, which provide that federal funds may not be obligated unless steel, iron and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by the FTA or the product is subject to a general waiver. General Waivers are listed in 49 CFR 661.7. Separate requirements for rolling stock are set out in section 165(b)(3), of the Surface Transportation Assistance Act of 1982 and 49 CFR 661.11. Rolling stock must be assembled in the United States and have a 60 percent domestic content.

B. A bidder or offeror must submit to Sound Transit the appropriate Buy America certification, attached herein, with all bids or offers on FTA-funded contracts, except those subject to a general waiver. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive. This requirement does not apply to lower tier subcontractors

C. Whether or not a Bidder certifies that it will comply with the applicable requirement, Bidder will be bound by its original certification and is not permitted to change its certification after the time that the Bid is submitted, except for clerical error. A Bidder that certifies that it will comply with the applicable Buy America requirements may not change its certification at any point, and is not eligible for waiver of those requirements. (Buy America Regulations, 49 CFR Part 661.13(c))

D. If the Bidder is unable to certify compliance, but believes that it may qualify for an exception to the requirement consistent with section 165(a) of the Surface Transportation Assistance Act of 1982, as amended, Sound Transit, on behalf of the Bidder, will tender the request for exception(s) to FTA for review and approval. Sound Transit does not warrant that any such request will be acted upon in accordance with the Bidder's time frame. Failure to achieve an exception will not relieve the Bidder of its responsibilities under this Section.

1.10 CARGO PREFERENCE

Pursuant to 46 CFR Part 381, the Contractor agrees:

A. To utilize privately owned United States flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, materials, or commodities pursuant to this Contract, to the extent such vessels are available at fair and reasonable rates for United States flag commercial vessels.

B. To furnish within twenty (20) Days following the date of loading for shipments originating within the United States, or within thirty (30) Business Days following the date of loading for shipment originating outside the United States, a legible copy of a rated, commercial ocean bill of lading in English for each shipment of cargo described in paragraph A above to Sound Transit (through the prime Contractor in the case of Subcontractor bills of lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, 400 Seventh Street, SW, Washington, D.C., 20590, marked with appropriate identification of the Project.

C. To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this Contract.

1.11 FLY AMERICA REQUIREMENTS

The Contractor agrees to comply with 49 U.S.C. § 40018 (the "Fly America" Act) in accordance with the General Services Administration's regulations at 41 CFR Part 301-10, which provide that recipients and subrecipients of Federal funds and their contractors are required to use U.S. Flag air carriers for U.S. Government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. The Contractor shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a U.S. flag carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance with the Fly America requirements. The Contractor agrees to include the requirements of this Section in all subcontracts that may involve international air transportation.

1.12 RECOVERED MATERIALS

A. The Contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in subpart B of 40 CFR Part 247.

B. These requirements flow down to all Contractor and Subcontractor tiers.

1.13 ENERGY CONSERVATION

A. The Contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

B. These requirements extend to all third party contractors and their contracts at every tier and subrecipients and their subagreements at every tier.

1.14 CLEAN WATER

A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. The Contractor agrees to report each violation to Sound Transit and understands and agrees that Sound Transit will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

B. The Contractor also agrees to include these requirements in each Subcontract exceeding $100,000 financed in whole or in part with Federal assistance provided by FTA.

1.15 CLEAN AIR

A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §.§ 7401 et seq. The Contractor agrees to report each violation to Sound Transit and understands and agrees that Sound Transit will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional

Office.

B. The Contractor also agrees to include these requirements in each Subcontract exceeding $100,000 financed in whole or in part with Federal assistance provided by FTA.

1.16 MIGRATORY BIRD TREATY ACT

The Contractor shall comply with the Migratory Bird Treaty Act (MBTA), 16 U.S.C. Sections 703-712, 50 C.F.R. Section 10.13 and all amendments, which makes it illegal for anyone to take, possess, import, export, transport, sell, or offer for sale, purchase, or barter, any migratory bird, or other parts, nests, or eggs of such a bird except unless and except as permitted by regulations or under the terms of a valid permit issued by the Secretary of the Interior.

1.17 SEISMIC SAFETY

The Contractor agrees that any new building or addition to an existing building will be constructed in accordance with the standards for Seismic Safety required in Department of Transportation Seismic Safety Regulations 49 CFR Part 41 and will certify to compliance to the extent required by the regulation. The contractor also agrees to ensure that all work performed under this contract including work performed by a Subcontractor is in compliance with the standards required by the Seismic Safety Regulations and the certification of compliance issued on the project.

1.18 ELECTRONIC AND INFORMATION TECHNOLOGY

When providing reports or other information to Sound Transit, or to the Federal Transit Administration (FTA), among others, on behalf of Sound Transit, the Contractor agrees to prepare such reports or information using electronic or information technology capable of assuring that the reports or information delivered will meet the applicable accessibility standards of Section 508 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794d, and U.S. ATBCB regulations, "Electronic and Information Technology Accessibility Standards," 36 C.F.R. Part 1194.

1.19 DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

In addition to the Disadvantaged Business Enterprise Program provisions set forth in Section 00 733 39, the Contractor shall comply with the following requirements:

A. As a recipient of financial assistance from the federal Department of Transportation (DOT), through the Federal Transit Administration (FTA), Sound Transit developed and administers a Disadvantaged Business Enterprise (DBE) Program in accordance with 49 Code of Federal Regulations (CFR) Part 26. The Contractor shall review and comply with applicable provisions in 49 CFR Part 26 and Section 00 73 39 of this Contract.

B. The Contractor shall comply with the following assurance:

The Contractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or such other remedy as Sound Transit deems appropriate.

C. The Contractor shall include in each Subcontract it awards pursuant to this Contract the following

assurance:

"The subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this subcontract. The subcontractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the subcontractor to carry out these requirements is a material breach of this subcontract, which may result in the termination of this subcontract or such other remedy as the Contractor or Sound Transit deems appropriate."

1.20 NO TEXTING WHILE DRIVING

A. Contractor shall comply with Executive Order No. 13513, Federal Leadership on Reducing Text Messaging While Driving, October 1, 2009, 23 U.S.C.A. § 402 note, and DOT Order 3902.10, Text Messaging While December 30, 2009. Contractor shall:

1. Adopt and enforce workplace safety policies to decrease crashes caused by distracted drivers including policies to ban text messaging while driving;
2. Contractor-owned or Contractor-rented vehicles or Government-owned, leased or rented vehicles;
3. Privately-owned vehicles when on official Project related business or when performing any work for or on behalf of the Project; or
4. Any vehicle, on or off duty, and using an employer supplied electronic device.
5. Conduct workplace safety initiatives in a manner commensurate with the Contractor's size, such as:
    a. Establishment of new rules and programs or re-evaluation of existing programs to prohibit text messaging while driving; and
    b. Education, awareness, and other outreach to employees about the safety risks associated with texting while driving.

B. "Driving" is defined as operating a motor vehicle on a roadway, including while temporarily stationary because of traffic, a traffic light, stop sign, or otherwise. "Driving" does not include being in your vehicle (with or without the motor running) in a location off the roadway where it is safe and legal to remain stationary.

C. "Text Messaging" is defined as reading from or entering data into any handheld or other electronic device, including for the purpose of short message service texting, e-mailing, instant messaging, obtaining navigational information, or engaging in any other form of electronic data retrieval or electronic data communication. The term does not include the use of a cell phone or other electronic device for the limited purpose of entering a telephone number to make an outgoing call or answer an incoming call, unless the practice is prohibited by State or local law.

D. Contractor shall include this provision in all subcontracts at all tiers.

SECTION 03 - INSURANCE REQUIREMENTS

ARTICLE 1 INSURANCE REQUIREMENTS

1.01 Description

A. Except as otherwise specified, the Consultant, shall at its sole cost and expense, obtain and maintain during the entire term of this Agreement the minimum insurance set below.

B. In the event the Consultant is a Joint Venture, these insurance requirements shall apply to each Joint Venture member separately.

C. By requiring such minimum insurance, Sound Transit shall not be deemed or construed to have assessed the risks that may be applicable to the Consultant under this Agreement. The Consultant shall assess its own risks and, if it deems appropriate and/or prudent, maintain greater limits and/or broader coverage.

D. The fact that insurance is obtained by Consultant shall not be deemed to release or diminish the liability of the Consultant, including without limitation, liability under the indemnity provisions of this Agreement. Damages recoverable by Sound Transit shall not be limited to the amount of the required insurance coverage.

1.02 Insurance Coverages

E. **Commercial General Liability**: Commercial General Liability for bodily injury including death, personal injury, and property damage, with contractual and completed operations liability endorsements, and Employer's Liability coverage, utilizing insurers and coverage forms acceptable to Sound Transit, with limits of at least $5,000,000 per occurrence and $5,000,000 general aggregate, with $5,000,000 products and completed operations coverage.

F. **Commercial Automobile Liability:** Commercial Auto Liability coverage for bodily injury and property damage utilizing insurers and coverage forms acceptable to Sound Transit, with a limit of at least $1,000,000 combined single limit.

Such liability insurance, identified in 2.a and 2.b above, shall name Sound Transit, its officers, directors, agents, and employees and Community Transit, King County, Kitsap Transit, Pierce Transit, Everett Transit and Washington State Ferries as additional insured with respect to the work, including completed operations, under this Agreement.

G. **Workers Compensation:** The Consultant will secure its liability for industrial injury to its employees in accordance with the provisions of Title 51 of the Revised Code of Washington. The Consultant will be responsible for Workers Compensation insurance for any subconsultant who provides work under subcontract.

If the Consultant is qualified as a self-insurer under Chapter 51.14 of the Revised Code of Washington, it will so certify to Sound Transit by submitting a letter signed by a corporate officer, indicating that it is a qualified self-insurer, and setting forth the limits of any policy of excess insurance covering its employees.

The protection provided by the Workers Compensation Policy Part 2 (Employers Liability), or in states with monopolistic state funds, the protection provided by the Stop Gap endorsement to the General Liability must have a minimum required limit of $1,000,000.

H. **Professional Liability:** This Agreement includes "professional services". The Consultant shall maintain the appropriate Professional Liability insurance, with limits of liability of at least $5,000,000 per claim, for damages sustained by reason of or in the course of operations under this Agreement, whether occurring by reason of acts failing to meet the standard of care required by this Agreement, negligent acts, errors, or omissions of the Consultant.

I. **Commercial Crime and Employee Dishonesty:** A policy with minimum required limits of $2,500,000 per occurrence for losses of money and property as a result of theft, burglary, forgery, alteration, disappearance and destruction and for losses due to the dishonest acts of employees.

J. **Railroad Protective Liability**: During any construction or demolition work within 50 feet on either side of railroad or light rail tracks, Contractor shall provide Railroad Protective Liability coverage either by (1) endorsing the General Liability policy with an ISO form CG 24 27 10 01 – Contractual Liability – Railroads endorsement, or equivalent, or (2) obtaining a separate Railroad Protective Liability policy. This insurance shall name Central Puget Sound Regional Transit Authority, dba Sound Transit, its officers, directors, agents and employees as additional insured with coverage of at least $2,000,000 per occurrence and $6,000,000 in the aggregate. The coverage shall be effective for the entire duration of the work to be performed. The policy shall be issued on a standard ISO form CG 00 35 10 93, or equivalent.

K. **Builders Risk Insurance:** Prior to any new construction, the Contractor shall purchase and maintain in force throughout the course of construction "All-Risk" Builders Risk Insurance on the Work provided under this Agreement until Acceptance of the Work by Sound Transit and when the project has been put to its intended use. Such insurance shall be written on a completed value in an amount equal to the initial Contract Price, subject to subsequent modifications of the Contract Price. The insurance coverage shall apply on a replacement cost basis. The insurance policy shall name Sound Transit as an additional insured and loss payee, as its interest may appear. The insurance shall cover the entire Work at the Site. Insured property shall also include portions of the Work located away from the Site but intended for use at the Site, and shall also cover portions of the Work in transit. The insurance policy shall cover the cost of removing debris, including demolition of the undamaged portion of property insured, as may be made legally necessary by the operation of any law, ordinance, or regulation which is in force at the time of any physical loss, damage or destruction to insured

property by a peril insured by the insurance policy. Deductibles or Self-Insured Retentions (SIRs) in excess of $10,000 each loss must be disclosed and are subject to Sound Transit's approval. The Contractor shall be responsible for and pay any deductible or SIR. The insurance policy, and all endorsements, is subject to Sound Transit approval as to form.

L. **Network Privacy & Security Insurance / Cyber Liability:** Contractor agrees to purchase and maintain throughout the term of this Agreement, Privacy & Security liability insurance (or its equivalent "cyber/network security" insurance) covering liabilities resulting or arising from acts, errors, or omissions, in connection with the services provided under this Agreement, which are associated with any breach or loss of any personally identifiable information. Such insurance shall provide coverage for up to $5,000,000.00 per claim. Costs and damages to be covered by this insurance policy shall include without limitation: (a) costs to notify individuals whose personally identifiable information was lost or compromised; (b) costs to provide credit monitoring and credit restoration services to individuals whose personally identifiable information was lost or compromised; (c) costs and damages associated with third-party claims arising from the breach or loss of personally identifiable information, including litigation costs and settlement costs; and (d) any investigation and enforcement costs. The policy must be kept in force during the life of the Agreement and for three (3) years (either as a policy in force or extended reporting period) after Agreement termination. Contractor shall also ensure that any Subcontractors that create, receive, maintain, or transmit protected health information or personally identifiable information on behalf of the Contractor agree to the same insurance requirements that apply to the Contractor.

M. **Other Insurance:** Other insurance as may be deemed appropriate to cover the specified risk and exposure of the scope of work or changes to the scope of work evaluated by Sound Transit. The costs of which shall be borne by contracting parties as mutually agreed.

1.03 General Provisions

A. **Certificates and Policies**: Prior to commencement of Work for this Agreement, the Consultant shall provide Sound Transit with certificates of insurance showing insurance coverage in compliance with the foregoing paragraphs. All insurance coverage outlined above shall be written by insurance companies meeting Sound Transit's financial security requirements, (A.M. Best's Key Rating A-; VII or higher). **Such certificates shall reference Sound Transit's contract number, RTA/RP 0119-17 and title, next generation ORCA Systems Integrator.** The Consultant will provide 30 calendar days' advance written notice to Sound Transit in the event the Consultant's insurance policies are cancelled, not renewed, or materially reduced in coverage. Should the Consultant neglect to obtain and maintain in force any of the insurance required in this Section, Sound Transit may suspend or terminate this Agreement. Suspension or termination of this Agreement shall not relieve the Consultant from insurance obligations hereunder.

B. Taking into account the scope of work and services to be performed by a subcontractor and/or subconsultant, the Consultant shall prudently determine

whether, and in what amounts, each subcontractor and/or subconsultant shall obtain and maintain commercial general liability and any other insurance coverage. Any insurance required of subcontractors and/or subconsultants shall, where appropriate and/or applicable, name Sound Transit as an additional insured.

C. Consultant's insurance for General Liability, Automobile Liability and Railroad Protective Liability (if applicable) shall be primary as respects Sound Transit, and any other insurance maintained by Sound Transit shall be excess and not contributing insurance with the Consultant's insurance.

D. The Consultant and its insurers shall require that the applicable insurance policy(ies) be endorsed to waive their right of subrogation against Sound Transit. The Consultant and its insurers also waive their right of subrogation against Sound Transit for loss of their owned or leased property or property under their care, custody and control.

E. The Consultant shall provide Sound Transit with complete copies of all insurance policies to comply with the insurance requirements in this Agreement, including, but not limited to, the Additional Insured Endorsement(s) required in 2.a and 2.b above, the Waiver of Subrogation Endorsements, Primary and Non-Contributory Endorsements, Products and Completed Operations Endorsement and any other endorsements.

F. No provision in this Section shall be construed to limit the liability of the Consultant for work not done in accordance with the Agreement, or express or implied warranties. The Consultant's liability for the work shall extend as far as the appropriate periods of limitation provided by law and up to any legal limits.

G. The Consultant may obtain any combination of coverage or limits that effectively provides the same or better amounts and types of coverage as stipulated above, subject to review and approval by Sound Transit.

H. The Consultant warrants that this Agreement has been thoroughly reviewed by the Consultant's insurance agent/broker, who have been instructed by the Consultant to procure the insurance coverage required by this Agreement.

1.04 Claims Management

The Contractor agrees to the following claims management terms and conditions. The Contractor further agrees to include the following terms and conditions in its contract with its Subcontractors and require its Contractor to comply with the following provisions.

I. The Contractor, after award of a Sound Transit contract, shall provide the names, titles, addresses, telephone numbers, and email addresses of the individual(s) employed by Contractor who handles insurance matters and notifies insurance companies of claims. This individual(s) will be the primary contact for communications between Sound Transit Risk Management Division and the Contractor and its Subcontractors. If the individual(s) change, Contractor shall notify Sound Transit Risk Management Division of the replacement.

J. Contractor shall provide written notice of any incident involving bodily injury and/or property damage to Sound Transit. An "incident" is defined as any event or occurrence involving bodily injury or property damage that may give rise to an insurance claim. Incidents include those involving serious bodily injury, hospitalization, death, or property damage.

K. Contractor's written notice to Sound Transit of any incident or claim shall include the following information:

1) A description of the incident, including any bodily injuries or property damage,

2) The names of anyone injured and/or whose property was damaged,

3) The names and contact information of any insurance company(ies) who may provide insurance coverage related to any aspect of the incident,

4) Policy number(s), claim numbers(s), and policy(ies) effective dates, and

5) A copy of any written Acknowledgement of Claim Receipt issued by any applicable insurance company(ies).

If some information requested above is not available at the time of the initial report, the Contractor shall provide the missing information to Sound Transit as soon as it is available.

L. If Sound Transit receives a claim from a Third Party related to the project, Sound Transit will tender such claim to the Contractor through the established claim management process for handling and resolution. Upon receipt of a Third Party claim from Sound Transit, the Contractor shall acknowledge in writing to Sound Transit that:

1) The Contractor received and accepts Sound Transit's claim tender,

2) The Contractor shall notify its Commercial General Liability insurance company and any other applicable insurance company (ies) of the claim as per Sound Transit insurance requirements that Sound Transit is named as Additional Insured, under the Commercial General Liability policy and as stipulated in the contract between Sound Transit and the contractor.

3) The Contractor shall provide Sound Transit with copies of any/all Acknowledgements of Claim Receipts issued by its Commercial General Liability or other applicable insurance company(ies),The Contractor and its insurance company(ies) shall indemnify and defend Sound Transit, as an Additional Insured, against any/all claims related to the project.

4) The Contractor's General Liability and other applicable insurance company(ies) will investigate and process the claim, provide a coverage determination, an objective disposition and claim resolution for either denial or settlement.

5) The Contractor shall provide copies of any/all documentation related to

a claim's disposition and resolution, such as, but not limited to, acknowledgements, settlement agreements, releases, claim denial letters, judgments, payments, and satisfaction of judgments.

M. Contractor shall provide to Sound Transit quarterly status reports on all open and closed claims related to the project that implicates Sound Transit. The report shall include the assigned adjusters, policy numbers, claim numbers and at least the following:

1) A description of the claim handling activities during the quarter,

2) Any changes to the assigned and/or investigating adjuster, and, if so, the name and contact information of the newly assigned adjuster(s),

3) A description of the next steps in the claims adjusting process,

4) A description of the disposition and resolution of any claim, and

5) Copies of any pertinent documents, including, but not limited to, expert reports, reports on investigations, photographs, settlement agreements, releases, claim denial letters, judgments, payments, and satisfaction of judgments.

Contractor shall notify Sound Transit of their final resolution, or the applicable insurance company's(ies') final resolution, any/all claims related to the project, which Sound Transit Risk Management can review and document as a formal notification from the contractor, or its insurance company(ies) that the claims has been fully dispositioned and closed.

SECTION 04 – LIQUIDATED DAMAGES

INIT respectfully requests to continue discussions on the Liquidated Damages as the schedule is fine-tuned before contract award. As part of the continued negotiations, discussion must include the amount of each damage and a cap for damages and corresponding incentives for milestones achieved ahead of schedule. Additionally, should the opening of a station or BRT platform change (even to a later date), that may impact INIT's ability to perform.

Key Milestones and Dates (as provided by Sound Transit)

Milestone	Date	Comment
Factory Acceptance Testing	September 22, 2021	
Stations and Fleet Expansions:		
a. Northgate Link Extension	December 1, 2020	Occurs prior to scheduled Pilot Test
b. Tacoma Link Extension	July 1, 2021	Occurs prior to scheduled Pilot Test
c. BRT Stations I	July 1, 2021	Occurs prior to scheduled Pilot Test
d. BRT Stations II and Fleet Expansion I	January 1, 2022	Shall be part of the pilot
e. East Link Extension	January 1, 2022	Shall be part of the pilot
f. BRT Stations III and Fleet Expansion II	January 1, 2023	
g. Lynwood Link Extension	June 1, 2023	
h. Federal Way Link Extension and Redmond Link Extension	December 1, 2023	
i. BRT Stations IV and Fleet Expansion III	January 1, 2024	
3. Final System Acceptance:	December 31, 2022	Remove this milestone
3. Decommissioning of legacy ORCA system	December 31, 2022	Replacement for above

The liquidated damages listed herein are based upon deadlines that will be either tied to contract milestones or bilaterally agreed to project schedule dates. Days are considered calendar days.

It is understood that Sound Transit's primary goal is to maintain the ability to collect revenue during the transition from the existing ORCA fare collection system to the Next Generation ORCA system. Contractor may employ alternatives temporary measures, at its expense, in order to maintain the ability to collect revenue. For example, an alternative means to collect revenue for the first three system expansions is described in *Section 2.7.4 Accommodating the Early System Expansions* of *Tab 2 Methodology & Approach to Implementation and Operations & Maintenance*. As another alternative, Contractor could employ staff with handheld validators if stations open before equipment is installed.

Factory Acceptance Testing (FAT) – Contractor's failure to receive Notice of Acceptance from the Regional Program Manager for all Factory Acceptance Testing (FAT) in the scope of work:

- $2,500 per day for each day beyond the agreed upon deadline.

Commented [BA232]: This is not the correct liquidated damages language from the RFP Addendum No. 3. I have inserted the correct language below with comments.

Commented [BA233]: Any cap for damages is not agreeable.

Commented [CAC234R233]: INIT requires a cap on damages. Without a cap, the risk profile is too high. That would require risk provision, which would have an effect on price.

Commented [BA235]: These should be proposed as part of the milestone/partial payment schedule.

Commented [CAC236R235]: agreed

Commented [BA237]: Incentives are not for milestone achieved on time. Incentives are for milestones achieved early.

Commented [CAC238R237]: See incentives proposed below for early milestones.

Commented [BA239]: Actual dates for the milestones will live within the critical path of the project schedule.

Commented [CAC240]: This needs to remain our goal whether stated here or elsewhere. Work-arounds and open items should not delay deployments that impact the end-customer. We need to agree that launching an imperfect system (within reason) is acceptable to keep the schedule.

~~**Stations and Fleet Expansions:**~~

~~a. **Northgate Link Extension** – Not Applicable because occurs before Pilot Test is complete~~

~~b. **Tacoma Link Extension** – Not Applicable because occurs before Pilot Test is complete~~

~~c. **BRT Stations I** – Not Applicable because occurs before Pilot Test is complete~~

~~d. **BRT Stations II and Fleet Expansion I** – Contractor's failure to enable revenue collection at the second 40 BRT Stations and the first 75 buses in the multi-agency bus fleet expansion:~~

- ~~$5,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.~~

~~e. **East Link Extension** – Contractor's failure to receive to enable revenue collection at East Link Extension:~~

- ~~$5,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.~~

~~f. **BRT Stations III and Fleet Expansion II** – Contractor's failure to enable revenue collection at the next 100 BRT Stations and the next 15 buses in the multi-agency bus fleet expansion:~~

- ~~$5,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.~~

~~g. **Lynnwood Link Extension** – Contractor's failure to enable revenue collection at the Lynnwood Link Extension:~~

- ~~$5,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.~~

~~h. **Federal Way Link Extension and Redmond Link Extension** – Contractor's failure to enable revenue collection at the Federal Way Link Extension and Redmond Link Extension:~~

- ~~$5,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.~~

~~i. **BRT Stations IV and Fleet Expansion III** – Contractor's failure to enable revenue collection at the next 90 BRT stations and next 65 buses in the multi-agency bus fleet expansion:~~

- ~~$5,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.~~

~~*3. **Final System Acceptance (FSA)** – removed and replaced with milestone below*~~

~~3. **Decommissioning of Legacy ORCA system** – Contractor's failure to have ngORCA ready for revenue service to allow for decommission the existing legacy ORCA system~~

- ~~damages equal to the actual amount to maintain the legacy ORCA system will be assessed until decommissioning is complete.~~

~~This liquidated damage provision shall not preclude Sound Transit from declaring a material breach and seeking all available remedies by law or by Contract.~~

1. **Factory Acceptance Testing (FAT)** – Contractor's failure to receive Notice of Acceptance from the Regional Program Manager for all Factory Acceptance Testing (FAT) in the scope of work:
   a. $3,500 per day for each day beyond the agreed upon deadline.
2. Liquidated Damages associated with stations and fleet expansions:
   ~~a. **Northgate Link Extension** – Contractor's failure to receive Notice of Acceptance from the Regional Program Manager for all equipment installation and commissioning for Northgate Link Extension:~~
      ~~i. $300,000 in damages will be assessed on the first day after the agreed upon deadline, followed by;~~

Commented [BA241]: These proposed amounts are not acceptable.

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Commented [BA243]: Not acceptable

Commented [BA244]: Not acceptable

Commented [BA245]: Not acceptable

Commented [BA246]: Not acceptable

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Commented [CAC247]: INTI has a fundamental issue with LDs for FAT because it does not have an end customer impact. INIT is adequately incentivized to complete FAT through the payment milestones, which impact our cashflow.

ii. $1,000 in damages per day beyond the deadline agreed upon deadline in 2.a.i. above until Notice of Acceptance is received.

b. **Tacoma Link Extension** – Contractor's failure to receive Notice of Acceptance from the Regional Program Manager for all equipment installation and commissioning for Tacoma Link Extension:

i. $350,000 in damages will be assessed on the first day after the agreed upon deadline, followed by;

ii. $2,000 in damages per day beyond the deadline agreed upon deadline in 2.b.i. above until Notice of Acceptance is received.

c. **BRT Stations I** – Contractor's failure to receive Notice of Acceptance from the Regional Program Manager for all equipment installation and commissioning for the first 40 BRT Stations:

i. $2,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.

a. **BRT Stations II and Fleet Expansion I**

d.i. Contractor's failure to receive Notice of Acceptance from the Regional Program Manager for all equipment installation and commissioning for the second 40 BRT Stations and the first 75 buses in the multi-agency bus fleet expansion:

1. $14,000 TBD in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.

ii. Contractor's receipt of Notice of Acceptance from the Regional Program Manager for all equipment installation and commissioning for the second 40 BRT Stations and the first 75 buses in the multi-agency bus fleet expansion:

i.1. $TBD in incentives will be assessed per day for each day prior to the agreed upon deadline for Notice of Acceptance.

b. **East Link Extension**

e.i. Contractor's failure to receive Notice of Acceptance from the Regional Program Manager for all equipment installation and commissioning for East Link Extension:

i.1. $300,000 TBD in damages will be assessed per on the first day for each day beyond the agreed upon deadline until Notice of Acceptance is received.

ii. $7.1M in further damages will be assessed on an agreed upon deadline six (6) months after the deadline in 2.e.i. above followed by;

2. $2,000 TBD in damages per day for each additional day beyond the agreed upon deadline in 2.b.i.1e.ii. above until Notice of Acceptance is received.

ii. Contractor's receipt of Notice of Acceptance from the Regional Program Manager for all equipment installation and commissioning for East Link Extension:

iii.1. $TBD in incentives will be assessed per day for each day prior to the agreed upon deadline for Notice of Acceptance.

f.c. **BRT Stations III and Fleet Expansion II** – Contractor's failure to receive Notice of Acceptance from the Regional Program Manager for all equipment installation and commissioning for the next 100 BRT Stations and the next 15 buses in the multi-agency bus fleet expansion:

i. $17,000 15,000 in damages will be assessed per day for each day beyond the agreed upon deadline the next 100 BRT Stations and the next 15 buses in the multi-agency bus fleet expansion.

Commented [BA248]: Based on the pilot test schedule, the proposed deletion of LD's for Northgate Link Extension is accepted.

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Commented [CAC249]: Acceptance notices will be considered accepted by the Program Manager after 5 days if cause for refusal is not provided

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Commented [CAC250]: Proposed LD amounts were rejected by ST in a comment above but no counter offer was made. The LDs are meant to provide an (negative) incentive for INIT to perform. This level of LD would cause serious financial distress that INIT would struggle to complete the project.

INIT and Sound Transit need to agree to LDs that are reasonable and provide appropriate motivation without creating a toxic atmosphere. For example, imagine Sound Transit returning a document review a day late. We would have to argue about that because it could potentially cost INIT $300,000. We want to focus our energy on completing the project and not on protecting INIT from the financial risks that these LDs pose.

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~~g.~~d. **Lynnwood Link Extension** – Contractor's failure to receive Notice of Acceptance from the Regional Program Manager for all equipment installation and commissioning for the Lynnwood Link Extension:

i. $~~125,000~~TBD in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.

ii. $ TBD~~2.4M~~ in further damages will be assessed on the date that is six (6) months after the deadline in 2.g.i. above, followed by;

iii. $ TBD~~2,000~~ in damages per day for each additional day beyond the date in 2.g.ii. above until Notice of Acceptance is received.

~~h.~~e. **Federal Way Link Extension and Redmond Link Extension** – Contractor's failure to receive Notice of Acceptance from the Regional Program Manager for all equipment installation and commissioning for the Federal Way Link Extension and Redmond Link Extension:

i. $ TBD~~175,000~~ in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.

ii. $ TBD~~3.3M~~ in further damages will be assessed on the date that is six (6) months after the deadline in 2.h.i. above, followed by;

iii. $ TBD~~2,000~~ in damages per day for each additional day beyond the date in 2.h.ii. above until Notice of Acceptance is received.

~~i.~~f. **BRT Stations IV and Fleet Expansion III** – Contractor's failure to receive Notice of Acceptance from the Regional Program Manager for all equipment installation and commissioning for the next 90 BRT stations and next 65 buses in the multi-agency bus fleet expansion:

i. $ TBD~~25,000~~ in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.

3. **Final System Acceptance (FSA)** – Contractor's failure to receive Notice of Acceptance from the Regional Program Manager for FSA by the agreed upon deadline:

a. Year 1:

i. $ TBD~~6.4M~~ in damages will be assessed on the first day after the agreed upon FSA deadline, followed by;

ii. $ TBD~~15,000~~ in damages per day for each day beyond the deadline in 3.a.i. above.

b. Year 2 :

i. $ TBD~~7.7M~~ in damages will be assessed on the date that is one (1) year after the agreed upon FSA deadline, followed by;

ii. $ TBD~~18,000~~ in damages per day for each day beyond the date in 3.b.i. above until Notice of Acceptance is received.

c. Year 3:

i. $ TBD~~9.3M~~ in damages will be assessed on the date that is two (2) years after the agreed upon FSA deadline, followed by;

ii. $ TBD ~~21,000~~ in damages per day for each day beyond the date in 3.c.i. above until Notice of Acceptance is received.

For the avoidance of doubt, if multiple liquidated damages apply throughout this Contract, then Sound Transit will be entitled to receive the sum of all liquidated damages that apply.

This liquidated damage provision shall not preclude Sound Transit from declaring a material breach and seeking all available remedies by law or by Contract.

SECTION 05 – LABOR COMPLIANCE MANUAL

ARTICLE 1 GENERAL

1.01 INSERTION OF PROVISIONS INTO SUBCONTRACTS

Contractor shall insert the provisions set forth in this Labor Compliance Manual ("Manual") in all construction subcontracts of any tier.

1.02 DRUG FREE WORKPLACE

Contractor shall comply with applicable Drug Free Workplace requirements as set forth in 49 CFR Part 29, Subpart F, as modified by 41 U.S.C. 702, 49 U.S.C. 5331 and other applicable requirements.

In addition to other remedies available to Sound Transit, the Contractor's failure to comply with the requirements of this Section may render the Contractor subject to suspension of contract payment or termination for default pursuant to the General Conditions.

1.03 DISPUTES CONCERNING LABOR STANDARDS

Disputes arising out of terms and provisions of this Manual shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7, the Washington State Department of Labor and Industries, or other applicable procedures. Disputes within the meaning of this clause include disputes between the Contractor (or any of its Subcontractors) and Sound Transit, the U.S. Department of Labor, the Washington State Department of Labor and Industries, or the employees or their representatives.

ARTICLE 2 WAGES OF EMPLOYEES.

2.01 GENERAL

This Contract is subject to Washington Department of Labor & Industries ("L&I") prevailing wage requirements and may be subject to the federal Department of Labor ("DOL") prevailing wage requirements. In the event that both state and federal prevailing wages apply, the higher of the two prevailing wage rates will prevail. If a state prevailing rate for a particular classification is available but a federal rate is not available, the procedure outlined below for determination of a federal rate shall be followed. In the event that a federal prevailing rate for a particular classification is available but a state prevailing rate is not available, the procedure outlined below for determination of a state prevailing rate shall be followed. The Contractor shall comply with the requirements of both the state L&I and the federal DOL, for posting notices of applicable wages, submission of certified payrolls, record keeping and other applicable administrative requirements.

Overtime shall be paid in accordance with the highest wage amount determined under the Washington Department of Labor & Industries ("L&I") prevailing wage requirements or the federal Department of Labor ("DOL") prevailing wage requirements.

2.02.STATE PREVAILING WAGES.

All determinations of the state prevailing rate of wage shall be made by the Industrial Statistician of the Department of Labor and Industries of the State of Washington. The state schedule of prevailing wage rates applicable to this Contract are set forth in Section 06. If employing labor in a class not listed in such schedule, the Contractor shall require the industrial statistician to determine the correct wage rate for that class and locality.

A. Disputes. In case any dispute arises as to what are the state prevailing rates of wages for work of a similar nature and such dispute cannot be adjusted by the parties in interest, including labor and management representatives, the matter shall be referred for arbitration to the Director of the Department of Labor and Industries of the state of Washington and said Director's decision therein shall be final and conclusive and binding on all parties involved in the dispute. In the event of a dispute as to what the federal rates of wages are, the dispute shall be referred to the Administrator of the Wage and Hour Division, Employment Standards Administration whose decision shall be final and conclusive and binding on all parties involved in the dispute.

B. Posting Notices. Except as provided otherwise in Chapter 39.12 RCW, the Contractor, each Subcontractor and other persons required to pay the prevailing rate of wage shall post in a location(s) readily visible to workers at the site: (1) a copy of the Statement Of Intent To Pay Prevailing Wages approved by the industrial statistician of the Department of Labor and Industries under RCW 39.12.040; and (2) the address and telephone number of the industrial statistician of the Department of Labor and Industries where a complaint or inquiry concerning prevailing wages may be made.

C. Apprentices. Apprentice workers employed hereunder for whom an apprenticeship agreement has been registered and approved with the state apprenticeship council pursuant to Chapter 49.04 RCW shall be paid at least the prevailing hourly rate for an apprentice for that trade. Any worker for whom an apprenticeship agreement has not been registered and approved by the state apprenticeship council shall be considered to be a fully qualified journey worker, and, therefore, shall be paid at the prevailing hourly rate for journey workers.

D. Required Documents. Pursuant to Chapter 39.12 RCW, the Contractor and each Subcontractor shall submit the following documents to Sound Transit:

1. Before payment is made by Sound Transit, the Contractor and each Subcontractor shall submit a "Statement of Intent to Pay Prevailing Wages" that has been approved by the industrial statistician of the Department of Labor and Industries.
2. With each request for payment, the Contractor shall submit a statement that prevailing wages have been paid in accordance with the "Statement of Intent to Pay Prevailing Wages" filed with Sound Transit.
3. Following Final Acceptance of the Work and before funds retained according to RCW 60.28.010 are released to the Contractor, the Contractor and each Subcontractor shall submit an "Affidavit of Wages Paid" that has been approved by the industrial statistician of the Department of Labor and Industries.

4. Any fees charged by the Department of Labor and Industries for filing the "Statement of Intent to Pay Prevailing Wages" and the "Affidavit of Wages Paid" shall be paid by the Contractor and each Subcontractor, as applicable; if Sound Transit pays such fees for any reason, then the Contractor shall be charged the amounts thereof, and shall remit the same to Sound Transit.

E. Worker's Benefits. Contractor shall make all payments required for unemployment compensation under Title 50 RCW and for industrial insurance and medical aid required under Title 51 RCW. The Contractor shall also obey all federal, state and local laws, ordinances, and regulations that establish safety standards for the protection of employees. If any payment required by Title 50 or 51 is not made when due, Sound Transit may retain such payments from any money due the Contractor and apply the same into the appropriate fund. The Department of Labor and Industries will provide the Contractor with applicable industrial insurance and medical aid classification and premium rates. Sound Transit may withhold payment of any amounts needed to pay Industrial Insurance premiums until the Contractor has satisfied to Sound Transit that the Contractor has paid all applicable premiums it owes on the work performed.

2.03 FEDERAL PREVAILING WAGES

If this Contract is also subject to federal prevailing wages, Section 06 contains the wage determination decision of the Secretary of Labor.

A. Minimum wages -- All laborers and mechanics employed or working upon the Site will be paid unconditionally and not less than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor, Section 06, and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis- Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of this Section. Also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its Subcontractors at the Site of the Work in a prominent and accessible place where it can be easily seen by the workers.

B. The Resident Engineer will require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the Contract shall be classified in conformance with a wage determination. The Resident Engineer shall approve an additional classification and wage rate and fringe benefits only when the following criteria have been met:

1. Except with respect to helpers as defined as 29 CFR 5.2(n)(4), the work to be performed by the classification requested is not performed by a classification in the wage determination; and
2. The classification is utilized in the area by the construction industry; and
3. The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and
4. With respect to helpers as defined in 29 CFR 5.2(n)(4), such a classification prevails in the area in which the work is performed.

C. If Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and Sound Transit agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by Sound Transit to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within thirty (30) Days of receipt and so advise Sound Transit or will notify Sound Transit within the thirty (30) Day period that additional time is necessary.

D. In the event Contractor, the laborers or mechanics to be employed in the classification or their representatives, and Sound Transit do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), Sound Transit shall refer the questions, including the views of all interested parties and the recommendation of Sound Transit, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within thirty (30) Days of receipt and so advise Sound Transit or will notify Sound Transit within the thirty (30) Day period that additional time is necessary.

E. The wage rate (including fringe benefits where appropriate) determined pursuant to these provisions, shall be paid to all workers performing work in the classification under this Contract from the first day on which work is performed in the classification.

1. Whenever the minimum wage rate prescribed in the Contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
2. If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or

program, provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2.04 WITHHOLDING

Sound Transit shall, upon its own action or upon written request of an authorized representative of the federal Department of Labor or state Department of Labor and Industries, withhold or cause to be withheld from Contractor under this Contract or any other federal contract with the same prime Contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any Subcontractor the full amount of wages required by the Contract. In the event of failure to pay any laborer or mechanic, including any apprentice trainee, or helper, employed or working on the site of the work all or part of the wages required by the Contract, Sound Transit may, after written notice to Contractor, sponsor, applicant, or owner take such action as may be necessary to cause the suspension of any further payment, advance or guarantee of funds until such violations have ceased.

2.05 PAYROLLS AND BASIC RECORDS

A. Payrolls and basic records relating thereto shall be maintained by Contractor during the course of the Work and preserved for a period of three (3) years thereafter for all laborers and mechanics working at the Site of the Work.

1. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits, daily and weekly number of hours worked, deductions made, and actual wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid.

2. For Contracts that include federal prevailing wage requirements, whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

3. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates

prescribed in the applicable programs.

B. Certified Payrolls.

1. If this Contract includes federal prevailing wage requirements, Contractor shall submit weekly, for each week in which any Contract Work is performed a copy of all certified payrolls to the Resident Engineer or his designee. In addition, Contractor shall submit monthly reports in electronic format (MS Excel software) summarizing wages and bona fide fringe benefits paid to all laborers and mechanics employed or working upon the Site. Report data, report format and due date to be determined by Sound Transit. The certified payrolls submitted shall set out accurately and completely all of the information required to be maintained under Section 5.5(a)(3)(i) of Regulations, 29 CFR Part 5. This information may be submitted in any form to be approved by Sound Transit. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, DC 20402. Contractor is responsible for the submission of copies of payrolls by all subcontractors.

   a. Each certified payroll shall be accompanied by a "Statement of Compliance", signed by Contractor or Subcontractor, or his or her agent, who pays or supervises the payment of the persons employed under the Contract and shall certify the following:

      (1) That the payroll for the payroll period contains the information required to be maintained under Section 5.5(a)(3)(i) of Regulations, 29 CFR Part 5 and that such information is correct and complete;

      (2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the Contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR Part 3; and

      (3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the Contract.

   b. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the “Statement of Compliance”.

   c. The falsification of any of the above certifications may subject Contractor or Subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

   d. Contractor or Subcontractor shall make the records required under this Paragraph

available for inspection, copying, or transcription by authorized representatives of Sound Transit, the U.S. Department of Transportation, the
U.S. Department of Labor, or the Washington State Department of Labor and Industries and shall permit such representatives to interview employees during working hours on the job. If the Contractor or Subcontractor fails to submit the required records upon request or to make such records available, the FTA may, after written notice to the Contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

2.06 APPRENTICE AND TRAINEES

A. Apprentices

Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to an individually registered in a bona fide apprenticeship program registered with a State Apprenticeship Agency recognized by the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or if a person is employed in his or her first ninety (90) days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by a State Apprenticeship Agency to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or Subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division of the U.S. Department of Labor determines that a different practice prevails for the applicable apprentice classification, fringe benefits shall be paid in accordance with the determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

B. Trainees

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

C. Equal Employment Opportunity

The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

D. Compliance with Copeland Act Requirements

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this Contract.

E. Subcontracts

The Contractor or Subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the Federal Transit Administration (FTA) may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The Contractor shall be responsible for the compliance by any Subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

F. Contract Termination: Debarment

A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the Contract, and for debarment as a Contractor and a Subcontractor as provided in 29 CFR 5.12.

G. Compliance with Davis-Bacon and Related Act Requirements

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CRF parts 1, 3, and 5 are herein incorporated by reference in this Contract.

H. Certification of Eligibility

5. By entering into this Contract, Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis Bacon Act or 29 CFR 5.12(a)(1).

6. No part of this Contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

7. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 USC 1001.

I. Contract Work Hours and Safety Standards Act

1. Overtime Requirements. Neither the Contractor nor any Subcontractor shall require or permit any laborer or mechanic in any workweek in which he or she is employed on such Work to work in excess of forty (40) hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half (1 ½) times the basic rate of pay for all hours worked in excess of forty (40) hours in such workweek.

2. Violation; Liability For Unpaid Wages; Liquidated Damages. In the event of any violation of the clause set forth above, the Contractor and Subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth above, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard work week of forty (40) hours without payment of the overtime wages required by the clause set forth above.

3. Withholding For Unpaid Wages And Liquidated Damages. Sound Transit shall upon its own action, or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from any moneys payable on account of work performed by the Contractor or Subcontractor under any such contract or any other federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or Subcontractor for unpaid wages and liquidated damages as provided in the clause set forth above.

4. Subcontracts. The Contractor shall insert in any subcontracts the clauses set forth in this section and also a clause requiring the Subcontractors to include these clauses in any lower

tier subcontracts. The Contractor shall be responsible for compliance by any Subcontractor or lower tier subcontractor with the clauses set forth in this section.

J. Material Suppliers

The requirements of this section do not apply to contracts or subcontracts for the purchase of supplies or materials or articles normally available on the open market.

ARTICLE 3 APPRENTICE UTILIZATION GOALS

For Contracts where the Engineer's estimate or the Bidder's Total Bid Price is $1,000,000 or more, the Apprentice Utilization Goal applies and is set forth in Section 00 73 39 Diversity Program in this IFB. The Bidder, by submitting a Bid is thereby certifying that, if awarded the Contract, it shall make good faith efforts to locate, qualify and increase the skills of the region's labor force by using apprentices on the Contract and to comply with the apprenticeship provisions contained in Section 05 Labor Compliance Manual. During Bid evaluation, the apparent low Bidder shall verify its intent to utilize good faith efforts to comply with these provisions by executing the Certification of Intent Regarding Apprentice Utilization, contained in Section 00 45 00 Representations and Certifications in this IFB.

A. Contractor Shall Develop and Implement Apprentice Utilization Plan Subject to Sound Transit Approval

The Contractor shall use good faith efforts to utilize apprentices registered with the Washington State Apprenticeship and Training Council ("SAC") for a portion of the total Contract labor hours utilized on the Project. Prior to Notice of Award, the apparent low Bidder shall submit for Sound Transit approval an Apprentice Utilization Plan, if the Engineer's Estimate or if the Bidder's Total Bid Price is $1,000,000 or more. The Plan shall outline how the apprenticeship goals will be met on the total contract labor hours. The Plan, on a form provided by Sound Transit in Section 00 45 00 Representations and Certifications, shall include the following information:

1. Total Contract labor hours include additional hours worked as a result of change orders.
2. Total Contract labor hours exclude hours worked by foremen, superintendents, supervisors, owners, and workers who are not subject to prevailing wage requirements. However, total Contract labor hours shall include the hours worked by supervisors, foremen, and superintendents if it is determined that they are subject to prevailing wage requirements pursuant to WAC 296-127-015.
3. The Contractor shall include the apprentice utilization requirements of this Section in all subcontracts executed for the Project, and ensure that all subcontractors working on the Project are notified of the apprentice utilization requirements. The Contractor is responsible for using good faith efforts to meet the apprentice utilization requirements of the Contract, including overall compliance on all Contract labor hours worked by subcontractors.

B. The Contractor shall make good faith efforts to:

1. Equally distribute the apprentice hours worked among each trade/craft and consistent with the apprentice utilization percentage requirement set forth

herein.

2. Use reasonable and practicable means to recruit and hire apprentices to achieve the apprentice utilization goal accepted by Sound Transit.

3. Use reasonable and practicable means to recruit and hire minority and women apprentices for the Project so that of the apprentice utilization requirement percentage in this Section, the Contractor shall use women and people of color to perform at least fifty percent (50%) of all first-year apprentice hours in all trades and to perform at least thirty-three percent (33%) of all apprentice hours worked.

4. Comply with the apprenticeship training standards for each trade/craft classification used on the Project, as set forth by the Washington State Department of Labor and Industries.

5. It is expected that an apprentice will normally begin training on the Project as soon as feasible after start of work, utilizing the skill involved and remain on the Project as long as training opportunities exist in the work classification or until the completion of the training program. It is not required that all apprentices be retained for the entire length of the Contract.

C. Changes to the Apprentice Utilization Requirement

1. If, during the term of the Contract, the Contractor determines that it will be unable to meet the apprentice utilization identified in the Apprentice Utilization Plan as accepted by Sound Transit, the Contractor may make a written request to Sound Transit, to modify the Plan. The request shall include documentation of the Contractor's affirmative efforts to use apprentices registered with the Washington State Apprenticeship and Training Council ("SAC"), including copies of correspondence between the Contractor and the SAC-approved apprentice programs, union locals, community stakeholders, and others. The documents must demonstrate that an adequate number of apprentices are not available to meet the apprentice utilization percentage.

2. Sound Transit shall evaluate the request, and if appropriate, shall authorize modification of the Apprentice Utilization Plan. If Sound Transit determines that a modification is not justified, Sound Transit shall communicate the decision in writing to the Contractor.

D. Apprentice Utilization Monitoring and Enforcement

1. Sound Transit or its designee shall verify the registration of each apprentice used on the Contract with the Washington State Apprenticeship and Training Council.

2. Sound Transit or its designee shall monitor the apprentice utilization data provided by the Contractor. In the event that the Contractor is deficient in the use of apprentices, Sound Transit or its designee will meet with the Contractor to discuss the reasons for the deficiency and help the Contractor develop a written plan for meeting the goals.

3. Sound Transit may make routine visits to the Site for the purpose of confirming the use of apprentices. The Contractor acknowledges that parties designated by Sound Transit may make visits to the Site for the purpose of confirming the use of apprentices. Said third party visitors will be required to abide by the Contractor's

and Sound Transit's work rules and safety plan.

ARTICLE 4 NON-DISCRIMINATION, EEO, APPRENTICE AND CURRENT EMPLOYEE REPORTING REQUIREMENTS

A. With each Request for Progress Payment, the Contractor shall submit to Sound Transit a Monthly EEO in electronic format to be provided by Sound Transit, for the Contractor and all Subcontractors. The monthly reports shall be completed by the Contractor and all Subcontractors performing work on the Contract during the reporting period. The reports shall accompany the Contractor's Request for Progress Payment. A Request for Progress Payment that is not accompanied by the monthly reports will not be processed for payment until said monthly reports are received and approved by Sound Transit.

B. With each Request for Progress Payment, the Contractor will also submit to Sound Transit a certification, in the form provided by Sound Transit, stating that they have no knowledge of allegations (whether as a written or oral statement from a worker or in the form of formal EEOC complaints, union grievances, or other complaints in any other administrative or legal form) regarding the violation of applicable Civil Rights and non-discrimination laws or policies against the Contractor or subcontractors performing work on the contract. If the Contractor has such knowledge, the Contractor shall provide a brief explanation of the alleged violation(s), and a description of any actions that have been or will be taken to address or remedy the alleged violation(s). The Contractor will provide Sound Transit access to all records pertaining to the alleged violation (s) and reasonable access to interview employees or workers that may have information related thereto.

C. Within five (5) working days of receiving notice of any complaint that has been filed against the Contractor regarding allegations of discrimination on this contract by any federal, state or local civil rights enforcement agency, the Contractor shall provide a copy of the complaint to Sound Transit. The Contractor will provide to Sound Transit access to all records pertaining to the complaint.

D. The Contractor shall be responsible for reporting EEO data required by Sound Transit beginning with the first day of work for each apprentice. The Contractor's first submittals are due at the end of the first month after the Contract start date specified in the Notice to Proceed, and at monthly intervals thereafter as specified above. Subcontractor submittals are due at the end of the month after commencement of their work and monthly thereafter, as specified above.

E. The Contractor shall report the following information on journey level employees:

1. Labor hours for reporting period by ethnicity/gender, for each trade/craft.
2. Total journey level labor hours by ethnicity/gender, for each trade/craft.
3. Total labor hours and number of journey level employees for reporting period by ethnicity/gender.
4. Total journey level labor hours and number of employees to-date.
5. Summary information as noted on the reporting form.

F. On a weekly basis, the Contractor shall submit to Sound Transit a Current Employee Report which shall be completed by the Contractor and all Subcontractors of all employees performing work on the Contract for the previous week. In addition, the Contractor will be required to maintain and provide on the report racial and gender data regarding the hiring and termination of craft workers, including the number of hours worked before termination, and upon request, provide to Sound Transit the documentation supporting the reason the worker was terminated. If the work is performed in shifts, the Contractor will also report racial and gender data regarding the staffing of each shift. A sample of this form is included in Section 00500 of this IFB and may be provided in an electronic format by Sound Transit.

G. The Contractor shall submit such other information as may be requested by Sound Transit to verify compliance with the EEO requirements of the Contract. Sound Transit reserves the right to add, delete, or change as necessary the information required by the Contractor on the Monthly EEO and Apprentice Utilization Report form.

ARTICLE 5 SUBSTANCE ABUSE PREVENTION PROGRAM

A. Unauthorized use, possession or sale of controlled substances or alcohol on the Project is prohibited. Persons who violate this rule or who are convicted for selling, using, or possessing controlled substances off the job will not be permitted to work on the Project.

B. Applicants for Project employment will be subject to pre-employment controlled substance, alcohol and adulterant testing. Thereafter, employees will be subject to reasonable cause, post-accident, random and return-to-work testing for the presence of controlled substances, alcohol or adulterants in their systems.

C. Employees who report for work with alcohol, adulterants or unauthorized controlled substances in their system will not be permitted to remain on the Project. Employees who violate the substance abuse policy and applicants who fail the pre-employment testing, will be denied employment and will not be eligible for reassignment to any Contractor on the Project until a period of not less than ninety (90) calendar days has passed. Such employees/applicants shall be subject to pre-employment, random and periodic controlled substance, adulterant or alcohol testing thereafter at the request of Sound Transit for up to one year. The program will apply to all Contractor craft personnel, union and non-union, at all construction sites.

D. The Contractor shall assure a drug-free workplace by implementation of a substance abuse program that complies with all applicable federal and state laws. Documentation of the Contractor's program and evidence of testing shall be maintained by the Contractor and provided o Sound Transit for review and inspection upon request.

SECTION 06 – PREVAILING WAGE RATES

Washington State prevailing wage rates can be found at: http://www.lni.wa.gov/TradesLicensing/PrevWage/WageRates/.

Davis-Bacon Act Wage determinations are available at http://www.wdol.gov/dba.aspx, and the current rates are included in the following pages.

Questions may be directed to the local Seattle office:

Seattle District Office
US Dept. of Labor Wage & Hour Division
300 Fifth Avenue, Suite 1130
Seattle, WA 98104

Phone:
(206) 398-8039
1-866-4-USWAGE (1-866-487-9243)

[Insert prevailing wage rates pdf]

SECTION 07 END-USER LICENSE AGREEMENT

SECTION 08 NEGOTIATED PRICE SHEET

SECTION 09 CONTRACTOR'S NEGOTIATED PROPOSAL SUBMITTAL

This End-User License Agreement ("EULA" or "License Agreement") is effective as of ~~April 1, 2014~~the ____ day of _____, 20xx ("Effective Date") by and between INIT Innovations in Transportation, Inc., a Virginia corporation located at 424 Network Station, Chesapeake, Virginia 23320 ("INIT" or "Licensor"), and [INSERT TRANSIT AGENCY] ("Licensee").

Commented [BA1]: 1.This EULA will be Section 07 of the Purchase Contract

Commented [BA2]: 2.Would be the "Central Puget Sound Regional Transit Authority dba Sound Transit on behalf of the ORCA Agencies"

RECITALS

A. INIT represents that it possesses the right to license certain computer software programs that support the access, delivery and management of the Licensee Efare System (as hereinafter defined) across multiple platforms.

B. Licensee desires to license the INIT Workstation Software, the INIT Server Software, the INIT Device Software, and the INIT Interface Software, all as set forth and including any other INIT software on Exhibit A hereto (collectively, the "INIT Software"), from INIT and INIT desires to license the INIT Software to Licensee, in each instance subject to the terms and conditions set forth below.

C. This License Agreement is granted in connection with the Purchase Contract. This License Agreement survives any termination of the Purchase Contract.

TERMS AND CONDITIONS

NOW, THEREFORE, in consideration of the premises and the mutual covenants and agreements set forth below and other good and valuable considerations, the receipt and sufficiency of which are hereby acknowledged, the parties hereto do hereby covenant and agree as follows:

1. DEFINITIONS. The following definitions apply in this EULA:

1.1. "~~"~~License Efare System" means the total system defined in ~~Appendix A Technical Specifications to Licensee's Request for Best and Final Offer for contract _____~~Sound Transit Contract No. RTA/RP 0119-17 Contract Documents hereinafter referred to as "Purchase Contract".

1.2. "Documentation" means any written documentation that is supplied by INIT in connection with the INIT Software.

1.3. "INIT Software" shall have the meaning ascribed to that term in Recital B above. The term INIT Software shall also include, without limitation, any and all corrections, bug fixes, enhancements, updates or other modifications that INIT may hereafter provide to Licensee.

1.4. "Licensed Products" means the Documentation and the INIT Software, collectively.

~~**1.5.** "Maximum Number" means the number of licenses as listed in Exhibit A, subject to increase as provided in the Purchase Contract . Licensee may increase the Maximum Number unilaterally at any time by providing written notice thereof to INIT; provided, however, that in the event of any such increase Licensee agrees to pay INIT the applicable fee specified in the Purchase Contract. Any such fee shall be due within thirty (30) days after the end of each calendar quarter in which an increase in the Maximum Number occurs.~~

~~**1.6.**~~**1.5.** "Price Sheet" means that certain price proposal of INIT dated _____ , which is hereby incorporated herein.

~~**1.7.**~~**1.6.** "Purchase Contract" means that Sound Transit Goods and Professional Services Contract ~~_____~~, No. RTA/RP 0119-17 dated _____.

1.8 "System Acceptance" shall mean system acceptance as set forth in Section___ ~~of the Technical Specification~~ of the Purchase Contract.

Commented [BA3]: 3.We do not agree to be limited by a maximum number. Fixed tiered pricing (including yearly escalation) is requested and ORCA would be charged for the actual licenses purchased.

2. **OWNERSHIP AND RIGHTS IN SOFTWARE.** Nothing in this License Agreement shall transfer ownership of any intellectual property or other rights in the INIT Software to Licensee. Licensee acquires only the limited license rights expressly stated herein.

3. **LICENSE GRANTS**.

3.1 INIT Workstation Software. INIT hereby grants to Licensee a non-transferable, non-exclusive, perpetual, royalty-free, irrevocable, fully-paid project specific license to~~, during the term of this EULA~~, use the Workstation Software ~~on up to the Maximum Number of workstation computers (some workstation licenses can also be used for one CITRIX workstations instance on a CITRIX server; these are marked accordingly in Exhibit A)~~

3.2 INIT Server Software. INIT hereby grants to Licensee a non-transferable, non-exclusive, perpetual, royalty-free, irrevocable, fully-paid license to~~, during the term of this EULA,~~ use the Server Software on one (1) server or as one (1) instance on a server cluster. ~~The license price depends on the number of attached entities (vehicles, message signs etc.)~~

3.3 INIT Device Software. INIT hereby grants to Licensee a non-transferable, non-exclusive, perpetual, royalty-free, fully-paid, irrevocable, project specific license to~~, during the term of this EULA,~~ use the Device Software on the specific hardware on which such software is installed as such hardware may be updated from time-to-time but, for further clarity, not on any other hardware platforms.

3.4 INIT Interface Software: INIT hereby grants a perpetual, royalty-free, fully-paid, project specific license to use interfaces, delivered as a connection to third-party software or a third-party system, but exclusively for that third-party software or system that is licensed for the interface or delivered or specified as part of the Licensee Efare System. ~~Further specific conditions might be applicable as specified in the INIT offer.~~

3.5 Documentation. INIT hereby grants to Licensee ~~–~~a non-transferable, non-exclusive, perpetual, royalty-free, project specific license to~~, during the term of this EULA,~~ use, copy, adapt, modify, enhance and create derivative works from the Documentation solely in order to support Licensee's use of INIT Software, including the right to: (a) reproduce, at no additional cost, as many copies of the Documentation as Licensee requires to support such use, (b) translate the Documentation into other languages as required for Licensee's use provided that INIT shall have no responsibility in respect of any such translation not effected by it, (c) reproduce, at no additional cost, any worn or damaged copies of the Documentation, (d) reproduce in hard copy form from the electronic format any excerpts that Licensee requires to prepare internal manuals for staff and personnel use, and (e) reproduce and maintain additional copies of the Documentation as Licensee may require to comply with applicable laws and its data retention policies.

3.6 Other Licensed Uses. In any event, at no additional cost, Licensee is entitled to make and keep additional archival copies of the INIT Software as Licensee may require to comply with applicable laws and its data retention policies.

3.7 Other Interfaces. Licensee is entitled to develop interfaces between the INIT Software and any of Licensee's other software, including licensed software; provided that INIT shall have no responsibility of any nature in respect of any such interfaces not developed by it, including but not limited to failure or substandard performance of the INIT Software subject to interface. INIT shall not be required to provide Licensee with any assistance in the development of such interfaces, other than professional services required as part of the Purchase Agreement.

3.8 Clarifications. For further clarity, (a) the licenses granted in Section 3.1 through ~~3.4~~63.7 above include, without limitation, the right for Licensee to install, view, and operate the INIT Software, and (b) the parties acknowledge and agree that Licensee's rights in the Licensed Products may be exercised by any personnel of Licensee, including all ORCA Agencies, whether an employee, intern or an independent contractor who has agreed to the same Confidentiality restrictions as Licensee. Other than as set forth herein Licensee shall make

Commented [BA4]: 4.Need clarification about the intent here.

Commented [BA5]: 5.There is no term as this is a perpetual license.

Commented [BA6]: 6.This limitation is not agreeable.

Commented [BA7]: 7.This does not appear to be relevant to this project.

Commented [BA8]: 8.Perpetual

Commented [BA9]: 9.Specific pricing would be detailed on the Price Sheet.

Commented [BA10]: 10.If a device/hardware goes out of commission we need to be able to transfer the license to its replacement without having to purchase an additional license.

Commented [BA11]: 11.Perpetual

Commented [BA12]: 12.This limitation is not agreeable.

Commented [BA13]: 13.Perpetual

Commented [BA14]: 14.There may need to be some cooperation/collaboration with third-parties with respect to interfacing with INIT software.

no attempt to reverse compile, disassemble, or otherwise reverse engineer all or any part of the INIT Software. Except as provided herein or in the terms of the Purchase Contract, Licensee shall not copy, reproduce, modify, adapt or translate the Licensed Products, without the advance express written consent of INIT. Licensee, its staff, subcontractors and consultants shall not permit disclosure of, access to, or use of the INIT Software by any third party unless authorized in writing in advance by INIT.

4. RESTRICTIONS AND LIMITATIONS ON USE.

4.1 **Archival and Backup Copies.** Licensee is authorized to make no more than two additional copies of the INIT Software for archival or backup purposes.

4.2 **Modification of Software.** Modifications to the INIT Software are prohibited and such modifications will void any warranty or maintenance agreement covering the INIT Software.~~.~~

4.3 **Reverse Engineering Prohibited.** Reverse engineering, decompilation, disassembly, or other similar techniques are prohibited by this EULA. This EULA does not authorize use nor grant any rights in the source code for the INIT Software.

4.4 **Rental of Software Prohibited.** You may not rent, lease, ~~sublicense,~~ distribute, transfer, or time share the Licensed Products.

4.5 **Assignment and Transfer of License Rights**. Licensee may not assign or transfer the Licensed Products or this EULA to any third person or organization except with the prior written permission of INIT, which shall not be unreasonably withheld or delayed. Upon thirty (30) days prior notice, INIT may assign this Agreement and rights for benefit of Licensee.

4.6 **No Other Rights in Copyrights, Trademarks, or Patents Granted.** Except as expressly granted herein, Licensee acquires no other rights in any copyright, patent, trademark, or trade secret incorporated in or applicable to the Licensed Products.

4.7 **Term and Termination.** The term of this EULA shall commence on the Effective Date and continue perpetually thereafter ~~until terminated as provided hereafter in this Section 4.7. In the event Licensee breaches a material term of this EULA and fails to cure such breach within ninety (90) days after the receipt of written notice thereof from INIT specifying such breach (such thirty (30) day period shall be referred to herein as the "Cure Period"), then INIT may terminate this EULA by giving Licensee written notice thereof within thirty (30) days after the end of the Cure Period, and, in such event, this EULA shall terminate ninety (90) days after Licensee 's receipt of such notice. Licensee may terminate this EULA at any time by giving written notice thereof to INIT and, in such event, this EULA shall terminate on the date specified in such notice. Upon termination of this EULA, Licensee agrees to, as directed by INIT, destroy or return to INIT all copies of the Licensed Products, except that Licensee may keep one copy for archival purposes. Licensee shall certify to INIT in writing its compliance with the return or destruction provisions.~~.

4.8 **Media** Subject only to Licensees' complying with any request for information according to any statutory requirements that apply to Licensee, neither party shall communicate with representatives of the general or technical press, radio, television, or other communication media regarding the work under this License Agreement without the prior written consent of the other party. Neither party nor any of its personnel shall publish or reproduce or arrange press releases regarding the other party without the prior written consent of the other party upon such terms as may be agreed.

4.9 ~~**Trade Secrets**~~**PUBLIC DISCLOSURE** The Licensor acknowledges that the Licensee (and all ORCA Agencies) are subject to Chapter 42.56 RCW. ~~Licensee acknowledges that the INIT Software, the Documentation and other related information (Trade Secrets) are owned by INIT or INIT has the rights of use in them. Licensee is obliged to maintain the Trade Secrets in confidence and not to disclose the Trade Secrets to~~

Commented [BA15]: 15.Conflicts with sublicensing rights per Purchase agreement

Commented [BA16]: 16.Perpetual.

Commented [CL17R16]: 17.In the event Sound Transit breaches the EULA and fails to remedy the breach after notice INIT has the right to terminate the license.

Commented [CL18]: 18.Chapter 42.56 contains an exception for Trade Secrets in the event of a public request for disclosure. Other than 42.56 do you agree that the limitations are effective?

~~any third party, without INIT's prior written consent. These obligations of confidentiality shall survive termination of Contract _____.~~

5 **Additional Licenses.** Except for prices which are expressly set forth in the Purchase Contract, Licensee acknowledges INIT's right, to be exercised in its sole discretion and without notice, to modify from time to time its price structure for new licenses of INIT Software and Licensed Products.

Commented [BA19]: 19.All prices will be expressly set forth in the Purchase Contract, and if not would be negotiated via change order.

6 **LICENSOR'S RIGHT TO AUDIT LICENSE RESTRICTIONS**. Licensee agrees to allow INIT access to the Licensed Products, upon reasonable notice and during normal business hours, to verify compliance with the provisions of the EULA so long as INIT does not unreasonably interfere with Licensee's daily operations. Licensee shall make available the necessary operational records, database equipment, employees and facilities required by INIT to perform its audit.

7 **PROTECTION OF SOFTWARE AND DOCUMENTATION** Licensee agrees to use commercially reasonable measures to protect the Licensed Products, including documentation, from unauthorized use, copying, or distribution.

8 **MAINTENANCE AND UPGRADES.** INIT provides no maintenance or upgrades as part of this EULA. Maintenance and software upgrades are provided under the terms of the Purchase Contract or by separate agreements with INIT.

Commented [BA20]: 20.Provide draft copy of maintenance and support agreement(s)

9 **Export Compliance.** The export of INIT Software may controlled by federal law. You agree that you will not: (a) export or re-export, directly or indirectly, any software and/or technical data (as defined by the U.S. Export Administration Regulations) provided by INIT or (b) disclose such software/technical data for use in, or export or re-export directly or indirectly, any direct product of such technical data, including Software, to any destination to which such export or re-export is restricted or prohibited by United States, without obtaining prior authorization from the U.S. Department of Commerce and other competent government entities to the extent required by applicable laws and/or regulations.

10 **US GOVERNMENT RESTRICTED RIGHTS.** This EULA provides only RESTRICTED RIGHTS in the Licensed Products. Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subparagraph FAR section 52.227-19 (48 CFR 52.227-19) (December 2007) and the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013, as applicable

11 **LIMITED WARRANTIES.**

11.1 **Authority.** INIT represents and warrants that (a) INIT is a corporation duly organized, validly existing and in good standing under and in accordance with the laws of the Commonwealth of Virginia, (b) INIT has full legal power and authority to enter into this Agreement, and (c) the person who executes and delivers this Agreement for INIT and on its behalf is duly authorized and has all requisite authority to do the same.

11.2 **No Infringement.** INIT represents and warrants that (a) Licensee shall have quiet enjoyment of the Licensed Products and other materials delivered hereunder and that Licensee's use of, and/or other authorized exercise of its rights in, the Licensed Products and/or such other materials shall not infringe or otherwise violate any patent, copyright, trademark, trade secret, nondisclosure, and/or any other intellectual property right of any third party, (b) no third party has made any claim of infringement of intellectual property rights with respect to the Licensed Products, (c) INIT has not previously and will not hereafter grant any rights to any third party that are in conflict with any of the rights granted herein, (d) any services performed pursuant to this EULA

(or otherwise in respect of the Licensed Products) by INIT will not infringe or otherwise violate any patent, copyright, trademark, trade secret, nondisclosure, right of publicity, right of privacy and/or any other intellectual property right of any third party.

11.3 **No Viruses.** INIT represents and warrants that the INIT Software does not contain, and will not contain, any feature which could in any way impair the operation of such software (and/or any of Licensee's other software and/or hardware) including, without limitation, (a) software locks, license keys, drop dead devices, back doors, time bombs, or other software routines which may disable a computer program automatically with the passage of time or under the positive control of a person other than Licensee, or (b) any form of virus, a Trojan horse, worm or other software routines or hardware components which may (i) permit unauthorized access, (ii) disable, erase, or otherwise harm software, hardware, or data, or (iii) remove, provide access to or disclose any data or other personal information, health information or financial information of any person.

11.4 **No Security Interests.** INIT represents and warrants that the INIT Software has not been pledged, in whole or in part, as security for any loans or other obligations and there are otherwise no security interests, liens or other types of encumbrances on the INIT Software.

12 LIMITATION AND EXCLUSION OF WARRANTIES. EXCEPT AS EXPRESSLY SET FORTH IN THIS LICENSE AGREEMENT, INIT MAKES NO WARRANTIES, REPRESENTATIONS, OR PROMISES. EXCEPT AS EXPRESSLY SET FORTH IN THIS LICENSE AGREEMENT, INIT EXPRESSLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY, TITLE, AND SUITABILITY FOR ANY SPECIFIC PURPOSE, OR SYSTEM. ~~INIT DOES NOT WARRANT THAT THE LICENSED PRODUCTS WILL PERFORM WITHOUT INTERRUPTION OR ERROR, AND DOES NOT WARRANT THAT THEY WILL SATISFY ANY PARTICULAR REQUIREMENTS NOT SET OUT IN THE LICENSEE EFARE SYSTEM TECHNICAL SPECIFICATION.~~

13 APPLICABLE LAW/VENUE/JURISDICTION. This License Agreement shall be governed by, and construed in accordance with, the laws of the State of ~~_____~~ Washington, without regard to any applicable conflict of laws rules. The exclusive venue and jurisdiction shall lie in the federal and state _____ courts of ~~_____~~ King County County, ~~_____~~ Washington.

14 LIMITATION OF LIABILITY. EXCEPT FOR (A) DAMAGES RESULTING FROM A BREACH BY EITHER PARTY OF THEIR RESPECTIVE OBLIGATIONS UNDER SECTION 16 BELOW, (B) INIT'S OBLIGATIONS UNDER SECTION 15 BELOW, AND/OR (C) A PARTY'S WILLFUL MISCONDUCT, ~~GROSS NEGLIGENCE~~ NEITHER PARTY SHALL BE LIABLE TO THE OTHER PARTY FOR ANY INCIDENTAL, CONSEQUENTIAL, OR INDIRECT DAMAGES OR LOSS OF PROFITS OR PUNITIVE DAMAGES ARISING OUT OF THIS LICENSE AGREEMENT. TO THE MAXIMUM EXTENT ALLOWABLE BY LAW AND EXCEPT FOR (A) DAMAGES RESULTING FROM A BREACH BY INIT OF ITS OBLIGATIONS UNDER SECTION 16 BELOW, (B) INIT'S OBLIGATIONS UNDER SECTION 15 BELOW, AND/OR (C) INIT'S WILLFUL MISCONDUCT, ~~GROSS NEGLIGENCE,~~ INIT'S TOTAL LIABILITY ARISING FROM OR RELATING TO THIS LICENSE AGREEMENT OR THE SALE OR DISTRIBUTION OF THE LICENSED PRODUCTS, WHETHER IN CONTRACT, TORT OR ANY OTHER GROUNDS, IS ~~LIMITED TO THE TOTAL AMOUNT OF LICENSE FEES LICENSEE HAS ACTUALLY PAID FOR THE LICENSED PRODUCTS AT THE TIME THE CLAIM IS MADE.~~ UNLIMITED.

15 INDEMNIFICATION. Notwithstanding anything herein to the contrary, INIT shall, at its sole cost and expense, indemnify, defend and hold harmless Licensee and its respective or collective

Commented [BA21]: 21.Not agreeable.

Commented [CL22R21]: 22.Disclaimer of all warranties except those stated is standard contract language. The items you have stricken clearly reflect the construction contract terms.

Commented [BA23]: 23.This standard is not agreeable.

Commented [CL24R23]: 24.Please explain specifically what it is that you consider disagreeable. Limitation of liability is a standard contract provision.

directors, officers, employees, contractors and agents (collectively, the "Indemnified Parties"), and each of them, from and against any and all loss or liability, claims, demands, damages, costs and expenses including, without limitation, reasonable attorneys', accountants' and expert witness fees, costs and expenses, that the Indemnified Parties, or any one or more of them, may sustain or incur, directly or indirectly (collectively, "Claims"), from, or as a result of the infringement (or claim thereof) by an Indemnified Party of any patent, copyright, trademark, trade secret, nondisclosure, and/or other intellectual property right through such Indemnified Party's use, or other exercise of its rights in, the Licensed Products, and/or any other materials delivered hereunder. This indemnification clause shall be null and void to the extent that Licensee has directed INIT to incorporate the infringing object, Licensee modifies the use of the INIT Software without INIT approval or Licensee combines, operates or uses the INIT Software with anything INIT did not approve, develop, ~~of~~ or provide and any of the foregoing Licensee actions cause or contribute to the infringement..

16 CONFIDENTIALITY.

16.1 Definition of Confidential Information. As used in this EULA, the term "Confidential Information" means, subject to Section 16.2 below, any and all nonpublic information that a party to this EULA (each a "Disclosing Party") designates as being confidential to the party that receives such information (each a "Receiving Party") ~~or~~ and which, under the circumstances surrounding disclosure ought to be treated as confidential by the Receiving Party. Subject to Section 16.2 below, "Confidential Information" includes the INIT Software and may also include, without limitation, information in tangible or intangible form relating to and/or including (a) the marketing or promotion of any Disclosing Party product or service (b) the Disclosing Party's business policies or practices, (c) the Disclosing Party's customers, and/or ~~(d) information received from others that the Disclosing Party is obligated to treat as confidential.~~

16.2 Exceptions to Confidential Information. The term "Confidential Information" does not include information, however designated, that (a) is or subsequently becomes publicly available without the Receiving Party's breach of any obligation owed to the Disclosing Party; (b) is known to the Receiving Party prior to the Disclosing Party's disclosure of such information to the Receiving Party, (c) becomes known to the Receiving Party from a source other than the Disclosing Party other than by the breach of an obligation of confidentiality owed to the Disclosing Party, and/or (d) is independently developed by the Receiving Party.

16.3 Obligations Regarding Confidential Information. The Receiving Party agrees that during the term of this EULA and forever thereafter it will (a) refrain from disclosing any Confidential Information of the Disclosing Party to third parties, (b) take reasonable security precautions, at least as great as the precautions it takes to protect its own confidential information but no less than reasonable care, to keep confidential the Confidential Information of the Disclosing Party, and (c) refrain from using, disclosing, reproducing, summarizing and/or distributing the Confidential Information of the Disclosing Party, in each instance except as expressly provided in this EULA. Furthermore, the Receiving Party agrees to promptly upon the termination of this License Agreement, deliver to the Disclosing Party all originals, copies, reproductions and summaries of the Confidential Information of the Disclosing Party, or at the Disclosing Party's option, certify the destruction of the same; provided, however, that the Receiving Party may keep one copy for archival purposes.

16.4 *Required Disclosures.* Notwithstanding anything contained herein to the contrary, a Receiving Party may disclose the Confidential Information of a Disclosing Party in accordance with a law, regulation, rule or judicial or other governmental order, provided that the Receiving Party either (a) gives the Disclosing Party reasonable notice prior to such disclosure to allow the Disclosing Party a reasonable opportunity to seek a protective order or equivalent, or (b) obtains written assurance from the applicable

Commented [BA25]: 25.We have to know this for Public Records Act purposes.

Commented [CL26R25]: 26.Unsure of what "this" refers to.

Commented [BA27]: 27.Too broad and vague.

judicial or governmental entity that it will afford the Confidential Information the highest level of protection afforded under applicable law, regulation or rule.

16.5 **No License.** All Confidential Information is and shall remain the property of Disclosing Party. By disclosing Confidential Information to the Receiving Party, the Disclosing Party does not grant any express or implied rights to the Receiving Party to or under any patents, copyrights, trademarks, or trade secret information except as otherwise provided herein. Disclosing Party reserves, without prejudice, the ability to protect its rights under any such patents, copyrights, trademarks, or trade secrets.

16.6 **Injunctive Relief.** INIT and Licensee each acknowledge and agree that there can be no adequate remedy at law for any breach (or threatened breach) of either party's obligations under Section 16.3 above, that any such breach (or threatened breach) may allow the breaching party (or the party threatening breach) or third parties to unfairly compete with the other party resulting in irreparable harm to the other party, and, therefore, that upon any breach (or threatened breach) of any provision of Section 16.3 above, the non-breaching party will be entitled to obtain from a court extraordinary relief including but, not limited to, temporary restraining orders, preliminary injunctions, permanent injunctions, and/or decrees of specific performance, in each instance without the necessity of posting a bond.

17 MISCELLANEOUS PROVISIONS.

17.1 **Complete Agreement**. This License Agreement represent the complete agreement between Licensee and INIT with regard to rights to use the Licensed Products except for applicable terms and conditions of the Purchase Agreement, and all prior oral or written agreements, representations or understandings are superseded and void.

17.2 **Modifications.** This License Agreement may not be modified, amended, rescinded, canceled or waived, in whole or in part, except pursuant to a written agreement signed by both parties. Without limiting the foregoing, in the event of any conflict between the terms and conditions of this Agreement and the terms and conditions of the Purchase Contract and appendices, and attachments thereunder, the terms of the Purchase Contract shall prevail. All other documents, such as any purchase order, invoice, shrink-wrap agreement, click through agreement or other document of one of the parties purporting to override the terms of this License Agreement, the terms and conditions of this License Agreement shall prevail.

17.3 **Severability.** If any provision of this License Agreement is declared or found to be illegal, unenforceable or void, then both parties shall be relieved of all obligations arising under such provision, but only to the extent that such provision is illegal, unenforceable or void, it being the intent and agreement of the parties that this License Agreement shall be deemed amended by modifying such provision to the extent necessary to make it legal and enforceable while preserving its intent or, if that is not possible, by substituting therefore another provision that is legal and enforceable and achieves the same objective. If the remainder of this License Agreement shall not be affected by such declaration or finding and is capable of substantial performance, then, each provision not so affected shall be enforced to the extent permitted by law.

17.4 **Relationship of Parties.** Each of the parties to this License Agreement is acting only as an independent contractor and assumes full responsibility for each of its employees and shall be solely responsible for the payment of compensation to its personnel. This License Agreement does not constitute either party hereto as the agent or legal representative of the other party and does not create a partnership or joint venture between them.

17.5 **Assignment.** Neither this License Agreement nor any of the rights, interests or obligations hereunder may be assigned by INIT (whether by operation of law or otherwise) without the prior written consent of Licensee. Subject to the foregoing, this

License Agreement shall be binding upon, inure to the benefit of and be enforceable by the parties and their respective successors and permitted assigns.

17.6 **Headings, Defined Terms, Use of Terms.** Headings of articles and sections in this License Agreement are for the convenience of the parties only. Accordingly, they shall not constitute a part of this License Agreement when interpreting or enforcing this License Agreement. All defined terms used in this License Agreement shall be deemed to refer to the masculine, feminine, neuter, singular and/or plural, in each instance as the context and/or particular facts may require. Use of the terms "hereunder", "herein", "hereby", and similar terms refer to this License Agreement.

17.7 **Survival.** All of INIT's obligations under this License Agreement which are not, by the express terms of this License Agreement, fully to be performed during the term of this License Agreement shall indefinitely survive the termination of this License Agreement for any reason. Such obligations include, without limitation, obligations under Sections 15 and 16 above. Similarly, Licensee's obligations under Section 16 above shall indefinitely survive the termination of this License Agreement for any reason.

17.8 **Cumulative Remedies.** No right or remedy conferred by this License Agreement is exclusive of any other right or remedy conferred herein or by law or in equity; rather, all of such rights and remedies are cumulative of every other such right or remedy and may be exercised concurrently or separately from time-to-time

17.9 **Recitals.** The recitals to this License Agreement are hereby incorporated herein as an integral part hereof.

17.10 **Notices.** All notices required by this License Agreement shall be in writing. To be effective, notices from INIT to Licensee shall be delivered or mailed to Licensee at Licensee's address set forth above, Attn: Mr. Tim McHugh, Chief Technology Officer. Any such notice to Licensee shall be deemed given or served and received hereunder when delivered personally or three (3) days after being mailed certified mail, postage prepaid, in each instance in accordance with this Section 17.10. Notices from Licensee to INIT shall be delivered or mailed to INIT Chief Financial Officer at INIT's address designated above. Any such notice to INIT shall be deemed given or served and received hereunder when delivered personally or three (3) days after being mailed certified mail, postage prepaid, in each instance in accordance with this Section 17.10.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized representatives as of the Effective Date.

INIT Innovations in Transportation, Inc.

By: _____

Printed Name: _____

Title: _____

By: _____

Printed Name: _____

Title: _____

Exhibit A

The contracted Software Modules will be listed here.

Please refer to the document “Software Licensing Information.pdf” for proposed Software Licenses.

item	Software or Application Title	Draft copy of License Agreement: File name or weblink	Proposal Reference - associate the License with the applicable Proposal Section	Brief description of the license purpose including major rights/restrictions	Provided by party	License Model / License Type	License QTY	License Term	Licensor	Licensee	INIT serving as reseller (YES/NO)	Project Phase in which 3rd party license is planned to be executed/implemented (Referencing the Proposed Program Schedule)
[redacted]												

item	Software or Application Title	Draft copy of License Agreement: File name or weblink	Proposal Reference - associate the License with the applicable Proposal Section	Brief description of the license purpose including major rights/restrictions	Provided by party	License Model / License Type	License QTY	License Term	Licensor	Licensee	INIT serving as reseller (YES/NO)	Project Phase in which 3rd party license is planned to be executed/implemented (Referencing the Proposed Program Schedule)
[redacted]												

item	Software or Application Title	Draft copy of License Agreement: File name or weblink	Proposal Reference - associate the License with the applicable Proposal Section	Brief description of the license purpose including major rights/restrictions	Provided by party	License Model / License Type	License QTY	License Term	Licensor	Licensee	INIT serving as reseller (YES/NO)	Project Phase in which 3rd party license is planned to be executed/implemented (Referencing the Proposed Program Schedule)
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[redacted]												

This End-User Maintenance Agreement ("EUMA" or “Maintenance Agreement”) is made and entered into as of this _____ (“Effective Date”) by and between INIT Innovations in Transportation, Inc., a Virginia corporation located at 424 Network Station, Chesapeake, Virginia 23320 (“INIT”), and _____ (“<<<Cust. Name>>>”) with an address of _____.

RECITALS

A. INIT represents that it possesses the right to provide Software Maintenance services to support the access, delivery and management of a Fare Collection System.

B. <<<Cust. Name>>> desires Software Maintenance Services for the INIT Client Software, the INIT Server Software, the INIT Vehicle Software and INIT Device Software (collectively, the “INIT Software”) licensed to <<<Cust. Name>>> under a separate agreement NIT desires to provide Software Maintenance Services to <<<Cust. Name>>>, in each instance subject to the terms and conditions set forth below.

TERMS AND CONDITIONS

NOW, THEREFORE, in consideration of the premises and the mutual covenants and agreements set forth below and other good and valuable considerations, the receipt and sufficiency of which are hereby acknowledged, the parties hereto do hereby covenant and agree as follows:

1. Definitions

The following definitions apply in this EUMA:

1.1. “Documentation” means any written documentation that is supplied by INIT in connection with the INIT Software.

1.2. “INIT Software” shall have the meaning ascribed to that term in Recital B above. The term INIT Software shall also include, without limitation, any and all corrections, bug fixes, enhancements, updates or other modifications that INIT may hereafter provide to <<<Cust. Name>>>. Such corrections, bug fixes, enhancements, updates or other modifications must be communicated to <<<Cust. Name>>> prior to activation in the live system. This notification or communication can be made via email, phone or SharePoint to key <<<Cust. Name>>> personnel.

1.3. “INIT Supplied Hardware” shall have the meaning ascribed to that term in Recital B above. The term INIT Supplied Hardware shall also include, without limitation, any and all corrections, bug fixes, enhancements, updates or other modifications that INIT may hereafter provide to <<<Cust. Name>>>.

1.4. “ “Price Sheet” means the price proposal of INIT dated 06/08/2018, which is hereby incorporated herein as Attachment B.

1.5. “Service Level Agreement” means the Service Level Agreement dated xx/xx/xx, which is hereby incorporated herein as Attachment A.

1.6. “.

2. Period of Maintenance

The period of Maintenance is from xx/xx/xx through xx/xx/xx and may be renewed in accordance with Section 3.

3. Renewal Option

This agreement includes xxxxxxx 1-year renewal options to cover the expected useful life of the software and can be exercised at the sole discretion of <<<Cust. Name>>>.

4. Notification

<<<Cust. Name>>> will notify INIT of its intent to renew 90 days prior to the expiration of the then current maintenance agreement year and request pricing for the subsequent maintenance year. However, in no case shall the increase in pricing, if any, exceed ten percent (10%) per year of the existing contract. See Attachment A for description of extended maintenance procedures for new equipment purchases. INIT shall be required to furnish pricing at least 60 days prior to the end date of the then current maintenance agreement with an explanation for any increases. <<<Cust. Name>>> shall issue a PO within 30 days of receipt of INIT invoice.

5. Limited Warranties

5.1. **Limitations**. The maintenance agreement does not include services for repair of defects or failures resulting from events outside INIT's responsibility, such as external influences, inappropriate treatment or faulty operation.

5.2. **Authority**. INIT represents and warrants that (a) INIT is a corporation duly organized, validly existing and in good standing under and in accordance with the laws of the Commonwealth of Virginia, (b) INIT has full legal power and authority to enter into this Agreement, and (c) the person who executes and delivers this Agreement for INIT and on its behalf is duly authorized and has all requisite authority to do the same.

5.3. **No Security Interests**. INIT represents and warrants that the INIT Software has not been pledged, in whole or in part, as security for any loans or other obligations and the there are otherwise no security interests, liens or other types of encumbrances on the INIT Software.

5.4. **Services**. INIT represents and warrants that INIT will perform all services hereunder in accordance with generally accepted industry standards and use its own knowledge and skill in the performance of such services.

5.5. **LIMITATION AND EXCLUSION OF WARRANTIES.** EXCEPT AS EXPRESSLY SET FORTH IN THIS MAINTENANCE AGREEMENT, INIT MAKES NO WARRANTIES, REPRESENTATIONS, OR PROMISES. INIT EXPRESSLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY, TITLE, SUITABILITY FOR ANY SPECIFIC PURPOSE, OR SYSTEM. INIT DOES NOT WARRANT THAT THE LICENSED PRODUCTS WILL PERFORM WITHOUT INTERRUPTION OR ERROR, AND DOES NOT WARRANT THAT THEY WILL SATISFY ANY PARTICULAR REQUIREMENTS.

5.6. **LIMITATION OF LIABILITY.** EXCEPT FOR A PARTY'S WILLFUL MISCONDUCT OR GROSS NEGLIGENCE, NEITHER PARTY SHALL BE LIABLE TO THE OTHER PARTY FOR ANY INCIDENTAL, CONSEQUENTIAL, OR INDIRECT DAMAGES ARISING OUT OF THIS MAINTENANCE AGREEMENT. TO THE MAXIMUM EXTENT ALLOWABLE BY LAW AND EXCEPT FOR INIT'S WILLFUL MISCONDUCT OR GROSS NEGLIGENCE, INIT'S TOTAL LIABILITY ARISING FROM OR RELATING TO THIS MAINTENANCE AGREEMENT, WHETHER IN CONTRACT, TORT OR ANY OTHER GROUNDS, IS LIMITED TO THE GREATER OF (Y) $121,000.00 OR (Z) THREE (3)

TIMES THE TOTAL AMOUNT OF MAINTENANCE FEES, WHICHEVER IS LOWER THAT <<<CUST. NAME>>> HAS ACTUALLY PAID FOR THE SERVICES AT THE TIME THE CLAIM IS MADE.

6. Miscellaneous Provisions

6.1. **Complete Agreement**. This Maintenance Agreement represents the complete agreement between <<<Cust. Name>>> and INIT with regard to Software Maintenance Services, and all prior oral or written agreements, representations or understandings are superseded and void.

6.2. **Modifications**. This EUMA may not be modified, amended, rescinded, canceled or waived, in whole or in part, except pursuant to a written agreement signed by both parties. Without limiting the foregoing, in the event of any conflict between the terms and conditions of this Maintenance Agreement and the terms and conditions of any purchase order, invoice, shrink-wrap agreement, click through agreement or other document of one of the parties purporting to override the terms of this Maintenance Agreement, the terms and conditions of this Maintenance Agreement shall prevail.

6.3. **Severability**. If any provision of this Maintenance Agreement is declared or found to be illegal, unenforceable or void, then both parties shall be relieved of all obligations arising under such provision, but only to the extent that such provision is illegal, unenforceable or void, it being the intent and agreement of the parties that this Maintenance Agreement shall be deemed amended by modifying such provision to the extent necessary to make it legal and enforceable while preserving its intent or, if that is not possible, by substituting therefore another provision that is legal and enforceable and achieves the same objective. If the remainder of this Maintenance Agreement shall not be affected by such declaration or finding and is capable of substantial performance, then, each provision not so affected shall be enforced to the extent permitted by law.

6.4. **Relationship of Parties**. Each of the parties to this Maintenance Agreement is acting only as an independent contractor and assumes full responsibility for each of its employees and shall be solely responsible for the payment of compensation to its personnel. This Maintenance Agreement does not constitute either party hereto as the agent or legal representative of the other party and does not create a partnership or joint venture between them.

6.5. **Assignment**. Neither this Maintenance Agreement nor any of the rights, interests or obligations hereunder may be assigned by INIT (whether by operation of law or otherwise) without the prior written consent of <<<Cust. Name>>>. Subject to the foregoing, this Maintenance Agreement shall be binding upon, inure to the benefit of and be enforceable by the parties and their respective successors and permitted assigns.

6.6. **Headings, Defined Terms, Use of Terms**. Headings of articles and sections in this Maintenance Agreement are for the convenience of the parties only. Accordingly, they shall not constitute a part of this Maintenance Agreement when interpreting or enforcing this Maintenance Agreement. All defined terms used in this Maintenance Agreement shall be deemed to refer to the masculine, feminine, neuter, singular and/or plural, in each instance as the context and/or particular facts may require. Use of the terms "hereunder", "herein", "hereby", and similar terms refer to this Maintenance Agreement.

6.7. **Cumulative Remedies**. No right or remedy conferred by this Maintenance Agreement is exclusive of any other right or remedy conferred herein or by law or in equity; rather, all of such rights and remedies are cumulative of every other such right or remedy and may be exercised concurrently or separately from time-to-time

6.8. **Recitals**. The recitals to this Maintenance Agreement are hereby incorporated herein as an integral part hereof.

Notices. All notices required by this Maintenance Agreement shall be in writing. To be effective, notices from INIT to <<<Cust. Name>>> shall be delivered or mailed to _____ at_____. Any such notice to INIT shall be deemed given or served and received hereunder when delivered personally or three (3) days after being mailed certified mail, postage prepaid, in each instance in accordance with this Section. Notices from <<<Cust. Name>>> to INIT shall be delivered or mailed to INIT at INIT's address designated above marked to the attention of Office of General Counsel. Any such notice to INIT shall be deemed given or served and received hereunder when delivered personally or three (3) days after being mailed certified mail, postage prepaid, in each instance in accordance with this Section.

7. Protection Rights

All intellectual property rights and commercialization rights of the software and other intellectual property remain with INIT. Upon payment, customer purchases user rights for the delivered software. The right of use allows the use of the software only by customer. The customer does not have the right to allow others to use the software. The customer purchases a number of workplace licenses and has the right to install the software on the same number of computers. Backup-copies of the software may be made only for customer's own use to secure data. Statements concerning protection rights remain on the copies. Specific manufacturer's terms of licenses apply for third party hardware and software.

8. Applicable Law

In the event of a conflict between customer and INIT regarding the purchase of services hereunder, customer and INIT agree that (a) any actions or claims brought shall be governed by the laws of the Commonwealth of Virginia, without regard to its choice of law rules, and (b) such action or claim shall be brought exclusively in the Commonwealth of Virginia before the courts in the City of Chesapeake or the United States District Court for the Eastern District of Virginia, Norfolk Division.

9. Compliance with Laws

INIT bears no responsibility or liability for the services' compliance with any laws, statutes, ordinances or regulations that may be applicable to customer or customer's use of the services. The customer is responsible for ensuring that the services and their use comply with any and all applicable regulations in the country or state concerned.

DRAFT

IN WITNESS WHEREOF, the parties have caused this Maintenance Agreement to be executed by their duly authorized representatives as of the Effective Date.

INIT Innovations in Transportation, Inc.

By: _____

Printed Name: _____

Title: _____

<<<Cust. Name>>>

By: _____

Printed Name: _____

Title: _____

DRAFT

Attachment A - Service Description and Service Levels

*Described in proposal document **Tab 2 - Methodology and Approach to Implementation and Operation and Maintenance Services_03.docx**, sections 1.14.2.2 and 1.14.2.5. The final content and format of Attachment A will be mutually agreed upon between Sound Transit and INIT.*

Attachment B – Price Sheet

Please refer to the RFP proposal response price sheet.

DRAFT

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SECTION 00 – AGREEMENT FORM

THIS AGREEMENT between CENTRAL PUGET SOUND REGIONAL TRANSIT AUTHORITY ("Sound Transit"), on behalf of the Regional Fare Collection System, and [Contractor name], hereinafter called the "Contractor" agree as follows:

The Contractor, for the consideration specified in the Contract Documents, shall in strict accordance therewith perform all the activities required by the Contract Documents for the following project:

SYSTEMS INTEGRATOR FOR NEXT GENERATION
ORCA
Contract No. RTA/RP 0119-17

Sound Transit agrees to pay the Contractor for fulfillment of the Work and performance of the covenants set forth ~~in Attachment A, Scope of Work and~~ the ~~other~~ Contract Documents.

The Contract Documents consist of the documents listed below issued prior to execution of this Contract Agreement and all Change Orders issued subsequent to execution of this Contract Agreement. The following is an enumeration of the documents, not in their order of precedence:

- Change Orders
- This Agreement Form ~~and Attachment A Scope of Work~~, [DATE]
- Addenda, issued for RFP No. RTA/RP 0119-17
- RFP No. RTA/RP 0119-17
- Contractor's Negotiated Proposal Submittal, [DATE]
- ~~Addenda, submitted to revise Contractor's Proposal Submittal, [DATE]~~
- Systems General Conditions, [DATE]
- All other Agreement Sections, [DATE]

Such Contract Documents form the Contract and all are as fully a part of the Contract as if attached to this Contract Agreement or repeated herein.

The Contractor agrees to complete the Work, furnish all tools, materials, facilities, and equipment necessary on the terms and conditions specified in the Contract Documents. ~~The Contractor further agrees to assume and perform all of the covenants and conditions required of the Contractor pursuant to these Contract Documents, for the total not-to-exceed Contract Price of [$AMOUNT].~~

Except as expressly provided in the Contract Documents, no liability shall attach to Sound Transit by reason of entering into this Contract Agreement.

Commented [BA1]: This contract will not include a total not-to-exceed PRICE because of its regional nature. Fixed pricing (lump sum and unit) is contained within this document and is billed per the negotiated milestone/partial payment schedule and units delivered.

IN WITNESS WHEREOF, the parties have caused this Contract Agreement to be executed as of the dates indicated below.

SOUND TRANSIT:	CONTRACTOR:
By: _____	By: _____
Michael Harbour Deputy Chief Executive Officer	_____ Print Name and Title
Date: _____	Date: _____

Approved as to Form:

_____
Sound Transit Legal Counsel

END OF FORM

SECTION 01 - SYSTEMS GENERAL CONDITIONS

ARTICLE 1 GENERAL

1.01 DEFINITIONS

A. **Acceptance** – ~~The~~ A written notice from Sound Transit to Contractor indicating full and satisfactory physical completion of specific Work ~~all~~ or part of the Work including all physical Punch List work.

B. **Addenda/Addendum** – Written modifications issued by Sound Transit to the Request for Proposals (RFP) that make changes to the Instruction to Proposers and /or Contract Documents.

C. **As-Built Drawings** – Neatly and legibly marked set of Contract Drawings, maintained by the Contractor with up to date information, showing all Changes in the Work, including final locations of all items of Work.

D. **Change** – A~~n~~ written alteration that modifies the scope of Work, equipment, materials, facilities, services, site, performance, schedule, or other material provision of the Contract.

E. **Change Notice** – Request for Proposal (CN-RFP) - A written request by Sound Transit to the Contractor for a Cost and Schedule proposal for a Change to the Contract. A CN-RFP does not authorize the Contractor to commence performance of the changed Work

F. **Change Notice** – Work Directive (CN-WD) - A written directive by Sound Transit to the Contractor to immediately proceed with a Change in the Work. Work Directives are incorporated into the Contract by a subsequent Change Order~~s~~.

G. **Change Order** – A signed written document ~~signed by Sound Transit the parties~~ that alters the scope of the Work, the Contract Time, the Contract Price, or makes any other change to the Contract.

H. **Claim** – A written demand by the Contractor seeking (1) the payment of money or adjustment to the Contract Price; (2) an extension of Contract Time; (3) an adjustment of Contract terms; and /or, (4) other relief arising under or relating to this Contract.

I. **Contract (aka "Agreement")** – Written agreement executed by Sound Transit and the Contractor which sets forth the rights and obligations of the parties in connection with the Work.

J. **Contract Documents** – The Change Orders, Agreement Form with attachments, Special Conditions, General Conditions, Contract Specifications, Contract Drawings, Diversity Program Provisions, any materials referenced therein, and any other documents listed in the Contract as embodying the legally binding obligations between Sound Transit and the Contractor for completion of the Work.

K. **Contract Drawings** – Plans, profiles, typical cross sections, general cross sections, elevations, schedules, and details listed or included in the Contract Documents.

Commented [Legal2]: The change to this definition makes it clear that acceptance notice should be in writing and that it relates to specific Work. Such changes would reduce the risk of any uncertainty as to when Acceptance takes place and it clarifies what Work it relates to.

Commented [BA3R2]: Edit accepted as proposed.

Commented [Legal4]: The added language clarifies the paragraph. The change would reduce the risk of confusing the change details.

Commented [BA5R4]: Edit rejected. The Change Order is the written document; this is the definition of the term "Change".

Commented [CL6R4]: Rejection accepted.

Commented [Legal7]: The added/changed language clarifies the paragraph and makes it more balanced. The change would make it clear that both parties need to sign a Change Order. This will clarify any Change Order and reduce risk of uncertainties.

Commented [BA8R7]: The is no edit proposed; however, this definition should stay as-is.

Commented [CL9R7]: Agree except for marked typo.

Commented [Legal10]: The changed/added language clarifies the paragraph. The change would make it clear that both parties need to sign a Change Order. This will reduce risk of uncertainties.

Commented [BA11R10]: Proposed edit rejected. Unilateral and bilateral change orders are defined in Article 4.04.

Commented [CL12R10]: ALL change orders are to be in writing; one option being bilateral and one unilateral by ST. However both are signed. See my proposed modification to avoid ambiguity in the definition here while 4.04 will describe the difference.

Commented [BA13R10]: Proposed edit accepted.

L. **Contract Milestone** – A date specified in the Contract by which the Contractor is required to complete a designated portion, delivery or increment of the Work.

M. **Contract Price** – The amount payable to the Contractor under the terms and conditions of the Contract based on lump sum prices, unit prices, provisional sums, or combination thereof, with adjustments made in accordance with the Contract.

N. **Contract Specifications** – The part of the Contract Documents containing written directions or requirements that specify the requirements which have to be fulfilled for the completion of the Work.

O. **Contract Time** – The time allotted in the Contract Documents for completion of the Work. The Contract Time begins upon the ~~receipt by Contractor~~ ~~effective date~~ effective date contained in ~~of~~ the Notice to Proceed and ends on the date of Final Acceptance. Contract Time incorporates the Contract Milestones established for the Contract.

P. **Contractor** – The person, persons, partnership, joint venture, company or corporation which enters into this Contract with Sound Transit for the performance of Work required by this Contract.

Q. **Contractor's Project Manager** – Contractor's authorized representative designated to perform technical and administrative functions of this Contract, ~~that is charged with the professional execution of this Contract,~~ as designated in writing to Sound Transit.

R. **Cost and Schedule Proposal** – A document prepared by the Contractor at the request of Sound Transit, which proposes in detail changes to the Work and/or adjustments to the Contract Price and/or Contract Time.

S. **Critical Path** – The longest, continuous sequence of activities that begins at the start of the Contract (~~effective date~~ ~~receipt by Contractor~~ effective date contained in ~~of~~ the Notice to Proceed) and concludes with the completion of the Contract Milestone(s). This path represents the longest chain of interrelated activities throughout the network from beginning to end. These activities are critical because delay to an activity on this path ~~will~~ may extend the Contractor's attainment of one or more Contract Milestone(s).

T. **Days or days** – Calendar days, unless otherwise specified.

U. **Defective Work** – Specific elements of the Work that do not conform to the requirements of the Contract and that will not be accepted by Sound Transit, at Sound Transit's discretion.

V. **Equitable Adjustment** – An adjustment to the Contract Price and / or Contract Time to compensate the Contractor for Extra Work, as part of a negotiated Change Order.

W. **Equivalent** – Equal or better quality and performance to that specified in the Contract Documents.

X. **Extra Work** – Furnishing of materials and equipment and the performance of Work neither directly nor by implication called for in the Contract Documents that is necessary for the Contractor's timely completion of the Work through no fault, error, omission, negligence, neglect, lack of planning, or lack of diligence of the Contractor.

Commented [Legal14]: The addition clarifies that the time for completion only starts when the contractor receives the Notice to Proceed.

Commented [BA15R14]: See alternative language. The Notice to Proceed will include an effective date which is separate than the date of the Notice itself.

Commented [CL16R14]: See comment on Notice to proceed below.

Commented [BA17R14]: This is agreeable.

Commented [Legal18]: The changed/added language would make the term consistent with Sound Transit's own definition of the duties for its Regional Project Manager. (RFP Article – "Definitions" – UU.)

Commented [BA19R18]: Edit accepted as proposed.

Commented [BA20]: Proposed edit rejected. If it's deemed critical path, it will affect it.

Commented [CL21R20]: Rejection accepted.

Commented [Legal22]: The changed/added language clarifies the clause. The change will provide clarity as to when the Critical Path starts, as well as making it clear that this may extend the Contractor's attainment of one or more Contract Milestone(s).

Y. **Field Clarification** – a document prepared by Sound Transit and issued to the Contractor that clarifies and/or corrects minor discrepancies in the Contract Documents that do not affect the cost or schedule of the Work.

Z. **Final Acceptance** – Written notice from Sound Transit acknowledging that the Contractor has fulfilled all of its obligations under the Contract and that Sound Transit has accepted the Work as of the date stated in the Notice. Final Acceptance is a condition precedent to Final Payment.

AA. **General Conditions** – Sound Transit's standard general contractual provisions for contracts which, as augmented and supplemented by other Contract Documents, describe the contractual relationship of the parties and their rights and responsibilities to each other.

BB. **Hazardous or Contaminated Substance** – (a) any substance, product, waste, or material of any nature whatsoever which is or becomes listed, regulated, or addressed pursuant to the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. Section 9601, et seq. ("CERCLA"); the Hazardous Materials Transportation Act, 49 U.S.C. Section 1801, et seq.; the Resource Conservation and Recovery Act, 42 U.S.C. Sections 6901, et seq. ("RCRA"); the Toxic Substances Control Act, 15 U.S.C. Sections 2601, et seq.; the Clean Water Act, 33 U.S.C. Sections 1251, et seq.; or any other federal, state, or local statute, law, ordinance, resolution, code, rule, regulation, order, or decree regulating, or imposing liability or standards of conduct concerning any hazardous, toxic, or dangerous waste, substance, or material, as now or any time thereafter in effect; (b) any substance, product, waste, or other material of any nature whatsoever that may give rise to liability under any of the above statutes or under any reported decision of a state or federal court; (c) petroleum or crude oil, excluding de minimus amounts; and (d) asbestos.

CC. **Industry Standards** – Drawings and specifications or portions thereof published by industry organizations, which are not Contract Documents unless specifically listed as such in a Specification.

DD. **Milestone or Partial Payment Schedule** - The breakdown of the Contract Price into incremental performance stages or deliveries.

EE. **Non-Conforming Work** – Specific elements of the Work that do not conform to the requirements of the Contract but that otherwise may be acceptable to Sound Transit, at Sound Transit's discretion.

FF. **Notice** – Communication in writing, unless otherwise specified, which complies with the notice requirements of the Contract Documents, to provide or issue any information, warning, announcement, instruction, consent, approval, certificate or determination by any person or party to the Contract.

GG. **Notice of Intent to Claim** - A written notice of a potential claim submitted by the Contractor to Sound Transit within the time limits and in accordance with the conditions specified in the Contract Documents.

HH. **Notice to Proceed** – Written notice delivered by overnight courier, issued by Sound Transit which, on the date received by the Contractor establishes the date on which the Contractor may commence Work and directs the Contractor to proceed with all or a portion of the Work.

Commented [Legal23]: Should be moved to be in alphabetical order – consistent with other definitions.

Commented [BA24R23]: Inserted "milestone" – requested a milestone/partial payment schedule to be proposed as part of revised proposal 2.

Commented [CL25R23]: Repaired typo and accept.

Commented [Legal26]: The change clarifies the timing of when Notice to Proceed is received and would reduce uncertainty. The definition heading is not in alphabetical order as the rest of the defined terms, and for clarification should be moved to be consistent.

Commented [BA27R26]: Proposed edit rejected. See previous comments regarding this above.

Commented [CL28R26]: Your proposal does not take into account the non or late arrival of the Notice to Proceed. If you wish to adopt your process you will need to take into account the delivery issue. Perhaps the delivery could be by hand and signed for.

Commented [BA29R26]: This is agreeable.

II. **Partial Payment** – Payment of a portion of the Contract Price before the contract is completed for delivery or performance in increments. Delivery and performance incremental stages are defined in the Milestone or Partial Payment Schedule.

JJ. **Product Data** – Information furnished by the Contractor to describe materials used for some portion of the Work, such as written or printed descriptions, illustrations, standard schedules, performance charts, instructions, brochures, and diagrams.

KK. **Project** – Sound Transit's Project, of which this Contract is a part.

LL. **Project Schedule** – The schedule, prepared by the Contractor in accordance with the requirements of the Contract and accepted by Sound Transit, setting forth the logical sequence of activities required for the Contractor's orderly performance and completion of the Work in accordance with the Contract and specifically to meet the specified Contract Milestones.

MM. **Proposal** – The written proposal submitted to Sound Transit as required by the Request for Proposals.

NN. **Proposal Documentation** – Any and all work papers, spreadsheets, takeoffs, material lists, subcontractor quotes, vendor or material quotes, lists of wage rates and equipment rates (both rented and owned) and any and all papers, documents and electronic information or computer files created or used by Contractor when preparing its Proposal.

OO. **Proposer** – An individual, firm, partnership, corporation, joint venture or other legal entity submitting a proposal for the work.

PP. **Provisional Sum or Allowance** - An amount established in the Contract Documents for inclusion in the Contract Price to cover the cost of prescribed items not specified in detail, with provision that variations between such amount and the finally determined cost of the prescribed items will be reflected in Change Orders appropriately adjusting the final Contract Price. Any amount included in the Contract Price but not used in the course of the Work shall be returned to Sound Transit by way of deductive Change Order.

QQ. **Punch List** – The list(s) of elements of the Work that remain to be completed or corrected after achievement of Substantial Completion of the Work or portions of the Work which must be completed as a condition of Acceptance.

RR. **Reference Documents** – Drawings, specifications, and other documents that do not specify Work required by the Contract, but which provide supplemental information regarding the Contract.

SS. **Reference Specifications** – Specifications prepared by or belonging to Utilities or third parties (including but not limited to other governmental bodies) in whose rights-of-way, easements or properties all or part of the Work is to be executed.

TT. **Request for Information (RFI)** – The document by which the Contractor requests clarification, verification or information on a portion of the Work.

UU. **Regional Program Manager** – Sound Transit's authorized representative designated to perform

Commented [BA30]: Keeping consistent with the definition above.

technical and administrative functions of this Contract.

VV. **Safety Certification** – A formal process implemented to ensure that all ~~of Sound Transit's Rail~~ Transit System facilities, equipment, and training programs conform to the established requirements. This includes reviewing and certifying items for compliance with operational safety requirements prior to the start of revenue service to ensure a safe operating ~~Rail~~ Transit System.

WW. **Safety Critical Item** – Any submittal, installation, inspection, or test identified in the Specification Conformance Checklist that has been determined by Sound Transit to have an impact on the safe operation of ~~its~~ the ~~Rail~~ Transit System.

XX. **Samples** – 1) Representative quantities of materials taken in specified amounts and frequencies for subsequent testing in accordance with specified procedures; or 2) physical examples of materials to be supplied or workmanship, which shall, when approved by Sound Transit, establish standards by which the Work shall be compared and evaluated.

YY. **Site (aka Project Site)** – The areas that are occupied by or used by the Contractor, Subcontractors, Consultants, Subconsultants during performance of the Work in the Puget Sound area of Washington, and are indicated in the Contract Documents as being within the project limits. This includes any areas outside the project limits, which are designated in writing by Sound Transit as being part of the Project Site. For purposes of the Contract Documents, and not for prevailing wage determinations, off-site precast factories/facilities will not be considered part of the Site.

ZZ. **Software System** – A term used for a system software, written programs or procedures, or rules, and associated documentation designed to perform an intended purpose and identified in the contract documents and requirements. This system may be made up of multiple software programs that are developed by Contractor and licensed ~~for~~ to Sound Transit, and/or third party software applications.

AAA. **Sound Transit** – The Central Puget Sound Regional Transit Authority.

BBB. **Special Conditions** – A part of the Contract Documents, which modify the General Conditions and provide information specific to this Contract.

CCC. **Specification Conformance Checklist** – A document that provides evidence that the Sound Transit's Rail Transit System will operate safely in accordance with safety critical requirements for documentation, installation, inspection and testing referenced in the Contract Specifications.

DDD. **Subcontract** — Any Contract between the Contractor and a Subcontractor, or between Subcontractors of any tier, to perform a portion of the Work.

EEE. **Subcontractor** – An individual, firm, partnership, or corporation that has a contractual obligation with a Consultant, Contractor or other Subcontractor to perform some part of the Work required for the completion of the Contract, and whose principals or employees are actively performing such Work at the Project Site.

FFF. **Submittal** – Written or graphic document or sample that is required by the Contract Documents

Commented [BA31]: Removed due to regional nature of this contract

Commented [BA32]: Edit accepted.

and is prepared for the Work by the Contractor, a Subcontractor or Supplier, and submitted to Sound Transit by the Contractor, including shop drawings, product data, samples, certificates, schedules of material or other data. Submittals are not Contract Documents.

GGG. **Substantial Completion** – The time at which the Work or a portion thereof has progressed to the point where it is sufficiently complete in accordance with the Contract Documents, so that the Work, or a specified portion thereof, can be utilized for the purpose for which it is intended.

HHH. **Substitution** – An item of significant difference in material, equipment or configuration which functionally meets the requirements of the Contract Documents but does not meet the Specifications and is equivalent to the specified item.

III. **Suppliers** – Any person, firm, partnership, corporation, joint venture, or combination thereof, other than a Subcontractor, contracting with the Contractor, either directly or through a lower-tiered contractual relationship, to furnish goods or services in connection with the Contract.

JJJ. Intellectual Property of Contractor ~~Technical Data~~ - Any plans, drawings, designs, specifications, technical reports, operating manuals, notes, data, documentation, and computer software (in source code and object code form), ~~not specifically~~ other than those licensed by ~~designated as existing proprietary know-how of the~~ Contractor, its Subcontractors or Suppliers~~, which are required~~ to be supplied as part of the Work.

KKK. **Third Party Software** – Any software, firmware, or program reasonably necessary to operate or maintain any part of the System that does not constitute Contractor Software.

LLL. **Unknown Hazardous and Contaminated Substances** – Hazardous or Contaminated Substances that were not indicated in the Contract Documents that were present on the Site, and that are unexpectedly encountered by the Contractor during the performance of the Work.

MMM. **Utility or Utilities** – All public and private facilities, other than the Sound Transit system facilities, which relate to 1) the conveyance and supply of water, sewage, gas, chemicals, steam, petroleum products, and other piped installations; or 2) electrical energy, telephone, telegraph communications, radio, television, and public transit installations.

NNN. **Utility Standards** – Drawings and specifications for Utilities published or issued by municipalities or utility companies.

OOO. **Work** – The requirements of the Contract as specified, shown, indicated or implied in the Contract Documents, including all alterations, amendments or extensions thereto made by Change Orders.

1.02 INTENT AND INTERPRETATION OF CONTRACT DOCUMENTS

A. The intent of the Contract Documents is to describe the Work and completion of the Work. Where the Contract Documents describe portions of the Work in general terms, but not in complete detail, the Contractor shall use ~~its~~ best practice as used by the electronic fare collection industry ~~shall be followed~~ and, unless otherwise specified herein, Contractor shall use only materials and workmanship that it considers of best quality ~~shall be used~~. Unless otherwise specified in

Commented [Legal33]: These changes make it clear that it is the Intellectual Property of Contractor that is referenced. Moreover, that such property is the property of the Contractor, and that Contractor has agreed to license said IP to Sound Transit. If the change of description for heading is accepted, the term needs to be moved to be in alphabetical order under "Definitions".

Commented [BA34R33]: Proposed edit is rejected. The intent of this definition is to define Technical Data that is provided by the Contractor and its subcontractors or suppliers.

Commented [CL35R33]: Agree, however there needs to be a definition of Contractor's IP; either here or in Section 7.13

Commented [BA36R33]: A holistic discussion about IP is needed.

Commented [Legal37]: It makes it clear that it is Contractor's best practice which is referred to. The second change reflects that there could be references in other documents as to the type of materials and/or workmanship to be applied.

Commented [BA38R37]: Proposed edits rejected. Industry best practices shall be used; Contractor's existing best practices is too arbitrary.

Commented [CL39R37]: This recent revision meets your criteria. "Industry" is unacceptably general.

Commented [BA40R37]: Edits accepted, EXCEPT for "that it considers".

Commented [CL41R37]: Agreed

the Contract, the Contractor shall furnish, deliver, provide, and pay for all materials, labor, professional services, tools, equipment, water, light, power, heat, transportation, supervision, temporary Work of any nature, consumables, and other services and facilities of any nature, whatsoever necessary, to execute, complete and deliver the Work within the Contract Time. The Work shall be executed in strict conformance to the Contract requirements.

B. The Contract Documents set forth the requirements as to the nature of the completed Work and do not purport to control the means and methods of performing Work, unless specifically set forth in the Contract Documents. The Contractor is wholly responsible for making its own decisions about the means and methods of performing the Work. If any references have been made in the Contract Documents to responsibilities of work by crafts and specialty or trade contractors, these references were made for the convenience of preparing the Contract Documents and are not intended to limit any responsibility of the Contractor to provide a complete installation under the Contract.

1.03 CONTRACT IS SUBJECT TO FEDERAL PROVISIONS

The Contract is partially funded by the Federal Transit Administration ("FTA") and/or the Federal Highway Administration ("FHWA") is therefore subject to certain federal provisions. Further, the FTA and FHWA require that certain terms and conditions of the Contract Documents be included in all Subcontracts. The Contractor shall be responsible for ensuring all applicable mandatory Federal provisions are included in all Subcontracts. These mandatory Federal provisions are set forth in Section 02 Federal Provisions.

1.04 CONFORMITY TO CONTRACT DOCUMENTS

The Work in all cases shall conform to the Contract Documents or approved modifications thereto, and shall be within the tolerances specified, or, if no tolerance is specified, as determined by the Regional Program Manager.

1.05 ORDER OF PRECEDENCE

A. The Contract Documents are intended to be complimentary and to describe and provide for a complete Work. They are also to be interpreted in harmony so as to avoid conflict, with words and phrases interpreted consistent with design industry standards. The documents identified below are listed in order of precedence. To the extent that there are different provisions in Contract Documents that address the same matter or subject and these different provisions conflict, the document having the highest priority that addresses the matter or subject shall control. If conflicting provisions within the same level of Contract Documents exist, and one is more stringent than another, the more stringent provision will prevail.

- Change Orders (bilateral and unilateral) ~~/Contract Amendments with the most recent taking precedence over earlier dated~~
- Section 00 Agreement Form ~~with Attachment(s)~~, [DATE]
- Section 01 Systems General Conditions, [DATE]
- Section 02 Federal Provisions, [DATE]
- Section 08 End-User License Agreement [DATE]
- Section 07 Contractor's Negotiated Proposal Submittal [DATE]

Commented [Legal42]: Language added since Contract Amendments may not be considered Change Orders.

Commented [BA43R42]: Proposed edit rejected. Contract Amendments are not separate from Change Orders; they are defined as unilateral or bilateral change orders.

- Section 03 Insurance Requirements, [DATE]
- Section 04 Liquidated Damages, [DATE]
- Section 05 Labor Compliance Manual, [DATE]
- Section 06 Prevailing Wage Rates, [DATE]
- Addenda to RFP No. RTA/RP 0119-17 [DATES]
- RFP No. RTA/RP 0119-17 [DATE]
- ~~Contract Drawings, [DATE]~~
- Industry Standards, only when specifically incorporated into a Contract Scope of Work
- Reference Specifications
- Reference Drawings
- ~~Contractor's Proposal~~

Commented [BA44]: Not applicable

Commented [Legal45]: In accordance with Section 01 Agreement Form – Contract Documents.

B. In case of differences between small and large-scale drawings, the large-scale drawings shall govern. Schedules on drawings shall take precedence over conflicting notations on drawings. In the event of discrepancy between any drawing and the figures written thereon, the figures, unless otherwise indicated, shall govern over-scaled dimensions.

C. References to Industry Standards, material specifications, test methods, or other publications of the Washington Department of Transportation (WSDOT), American Association of State Highway and Transportation Officials (AASHTO), Federal Railroad Administration (FRA), American Association of Railroads (AAR), American Railroad Engineering and maintenance of Way Association (AREMA), Institute of Electrical and Electronic Engineers (IEEE), America Society for Testing and Materials (ASTM), other governmental agencies, or other recognized national organizations are those officially adopted by those agencies and organizations. Industry Standards (if specifically incorporated by any Specification) apply only to material, workmanship and procedure. Commercial terms (e.g. Control of Work, Temporary Traffic Control, Legal Relations and Responsibilities to the Public, and Measurement and Payment) are not included in the reference. All material, equipment and workmanship specified by the number, symbol, or title of a referenced Industry Standard shall comply with the latest edition or revision thereof and all amendments and supplements thereto in effect on the date of the Request for Proposals, except where a particular edition or revision thereof is indicated in the reference.

1.06 REQUESTS FOR INFORMATION / FIELD CLARIFICATIONS

A. Request for Information

1. If the Contractor discovers, or in the exercise of reasonable diligence should have discovered, that the Work to be performed is not sufficiently detailed or explained in the Contract Documents, or that there is an apparent conflict or inconsistency between any part of the Contract Documents, the Contractor shall promptly apply a Request for Information in writing to the Regional Program Manager for such further written explanations as may be necessary. The Regional Program Manager ~~will~~ shall promptly address the RFI in writing. Before submitting a RFI, the Contractor shall diligently and thoroughly examine the Contract Documents. Costs incurred by Sound Transit to respond to RFIs which could have been avoided had the Contractor examined the Contract Documents shall be the responsibility of the Contractor. The Contractor shall also plan its

Commented [Legal46]: Language is added/changed for clarification of the paragraph. Time is of essence to both parties and words indicating action timing have been added.

Commented [BA47R46]: Deletion of "will" rejected as it is a preferred term. Insertion of "promptly" accepted as proposed.

Work in an efficient manner so as to allow for timely responses to RFIs. If requested by the Regional Program Manager, the Contractor shall prioritize its RFIs and explain the reasons for such priority. The Contractor's submission of an RFI shall be a condition precedent to a Contractor submitting a claim related to any conflict or inconsistency, and the Contractor's failure to apply to the Regional Program Manager for interpretation or clarification of any known conflict or inconsistency shall bar any subsequent claim related to the conflict or inconsistency. The Contractor's submission of an RFI does not fulfill the requirements of Article 10 for timely Notice of Intent to Claim or Notice of Delay and shall not constitute a Claim.

2. Sound Transit will reply to the RFI with reasonable promptness. If Contractor submits an RFI on an activity less than twenty (20) days prior to the commencement of that activity, Contractor shall not be entitled to any time extension or adjustment to the Contract Price due to the time it takes Sound Transit to respond to the RFI.

3. Responses by Sound Transit to RFIs are not changes to the Contract. If Contractor believes a response to an RFI constitutes changed work or causes an adverse impact to performance of the Work or schedule, the Contractor is required to submit a Request for Change in accordance with the requirements of Article 4.02.

B. Field Clarification

If Sound Transit identifies minor discrepancies in or a need to clarify information contained in the Contract Documents, Sound Transit may issue a Field Clarification to so correct the minor discrepancies or provide the clarification. Because Field Clarifications should not have any effect on the cost or time of performance of the Work, they do not provide for either a time extension or a change in the Contract Price. If Contractor believes that a Field Clarification constitutes changed work for which a time extension or additional compensation is necessary, the Contractor is required to submit a Request for Change in accordance with the requirements of Article 4.02.

1.07 SITE INVESTIGATION AND CONDITIONS AFFECTING WORK

A. By submitting its Proposal for the Work and executing the Contract, the Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the condition of the site itself, including without limitation the general and local conditions which can affect the work or its costs, including but not limited to local weather, traffic patterns, availability of labor, available utilities, local requirements, adequacy and accuracy of Contract Documents, the character of equipment and materials required to perform the Work, and conditions bearing upon utilities as relates to temporary or permanent relocation or installation thereof.

B. The Contractor acknowledges that any equipment or site reports referenced in the Contract Documents are only intended to describe the conditions at a particular point in time, and are not guaranteed to represent the actual conditions the Contractor will encounter during the course of the Work. The Contractor acknowledges that it has satisfied itself as to the character, quality and quantity materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the equipment or site and information available to the

Contractor in the Contract Documents or Reference Documents.

C. Any failure of the Contractor to take actions described and acknowledged in this Article will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the Work, or for proceeding to successfully perform the Work without additional expense to Sound Transit.

D. By submitting a Proposal for the Work and by executing the Contract, the Contractor certifies that it has carefully reviewed, has had clarified, and understands all of the Contract Documents; has inspected the equipment and site as needed to evaluate and assess all pertinent existing conditions applicable to the Work, and is satisfied as to its ability and intention to conduct and complete the Work required in the Contract Documents on the terms and conditions stated in the Contract. In particular, the Contractor certifies that it has reviewed the requirements for the format and detail of records to be maintained at all times during the performance of Work, and that it has instituted or will implement the preparation and maintenance of all such records. In particular, the Contractor represents as follows:

1. It is familiar with and is satisfied as to all Federal, state and local laws and regulations that may affect the cost, progress, performance and furnishing of the Work;

2. It has correlated with the Contract Documents the information known to the Contractor, information and observations obtained from visits to the site, and reports and drawings identified in the Contract Documents; and

3. It has given Sound Transit written notice of all conflicts, errors, ambiguities or discrepancies that the Contractor has discovered in the Contract Documents and that the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 2 AUTHORITY AND RESPONSIBILITY

2.01 CONTRACT IS BETWEEN CONTRACTOR AND SOUND TRANSIT

The Contractor is an independent contractor with respect to the performance of all Work hereunder, retaining control over the detail of its own operations and the Contractor shall not be considered the agent, partner, fiduciary or trustee of Sound Transit. The Contractor shall not conduct itself as nor claim to be an officer or employee of Sound Transit. The Contractor will not make any claim, demand or application to or for any right or privilege applicable to an officer or employee of Sound Transit, including, but not limited to, worker's compensation coverage, unemployment insurance benefits, social security coverage or retirement membership or credit. No employee of the Contractor or any Subcontractor is or shall be deemed to be an officer or employee of Sound Transit. Subcontractors to the Contractor will not be recognized as having a direct relationship with Sound Transit, nor are Subcontractors intended or incidental third-party beneficiaries to this Contract.

2.02 DUTY OF CONTRACTOR

A. The Contractor has sole authority and responsibility to employ, discharge and otherwise control its employees and has complete and sole responsibility as a principal for its agents, for all

Subcontractors and for all other persons that the Contractor or any Subcontractor hired to perform or assist in performing the Work.

B. The Contractor shall enforce strict discipline and good order among its employees at all times and shall not employ on the Work any unfit person or anyone not skilled in the task assigned to him or her. Any person employed on the project by the Contractor or any of its Subcontractors who, in the opinion of Sound Transit, is not needed to perform assigned work, is not qualified or licensed, does not perform his or her work in a proper and skillful manner or is intemperate, disorderly, reckless, or engages in any abuse or harassment, shall, at the written request of Sound Transit, be removed forthwith by his or her employer, shall not again be employed on the project without the approval of Sound Transit, and shall at the Contractor's own expense be replaced by a suitably qualified person.

2.03 AUTHORITY OF REGIONAL PROGRAM MANAGER

A. Sound Transit will designate a Regional Program Manager prior to or concurrent with Sound Transit's issuance of the Notice to Proceed. The Regional Program Manager is Sound Transit's point of contact for the Contractor. The Regional Program Manager shall have the authority to manage the Contract so that the completion thereof may be accomplished in accordance with the contractual requirements.

B. The Regional Program Manager may designate technical support staff to perform functions under the Contract, such as inspection of the Work, review and/or inspection and acceptance of materials, supplies, services, witness of functional testing, and other functions of a technical or administrative nature.

C. Sound Transit and the Regional Program Manager, or a designee, shall have access to the Site and the Work at all times. Should the performance of the Contractor, or the quality of the Contractor's work or materials furnished, not meet the standards specified, the Regional Program Manager may take or require such measures as the Regional Program Manager deems necessary to ensure compliance with contractual requirements. Any failure by the Regional Program Manager to take these actions shall not relieve Contractor from performing its Contract obligations. The Contractor shall carry out the instructions of the Regional Program Manager or any person to whom the Regional Program Manager delegates authority and gives the Contractor written notice of said delegation, concerning the Work.

2.04 CONTRACTOR'S PROJECT MANAGEMENT AND SUPERVISION

A. The Project Manager shall be Sound ~~Point~~Transit's main point of contact for the Contractor. The Project Manager shall have the authority to manage the Contract so that the completion thereof may be accomplished in accordance with the contractual requirements. ~~shall have complete authority to represent and to act for the Contractor.~~ If for any reason and at any time, the Project Manager and/or Lead Engineer submitted by the Contractor is not acceptable to Sound Transit, or becomes unacceptable, the Contractor shall propose additional candidates within ten (10) days of receiving written notice from Sound Transit. If the Contractor wishes to replace its Project Manager or Lead Engineer at any time during the performance of this Contract, it first shall submit the résumé of its new candidate to Sound Transit for Sound Transit's approval, which shall not be unreasonably

Commented [Legal48]: Change made to make it clear who is Contractor's Project Manager point of contact during the Project.

Commented [BA49R48]: Proposed edit rejected. The ORCA Agencies need the Contractor's PM to have the authority to act for and represent the Contractor, not just manage.

Commented [BA50R48]: No response so have to assume this is accepted.

Commented [CL51R48]: NOT ACCEPTED. INIT management protocols do not permit the Project Manager sole decisional authority of a project of this size. Management of the contract will accomplish ORCA objectives while permitting senior management to maintain overall authority.

withheld or delayed. The Contractor shall not make the substitution without Sound Transit's prior written approval. Sound Transit shall have the right to require the Contractor to remove the Project Manager or Lead Engineer from the Site in the event either fails to uphold or meet the requirements of the Contract or fails to perform in a competent, qualified or professional manner. Failure by Sound Transit to remove such personnel shall not relieve Contractor of its Contract obligations.

B. The Contractor's Project Manager, or a designee, shall be present at the site of the Work at all times while the Work is actually in progress. The Contractor's Project Manager shall notify the Regional Program Manager of the name(s) and means to contact the individual(s) who have the authority to act for the Contractor's Project Manager at such times that the Contractor's Project Manager is not present on any particular part of the Work. In the absence of such notification, the Regional Program Manager may give direction to the superintendent or foreman in charge of the particular part of the Work in reference to which the directions are given so long as said directions are confirmed by the Regional Program Manager in writing to the Contractor's Project Manager.

C. The Contractor was awarded the Contract due in part to the Contractor's submittal of qualifications for key personnel [redacted]. Contractor's failure to use such key personnel after award of the Contract shall (subject to the exception in Article 2.04D) constitute a breach of Contract entitling Sound Transit at its option to any and all remedies, including but not limited to specific performance, revocation of the Contract Award, refusal to authorize Notice to Proceed, suspension of Work for such time period as is necessary for Contractor comply with the Contract by mobilizing the specific individuals, and/or termination of the Contract. If Sound Transit elects to continue the Work with Contractor's replacement key personnel, Sound Transit may, in addition to all other remedies available to it, deduct ~~0.3~~ 0.1 percent of the initial Contract Price as damages for such substitution of one or more of the key personnel. Contractor acknowledges that in that event such amount is not a penalty and constitutes a reasonable estimate of damages to Sound Transit associated with the replacement of the key personnel on which Sound Transit relied for the award of this Contract.

D. Sound Transit will not enforce the provisions in Article 2.04C in the event compliance becomes impossible or commercially impracticable, provided Contractor first submits substitute key personnel of equivalent skills, credentials and experience for approval by Sound Transit which shall not be unreasonably withheld or delayed. For the avoidance of doubt Article 2.04C and 2.04D are applicable only in case Contractor moves key personnel from Orca to other project(s), not for occasions that are out of contactors control, like staff becoming unavailable to INIT.

2.05 SUBCONTRACTING

A. The Contractor was awarded the Contract due in part to the Contractor's submittal of qualifications for major Subcontractors and suppliers. Contractor's failure to use such Subcontractors after award of the Contract shall (subject to the exception in Article 2.05B constitute a breach of Contract entitling Sound Transit at its option to any and all remedies, including but not limited to specific performance, revocation of the Contract Award, refusal to authorize Notice to Proceed, suspension of Work for such time period as is necessary for Contractor comply with the Contract by mobilizing the specific individuals, and/or termination of the Contract. If Sound Transit elects to continue the Work with Contractor's replacement

Commented [Legal52]: Term added since time is of essence to the parties and any cause of action which is delayed may negatively impact the time-line for the project, and therefore such approval should not be delayed.

Commented [BA53R52]: Edit accepted as proposed.

Commented [BA54]: Part --> Article edit accepted

Commented [BA55]: Risk mitigation – The damages are being increased as a result of major concerns about key individual swapping (PM and Lead Engineer) and the firm's general lack of bench strength.

Commented [CAC56R55]: 1% is not acceptable or consistent with the statement below "amount is not a penalty and constitutes a reasonable estimate of damages". $450,000 is well beyond reasonable damages for a single personnel change. Even your comment suggest that it is a punitive penalty because of concerns about our staffing levels.

Commented [BA57R55]: The damages are not punitive. The remedy should be accepted as-is, or the concern about the impact of key personnel changes should be addressed elsewhere.

Commented [SR58]: A new person would take over, some inconveniences may be associated with that but no real extra cost on ST end. = punitive. reduced

Commented [Legal59]: The first change is just a clarification to use the term Article instead of Part. (Article is used otherwise in the Contract.) The second change is explained above under changes to 2.4, as with regards to delay, and is added to make it clear that delay is not a proper cause for not acting since such action may prevent Contractor to continue work on the project in a timely manner.

Commented [SR60]: May need better contractual wording, but I wanted to just make sure we add clarification.

Commented [Legal61]: Term changed to be consistent with the use of Article otherwise in the Contract.

Commented [BA62R61]: Part --> Article edit accepted

Subcontractor, Sound Transit may, in addition to all other remedies available to it, deduct 0.3 percent of the initial Contract Price as damages for such substitution of one or more of the Subcontractors. Contractor acknowledges that in that event such amount is not a penalty and constitutes a reasonable estimate of damages to Sound Transit associated with the replacement of the Subcontractor on which Sound Transit relied for the award of this Contract.

B. Sound Transit will not enforce the provisions in Article 2.04A in the event compliance becomes impossible or commercially impracticable, provided Contractor first submits substitute Subcontractor of equivalent skills, credentials and experience for approval by Sound Transit which shall not be unreasonably withheld or delayed.

C. The Contractor shall be responsible for obtaining from its Subcontractors and submitting to Sound Transit all required certifications, documentation, and submittals, including but not limited to technical submittals, federal certificates, small business compliance forms, or other documentation that is required to be submitted under the terms of this Contract. The Contractor shall be responsible for ensuring that all Contract requirements provided for in the Contract Documents that are specific to subcontracting will be included in Subcontracts, including but not limited to all reporting requirements and mandatory Federal provisions set forth in Section 02, Federal Provisions.

D. The Contractor is responsible for evaluating each of its Subcontractors under this Contract and shall award subcontracts only to responsible Subcontractors. All Subcontractors shall be properly licensed, registered, or certified, as applicable, to perform the assigned Work. If requested by Sound Transit, the Contractor shall provide documentation regarding the Contractor's evaluation of any Subcontractor's responsibility and that the Subcontractor is properly licensed, registered or certified, as applicable. The Contractor shall require all Subcontractors to comply with all provisions of this Contract and shall pass down the requirements of this Contract to its Subcontractors so that all the applicable provisions of this Contract are fully effective.

E. Within thirty (30) days of the signing of each subcontract, the Contractor shall submit to Sound Transit a ~~Business~~ Subcontractor Participation Plan. The ~~Business~~ Subcontractor Participation Plan shall identify the Subcontractor, provide the data on which the responsibility determination was based, and provide the socio-economic profile data of the Subcontractor. The Contractor shall include a copy of the subcontract (or at least that portion of the subcontract that demonstrates that all required federal clauses were included in the subcontract) with the Subcontractor Participation Plan. The copy of the subcontract that is submitted to Sound Transit shall have been signed by both the Contractor and the Subcontractor. Proprietary provisions may be redacted but will be made available for review if a non-disclosure agreement is executed. A sample Subcontractor Participation Plan form will be provided by Sound Transit.

F. Contractor shall submit a Monthly Report on Subcontractors, on a form provided by Sound Transit, as part of its monthly partial payment request. Submission of a completed Monthly Report of Subcontractors shall be a condition precedent to Sound Transit processing partial payment requests.

G. If the Contractor believes that a Small Business / Disadvantage Business Enterprise (SB/DBE) Subcontractor that was listed at any tier to fulfill the Contractor's SB/DBE commitment may not

Commented [Legal63]: Language was changed to reflect the use of the term Article as used otherwise within the Contract. The second change as to "delayed" is explained above (2.4.A & D.) and is added to make it clear that delay is not a proper cause for not acting since it may prevent Contractor to continue work on the project during the delay.

Commented [BA64R63]: Part --> Article edit accepted
Edit accepted as proposed.

Commented [BA65]: Edit accepted as proposed.

Commented [Legal66]: The change reflects the need for Sound Transit to define the term. The term is capitalized but not defined in section "Definitions", nor is it defined within the article(s) in which the term is used.

Commented [Legal67]: The change adds language to protect any proprietary information in the Subcontract.

Commented [BA68R67]: What if we need to review? See counter-language.

Commented [CL69R67]: Agreed

be able to successfully complete any portion of the subcontracted Work, the Contractor shall immediately identify to the Regional Program Manager the Subcontractor at issue, the reason for believing such subcontractor may not be able to perform the subcontracted Work, and any actions being taken by the Contractor to mitigate such possibility.

H. No Work shall be subcontracted to new Subcontractors without written notification to Sound Transit, on a form provided by Sound Transit. No substitutions shall be made for any Small Business/Disadvantaged Business Enterprise Subcontractor that was listed to fulfill the Contractor's SB/DBE commitment without written notification to, and approval by, Sound Transit; such approval to be neither unreasonably withheld or delayed. The Contractor's Request for Substitution of Subcontractors shall be made on a form provided by Sound Transit.

I. Subcontracting shall create no contract between Sound Transit and the Subcontractor, nor shall the Subcontractor have any rights against Sound Transit by reason of its Subcontract with the Contractor. The Contractor shall be responsible for all Work furnished, and no Subcontract shall relieve the Contractor of any of the Contractor's obligations or liabilities under the Contract.

J. The Contractor shall be fully responsible and liable for the acts or omissions of all Subcontractors and Suppliers including persons directly or indirectly employed by them, their guests, and invitees. The Contractor shall have sole responsibility for managing and coordinating the operations of its Subcontractors and Suppliers, including the settlement of disputes with or between them.

K. If a Subcontractor's work fails to meet Contract requirements or demonstrates careless or unacceptable workmanship and the Subcontractor fails to respond to notice of such defective work or to improve workmanship, the Regional Program Manager may direct the Contractor to replace the Subcontractor, in which event the Subcontractor shall not again be employed on the Work under the Contract.

L. The on-site production of materials produced by other than the Contractor's forces shall be considered as subcontracted. The erection, establishment, or reopening of on-site facilities for production of materials and the operation thereof in the production of said materials for use on the Work shall conform to the requirements relating to labor and insurance set forth in the Contract Documents.

M. The performance of the Work may require Sound Transit or other ORCA partner agencies to work and/or communicate directly with Subcontractors from time to time. As such, Sound Transit or other ORCA partner agencies shall not direct Subcontractors to do work without advance written permission from the Contractor.

Commented [Legal70]: Language added to make sure that work continues as soon as possible.

Commented [BA71R70]: Edit accepted as proposed.

Commented [Legal72]: The term is added to clarify that such notice needs to be provided before such communication is attempted.

Commented [BA73R72]: Proposed edit rejected. Provide further reasoning for the need for advance written permission.

Commented [CL74R72]: The subcontractor is Contractor's responsibility, therefore Contractor must have advance notice of a new instruction that is required to be communicated BY CONTRACTOR to subcontractor.

Commented [BA75R72]: Edit accepted.

2.06 CONTRACTOR'S FACILITIES AND EQUIPMENT

The Contractor shall furnish facilities and equipment that shall be of adequate number, size, and condition to produce satisfactory quality of Work, including without limitation all applicable federal requirements. All facilities and equipment used by the Contractor shall meet all applicable safety, noise, and emission regulations and permit requirements as well as other requirements of the Work. Facilities and equipment that fails to meet the requirements of the Contract or to produce a satisfactory product or result shall, upon written order by Sound Transit, be removed immediately and not used again on the Project without

Sound Transit's prior written approval. All additional costs, delay or impact resulting from Contractor's use of facilities or equipment failing to meet Contract requirements shall be at Contractor's expense.

2.07 ACCEPTANCE OF EXISTING CONDITIONS

If any part of the Contractor's Work depends on proper execution of the work of other forces or existing conditions, the Contractor shall report to the Regional Program Manager, before using the work, all defects found in such work that render it unsuitable for the Contractor's Work. Such report shall be in writing and shall be submitted within thirty (30) days of being granted access to the work. Failure of the Contractor to report such defects shall constitute an acceptance of the other forces' work or existing conditions as fit and proper for the execution of the Contractor's Work and shall preclude any claim for additional compensation or schedule extension for uncovering the Work or correcting defects, except for defects in the other force's work which are latent and not reasonably discernible. Any request for additional compensation based on defective work of others or existing conditions shall be governed by the procedures of Article 4, Changes and Change Order Process.

ARTICLE 3 CONTROL OF THE WORK

3.01 NOTICES AND COMMUNICATIONS

A. Sound Transit

All notices, communications, product data, submittals, and other documentation (hereinafter "Communications") submitted by the Contractor to Sound Transit during the course of Contract performance shall be in writing and in English. The Contractor shall deliver Communications to the Regional Program Manager either in person or at his/her designated office via courier, U.S. Postal Service, or overnight delivery service. Communications by facsimile and e-mail shall be confirmed with original documents properly numbered and delivered.

B. Contractor

Communications from Sound Transit shall be delivered through the Regional Program Manager and shall be deemed to be well and sufficiently given to the Contractor if delivered to its project office, if mailed or delivered to the Contractor's post office box or address as stated in the Contract, or if faxed to the Contractor at a designated fax number or emailed, followed up by hard copy.

C. Communications shall be numbered and marked in accordance with specifications related to Document Control in the Contract Documents.

3.02 COORDINATION WITH OTHERS

A. Sound Transit reserves the right to perform work not included in the Contract or let other contracts to third parties to perform other work in the vicinity of, or relating to, this Contract. Other government agencies may also be performing other work in the vicinity of or relating to this Contract such as inspections, maintenance / relocation / equipment installation / and other activities. Private developers or businesses may be engaged in activities in the vicinity of, or relating to, this Contract. The Contractor shall cooperate with Sound Transit, other agencies, and other contractors or developers in scheduling and coordinating the Contractor's Work with the

work of others in order to minimize conflicts, avoid interruptions or delays to others and promote the orderly completion of the Work as a whole. The Contractor shall not commit or permit any act that will interfere with the performance of work by any government agency, contractor, developer, or Sound Transit. In the event Contractor incurs additional costs or extended delays as a result of such compliance Contractor shall be entitled to make claim for additional time and/or compensation.

B. Unless specifically identified otherwise, the Contractor may not have exclusive access to or use of work areas. Unless the Contractor has exclusive access to a work area, the Contractor may be required to use facilities and areas concurrently with others. When other forces are employed on related or adjacent work, the Contractor shall conduct its operations in such manner as to cause the least possible delay and hindrance to the other forces. The Contractor shall be responsible to Sound Transit for all damage to the Work, persons, and property caused to other forces by Contractor's operations and for loss to other forces caused by the Contractor's unnecessary delays and for failure to finish the Work within the time specified for completion.

C. If the Contractor is unreasonably delayed by others, immediate notification shall be made in writing to the Regional Program Manager. Any request for a time extension or additional compensation allegedly resulting from such delay shall be made in accordance with the procedures of Article 4, Changes and Change Order Process and Article 10.02 B, Delays. The Contractor shall mitigate and minimize any such delay by other forces.

3.03 CONTRACT RECORDS

A. The Contractor shall keep and maintain comprehensive records and documentation relating to the Work under this Contract, as well as documents related to the Contractor's proposal for this Contract. The Project Records shall include, but are not limited to, submitted Proposal, Contract Documents, subcontracts (if any), purchase order(s), employment records, payrolls, project cost accounting records, prevailing wage records, plans, specifications, addenda, shop drawings, Change Orders, and all working documents leading to Change Orders, field test records, quality control documents, daily logs by all field supervisors and project management personnel, correspondence relating to the Contract, and drawings labeled as as-built. Project records shall be maintained and retained by the Contractor for the audit period required under Article 3.04 below.

B. EEO/Non-Discrimination Documentation. The purpose of this sub-section is to ensure that the Contractor and all of its subcontractors at every tier maintain sufficient written documentation so that Sound Transit can easily and quickly verify that all hiring and termination decisions related to workers fully complies with applicable Title VI, equal employment opportunity and non-discrimination laws, regulations, and policies. When any employee or prospective employee of the Contractor or in the event Contractor becomes aware a subcontractor at any tier (including, but not limited to, an apprentice or journey-level worker sent by the appropriate union hall) is terminated, turned away without the opportunity to work, or otherwise denied the opportunity to work on the Site for any reason other than completion of all work to be performed by individuals with the skills of the particular worker, the Contractor shall retain, and make available to Sound Transit within 5 business days of a request to review, the following documentation:

Commented [Legal76]: Sentence added, since it is reasonable that Contractor should be entitled to make a claim for additional time and/or compensation for these types of incidents not caused by the Contractor but by the actions of Sound Transit and/or its agents and/or other partners of Sound Transit.

Commented [BA77R76]: Proposed edit rejected. Cooperation with ST, other agencies, and third parties is part of the intent of this contract and all of the above should be considered during project scheduling.

Commented [CL78R76]: Agree with your reasoning, however, require the language in the event cooperation is not exhibited by other parties.

Commented [BA79R76]: The claims process doesn't prohibit a claim for delays caused by compliance of this provision. If we include this here, why shouldn't it be included in every other provision of the contract?

Commented [CL80R76]: Agreed.

Commented [Legal81]: This addition is added in the event a Subcontractor fails to keep such records.

Commented [BA82R81]: Proposed edit rejected. It is the Contractor's duty to manage its subcontractors.

1. Written documentation explaining why the specific individual was terminated, turned away, or otherwise denied the opportunity to work on the Site; and

2. Written objective, non-discriminatory criteria used to determine whether such individual was sufficiently qualified to perform the work and how such criteria relates to the particular work.

If, without excusable event, Contractor fails to provide complete and detailed documentation to Sound Transit within 5 business days of receipt of Sound Transit's written request, liquidated damages not exceeding ~~in~~ the amount of $10,000 in total will be assessed ~~per business day that such documentation has not been provided to Sound Transit~~. Contractor acknowledges that liquidated damages will not be considered a penalty and constitutes a reasonable estimate of damages to Sound Transit associated with the Contractor's failure to timely submit the required documentation and Sound Transit's inability to publicly demonstrate that the Contractor is fully complying with Title VI, EEO and non-discrimination requirements in the Contract.

C. Cost records shall be kept in accordance with generally accepted accounting principles and the Contract Documents and shall include all records reasonably necessary, as reasonably determined by Sound Transit and provided in writing, in advance to Contractor, to verify all costs incurred and any schedule revision required.

D. The Contractor shall ensure each of its Subcontractors maintains and retains for said audit period all Project Records pertaining to the performance of the Subcontractor's Work under this Contract in full compliance with Article 3.03A and B. In the event this Contract is funded in part with federal funds, and the federal grant requires different reporting or retention periods, the more stringent requirement will apply.

3.04 AUDIT ACCESS TO RECORDS

The Contractor shall permit, and shall require Subcontracts to permit, authorized representatives of Sound Transit, the U.S. Department of Transportation, and the Comptroller General of the United States to audit, inspect, examine, and copy the Project Records that are maintained by Contractor, any affiliated company or any Subcontractor involved in the Contract at any reasonable time and shall provide such assistance as may be reasonably required in the course of such inspection, including the right to interview personnel. Sound Transit further reserves the right to examine and re-examine the Contract Records during the six (6) year period following the Final Payment and until all pending matters are closed. Such audit(s) may include examination of the Contract Records for evaluation of any Change Order or Claim, or any issue related to performance of the Work. The Contractor shall in no event dispose of, destroy, alter, or mutilate said Contract Records in any manner whatsoever for six (6) years after Final Payment and until all pending matters are closed. No additional compensation will be provided to the Contractor for compliance with the requirements of this Article.

3.05 SUBMITTALS AND SHOP DRAWINGS

A. Where required by the Contract Documents, the Contractor shall submit specified information that will demonstrate that the Contractor's proposed materials, equipment, or methods of Work are in compliance with the Contract Documents. Sound Transit will not be obligated to accept or pay for materials, equipment or Work for which submittals are required herein, unless and until

Commented [Legal83]: The additions and/or changes are made to provide the Contractor with some protection if it relates to an excusable event, and that the clock does not run until the written request from Sound Transit is received by Contractor. This refers to the duties imposed on the Contractor under this paragraph. The amount of damages for a breach of this clause should not exceed $10,000 in total since this sum bears a more reasonable relationship with the alleged harm.

Commented [BA84R83]: Proposed edit rejected. This is standard Sound Transit EEO policy.

Commented [CL85R83]: Not acceptable. We need a face to face not a computer comment.

Commented [Legal86]: The words added are to ensure that Contractor has adequate notice.

Commented [BA87R86]: Proposed edits rejected. This contract shall serve as notice that all cost records shall be kept as provided herein.

Commented [CL88R86]: Agreed

all submittals have been submitted and reviewed in accordance with the Contract Documents.

B. Review and other appropriate action with regard to Submittals by Sound Transit shall be for general conformance with the Contract requirements and shall not relieve the Contractor of responsibility for any errors or omissions in such Submittals, nor from compliance with the requirements of the Contract Documents; and further, the Contractor shall have no claim under the Contract on account of the failure, or partial failure, of the method of work, material, or equipment so reviewed. Review by Sound Transit shall not constitute approval of the safety precautions employed by the Contractor or constitute approval of the Contractor's means or methods of the Work. The Contractor shall not deviate from shop drawings, product data, samples, or similar submittals that have been reviewed with a finding of "No Exception Taken" without submitting the proposed deviation for Sound Transit's review and appropriate action.

C. Sound Transit reserves the right to charge the Contractor for all, or some portion of, the costs of excessive or unreasonable costs of reviewing submittals repeatedly rejected for being incomplete or inadequate.

D. Submittals offered to demonstrate methods, procedures, sequences, or duration for performing the Work or to detail temporary elements such as shoring or formwork, shall be reviewed by Sound Transit for general compliance with applicable requirements of the Contract. Such review will not include a detailed analysis of the design or an evaluation of the adequacy of the method, procedure, resource commitments, or time allocated for performance.

E. Contractor shall make Submittals to Sound Transit only after (1) reviewing all Contractor and Subcontractor Submittals for accuracy and compliance with the Contract and (2) coordinating all Submittals with all Work by other trades.

3.06 CUTTING AND PATCHING

The Contractor shall be responsible for all cutting, fitting, and patching required to complete the Work or to make its parts fit together properly. The appearance following any cutting, fitting, or patching shall conform to the appearance of adjacent like materials or surfaces and be consistent with the overall appearance of the Project. The Contractor shall be responsible for any damages caused by its cutting, fitting, and patching, whether of its own Work or of other work affected by the cutting, fitting or patching. The Contractor may not alter any work other than its own except by permission by Sound Transit. Such permission by Sound Transit shall not relieve the Contractor from responsibility for the Work affected by the cutting, fitting, or patching.

3.07 INSPECTION, SAMPLING, AND TESTING

A. Contractor Testing

1. It is the Contractor's responsibility to provide materials, supplies, equipment and workmanship that conforms to the Contract Documents. Unless specifically provided otherwise in the Contract Documents, the Contractor shall be responsible for demonstrating and documenting that the materials or equipment to be incorporated into the Work comply with the Contract Documents. Materials testing shall be performed by an ~~Independent Testing Laboratory~~the Contractor in accordance with the

Commented [Legal89]: The term is capitalized but not properly defined in the paragraph used, nor it is defined in "Definitions" under Article 1, and as such needs to be defined by Sound Transit.

Commented [BA90R89]: Revised the language to match align with the Contract Documents.

Contract Documents. The Contractor shall bear all costs of said tests.

2. In the event that a third-party public agency has authority over materials or equipment, approval must be obtained from said third-party public agency prior to Sound Transit's approval. Approval by a third-party public agency does not constitute approval by Sound Transit. The Contractor shall provide Sound Transit, and any applicable third- party public agency, with a schedule by which any testing will be conducted as well as timely notice of the time and place of any such tests. The Contractor shall maintain complete test records and submit them to Sound Transit upon request or as required elsewhere by the Contract Documents.

3. Any mechanical, electrical and instrumentation systems which function as a completed system must be tested or inspected as a complete system in addition to any tests or inspections conducted for the component parts.

4. If conformance of materials or equipment to the requirements in the Contract is not determinable through inspection and tests, the Contractor shall provide properly authenticated documents, certificates, or other satisfactory proof of conformance. Such documents, certifications, and evidence shall include performance characteristics, materials, and the physical and chemical characteristics of materials. All costs associated with such certification shall be paid by the Contractor.

B. Sound Transit Inspection and Testing

1. Sound Transit reserves the right to sample, inspect, or test the materials, equipment, and Work, as it deems necessary at any reasonable time during the Work. Said testing and inspection may occur on or off the site. Sound Transit shall conduct such tests or inspections in a manner that will cause no undue delay in the Work. The Contractor shall provide Sound Transit with sufficient notice, access, and assistance to allow Sound Transit's representative to inspect, sample, and test materials and equipment prior to their incorporation into the Work or to inspect, sample, or test Work prior to covering the Work. Re-inspection or re-testing required because of non-conformance to specified requirements will be charged to the Contractor.

2. Sound Transit, at any time prior to Final Acceptance, may require the Contractor to uncover either portions of or all of the Work for inspection, sampling, and testing. The Contractor shall restore these portions of Work to the standard required by the Contract. The uncovering and restoration shall be done at the Contractor's expense, if the Work uncovered does not comply with the Contract, if it complies but was done without required documentation, or if Sound Transit was given insufficient notice to allow adequate time for inspection, sampling, or testing. If the Work uncovered meets the Contract requirements and was done with sufficient notice to Sound Transit, the costs of uncovering and restoration shall be paid by Sound Transit in accordance with Article 4, Changes and Change Order Process.

3. The Regional Program Manager may inspect the production of material or the manufacture of products at the source of supply. Facilities inspection, however, will be

undertaken with the cooperation and assistance of both the Contractor and the material producer. The Regional Program Manager or the Regional Program Manager's authorized representative shall have reasonable entry at all times to such parts of the facilities as concern the manufacture or production of the materials. Adequate facilities shall be furnished free of charge to make the necessary inspection. The Regional Program Manager assumes no obligation to inspect materials at the source of supply. The responsibility for incorporating satisfactory materials in the Work rests entirely with the Contractor, notwithstanding any prior inspections or tests.

4. The Regional Program Manager's inspection is conducted to verify that the Contractor has performed its work properly. Any observation, verification, inspection, or approval of the Work or materials by Sound Transit shall not relieve the Contractor of any of the Contractor's obligations to fulfill the Contract as prescribed. Work and materials not meeting Contract requirements shall be made acceptable to Sound Transit. Unsuitable work or materials may be rejected, notwithstanding that payment for such Work or materials may have been previously authorized and included in a Partial Payment.

5. Unless the subject items are expressly accepted by Sound Transit in writing, any inspection and testing done by Sound Transit is for the sole benefit of Sound Transit only and does not constitute or imply acceptance; relieve the Contractor of responsibility for providing adequate quality control measures; relieve the Contractor of responsibility for risk of loss or damage to the Work, materials, or equipment; relieve the Contractor of its responsibility to comply with the requirements of the Contract Documents; or impair Sound Transit's authority to reject defective or non-conforming Work or invoke any remedy to which it may be entitled.

3.08 NON-CONFORMING WORK AND DEFECTIVE WORK

A. Defective Work - If Sound Transit determines that material, equipment, or workmanship proposed for or incorporated in the Work does not fully comply with the requirements of the Contract and will not be accepted by Sound Transit (Defective Work), Sound Transit may reject such Work upon written notice to the Contractor. In such event, Sound Transit may, at its discretion, (1) require the Contractor to promptly repair, replace or correct all Work not performed in accordance with the Contract; (2) require the Contractor to provide a suitable corrective action plan, which shall only be performed if approved by Sound Transit; or (3) provide a suitable corrective action plan and direct the Contractor to execute it, and in such case Contractor shall have the option of (i) implementing the Sound Transit plan or (ii) promptly repairing, replacing or correcting all Work not performed in accordance with the Contract. Regardless of the option chosen by Sound Transit, the Contractor shall implement such plan with no delay to the Project Schedule, at no additional cost to Sound Transit, and within a period provided by Sound Transit. If the corrective action plan as accepted or directed by Sound Transit does not remedy the Defective Work, the Contractor shall remain responsible for remedying the Defective Work to Sound Transit's satisfaction and at no additional cost or schedule delay to Sound Transit. The Contractor shall also be responsible for repairing all property and work damaged by the Contractor at no cost or schedule delay to Sound Transit.

B. Non-Conforming Work - Sound Transit may at its option retain Work that does not fully comply with the requirements of the Contract. Sound Transit shall provide Contractor promptly with detailed written notice of the manner in which it considers the Work not fully in compliance with the requirements of the Contract. Failure to do so shall be considered full compliance by Contractor of its obligation to provide Work fully in compliance with Contract specifications. A reasonable value for such Non-Conforming Work will be determined by Sound Transit, and appropriate deductions will be made in the payments due or to become due to the Contractor. Final ~~acceptance~~ Acceptance will not act as a waiver of Sound Transit's right to recover from the Contractor an amount representing the deduction for retention of Non-Conforming Work.

C. Sound Transit's inspection of the Work or right to reject Work that does not fully comply with the Contract shall not relieve the Contractor of its responsibility for performing the Work in full conformance with the Contract Documents. Other than as set forth herein, ~~N~~no failure or forbearance of Sound Transit in notifying the Contractor of Work that does not fully comply with the Contract shall relieve the Contractor of its Contract responsibility to ensure that the Work is performed in accordance with the Contract Documents.

3.09 ACCEPTANCE OF WORK

A. Inspection - When the Contractor has concluded the Work or a designated portion thereof, the Contractor shall notify Sound Transit in writing that the work is complete and ready for inspection. Upon receipt of the notification, Sound Transit will promptly by inspection determine the actual status of the Work in accordance with the terms of the Contract. If Sound Transit finds materials, equipment, or workmanship not in conformance with the Contract, Sound Transit will prepare a punch list of such corrective items and submit the list to the Contractor. At any time prior to Acceptance, Sound Transit may add punch list items. The Contractor shall complete all punch list items and notify Sound Transit that the Work is ready for Acceptance. Upon such notice, Sound Transit will verify that the Work has been completed. If such Work has not been completed and additional inspections become necessary because of the acts or omissions of the Contractor, the Contractor shall reimburse Sound Transit for its costs related to such inspections. Following completion of the corrective Work and inspection by Sound Transit, Sound Transit shall issue a Notice of Acceptance of the Work or a designated portion thereof.

B. Substantial Completion - At the Contractor's request or as determined by Sound Transit, Sound Transit will conduct an inspection and review of required documents to determine Substantial Completion of all or a designated portion of the Work. If upon inspection and document review, Sound Transit determines that the Contractor has in fact achieved Substantial Completion, Sound Transit will issue to the Contractor a Notice of Substantial Completion. The Notice of Substantial Completion will provide the Contractor with a punch list of corrective actions or other work to be completed for Acceptance. The Contractor shall complete all punch list work within thirty (30) days after receiving the Substantial Completion Notice. Failure to do so may result in a determination by Sound Transit to have the work done by others. The Contractor will be responsible for all costs associated with completing the punch list work. Further, Sound Transit reserves the right to commence use of any portion of Work that has been substantially completed. In such event, Sound Transit will assume care, custody and control of said portion of the Work, including responsibility for operation and maintenance costs associated with use of said Work. In

Commented [BA91]: Insertion of this sentence accepted.

Commented [BA92]: Insertion of this sentence rejected. This is covered by the Acceptance process below.

Commented [CL93R92]: Not covered by 3.09. Rationale expressed June 8 still applicable.

Commented [CL94R92]: ST HAS NOT RESPONDED ON THE SUBSTANCE. REQUIRES VERBAL DISCUSSION.

Commented [Legal95]: The changes made are so the Contractor have full notice of concerns Sound Transit may have as to the work.

Commented [BA96R95]: Proposed edits rejected. The notice of non-compliant Work will be addressed in the acceptance process.

Commented [CL97R95]: Do not accept. Good business practice requires Contractor notification as soon as ST determines a non-compliance. Permits quicker and more cost and time effective action.

Commented [CL98R95]: This requires verbal communication not computer traded comments.

Commented [Legal99]: Language added for clarification, and it refers to the change made under subparagraph B.

Commented [BA100R99]: Proposed edits rejected. The notice of non-compliant Work will be addressed in the acceptance process.

Commented [CL101R99]: See comment above.

Commented [CL102R99]: The timing of issuance of notice of defect has not been resolved by 3.09.

Commented [CL103R99]: NOT RESPONDED TO BY ST. REQUIRES VERBAL DISCUSSION.

no case shall the Notice of Substantial Completion be construed as relieving the Contractor from liquidated damages due to delay for any portion(s) of the Work not specifically referenced therein, or any other requirement under the Contract Documents. Such Notice shall not constitute Acceptance or Final Acceptance.

Prior to Sound Transit granting Substantial Completion for any Contract Milestone, the Contractor is required to have submitted acceptable copies of all as-built drawings, operation and maintenance manuals, test report and warranties, and Contractor must have provided and completed all training of operations and maintenance personnel required by the Contract that are associated with the Milestone for which Substantial Completion is being requested.

C. Acceptance -A written Notice of Acceptance issued by Sound Transit shall constitute Acceptance of a designated portion of the Work. A Notice of Acceptance shall not waive claims by ~~or rights of~~ Sound Transit ~~to revoke acceptance or~~ for any unauthorized, Non-Conforming or Defective Work, nor shall the making of any Partial Payment be deemed a waiver of claims or rights of Sound Transit under this Contract. In addition, after Notice of Acceptance, Sound Transit shall not be barred from requiring the Contractor to remove, replace, repair, or dispose of any unauthorized, Non-Conforming or Defective Work or from recovering damages for any such Work. Contractor shall remain responsible for site security where it has sole access or where it controls right of access through the date of Final Acceptance. Sound Transit's rights hereunder shall exist and remain to the full extent permitted by law and as set forth in this Contract. The Contract Warranty shall commence upon Acceptance.

D. Final Acceptance - A written Notice of Final Acceptance shall constitute Sound Transit's acknowledgement that the Contractor has fulfilled all of its obligations under the Contract and that Sound Transit has accepted the Work as of the date stated in the Notice. The Contractor may request Final Acceptance from Sound Transit upon full and satisfactory completion of all Contract Work and fulfillment of all obligations under this Contract.

3.10 USE OF COMPLETED OR PARTIALLY COMPLETED PORTIONS OF THE WORK

A. Sound Transit shall have the right to take possession of or use completed or partially completed portions of the Work notwithstanding that the time for completing such portions may not have expired. Such use by Sound Transit shall in no case be construed as Substantial Completion, Acceptance or Final Acceptance of the Work, and shall neither relieve the Contractor of any of its responsibilities under the Contract, nor act as a waiver by Sound Transit of any of the conditions thereof. Such use shall not trigger the commencement of Warranty provisions under this Contract or as provided by manufacturers, unless specifically provided otherwise in writing by Sound Transit. Operations and maintenance costs, as well as ~~responsibility for all Work~~repair costs for any damages caused solely by ST, incurred as a result of Sound Transit's use of such portions will be borne by Sound Transit.

B. If such use increases the cost or delays the completion of remaining portions of the Work for which Contractor seeks payment and/or additional time, the Contractor must notify Sound Transit of its Request for Change in writing as required by the Contract and may be entitled to such additional compensation or extension of time, or both, as determined in accordance with Article 4, Changes

Commented [CAC104]: This will need to be reviewed and revised based on proposed changes to LDs in Section 4

Commented [BA105]: Deletion still rejected. Revocation of Acceptance could be put through the claims process if the Contractor takes issue with it.

Commented [Legal106]: The change is made since the Contractor should not be responsible where other parties have access to such area. Multiple access gives Contractor no control but could result in penalty as the paragraph was initially written.

Commented [BA107R106]: Proposed edit rejected. These rights need to be retained by the ORCA Agencies.

Commented [CL108R106]: Not accepted. If Init controls right of access then Init can deal with the responsibility. Without control over access the responsibility is unreasonable.

Commented [BA109R106]: See further edits to the access portion. Attempting to cover both scenarios where INIT would have sole access but not control of access (such as a ST Sounder Station during installation), as well as a test facility where INIT would control the rights to access.

Commented [CL110R106]: Not certain what is meant by "further edits". None of the edits originate with ST.

Commented [CL111R106]: NOT RESPONDED TO BY ST. Requires verbal discussion.

Commented [Legal112]: Language added to clarify that any such use will be on the responsibility of Sound Transit.

Commented [BA113R112]: Need further explanation.

Commented [CL114R112]: If in ST use and damaged then ST bears cost and time

Commented [BA115R112]: See further edit.

Commented [CL116R112]: Agreed

and Change Order Process. Any disputes regarding such entitlement shall be resolved in accordance with the provisions of Article 10, Delays and Claims. The Contractor shall not be entitled to extra compensation for Sound Transit's possession of portions of Work that are specifically required in the Contract to be placed into use and operation or that are required to be turned over to Sound Transit upon a given Contract Milestone date before completion of the entirety of the Work.

C. In the course of such use, if the Work proves to not be in compliance with the Contract, Sound Transit shall have the right to continue such use until such portion of the Work can be taken out of service so that the Contractor can, at no additional cost to Sound Transit, correct defects, errors, omissions, or replace unsatisfactory materials, as necessary for such portions of the Work to comply with the Contract. Upon notice and opportunity to cure by the Contractor, Sound Transit, at its option, may perform or have another entity perform the corrective work. The Contractor shall remain responsible for the cost of the corrective work. In the event that the Work is determined to be in compliance with the Contract at the time Sound Transit takes possession Sound Transit shall be fully responsible for all costs of whatever nature required to return the Work to its original state.

Commented [Legal117]: The language is added to protect Contractor in case the work was originally in compliance with Contract.

Commented [BA118R117]: Edit accepted as proposed.

3.11 LOSS OR DAMAGE TO WORK AND MATERIAL

Other than as provided above, ~~U~~until Sound Transit's Acceptance of any completed or partially completed Work, the Contractor shall have the responsibility for care, custody and control of the Work and of the materials to be used therein, including materials for which the Contractor has received partial payment, materials in transit, and materials which have been furnished by Sound Transit, and shall, unless ~~excused elsewhere~~otherwise provided herein, bear the risk of injury, loss or damage to any part thereof by the action of the elements or from any other cause. The Contractor shall replace, rebuild, repair or restore all damage to any portion of the Work and materials occasioned by any ~~unexcused~~ cause, unless otherwise provided herein, before its completion and Acceptance, at no additional cost to Sound Transit. Contractor shall, at the Contractor's expense, provide suitable drainage and erect such temporary structures as are necessary to protect the Work and materials as herein specified. A suspension of Work shall not relieve the Contractor of responsibility for the Work and materials as herein specified. The Contractor shall properly store materials for which partial payments have been made by Sound Transit or which have been furnished by Sound Transit. Such storage by the Contractor shall be on behalf of Sound Transit and Sound Transit shall at all times be entitled to possession of such materials, and the Contractor shall promptly return the same to the site of the Work when requested. The Contractor shall not dispose of any of the materials so stored except on written authorization from the Regional Program Manager.

Commented [Legal119]: Added language to clarify paragraph. The change is provided to make it clear that only work that is unexcused needs to be repaired etc. This clarification is fair in that it provides liability on the Contractor for such work, and it is consistent with the other changes in the paragraph.

Commented [BA120R119]: Proposed edits rejected. Where are excused causes defined?

Commented [CL121R119]: Excused events are throughout the contract e.g. force majeure. If the term is used and agreed it needs no additional definition.

Commented [BA122R119]: See alternative language. Generally uncomfortable with the use of the terms “excused” and “unexcused” unless they are explicitly defined.

Commented [CL123R119]: Agreed

3.12 WARRANTY OF WORK

A. The Contractor warrants that the Work and any portion thereof: (a) shall meet the requirements of the Contract, (b) shall be free of defects in material and workmanship, and (c) shall be free of defects in design(s) where such design(s) is performed or provided by the Contractor, Subcontractors or Suppliers. This Warranty shall apply to Defective Work and Non- Conforming Work that is discovered within twelve (12) months after the date of Acceptance. If corrective work is performed by the Contractor under this Warranty, the Warranty shall also apply to discrepancies and defects in the corrective work that are discovered within twelve (12) months after the

corrected work is again placed in operation. These warranty terms shall be extended for any period that a portion of the Work cannot be used for the purpose intended as a result of discrepancies or defects. This Warranty shall apply whether or not designs, data or information have been reviewed or approved by Sound Transit or the Regional Program Manager, but shall not apply to defects caused by vandalism, misuse and/or improper operation or maintenance of the Work by Sound Transit.

B. Sound Transit will notify the Contractor in writing or facsimile confirmed in writing, on discovery of Defective Work or Non-Conforming Work covered by this Warranty in accordance with the provisions of Article 3.08, Non-Conforming Work and Defective Work. The Contractor shall commence to remedy the Defective Work or Non-Conforming work in accordance with the provisions of Article 3.08, Non-Conforming Work and Defective Work.

1. The Warranty provided under this Article shall be in addition to those specific warranty requirements for particular equipment or work items indicated in the Contract Documents, and in addition to other rights or remedies available to Sound Transit under this Contract ~~or at law~~. Warranties shall be secured by the Performance Bond, or in Sound Transit's sole discretion, other financial security acceptable to Sound Transit, such as a warranty bond or letter of credit. In circumstances in which Sound Transit determines that it would be inefficient or impracticable for the Contractor to perform the corrective work, Sound Transit reserves the right to select another firm to perform the corrective work or to perform the corrective work itself upon notice to the Contractor. Such corrective work by another firm, or by Sound Transit, shall be at Contractor's expense, provided that Contractor is kept fully informed as to the details and costs of any such corrective work. If the Contractor performs work at the job site under these guaranty provisions, the Contractor shall furnish insurance coverage therefore as specified in Section 03 Insurance Requirements. Prior to beginning such work the Contractor shall furnish certification of insurance satisfactory to Sound Transit.

2. Unless otherwise required by Sound Transit, the Contractor shall commence to perform the corrective work required to satisfy this warranty within fifteen (15) days from the date of written notification. The Contractor shall at its sole expense perform the corrective work on an overtime and/or shift work basis, and shall procure required materials using the fastest means available when necessary to minimize the impact to other Sound Transit contractors or Sound Transit's loss of operating time. The Contractor shall diligently prosecute the corrective work and shall complete such corrective work within the time frame stipulated by Sound Transit.

3. If the Contractor fails to make or undertake the corrections or removal/replacement with due diligence within the time periods specified above, Sound Transit is hereby authorized to make such corrections. In case of an emergency, whereby delay could cause serious loss or damage in the opinion of Sound Transit, corrections or replacement may be made prior to or concurrent with notice being sent to the Contractor. All expenses in connection with such corrections or replacement by Sound Transit, including the cost for professional services, will be charged to the Contractor.

C. Nothing in this warranty is intended to limit any manufacturer's warranty, which provides Sound

Commented [Legal124]: The additional term is added and is a reasonable event to be exempt for this type of warranty.

Commented [BA125R124]: Edit accepted as proposed.

Commented [Legal126]: Change made since the parties have agreed on the type of Warranty for the Work.

Commented [BA127R126]: Proposed edit rejected. We will not waive our rights under other laws. UCC provides other protections.

Commented [CL128R126]: Assume greyed out means our deletion has now been accepted.

Commented [CL129R126]: NO ST RESPONSE. REQUIRES VERBAL DISCUSSION

Transit with greater warranty rights than set forth in the Contract Documents.

3.13 WARRANTY OF TITLE

A. The Contractor shall have no property right in the materials and equipment used after they have been attached or affixed to the Work or existing real property, or after ~~any~~ full payment has been made by Sound Transit towards the value of materials delivered to the site of the Work, or stored subject to or under the control of Sound Transit. Title to all such materials shall become the property of Sound Transit upon being so attached or affixed or after ~~any~~ full payment towards the value of materials stored off site or delivered to the site of the Work or stored subject to or under the control of Sound Transit, whichever occurs earlier.

B. No material, supplies, equipment, or items for the Work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein, or in any part thereof is retained by the seller or Supplier. The Contractor shall warrant good title to all materials, supplies, equipment, and items installed or incorporated in the Work. Upon completion of all the Work, the Contractor shall deliver the same together with all improvements and appurtenances constructed or placed thereon by the Contractor to Sound Transit free from any claims, liens, or charges. ~~Neither~~ Other than the Contractor no~~r any~~ person, firm, or corporation furnishing any material or labor for any Work covered by this Contract shall have any right to lien upon any improvement or appurtenance thereon. This Article shall not defeat or impair the right of the persons furnishing materials or labor to recover under any payment bond given by the Contractor for their protection, or any rights under state law permitting such persons to look to retained funds due the Contractor in the hands of Sound Transit.

C. The provisions of this Article shall be inserted or referenced in or otherwise made a part of all subcontracts and material contracts, and notice of its provisions shall be given to all persons furnishing materials for the Work whenever no formal contract is entered into for such materials. Additionally, as a part of the subcontract, material contract, or notice, the Contractor shall provide to such Subcontractors and Suppliers the name, address, and phone number of the Contractor's bonding company and the bond number applicable to the Contract under which the Subcontractor or Supplier would make its claim.

3.14 MANUFACTURER'S WARRANTIES

The Contractor shall furnish to Sound Transit any manufacturer's or Supplier's guarantee or warranty furnished in connection with the purchase by the Contractor or any Subcontractor of any equipment, materials, or items required, provided such guarantee or warranty shall be in addition to those specific guarantee or warranty requirements for particular equipment or Work items indicated in the Specifications and shall not relieve the Contractor of its obligations under Article 3.12, Warranty of Work.

ARTICLE 4 CHANGES AND CHANGE ORDER PROCESS

4.01 CHANGES

A. Sound Transit reserves the right to make by written order, designated ~~or indicated~~ to be a Change Order, alterations to, deviations from, additions to, or deletions from the Contract Documents.

Commented [Legal130]: The added language makes it clear that title does not vest until payment is done in full.

Commented [BA131R130]: Proposed edits rejected.

Commented [Legal132]: The changes made are to clarify the paragraph.

Commented [BA133R132]: Proposed edit rejected.

Commented [CL134R132]: Contractor has a statutory lien for unpaid work by ST. This will not be waived.

Commented [BA135R132]: Liens cannot be placed on public property.

Commented [CL136R132]: If this is the position then passage of title provisions need to b e revised such that title does not pass until payment is fully made.

Commented [CL137R132]: NO ST RESPONSE. REMAINS OPEN FOR VERBAL DISCUSSION.

Commented [Legal138]: Term deleted. Redundant.

Commented [BA139R138]: Proposed edit rejected.

Such changes may be made without notice to any surety(ies) or guarantors. Within the ~~Performance~~ performance and ~~Payment~~ payment ~~Bonds~~ bonds, if applicable, and any financial guarantees, the surety(ies) and guarantors must waive notice of any Change Orders and agree to be bound in all ways to Sound Transit for any such Change Orders as if it (they) had received notice of the same. Change Orders are required to make any changes to the Contract Price, Contract Documents, or Contract Time. All additions, deductions, or changes to the Work as directed by Change Orders shall be executed under the conditions of the Contract.

B. Pending resolution of any issue or dispute related to a Change Order, RFC, CN-RFP and/or CN- WD, Contractor shall continue to perform all Work, including the Contract Work associated with the pending change unless Sound Transit explicitly waives this requirement in writing. Contractor shall also be governed by all applicable provisions of the Contract related to compensation and/or additional time for changed work, inclusive of Article 10.

C. Adjustments in the Contract Price - One of the following methods shall be used to determine the cost and/or value of any work covered by a Change Order, RFC, CN-RFP, CN-WD or Claim. Sound Transit and the Contractor shall negotiate in good faith to determine an equitable adjustment of the Contract Price. The available methods are:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities involved in the changed Work; Where Provisional Sums are provided for work items, the provisional sums shall be applied to changes for those work items;

2. By establishment of new unit prices and related quantities for the changed work;

3. By reference to catalog prices or other published prices offered to the public in the open marketplace;

4. By mutual acceptance of a firm fixed price (also referred to as lump sum);

5. On a time and materials basis in accordance with Article 9.09, Payment on Time and Material Basis.

In the event of disagreement, Sound Transit shall determine the method for calculating the adjustment to increase or decrease the Contract Price.

D. All Change Orders (CO) and Change Notices (CN) shall be issued through Sound Transit. No other order, statement, act of omission or conduct of any representative of Sound Transit or third party will be treated as a change hereunder. Nothing in this Article shall be construed to bind Sound Transit for acts of its employees or agents exceeding their authority.

E. Nothing in this Article shall be deemed to require a change in Contract Price or Contract Time when additional, extra, or changed work is the result of actual conditions or performance differing from that assumed by the Contractor (except for differing site conditions) or as a result of the Contractor's error in judgment or mistake in designing, estimating, contracting, constructing or otherwise performing the Work. The Contractor shall not be entitled to a change in the Contract Price or Contract Time for delays caused by the Contractor or its Subcontractors, employees, or

Commented [Legal140]: The term "Performance and Payment Bonds" which is capitalized indicates that it should have been defined by Sound Transit. There is no definition of the term in Article 1, "Definitions," nor in the paragraphs where the term is used.

Commented [BA141R140]: Will revisit this language to match proposed risk mitigation solution.

Commented [BA142R140]: Un-capitalized the terms. Inserted "if applicable" so we're covered no matter how the risk mitigation solution ends up.

agents or for any non-compliance with any Contract provisions, applicable law, regulations, or permit requirements affecting the Work.

F. The Contractor's records pertaining to Changes pursuant to this Article are subject to audit as set forth in Article 3.04, Audit Access to Records.

G. Where the firm fixed price/lump sum method is used, the Contractor shall provide a detailed cost breakdown supporting its requested compensation and any additional cost documentation requested by Sound Transit. Any adjustment to the Contract Price made under the firm fixed price/lump sum method shall include all applicable costs for labor, equipment, material, overhead and profit.

H. Where the firm fixed price/lump sum method is used and the cost of the Change is negotiated after completion of the Work, the allowed profit and overhead markup shall not exceed that for work performed on a time and material basis as permitted in Article 9.09, Payment on a Time and Material Basis.

I. Where the firm fixed price/lump sum method is used and the cost of the Change is negotiated before completion of the Extra Work, the negotiated profit and overhead markup is not subject to a fixed maximum and is to be based on a reasonable calculation of direct and indirect costs incurred in executing the Extra Work, including any delays, impacts or inefficiencies. Where any unit price method is used, the applicable unit price shall include reimbursement for all direct and indirect, onsite and offsite, costs of the changed Work, including profit and overhead.

4.02 REQUEST FOR CHANGE

A. If the Contractor believes it is entitled to an adjustment of the Contract Price or Contract Time for any reason, Contractor shall submit a Request for Change (RFC) to Sound Transit in writing (in a format reasonably acceptable to Sound Transit) in accordance with the provisions of the Contract. The Contractor in the RFC must specify the reasons for such change, including relevant facts and any impacts on the cost and / or schedule.

B. The Contractor may request additional compensation and/or time through a RFC, but only in the event Contractor provides a written Notice to Sound Transit no later than fourteen (14) days after the onset or occurrence of the event or condition giving rise to the RFC.

C. The Contractor in its RFC shall provide Sound Transit with a reasonably detailed explanation of the nature and cause of the event or condition giving rise to the RFC, a reasonably accurate calculation of the adjustment to the Contract Price and/or Contract Time, and the reasons why Sound Transit is responsible for the relief sought. Sound Transit shall review the RFC and may require additional information or cost documentation from Contractor to help determine the validity and / or value of the requested change.

D. Any RFC that is approved by Sound Transit will be incorporated into a Change Notice or a Change Order. If the RFC is denied, but the Contractor believes that it does have merit, the Contractor must submit a Notice of Intent to Claim in accordance with Paragraph 10.01A, Notice of Intent to Claim, if it wishes to preserve its right to seek any adjustment to the Contract Price and/or Contract Time.

Commented [Legal143]: The added language clarifies the form of the request.

Commented [BA144R143]: Proposed edit rejected. Qualifier is not appropriate; either it is accepted or not.

Commented [CL145R143]: Agreed

4.03 CHANGE NOTICE

A. Change Notice - Request for Proposal (CN-RFP).

1. Sound Transit may issue a Change Notice – Request for Proposal to the Contractor describing a proposed change and requesting the Contractor to submit a Cost and Schedule Proposal (in a format acceptable to Sound Transit). A CN-RFP does not authorize a Contractor to commence performance of the changed Work. After receipt of the Cost and Schedule Proposal, Sound Transit may:

   a. Proceed no further with the proposed change,

   b. Issue a Change Notice – Work Directive incorporating part or all of the proposed change, or

   c. Issue a Change Order incorporating part or all of the proposed change.

B. Change Notice - Work Directive (CN-WD).

1. Sound Transit may issue a Change Notice - Work Directive ordering the Contractor to proceed with a change in the Work. A CN-WD may be issued under one of the following circumstances:

   a. To execute changes in the Work covered by the unit prices or a lump sum price contained in the Contract;

   b. To execute changes in the Work on a Time and Material basis, in accordance with Article 9.09, Payment on Time and Material Basis; or

   c. To direct the Contractor to execute change(s) in the Work pending resolution of an equitable adjustment to the Contract Price and/or Contract Time. If Sound Transit and the Contractor cannot reach agreement on changes to the Contract Price and/or Contract Time prior to starting on the changed Work, the Contractor shall maintain cost records in accordance with Article 9.09, Payment on Time and Material Basis.

2. The Contractor shall not commence performance of the Work described in the CN-WD, until the CN-WD is issued by Sound Transit. The CN-WD shall expressly specify the:

   a. Intention to treat such items as changes in the Work;

   b. Scope of the changes in the Work; and

   c. Basis under which changes to the Total Contract Price and/or Contract Time will be determined.

3. When the Contractor receives a CN-WD, the Contractor shall promptly proceed with the Work as indicated in the CN-WD. The Contractor shall carry on the Work and adhere to the schedule. No work shall be delayed or postponed pending resolution of any dispute or disagreement except as Sound Transit and the Contractor may otherwise agree in

writing.

4. Until such time as resolution of an equitable adjustment is reached, the Contractor shall maintain its records in accordance with Article 9.09, Payment on Time and Material Basis. The CN-WD shall become the basis for a Change Order when the amount of the adjustment to the Total Contract Price and/or Contract Time can be determined. The issuance of a CN-WD is sufficient authority for a Change Order, but only within the stated limits of the value of the CN-WD.

5. The CN-WD shall contain a Not to Exceed (NTE) amount. Contractor may invoice Sound Transit for changed work performed under the CN-WD but only up to and not in excess of the NTE amount. The Contractor is required to notify Sound Transit at the point at which 80 percent of the NTE amount has been expended, and provide an estimate of the cost to complete the changed Work. If Sound Transit agrees that costs in excess of the NTE amount are justified, Sound Transit may issue a revised CN-WD increasing the NTE amount or negotiate a lump sum amount for the changed Work.

C. Contractor's Cost and Schedule Proposal - If directed by Sound Transit in the Change Notice, the Contractor shall submit a Cost and Schedule Proposal to Sound Transit within fifteen (15) days (or more, if Sound Transit at its option so determines) after receipt of the Change Notice. The Cost and Schedule Proposal shall detail price and scheduling information, showing all of the impacts on the Contract Price and Construction Schedule, and the changes in the level of commitment for Small Business and Disadvantaged Business Enterprises as a result of the changes identified in the Change Notice. If any prices or other aspects are conditional, such as orders being made by a certain date or the occurrence of a particular event at a specified time, the Contractor shall identify these conditions in its Cost and Schedule Proposal. The cost breakdown shall have separate estimates of the costs of added Work and any deleted Work and shall be prepared using one or more of the cost methods described in Article 4.01C as directed by Sound Transit, and shall be presented in a manner such that all phases of work can be easily identified. The Contractor shall submit detailed cost breakdowns as described above for any Subcontractor proposed to perform Work under the change. The Contractor shall also provide detailed scheduling analysis demonstrating the effect of the changed work on the Contract Milestones.

4.04 CHANGE ORDER

A. The Change Order shall expressly state that it is Sound Transit's intention to treat the items described therein as changes in the Work; identify scheduling requirements, time extensions, prices, and all costs of any nature arising out of the Change Order; and shall contain a statement that the adjustment to the Total Contract Price, if any, includes all amounts to which the Contractor is entitled as a result of the events giving rise to the Change Order. The execution of a Change Order by both parties shall be deemed to be an agreement to all costs and time of performance related to the change, including full and complete payment and final settlement of all extensions of time, changes, Claims, damages and costs for all time, direct or indirect overhead costs, profit and any and all other costs associated with delay, disruption, impact, inefficiency, acceleration, stand-by or any other costs related to the Work covered by or affected by the change.

Commented [CL146]: Missing text.

Commented [BA147R146]: Inserted missing text. "Change Order"

Commented [CL148R146]: Agreed

B. Bilateral Change Order: Sound Transit will issue a Change Order as soon as practicable following agreement with Contractor's Cost and Schedule Proposal, if Sound Transit decides to proceed with the changed work. If the Contractor agrees with the terms and conditions of a Change Order, the Contractor shall sign the Change Order and return it to Sound Transit for execution by Sound Transit. There will be no reservation of rights by either party on a bilateral Change Order.

C. Unilateral Change Order: Sound Transit may unilaterally issue a Change Order at any time making changes within the general scope of the Contract, without invalidating the Contract and without providing notice to sureties. In addition, in the event that the Contractor and Sound Transit are unable to agree on the terms and conditions, the amount of any change or adjustment to be made to the Total Contract Price or Contract Time, Sound Transit may execute a Unilateral Change Order. If Contractor disagrees with the adjustment to Contract Price or Contract Time as stated in the Unilateral Change Order, Contractor must file a claim in accordance with the requirements of Article 10, Delays and Claims. If the Contractor fails to follow the claim procedures in Article 10, the Contractor shall not be entitled to any claim for additional compensation or schedule extension arising out of or relating to the Unilateral Change Order other than that specified in the Unilateral Change Order. The Contractor is required to continue with performance of all work associated with the Unilateral Change Order pending resolution of any Claim under Article 10.

D. When a Change Order has been executed by Sound Transit, the Contractor shall promptly proceed with the Work as indicated in the Change Order. The Contractor shall carry on the Work and adhere to the schedule during all disputes or disagreements with Sound Transit. No work shall be delayed or postponed pending resolution of any dispute or disagreement, except as Sound Transit and the Contractor may otherwise agree in writing.

E. At Sound Transit's request the Contractor shall submit, on a form provided by Sound Transit, a Non-Conflict of Interest Certification for any Change Order

F. Special Rules When Pricing Change Orders

1. If this Contract is subject to the Project Labor Agreement, in accordance with the requirements of the Labor Compliance Manual, the Contractor and its Subcontractors are required to contribute five cents ($0.05) per hour for each hour of contract labor (those subject to prevailing wages requirements) utilized on the Contract to a Pre- apprentice Training Program Fund. Accordingly, the Contractor shall incorporate into each Change Order an amount equal to five ($0.05) per hour for each hour of contract labor.

2. Premium increase(s)/decrease(s) for Performance and Payment Bonds:

   a. Premium increase(s) / decrease(s) for Performance and Payment Bonds will not be paid as a part of Change Order payments, but will be paid / deducted as a lump sum in the final payment. Verification of increased / decreased payment, from the surety, must be provided and will be included in the final reconciling Change Order.

   b. If the surety should require an immediate payment for the increased Bond(s) value as a result of a large Change Order, the Contractor must supply evidence of

the payment made and a copy of the surety's request for early payment.

4.05 SCHEDULE EXTENSIONS

If the Contractor is delayed in completion of the critical path of the Work either by reason of changes made under this Article, or by a delay for which the Contractor is entitled to additional time as specified in Article 10, Delays and Claims, and if Contractor meets all Contract requirements for seeking an increase in time to complete the Work associated with a Contract Milestone(s), the Contractor shall submit a Request for Change within the time allowed by the Contract Documents specifying the number of days of time requested. The Contractor shall demonstrate the schedule impact of changes and delays in order to justify any schedule extensions.

4.06 CONSTRUCTIVE CHANGE ORDER

Except as herein expressly stated, no order, statement, act, or omission of Sound Transit unless provided in writing shall be treated as a change or Change Order under the Contract or entitle the Contractor to an adjustment under the Contract. If the Contractor considers that an act, omission, order or statement by the Regional Program Manager or Sound Transit deviates from the Contract requirements or may entitle the Contractor to extra compensation or a time extension, the Contractor shall submit a Request for Change as provided above. Failure to submit a timely and documented RFC shall constitute a waiver of any Claim associated with the subject of such alleged constructive change. The Contractor shall not proceed with the Work until appropriate directions are received from Sound Transit.

4.07 EXCLUSIVE REMEDIES

The procedures specified herein and in Article 10, Delays and Claims, of these General Conditions are the Contractor's exclusive remedy for any claim against Sound Transit, whether for extension of the Contract Time, an increase in the Contract Price, actual or constructive changes, delays, impacts, inefficiencies, equitable adjustments or otherwise. The requirements of Article 10 cannot be waived except by explicit written waiver signed by Sound Transit and Contractor. No course of conduct or dealings between the parties, no express or implied acceptance of change or alterations to the Work, and no claim that Sound Transit has been unjustly enriched by an alteration or Change to the work, shall be the basis of any other claim for an increase in Contract Price or extension in the Contract Time for completion of the Work.

4.08 CHANGES IN QUANTITIES

A. This Article applies to unit price items on the Contract Price Schedule with an estimated quantity of four (4) or more and the measured quantities required to complete the Work.

B. Increases in Quantities of More than 25 percent.

Should the actual total quantity of a Contract Pay item of work shown on the Price Form exceed the estimated quantity shown on the Price Form by more than 25 percent, the Work in excess of 125 percent of such estimated quantity and not covered by an executed Change Order specifying the compensation to be paid, will be paid for by adjusting the Contract unit price as hereinafter provided or at the option of the Regional Program Manager, payment for the Work involved in such excess will be made on a time and material basis as provided in Article 9.09, Payment on Time and Material Basis.

1. The adjustment of the Contract unit price for such excess quantities will be the difference between the Contract unit price and the actual unit cost to perform the work, as determined in this Article. If the costs applicable to such item of Work include fixed costs, such fixed costs will be deemed to have been recovered by the Contractor by the payments made for 125 percent of the estimated quantity shown on the Price Form for such item, and in computing the actual unit cost; such fixed costs will be excluded. Subject to the above provisions, such actual unit cost will be determined by the Regional Program Manager in the same manner as if the Work were to be paid for on time-and- materials basis as provided in Article 9.09, Payment on Time and Material Basis, or such adjustment as agreed to by the Contractor and the Regional Program Manager.

2. When the total compensation payable for the number of units of an item of Work performed in excess of 125 percent of the estimated quantity is less than $5,000 at the applicable Contract unit price, the Regional Program Manager reserves the right to make no adjustment in said unit price.

C. Decreases of More Than 25 percent.

1. Should the total pay quantity of any item of Work required under the Contract be less than 75 percent of the estimated quantity thereof, an adjustment in compensation pursuant to this Article will not be made unless the Contractor so requests in writing. If the Contractor so requests, the quantity of said item performed, unless covered by an executed Change Order specifying the compensation payable therefore, will be paid for by adjusting the contract unit price, or at the option of the Regional Program Manager, payment for the quantity of the Work of such item performed will be made on time and materials basis as provided in Article 9.09, Payment on Time and Material Basis.

2. Adjustment of the Contract unit price for such decreased quantities will be the difference between the Contract unit price and the actual unit cost, which will be determined as hereinafter provided, of the total pay quantity of the item, including fixed costs. Such actual unit cost will be determined by the Regional Program Manager in the same manner as if the Work were to be paid for as provided in Article 9.09, Payment on Time and Material Basis, or such adjustment will be as agreed to by the Contractor and the Regional Program Manager.

3. No compensation shall be made in any case for loss of anticipatory profits.

D. If the Contractor disagrees with an equitable adjustment determination by the Regional Program Manager, the Contractor shall strictly follow all procedures in accordance with Article 10, Delays and Claims. Failure to do so shall constitute the Contractor's acceptance of determinations by the Regional Program Manager. When ordered by the Regional Program Manager, the Contractor shall proceed with the Work pending determination of the adjustment in costs or time, as applicable.

E. When Sound Transit has entered an amount for any proposal price item, whether unit or otherwise, solely for the purpose of providing a common proposal price for all proposers, this Article 4.09, Changes in Quantities, shall not apply. Any impact due to an increase or decrease in

the amount provided for the purpose of obtaining a common proposal price shall be the sole risk of the Contractor.

4.09 ELIMINATED WORK

A. Sound Transit may, by written order to the Contractor, omit work, equipment and/or material to be provided under this Contract, and the value of the omitted work equipment and/or material (inclusive of associated profit and overhead) will be deducted from the Contract Price. The deducted value will be based upon the applicable unit price or lump sum, or if there is no such price, the deducted value will be a lump sum agreed upon in writing by the Contractor and Sound Transit based on the Contract Price Schedule and other cost information submitted by the Contractor or obtained otherwise by Sound Transit. In the event that no agreement can be reached on a lump sum basis, Sound Transit shall be entitled to a deduction based on the value as if the work were to be paid for on a Time and Material basis as provided in Article 9.09, Payment on Time and Material Basis.

B. Should any Contract item of the Work be eliminated in its entirety, in the absence of an executed Change Order covering such elimination, payment will be made to the Contractor for actual costs incurred in connection with such eliminated Contract item if incurred prior to the date of notification in writing by the Regional Program Manager of such elimination.

C. If acceptable material is ordered by the Contractor for the eliminated work prior to the date of notification of such elimination by the Regional Program Manager, and if orders for such material cannot be canceled, it will be paid for by Sound Transit at the actual cost to the Contractor. In such case, the material paid for shall become the property of Sound Transit and the actual cost of any further handling will be paid for by Sound Transit. If the material is returnable to the vendor and if the Regional Program Manager so directs, the material shall be returned and the Contractor will be paid for the actual cost of charges made by the vendor for returning the material. The actual cost of handling returned material will be paid for by Sound Transit.

4.10 DIFFERING SITE CONDITIONS

A. The Contractor shall immediately upon discovery and before the conditions are further disturbed, notify the Regional Program Manager, verbally and in writing of:

1. Subsurface or latent physical conditions at the Site which differ materially from the conditions indicated in the Contract Documents;

2. Unknown physical conditions at the site, of an unusual nature, which differ materially from the conditions ordinarily encountered and generally recognized as inherent in the Work of the character provided for in the Contract.

B. In areas not affected by the alleged differing site conditions, the Contractor shall continue with performance of the Work.

C. The Regional Program Manager will promptly investigate the conditions and provide direction with respect to continuing performance of the Work in the area of the alleged differing site conditions.

D. Unless otherwise agreed upon in writing by Sound Transit, within seven (7) days of the Contractor's initial written notification of the Differing Site Condition to Sound Transit, the Contractor shall provide:

1. A detailed description of the Differing Site Condition;

2. A reasonable estimate of the price and time impacts such Differing Site Condition shall cause to the Contract; and

3. Substantive, contractual, and technical basis supporting the existence of the Differing Site Condition and its impacts.

E. Within fourteen (14) days from receipt of the Contractor's detailed description of impacts, Sound Transit shall either:

1. Issue a Change Notice (CN) or a Change Order (CO);

2. Make a written determination that the event or condition does not justify any changes to the Contract;

3. Request additional information, or

4. Respond to the Contractor and indicate when a determination will be made, if it cannot be made within the above stated fourteen (14) days.

F. If Sound Transit finds that conditions are materially different and cause a material increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the Work under this Contract, the Regional Program Manager will make an equitable adjustment in the cost or the time required for the performance of the Work, as provided in Paragraph H below.

G. No request by the Contractor for an equitable adjustment to the Contract or claim for a Differing Site Condition shall be allowed unless the Contractor has fully complied with the written notice required in Paragraphs A and D above, unless by explicit written waiver Sound Transit has agreed to extend the applicable notice deadline prior to its expiration. Such notice shall be a condition precedent to any request for an equitable adjustment or claim, and failure to comply shall waive the Contractor's right to make a request for an equitable adjustment or claim.

H. Cost and time adjustments for a differing site condition accepted as a change by Sound Transit shall be resolved in accordance with this Article and Article 10, Delays and Claims, except to the extent that an equitable adjustment for any condition, otherwise within the scope of this Article, has been addressed by unit price or Provisional Sum item, which shall control if provided. All other provisions and requirements of this Article shall apply to such conditions, including without limitation, notification obligations and investigation requirements with respect to any such conditions.

I. After providing Notice to Sound Transit and upon receiving direction from the Regional Program Manager, the Contractor shall be required to continue with performance of all work and maintain its progress with the Work pending resolution of the Differing Site Condition.

J. If the Contractor does not agree with Sound Transit's determination that the event or condition does not justify any change to the Contract, the Contractor must file a Claim in accordance with Article 10, Delays and Claims, or such right to any adjustment in Contract Price and/or Contract Time shall be waived.

4.11 VALUE ENGINEERING CHANGE PROPOSALS (VECPS)

A. Sound Transit encourages the Contractor to submit Value Engineering Change Proposals (VECPs) in order to avail Sound Transit of potential cost or time savings or increased safety during the Work. The Contractor and Sound Transit will share any savings in accordance with this Article. VECPs may be submitted at any time after Notice to Proceed. A proposal merely to delete or reduce scope of Work does not constitute a VECP.

B. The Contractor shall submit VECPs directly to the Regional Program Manager. As a minimum, the following information shall be submitted by the Contractor with each VECP:

1. Description of the existing Contract requirements that are involved in the proposed change;
2. Description of the proposed change;
3. Discussion of differences between existing requirements and the proposed change, together with advantages and disadvantages;
4. Itemization of the Contract requirements that shall be changed if the VECP is accepted (e.g., drawing numbers and specification);
5. Justification for changes in function or characteristics of each affected item, and effect of the change on performance of the end item;
6. Effect of proposed change on life-cycle costs, including operation, maintenance, replacement costs, and life expectancy;
7. Date or time by which a Change Order adopting the VECP shall be issued in order to obtain the maximum cost reduction, noting any effect on contract completion time or delivery schedule; and
8. Cost estimate for existing Contract requirements correlated to the Contractor's unit price or lump sum breakdown and the proposed changes in those requirements.
9. Costs of development and implementation by the Contractor shall be provided.
10. Additional costs to Sound Transit (e.g., costs of testing, redesign, and effect on other contracts) shall also be estimated.

C. Sound Transit retains the right to reject a VECP without review, without recourse by the Contractor if a similar change is already under review; or if in Sound Transit's sole opinion, the potential savings are unlikely to justify the cost of the review; or if the proposed change is otherwise unacceptable to Sound Transit.

D. Sound Transit shall expeditiously process VECPs accepted for review but shall not be liable for any delay in acting upon any VECP submitted pursuant to this Article. Sound Transit may accept, in whole or in part, by Change Order, any VECP submitted pursuant to this Article. Until an order to proceed is issued on a VECP, the Contractor shall remain obligated to perform in accordance with this Contract. Change Orders made pursuant to this Article will so state. Sound Transit's decisions as to acceptance or rejection of any VECP shall be at Sound Transit's sole discretion and shall be final and not subject to review by a dispute resolution process or otherwise.

E. If a VECP submitted by the Contractor pursuant to this Article is accepted, the Contract Price shall be reduced by an amount equal to 50 percent of the Estimated Net Savings (ENS) to the Contractor plus 50 percent of Sound Transit's Review Costs (STRC) (or the reduction = 0.5ENS + 0.5STRC). The Estimated Net Savings shall be calculated by subtracting the Contractor's Costs from the Contractor's Estimated Gross Savings. For the purposes of this Article, the Contractor's Costs are defined as the reasonable costs incurred by the Contractor in preparing the VECP and making the change, such as cancellation or restocking charges; and the Contractor's Estimated Gross Savings are defined as the difference between the cost of performing the Work according to the existing requirement and the cost to perform the Work according to the proposed change. The Contractor's profit shall not be considered part of the cost and shall not be reduced by application of the VECP.

F. The Contractor shall include appropriate value engineering incentive provisions in all subcontracts of $100,000 or greater, and may include those provisions in any subcontract. In determining Estimated Net Savings for cost reduction proposals that involve a Subcontractor, only actual costs to the Contractor and Subcontractor, as defined in Paragraph E above, will be allowed as Contractor Costs. Incentive payments made to the Subcontractor by the Contractor in connection with the cost reduction proposal will not be allowed in determining Net Savings. Sound Transit is subject to public disclosure of records in accordance with Washington State Law. Material and information, which may be submitted as part of any VECP, will be subject to such public disclosure pursuant to State law.

G. The compensation provisions of this Article shall constitute the Contractor's exclusive and complete compensation for Sound Transit's use of the VECP, and the Contractor shall have no right to additional compensation for future or additional uses of the VECP. Sound Transit shall have an absolute and unrestricted right to use the concepts, ideas, methods, materials, and any other salient feature of a VECP, for any purpose other than on the Contract or contracts for which it was submitted.

H. In the event Sound Transit and Contractor cannot agree on the Estimated Net Savings, Sound Transit may at its option (i) terminate the proposed VECP or (ii) unilaterally determine the Estimated Net Savings. If Contractor disagrees with such unilateral determination and seeks to assert a Claim, Contractor shall comply with the Claim requirements of the Contract Documents.

ARTICLE 5 MATERIALS AND EQUIPMENT

5.01 GENERAL

A. The Contractor shall furnish all materials, including without limitations, equipment and

completely or partially assembled items, required to complete the Work, except materials that are designated in the Contract Documents to be furnished by Sound Transit.

B. Material and equipment furnished and installed for this Work shall be new and of a quality equal to or better than that specified.

C. Sound Transit's acceptance of materials on the basis of compliance documentation, inspection or testing shall not relieve the Contractor of its obligation for conformance with the Contract.

D. Manufacturers' warranties, instruction sheets, and parts lists, which are to be furnished with certain materials, shall be delivered to the Regional Program Manager before Substantial Completion.

E. The materials and equipment provided and work performed by the Contractor shall strictly conform to the requirements contained in the Contract Documents. The burden of proof that the completed Work conforms to the Contract Documents shall be on the Contractor.

F. The Contractor shall not use any permanently incorporated materials or equipment unless such use is approved in writing by Sound Transit. Where Contractor's request is granted for the use of certain materials, the Contractor shall properly use and maintain, and upon completion of its use, and at its own expense, recondition such materials or equipment to the satisfaction of Sound Transit.

5.02 MATERIALS CERTIFICATIONS

A. All materials except materials specified by brand name or mark or manufacturer, furnished for use or incorporation in the Work, shall be covered by quality certifications, test results or other documentation as required by the Contract to establish compliance of the products with Contract requirements. Unless specific tests are required by the specifications, the Contractor may provide certifications to establish acceptability of the products furnished. Materials or products which require certification or other documentation shall not be incorporated until certifications have been delivered and the product approved by Sound Transit for incorporation.

B. When the Contract requires documentation that materials comply with a given specification or Industry Standard, the Contractor shall provide documents that include a certification that the material conforms to all applicable Contract requirements. The documentation shall identify the material, list the applicable specifications and tests covered by the certification, describe the source of the material, and the quantity of material certified. The certifying document shall originate with manufacturer or producer of the material and shall bear the signature of a person qualified to perform the certification and authorized to sign on behalf of the manufacturer or producer. If applicable, the certificate shall list any marking or other identification of the certified material.

C. For fabricated or manufactured materials, in addition to the documentation required by this Article, the Supplier shall furnish documentation that the fabrication or manufacturing process complies with Contract requirements. The documentation shall be comparable to that required by this Article and shall list the name and address of the manufacturer or fabricator, the specific processes covered by the certification and procedures and equipment used, tests performed and

testing frequency, and any other pertinent information required to demonstrate Contract compliance.

D. For materials specified or approved by brand name or mark, an identifying label or other marking affixed by the manufacturer, which contains sufficient information to verify that the material furnished is the material specified, will be accepted as documentation in lieu of additional certification. Other physical characteristics or packaging information may be accepted at Sound Transit's discretion to demonstrate compliance.

E. Sound Transit may require testing at the Contractor's expense of materials that are delivered without acceptable identification, certification or other required documentation. Work that incorporates materials for which the required documentation has not been provided will be considered nonconforming work.

F. Sound Transit reserves the right to sample and test any material provided for use or incorporation into the Work. The Contractor shall furnish, at no cost to Sound Transit, all samples requested for testing. If Sound Transit's tests indicate that the material tested does not comply with Contract requirements, all materials covered by the same certification as the test sample shall be considered as non-conforming.

G. If, at any time, Sound Transit deems the Contractor's testing is not adequate, the Contractor shall immediately take corrective action as directed by Sound Transit.

5.03 EQUIVALENT MATERIALS AND EQUIPMENT

When material or equipment is specified by one or more patents, brand names, or catalog numbers, it shall be understood that this is for the purpose of defining the performance or other salient requirements and shall be understood as if followed by the words "or equal," whether or not such words appear. Should the Contractor propose to furnish an "or equal" material or equipment then Contractor shall demonstrate conformance to the specified performance, testing, quality or dimensional requirements and suitability of the material or equipment for the use intended. The Regional Program Manager shall promptly review and approve or disapprove Contractor's proposed "or equal" material or equipment and any such approval shall not relieve Contractor of its obligations to achieve the specified performance, testing, quality or dimensional requirements and suitability of any approved "or equal" material or equipment for the use intended under this Contract.

5.04 SUBSTITUTIONS

A. If material or equipment is specified as a sole source, Sound Transit will not consider substitutions.

B. Materials or equipment of equal or better capacity, quality, or function may be allowed by Sound Transit, in its sole discretion, upon written request for substitution by the Contractor. Requests for substitution shall be made in accordance with these Contract Documents. Denial of a request for substitution is not grounds for any claim against Sound Transit.

C. Except for sole source materials or equipment, the Contractor may offer material or equipment of equal or better quality and performance in substitution for those specified in the Contract

Documents. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor. Sound Transit will consider offers for substitution only from the Contractor and not from Suppliers, distributors, manufacturers, or Subcontractors. If the offered substitution necessitates changes to or coordination with other portions of the Work, the Contractor, as a condition of Sound Transit's acceptance of the substitution, shall perform such changes or coordination at no additional cost to Sound Transit. Substitutions shall be submitted to Sound Transit in sufficient time to avoid delays to the Work. The Contractor shall be responsible for any delay or cost resulting from untimely submittal of substitution requests.

D. The Contractor has the burden of demonstrating that the proposed substitution's function, quality, and performance will be equal in all respects to that of the specified item.

E. A request for substitution constitutes a representation that the Contractor:

1. Has investigated the proposed product and determined that it meets or exceeds the quality level of the specified product;

2. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Sound Transit;

3. Waives claims for additional costs or time extension that may subsequently become apparent; and

4. Bears all Sound Transit costs of any redesign or modification to other systems, parts, equipment or components of the Contract Work resulting from the substitution.

F. Substitutions will not be considered when they are indicated or implied on Shop Drawings or product data submittals without a separate written request. Substitutions will not be considered when they are due to the Contractor's failure to order the specified items in a timely manner.

G. Sound Transit shall be the sole judge of whether the offered substitution is in conformance with the Contract Documents for the Work and whether the changes to other portions of the Work necessitated by the incorporation of the offered substitution are acceptable. Any savings resulting from the use of a substituted item shall be passed on to Sound Transit in the form of a Value Engineering Cost Proposal.

H. Sound Transit may, at its option, supply hardware, software, licenses, warranties, infrastructure, or materials outside of this Contract in accordance with design specifications provided by the Contractor. In the event that ST supplies any such items, they shall be delivered in new condition and working order and in a timely fashion to the Contractor at a location and date to be determined in advance and agreed in writing.

5.05 MANUFACTURER'S DIRECTIONS

Manufactured articles, materials, solvents, and equipment or other goods shall be transported, stored, applied, installed, connected, erected, adjusted, tested, operated, and maintained as recommended by the manufacturer, unless otherwise specified herein. Items shall be installed by the manufacturer where recommended or directed; however, the Contractor shall not be relieved of responsibility for such installation and costs.

5.06 RESPONSIBILITY FOR PERFORMANCE

Designation of brand names, components, and/or equipment in the Specifications shall not relieve the Contractor from responsibility for performance in accordance with contractual requirements. The Contractor is responsible for notifying the Regional Program Manager of any inappropriate brand name, component, and/or equipment that may be called for in the Specifications, and for proposing a suitable alternate for consideration. Any substitution required by Sound Transit or the Regional Program Manager under this Article shall be implemented in accordance with the procedures set forth in Article 4, Changes and Change Order Process.

ARTICLE 6 PROSECUTION AND PROGRESS OF THE WORK

6.01 CONTRACT TIME

A. All time requirements set forth in the Contract Documents are of the essence in the performance of this Contract. Unless specifically authorized in writing by Sound Transit, the Contractor is not allowed to perform Work or incur costs under this Contract until the effective date of the Notice to Proceed. The Contractor shall proceed with performance of the Work under this Contract immediately after the effective date of Notice to Proceed and shall continuously and diligently prosecute the Work and specified portions thereof to completion on or before the time or times set forth in this Contract. Any work performed by the Contractor prior to the effective date of Notice to Proceed shall be at the Contractor's risk. The Contract Time shall not be extended or reduced except by Change Order. The Contractor shall not be entitled to receive delay damages or costs for non-realization of anticipated early completion of the Work before a Contract specified Milestone date.

B. The Contractor shall work such hours including overtime operations and/or extra shifts, within the parameters of permitted working days and hours, as may be necessary to meet its performance obligations under the Contract.

C. The Contractor shall comply with all local requirements and permit conditions relating to acceptable hours of operation for work locations, and to noise control and abatement. If the Contractor deems that a waiver of any local requirements is necessary to enable the Contractor to perform the Work in accordance with the Contract requirements, it is the Contractor's responsibility to obtain said waivers, at no additional cost to Sound Transit.

D. All time periods measured in days for Contract Milestones and Notices shall be based upon calendar days, unless specified otherwise. Time periods measured in days for each Contract milestone and notice shall be computed by excluding the day upon which the period begins to run and including the last day of the period unless the last day is Saturday, Sunday or a legal holiday as defined in RCW 1.16.050. If the last day of the period is a Saturday, Sunday or legal holiday, the period shall run until, and shall include, the next day that is not a Saturday, Sunday, or legal holiday.

E. When an extension of time for completion of a milestone is granted, the extended date for completion of that milestone shall be calculated using the sum of the number of days originally allowed plus the number of days extension of time, commencing on the effective date of the Notice to Proceed, unless otherwise noted in the Special Conditions.

6.02 PROJECT SCHEDULES

A. Preparation and Submittal of Schedules

1. The Contractor shall develop and deliver, in accordance with the Contract Documents, the various schedules and progress reports to Sound Transit for review and acceptance. Sound Transit's review shall not constitute approval or acceptance of the schedules' sequencing or time of completion, nor of the Contractor's means and methods.

2. The Contractor shall not be entitled to payment, nor shall Sound Transit be required to make payment for any Contract Work, until the Project Schedule complies with the Contract requirements.

B. Float

1. Float is defined as the number of days by which a Work activity identified in the project schedules could be delayed from its "early start date" until the date upon which the Work activity would become a Critical Path Activity.

2. Any float (other than Sound Transit Controlled Float), slack time, or contingency within the Project Schedules (i.e., the difference in time between the Contract's early completion date and the Contract Milestone(s)) is not for the exclusive use of either Sound Transit or the Contractor, but is jointly owned by both and is a resource available to and shared by both parties as needed to meet Contract Milestones. Use of such jointly owned float shall be on a first come, first served basis and may be applied to delays caused (without limitation) by unmarked utility interferences or third parties.

3. The Contractor shall not sequester shared float through such strategies as extending activity duration estimates to consume available float, using preferential logic, or using extensive crew/resource sequencing, etc. Since float time, other than Sound Transit Controlled Float, within the schedule is jointly owned, no time extensions will be granted nor delay damages paid until a delay occurs which extends the work beyond the Contract Milestone(s). Since float time within the project schedule is jointly owned, it is acknowledged that Sound Transit-caused delays on the Contract may be offset by Sound Transit-caused time-savings. In such an event, the Contractor shall not be entitled to receive a time extension or delay damages until all Sound Transit-caused time-savings are exceeded.

6.03 FAILURE TO MAINTAIN PROGRESS

If, in the opinion of the Regional Program Manager, the Contractor is not maintaining its anticipated progress towards the completion of the Milestones and / or falls behind the approved project schedules, the Contractor shall take any and all steps necessary to improve its progress. If the Contractor fails to implement appropriate remedial actions, the Regional Program Manager may require the Contractor to increase the number of shifts, increase the number of crews and/or operations, initiate or increase overtime operations, increase days of work in the work week, increase the amount of facilities and equipment, or all of the foregoing. Sound Transit may also require the Contractor to submit for approval supplemental progress schedules that detail specific operation changes to be instituted to regain the

approved schedule. The cost of the actions necessary to improve the Contractor's progress will be the responsibility of the Contractor and will not be reimbursed by Sound Transit.

6.04 PROTECTION OF PROPERTY

In addition to the requirements set forth elsewhere in the Contract documents, the Contractor shall comply with the following general requirements:

A. Protect all public and private property, insofar as it may be endangered by the Contractor's operations, and take every reasonable precaution to avoid damage to such property.

B. Restore and bear the cost of restoration of any public or private improvement, facility, structure or land and landscaping inside or outside of the right-of-way or easement, which is damaged or injured directly or indirectly by or on account of an act, omission, or neglect in the execution of the Work; restore to a condition substantially equivalent to that existing before such damage or injury occurred, by repairing, replacing, rebuilding, or otherwise affecting restoration thereof, or if this is not feasible, make a suitable settlement with the owner of the damaged property. All restoration shall be governed by the requirements of local authorities, including but not limited to local codes, standards, and permit conditions.

C. Give reasonable notice through the Regional Program Manager to occupants of buildings on property adjacent to the Work to permit the occupants to remove vehicles, trailers and other possessions as well as salvage or relocate facilities, trees, fences, sprinkler systems, or other improvements in the right-of-way which are designated for removal or which might be destroyed or damaged by work operations.

D. Protect all trees, lawns, and facilities areas within the Right-of-Way or Easements that are designated for preservation.

E. Not operate tracked equipment on the streets that are not scheduled for demolition and repaving under this Contract. In the event tracked equipment is used, the streets shall be fully protected.

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6.05 PUBLIC SAFETY AND CONVENIENCE

The Contractor shall conduct its operations to ensure the least possible obstruction and inconvenience to the public, and the Contractor shall have no greater amount of work than the Contractor can prosecute properly with due regard to the rights of the public.

6.06 EMERGENCY WORK

A. In an emergency affecting the safety of persons, the Work, or adjoining property, the Contractor, without special instructions or authorization from the Regional Program Manager, shall act to prevent such threatened loss or injury. In such an emergency, the Contractor shall perform such additional work as required. Any compensation claimed by the Contractor on account of emergency work shall be governed by Article 4, Changes and Change Order Process, or as deemed appropriate by the Regional Program Manager.

B. If, during the Warranty period or during the progress of the Contract, the Contractor is absent

from the locations of the Work at the time when a failure or faulty condition of the Contractor's work requires emergency action in the public interest, Sound Transit shall have the right to make repairs or corrections by itself or with other forces, as required, and Sound Transit may withhold from monies due the Contractor any costs which Sound Transit incurs from such emergency work.

6.07 PROTECTION OF UTILITIES

A. Facilities and installations of various utilities may be present in the area of Work. In general, the locations of existing major utilities, whether aboveground or underground, are indicated on the Contract Drawings. This information has been obtained from utility maps and field surveys. Sound Transit does not guarantee the accuracy or completeness of the information. It is understood that other facilities not shown on the Contract Drawings may be encountered during the course of the work. In any case, most minor lines such as water, gas, electric power and communication, sewer services, and sprinkler irrigation lines may not be indicated. The Contractor shall protect any utility property that is on or adjacent to the Site or affected by the Work. Existing utilities, whether shown on the Contract Drawings or not, shall be maintained, relocated, rerouted, removed, repaired, and restored as may be necessary by the Contractor in a manner satisfactory to owners and operators of the utilities and to Sound Transit. The Contractor shall contact the utility owners and arrange operations and schedules to minimize any interruption of utility services. The Contractor shall provide utility owners with notice as may be required by said utilities for location of utility services, scheduling of outages, or other utility activities needed to accommodate the Contractor's operations.

B. The Contractor shall comply with the requirements of RCW 19.122, Underground Utilities, and take steps to ascertain the exact location of all facilities prior to doing work which may damage such facilities or interfere with their service. Where the location of a facility is not indicated, or is, in the opinion of the Regional Program Manager, doubtful, the Contractor may be directed to make such excavations and explorations as are necessary to ascertain the correct location.

C. When performing work in streets and easements, the Contractor shall notify all affected utilities and local agencies of its proposed operations and properly coordinate and expedite the Work in such a manner as to cause the least amount of conflict and interference between the work and operations of other agencies. In the event of disruption or threat of disruption to utility services as a result of Work-related activities, regardless of cause, the Contractor shall notify Sound Transit immediately and shall notify and cooperate with the utility as well as any fire, police, or other public authority which may be affected by the disruption, as required by said utility, agency, or authority.

D. The Contractor shall document all incidents of damage or impacts to utilities that are the result of Work activity, and report all such incidents to Sound Transit immediately with the date, time, place and type of property damage.

E. The Contractor shall ensure that unauthorized personnel are strictly prohibited from the operation of utility or agency water valves and hydrants and shall obtain written permission from the applicable proper utility or agency prior to using any water hydrant or operating any water valve. No Work shall be undertaken around fire hydrants until provisions for continued access and service have been approved by the local fire authority.

6.08 TEMPORARY FACILITIES AND UTILITIES

A. Temporary facilities and utilities shall be installed in compliance with federal, state, and local codes and statutes, at the Contractor's expense. The installation and maintenance of all temporary facilities will be subject to the approval of Sound Transit, and unless otherwise authorized in writing by Sound Transit, all such facilities shall be removed before Acceptance of the Work.

B. Before proceeding with the erection of any facilities, including temporary structures, machinery, offices, and warehouses, the Contractor shall, at its expense, notify and furnish Sound Transit with such information and drawings as Sound Transit may request showing locations of such facilities, capacities and capabilities of the machinery and equipment, and projected utility requirements. Such facilities shall be fully adequate for the uses intended and fully comply with the requirements of the Contract.

6.09 TEMPORARY REARRANGEMENT OF UTILITIES

The Contractor may desire to rearrange utilities temporarily for Contractor's convenience. In this case, the Contractor shall make whatever arrangements are necessary with the owners of such utility or other facility for such rearrangement and bear all expenses in connection therewith. Further, the Contractor shall maintain all utility facilities placed by the Contractor in temporary locations, and all utilities within the work area not required to be permanently rearranged but which are required to be shored or supported during the Work period. Unless otherwise indicated, the cost of such temporary rearrangement and maintenance shall be borne by the Contractor and no other compensation shall be due the Contractor for this work.

6.10 REARRANGEMENT OF UTILITIES BY OTHERS

Some or all of the utilities and other facilities, both above ground and below ground, which are required to be rearranged to accommodate the specified work, may be rearranged by other forces. In the event that rearrangement will be performed prior to the start of the Contractor's operations, or where the rearrangement must be coordinated with the Contractor's Work operations, the existing facilities which are to be rearranged by others will be indicated in the Contract Documents. Where such a rearrangement by others is indicated in the Contract Documents, the Contractor will have no liability for the cost of performing the work; however, the Contractor shall cooperate with those involved in such rearrangement. Wherever necessary, the work of the Contractor shall be coordinated with the rearrangement of utility or other facilities, and the Contractor shall make arrangements with the owner of such facilities for the coordination of the work. The Contractor shall anticipate potential delays by the utility owners and such reasonable delays shall not be the basis for additional compensation or time extensions. Only in the event that the utility owners fail or refuse to relocate or do so in a manner causing unreasonable delays to the critical path of the Work, may the Contractor request a time extension as provided in Article 4, Changes and Change Order Process.

6.11 EXPLORATION FOR UTILITIES

Where excavations or explorations to determine the location of utilities are directed by the Regional Program Manager and where it is determined by the Regional Program Manager that the rearrangement of an underground facility, which is not shown in the Contract Documents, is essential in order to

accommodate the Work, the Regional Program Manager will provide for the rearrangement of such facility by other forces or, when so ordered by a CN-WD or CO, such rearrangement shall be performed by the Contractor and will be paid for as provided in Article 4, Changes and Change Order Process. In the event of unscheduled or unanticipated disruption(s) or threat of disruption(s) to utility services as a result of work-related activities, regardless of cause, the Contractor shall promptly notify Sound Transit, the affected utility, and fire and/or police agencies as necessary, and shall cooperate with those authorities. If temporary disruption(s) of utility service(s) is (are) unavoidable pursuant to the Work, the Contractor shall immediately notify the Regional Program Manager and secure authorization from Sound Transit before disrupting the utility service(s). Operation of utility or agency water valves and hydrants by unauthorized personnel is strictly prohibited without obtaining written permission from the applicable authority prior to using any water hydrant or operating any water valve. No work shall be undertaken around fire hydrants until provisions for continued access and service have been approved by the local fire authority.

6.12 SAFETY, FIRST AID AND SECURITY

A. The Contractor shall be solely and completely responsible for conditions of the Site and the safety of all persons and property twenty-four (24) hours per day during the performance of the Work of this Contract. The Contractor shall:

1. Maintain the site and perform the work in a manner that meets statutory, regulatory and common law requirements for the provision of a safe place to work and that does not pose unreasonable safety risks to employees of Sound Transit or the public;

2. Initiate, maintain, and supervise all safety precautions and programs in connection with the performance of the Work;

3. Protect the lives and health of employees performing the work and other persons who may be affected by the Work, and

4. Prevent damage to and theft of materials, supplies, and equipment whether on-Site or stored off-Site.

B. The Contractor shall comply with all applicable local, state and federal laws, ordinances, rules, regulations and orders of any public authority building and codes, and safety regulations bearing on the safety of people and property and their protection from damage, injury or loss. In the case of conflict, the more stringent requirement shall apply. Any review of the Contractor's performance conducted by Sound Transit or its consultants, does not and shall not be intended to include review of the adequacy of the Contractor's safety measures in, on, or near the Site.

C. The minimum safety requirements and procedures for accident prevention, safety and loss prevention, accident and incident reporting, and control for the Work are contained in other Contract Documents. Failure to comply with these minimum requirements may result in a material breach of contract. The minimum safety requirements contained in the Contract are intended to supplement, and not replace the Contractor's Safety and Security Program or Site Safety and Security Plan.

D. Prior to work, the Contractor shall have in place a Contractor's Safety and Security Program (CSSP).

From this Program the Contractor shall prepare a Contractor's Site Safety and Security Plan (SSSP) identifying the methods by which all applicable safety and security requirements of this Contract and the applicable Federal, state and local requirements will be met. The Contractor shall ensure its Subcontractors have either a written safety program that conforms to the applicable requirements or formally adopt the Contractor's Safety and Security Program and Site Safety and Security Plan. The Contractor shall designate a Safety and Security Officer who shall be responsible for proper implementation of the CSSP and the SSSP. The Contractor shall submit a copy of its CSSP and SSSP to Sound Transit in accordance with the Contract Documents. Sound Transit's review of the CSSP or SSSP shall not be deemed to constitute approval or acceptance thereof and shall not transfer any responsibility for the safety of the Work site from the Contractor to Sound Transit.

E. The Contractor shall conduct a monthly safety meeting with all on-site Subcontractors and supervisors to discuss general and specific safety matters. The Contractor shall keep a log of such monthly safety meetings and provide it upon request by Sound Transit, including a sheet on which each attendee signed in and a description of the safety topics discussed at the meeting. The Contractor also shall conduct weekly safety or "tool box" meetings with employees of the Contractor and Subcontractors. The Contractor shall keep a log of such weekly safety meetings and provide it upon request by Sound Transit.

F. As the property owner, Sound Transit retains the right to grant consent to inspections pursuant to State and Federal law. This includes all accident and criminal investigations and general schedule, complaint, and follow-up safety and health inspections conducted by the State of Washington Department of Labor and Industries (WISHA) and the Federal Occupational and Health Administration (OSHA).

6.13 ORDER OF WORK

When required by the Contract Documents, the Contractor shall follow the sequence of operations set forth therein. Full compensation for conforming to such requirements will be considered as included in the prices paid for the various Contract items of the Work and no additional compensation will be allowed therefore.

6.14 LIABILITY FOR EXPENSES

The Contractor shall be liable to Sound Transit for expenses incurred due to the Contractor's failure to perform tasks in accordance with the Contract requirements. Such expenses may include costs to Sound Transit for providing personnel to perform tasks on behalf of the Contractor and shall be subject to an advance notice to the Contractor that such expenses are expected to be incurred. These expenses may be deducted as unilateral credit Change Orders or as part of the Change Orders issued in accordance with Article 4, Changes and Change Order Process.

ARTICLE 7 LEGAL REQUIREMENTS

7.01 HEADINGS

The parties agree that Article and Section headings and other titles used in this Contract are for

convenience only, and are not to be used to interpret this Contract.

7.02 WAIVER OF CONTRACT TERMS

No act or failure to act on the part of ~~Sound Transit~~either party with respect to the exercise or enforcement of any provision of this Contract (including but not limited to rights or remedies conferred upon ~~Sound Transit~~ either party under this Contract, performance, or standards) shall be deemed to be a waiver on the part of ~~Sound Transit~~ that party of any provision of this Contract. No waiver of one provision by ~~Sound Transit~~ any party shall act as a waiver of any other provision or as a subsequent waiver of the same provision. No waiver shall be effective against ~~Sound Transit~~ either party except an express waiver in writing.

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Commented [CL153R151]: Correct and Sound Transit must allow the Contractor to perform therefore the right to waive once without forever losing the right to enforce needs to be bilateral.

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7.03 PROHIBITED INTEREST

The Contractor shall not offer or confer any interest, direct or indirect, in this Agreement or the proceeds thereof (or hire or retain in any way, directly or indirectly) to or on any member, officer, or employee of Sound Transit or its governing body, or of any of its component agencies during such person's tenure or one year thereafter, unless such interest has been disclosed in writing to Sound Transit and Sound Transit has determined that no prohibited conflict of interest or ethical violation exists in the circumstances.

7.04 SUCCESSOR'S OBLIGATIONS

The grants, covenants, provisos and claims, rights, powers, privileges and liabilities contained in the Contract shall be read and held as made by and with, and granted to and imposed upon, the Contractor and Sound Transit and their respective heirs, executors, administrators, successors and assigns. A Surety under the Performance Bond allowed by Sound Transit to complete the Work in the event of a default, termination, or other failure of the Contractor to perform the Work, shall comply fully with all Contract requirements and shall not use the defaulted or terminated Contractor for continuation or completion of the Work unless Sound Transit consents.

7.05 ASSIGNMENT OF CONTRACT

The Contract shall not be assigned in whole or in part by the Contractor without the prior consent of Sound Transit. To the maximum extent permitted by law, involuntary assignment of the Contract caused by the Contractor being adjudged bankrupt, assignment of the Contract for the benefit of the Contractor's creditors, or appointment of a receiver on account of the Contractor's insolvency shall be considered as a failure to comply with the provisions of the Contract and subject to the termination provisions contained herein.

7.06 JOINT VENTURE CONTRACTOR

A. In the event the Contractor is a joint venture of two or more partners, the grants, covenants, provisos and claims, rights, power, privileges, and liabilities of the Contract shall be construed and held to be several as well as joint. Any notice, order, direction, request, or any communication given by Sound Transit to the Contractor under this Contract shall be well and sufficiently given to all persons being the Contractor if given to any one or more of such joint venture partners. Any notice, request or other communication given by any one of such joint venture partners to Sound Transit under this Contract shall be deemed to have been given by and shall bind all joint venture

partners being the Contractor.

B. In the event of the dissolution of the joint venture Contractor, Sound Transit shall have the unqualified right to select which joint venture partner(s), if any, shall continue with the Work under this Contract. Such selected partner(s) shall assume all liabilities, obligations, rights, and benefits of the Contractor under this Contract. Dissolution of the joint venture shall not be effected without prior consultation with Sound Transit. In the event of failure or inability of any joint venture partner(s) to continue performance under this Contract, the remaining joint venture partner(s) shall perform all services and Work and assume all liabilities, obligations, rights, and benefits to the Contractor under this Contract. Nothing in this Article shall be construed or interpreted to limit Sound Transit's rights under this Contract or by law to determine whether the Contractor or any joint venture partner thereof has performed within the terms of this Contract.

7.07 CONFLICT OF INTEREST

By submission of its Proposal, the Contractor covenants that it has no direct or indirect pecuniary or proprietary interest, and that it shall not acquire any interest that conflicts in any manner or degree with the Work, materials to be provided or services required to be performed under this Contract. Furthermore, the Contractor shall not employ any person or agent having any such conflict of interest. In the event that the Contractor or its agents, employees or representatives hereafter acquires such a conflict of interest, it shall immediately disclose in writing such interest to Sound Transit and take action immediately to eliminate the conflict or to withdraw from this Contract, as Sound Transit requests. The Contractor shall not employ any consultant who is concurrently employed by Sound Transit or by Sound Transit's consultants (including, but not limited to, surveyors, engineers, architects, and testing laboratories), without first obtaining Sound Transit's approval in writing.

7.08 PERMITS, FEES, AND NOTICES

A. Except as otherwise indicated, the Contractor shall procure all necessary permits and licenses, pay all charges and fees, comply with all permit conditions and give all notices necessary and incident to the due and lawful prosecution of the Work. Failure of the Contractor to perform any of the requirements specified herein shall result in the Contractor's liability as set forth herein. Upon written request the Contractor shall furnish Sound Transit with satisfactory documentation evidencing compliance with the applicable requirements. Contractor shall sign as co-permitee on any stormwater permits issued for the Work regardless of whether Sound Transit obtains such permit(s) prior to or after execution of this Contract.

B. The Contractor shall be fully liable to Sound Transit and any permit issuing authority for any costs and damages arising out of or relating to Contractor’s failure to obtain a permit or for any failure to comply with the terms of any permit, including (1) costs associated with completing the Work authorized and/or required by any government permit within the time or times, if any, stipulated in such permit and any fees or penalties assessed by the permit issuing authority, (2) any damages or costs assessed under Article 7.14, and (3) delays to the Work caused by failure to timely complete Work, or any separate part thereof. As used herein, the term “permit issuing authority" includes any authority whose permit or license is necessary and incident to the due and lawful prosecution of the Work.

C. The Contractor shall be responsible for identifying, securing, and paying for all necessary licenses, fees, inspections, waivers, utility connection fees, building and other permits, and similar authorizations from governmental and utility authorities required to fulfill the Contract requirements and the Contractor's obligations except for those identified in the Contract as being furnished or paid for by Sound Transit.

D. The Contractor shall maintain at the Work Site copies of all permits, licenses, certificates, or other documentation demonstrating compliance with any applicable statute, regulation, ordinance, or rule or other requirements of this Contract. The Contractor shall provide copies of such documentation to Sound Transit promptly upon request.

E. The Contractor shall be liable for and shall pay all fines, assessments, and other costs resulting from the Contractor's violation of any applicable federal, state, or local statute, regulation, ordinance, or other restriction.

F. The Contractor shall not be entitled to any additional compensation or extension of time as a result of the Contractor's violation of applicable regulatory requirements. If a delay results from such a violation, the Contractor shall be responsible for all costs including, but not limited to, overtime premium associated with regaining the time lost as a result of such delay, and any damages, including liquidated damages, which may result from Contractor's failure to comply with the project schedule as a result of such delay.

7.09 PUBLICITY AND ADVERTISING

The Contractor, its Subcontractors, and Suppliers shall not publish nor cause to be published any advertisement or other material, including news releases and technical papers, regarding the subject matter of this Contract at any time without the prior written authorization of Sound Transit. The Contractor shall not display any signs, posters, or any other advertising matter in or on the Work or on or around the site other than those prescribed by the Contract or by law without the prior written authorization of Sound Transit. In addition, advertising or other copy mentioning Sound Transit or quoting the opinions of any of its employees shall not be released before such copy is approved in writing by Sound Transit. Any material proposed for publication shall be factual and shall not state or imply endorsement by Sound Transit of any firm, service or product.

7.10 LIABILITY AND INDEMNIFICATION

A. The Contractor shall comply, and require its subcontractors to comply, with all Sound Transit resolutions, motions and federal, state, and local laws, regulations, and ordinances applicable to the work and services to be performed under this Agreement.

B. Insurance Coverage, whether owner-provided, contractor-provided, or otherwise, shall not relieve the Contractor, Subcontractors or Suppliers of their responsibility for liability or damages to Sound Transit under the Contract Documents.

C. The Contractor shall be solely responsible for any claims for wages or compensation by the Contractor employees, agents, and representatives, including subcontractors, and save and hold Sound Transit harmless therefrom.

D. The Contractor shall indemnify, defend and hold Sound Transit harmless for any costs and pay any damages or judgments related to any claim brought by any person employed in any capacity by the Contractor, Subcontractors, or any agent of Contractor~~s~~ or Subcontractor on the Work, with respect to the payment of wages, salaries, or other compensation or benefits, including but not limited to benefits such as medical, health, retirement, vacation, sick leave, etc.

E. To the maximum extent permitted by law, the Contractor agrees to defend, release, indemnify and save harmless Sound Transit, its successors and assigns, and its and their shareholders, officers, officials, directors, contractors, and employees, and the ORCA partner agencies (collectively "the Indemnified Parties") from and against any liability including any and all suits, claims, actions, losses, costs, penalties, response costs, and damages of whatsoever kind or nature to the extent arising out of, in connection with, or incident to the Contractor's negligent or intentionally wrongful performance or negligent or intentionally wrongful failure to perform this Contract or the Work~~, or intentional wrongful acts, or Contractor's failure to comply with requirements of the Contract Documents~~; provided, however, that if the provisions of RCW 4.24.115 apply to the Work and any injuries to persons or property arising out of performance of this Agreement are caused by or result from the concurrent negligence of the Contractor or its Subcontractors, agents or employees, and an Indemnified Party, the indemnification applies only to the extent of the negligence of the Contractor, its Subcontractors, agents or employees.

THE CONTRACTOR SPECIFICALLY ASSUMES POTENTIAL LIABILITY FOR ACTIONS BROUGHT BY THE CONTRACTOR'S OWN EMPLOYEES OR FORMER EMPLOYEES AGAINST ANY INDEMNIFIED PARTY, AND FOR THAT PURPOSE THE CONTRACTOR SPECIFICALLY WAIVES ALL IMMUNITY AND LIMITATIONS ON LIABILITY UNDER THE WORKERS COMPENSATION ACT, RCW TITLE 51, OR ANY INDUSTRIAL INSURANCE ACT, DISABILITY BENEFIT ACT OR OTHER EMPLOYEE BENEFIT ACT OF ANY JURISDICTION THAT WOULD OTHERWISE BE APPLICABLE IN THE CASE OF SUCH CLAIM. THIS INDEMNITY OBLIGATION SHALL NOT BE LIMITED BY ANY LIMITATION ON THE AMOUNT OR TYPE OF DAMAGES, COMPENSATION OR BENEFITS PAYABLE BY OR FOR CONTRACTOR OR A SUBCONTRACTOR UNDER WORKERS' COMPENSATION, DISABILITY BENEFIT OR OTHER EMPLOYEE BENEFITS LAWS. THE CONTRACTOR RECOGNIZES THAT THIS WAIVER WAS SPECIFICALLY ENTERED INTO AND WAS THE SUBJECT OF MUTUAL NEGOTIATION. PROVIDED, HOWEVER, THE CONTRACTOR'S WAIVER OF IMMUNITY BY THE PROVISIONS OF THIS PARAGRAPH EXTENDS ONLY TO CLAIMS AGAINST THE CONTRACTOR BY SOUND TRANSIT, AND DOES NOT INCLUDE, OR EXTEND TO, ANY CLAIMS BY THE CONTRACTOR'S EMPLOYEE DIRECTLY AGAINST THE CONTRACTOR.

F. The Contractor further agrees to assume the defense of the Indemnified Parties with legal counsel acceptable to Sound Transit, whose acceptance shall not be unreasonably withheld or delayed, in all legal or claim proceedings arising out of, in connection with, or incidental to the performance of this Agreement or the Work. The Contractor shall pay all defense expenses, including attorneys' fees, expert fees, and costs (collectively "defense costs") incurred directly or indirectly on account of such litigation or claims, and the Contractor shall satisfy any judgment rendered in connection therewith. In the event that any lien is placed upon the property of any of the Indemnified Parties as a result of such suits or legal proceedings, the Contractor agrees to immediately cause the same to be dissolved and discharged by giving bond or otherwise.

G. The Contractor may settle any suit, claim, action, loss, cost, penalty, or damages, subject to the

Commented [Legal157]: Language is added to clarify that it is an agent of the Contractor who it is referred to.

Commented [BA158R157]: Added language to make agreeable.

Commented [CL159R157]: Accept

Commented [CL160]: See revisions to your suggestion.

Commented [CL161R160]: ST HAS NOT INDICATED ACCEPTANCE OR REJECTION OF REVISION. REQUIRES VERBAL DISCUSSION.

Commented [Legal162]: The terms are added to clarify that it is a negligent standard applied to this paragraph. Contractor is not an insurer of every contingency regardless of fault.

Commented [BA163]: Proposed edit accepted.

approval of Sound Transit, whose approval shall not be unreasonably withheld, if such settlement completely and forever extinguishes any and all liability of the Indemnified Parties. In the event of litigation between the parties to enforce the rights under this Article, reasonable attorney fees shall be allowed to the prevailing party.

H. The Contractor further agrees that any review and/or approval by Sound Transit and/or others hereunder shall not relieve the Contractor of any of its obligations to perform to generally accepted professional standards applicable to the types of services and work provided hereunder or in any way diminish its liability for the performance of such obligations or its obligations to provide the indemnities hereunder.

I. The foregoing indemnities and duties to defend shall survive the termination of this Agreement and final payment hereunder, and are in addition to any other rights or remedies which Sound Transit and/or any of the Indemnified Parties may have by law or under this Agreement. In the event of any claim or demand made against any Indemnified Party hereunder, Sound Transit may, in its sole discretion, reserve, retain or apply any monies due to the Contractor under the Agreement for the purpose of resolving such claims; provided, however, that Sound Transit may release such funds if the Contractor provides Sound Transit with adequate assurance of the protection of Sound Transit's and the other Indemnified Parties' interests.

J. The Contractor shall not assign any interest, obligation, or benefit in this Agreement or transfer any interest in the same, whether by assignment or novation, without prior written consent by Sound Transit; provided, however, that claims for money due or to become due to the Contractor from Sound Transit under this Agreement may be assigned to a bank, trust company, or other financial institution without such approval. Notice of any such claim assignment shall be furnished promptly to Sound Transit.

K. Sound Transit's rights and remedies in this Agreement are in addition to any other rights and remedies provided by law.

7.11 OWNERSHIP OF WORK PRODUCT

All information, including drawings, specifications and other data, prepared or developed by the Contractor uniquely and specifically for Sound Transit in performance of the Work, whether or not required to be furnished to Sound Transit, shall be the property of Sound Transit and may be used by Sound Transit without restriction. The Contractor hereby assigns and transfers to Sound Transit any and all copyrights for such materials. Prior to the completion of the Work, the Contractor shall provide Sound Transit with a list of all such information which has not previously been furnished to Sound Transit. Sound Transit will then have thirty (30) days to advise the Contractor which information shall constitute Sound Transit property. Before requesting Acceptance, the Contractor shall deliver to Sound Transit the information that has been identified to constitute Sound Transit property.

7.12 ~~TECHNICAL DATA~~ ~~INTELLECTUAL PROPERTY OF CONTRACTOR~~ WARRANTY OF GOOD TITLE

A. The Contractor shall assume all risks claims of infringement arising from the use of patented or copyrighted materials, equipment, devices or processes not furnished by Sound Transit or any other ORCA partner agency, used on or incorporated in the Work by Contractor, and shall

Commented [Legal164]: The addition made is for clarification of the paragraph to reflect that the work product is specifically made for Sound Transit. Moreover, such change is consistent with other changes/clarifications made in the Contract as it relates to intellectual property.

Commented [BA165R164]: There needs to be a holistic discussion of IP. Reserve for discussion.

Commented [AB166]: All proposed edits in this Article are rejected. Rights in Contractor IP is not the intent of this provision. It is unclear what the Proposer's are. Perhaps a separate Article should be proposed to address Proposer's concerns.

Commented [CL167R166]: With respect, each portion must be examined. Leaving aside the title of the clause the purpose is to protect Sound Transit in the event there is a patent or copyright claim against Sound Transit arising from an alleged infringement claim. INIT is entitled to void its warranty in the event infringement occurs because of a fault of Sound Transit.

Commented [BA168R166]: There needs to be holistic discussion of IP. Reserve for discussion.

indemnify, defend and hold harmless Sound Transit and any other ORCA partner agency, and all of its directors, officers, employees and agents to the maximum extent permitted by law from and against any and all claims, liabilities, losses, damages or expenses (including attorney's fees and related costs), whether direct or indirect, arising out of or relating to the ownership, possession or use of any patented materials, equipment, devices or processes. In case such material, equipment, devices or processes are held to constitute an infringement and their use enjoined, the Contractor at the Contractor's expense shall:

1. Secure for Sound Transit the right to continue using said materials, equipment, devices or processes by suspension of the injunction or by procuring a license, or licenses, or;

2. Replace such materials, equipment, devices or processes, or

3. Modify them so that they become non-infringing, or

4. Remove the enjoined materials, equipment, devices or processes and refund the sums paid therefore without prejudice to any other rights of Sound Transit or the Regional Program Manager.

B. The preceding Paragraph A shall not apply to and Contractor shall have no obligation or liability with respect to any patent or copyright infringement claim based upon: (a) any product that is manufactured to Sound Transit's or those for whom it is responsible, design; (b) the combination, operation, or use of any product furnished hereunder in conjunction with any other apparatus or material; or (c) any products that have been altered, modified, or revised by any party other than Contractor or Contractor's agent. As to any product or use described in the preceding sentence, Contractor assumes no liability whatsoever for patent infringement or the unauthorized use of Products, including, without limitation, a breach of the provisions of the Contract and the failure of Sound Transit to implement any update provided by Contractor that would have prevented the claim. Notwithstanding the foregoing, with respect to any products, or portions thereof, which are not manufactured or developed by Contractor and are not manufactured to Contractor's design specifications, only the indemnity of the manufacturer/developer, if any, shall apply.

~~to any materials or processes specified by Sound Transit or its Contractors, or manufactured to the design of Sound Transit or its Contractor in accordance with the details contained in the Contract Documents, if authorized by Sound Transit; and for such materials and processes the Contractor assumes no liability whatsoever for infringement, except to the extent that the Contractor knew, or should have known of the infringement and failed to promptly notify Sound Transit thereof.~~ NEW CLAUSE

7.13 RIGHT TO INVENTION

In respect only of Work performed prepared or developed by the Contractor uniquely and specifically for Sound Transit in performance of the Work If any invention, improvement, or discovery of the Contractor is conceived or first reduced to practice in the course of Work or under this Contract, and such invention, improvement, or discovery may be patented under the laws of the United States of America or any foreign country, the Contractor shall immediately notify Sound Transit and provide a detailed report. The rights and responsibilities of Sound Transit, the Contractor, and the federal government with respect to such invention, improvement, or discovery will be determined in accordance with applicable federal laws, regulations,

Commented [CL169]: The disclaimer must be retained. If there is an infringement caused by ST Init will not be responsible.

Commented [Legal170]: The added language is to clarify that there in general is no liability for Contractor and/or Contractor's agents in the event of any patent infringement claim, if Contractor was not responsible for design and or production, or if Sound Transit failed to implement any updates provided.

Commented [Legal171]: Paragraph is deleted since there is no Material licensed. Material is purchased.

Commented [Legal172]: The language added is to clarify that Sound Transit only will have these rights in Work prepared or developed uniquely and specifically for Sound Transit under the Contract.

Commented [CL173R172]:

Commented [CL174R172]: NO RESOLUTION. REQUIRES VERBAL DISCUSSION.

policies and any grant agreements. Except for Contractor's use in conjunction with the Work required by this Contract, the Contractor may not publish or reproduce such data in whole or in part, or in any manner or form, nor may the Contractor authorize others to do so, without the written consent of Sound Transit.

This Article shall survive any expiration or termination of this Contract.

7.13 SEVERABILITY

If a provision of this Contract is found by a court of competent jurisdiction to be unenforceable, the validity and enforceability of the remaining provisions shall remain unaffected, and the parties shall negotiate an equitable adjustment of this Contract so that the purposes of this Contract are effected.

7.14 COMPLIANCE WITH LAWS AND REGULATIONS

A. The Contractor shall keep fully informed concerning all governmental requirements, including but not limited to all State, federal, county and municipal laws, ordinances and regulations which in any manner affect the performance of the Work, or the materials and equipment used in the Work, or which in any way affect those engaged or employed to work in connection with the Work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same including the specific legal requirements referenced in the Contract Documents. The Contractor shall at all times comply with, and shall cause all the Contractor's agents, employees and Subcontractors to comply with all such governmental requirements, and shall indemnify, defend and hold harmless Sound Transit and all of its directors, officers, agents, and employees, and the ORCA partner agencies against all claims, liabilities, losses, damages and expenses (including attorney's fees and related costs) arising from or based on the violation of any such governmental requirement whether by the Contractor or contractor's agents, employees or Subcontractors. If any discrepancy or inconsistency is discovered in the Contract Documents for the work in relation to any such governmental requirements, the Contractor shall immediately report the same to the Regional Program Manager in writing.

B. The Contractor shall comply and, to the best of its ability, shall require its subcontractors to comply with all Sound Transit policies applicable to the Work to be performed under this Agreement (for example Sound Transit's policy on equal employment opportunity, harassment, and ADA compliance). Copies of Sound Transit policies shall be supplied to Contractor not later than execution of this Agreement.~~are available upon request as a condition of the enforcement of this section~~.

C. The Contractor shall exercise reasonable efforts to stay apprised of changes to said governmental requirements. The Contractor shall bring any such changes to the attention of the Regional Program Manager and identify with particularity the effect of such changes on the Work. Impacts of time or cost from such change will be investigated and managed through the Change Order process. Any such changed law, ordinance, resolution, or regulation supersedes any conflicting provisions of this Contract.

D. Suspected Violation of Governmental Requirements - If the Contractor knows or has reason to know of any suspected violation of Governmental Requirement by itself or any Subcontractor under the Contract, the Contractor must promptly and fully investigate and immediately report the existence of such investigation to Sound Transit. The Contractor shall fully report, in writing,

Commented [CL175]: What "data" is being referred to here? INIT will not agree to share any invention or improvement it may make in the course of Work. The introductory language must remain to make clear that Sound Transit rights are limited strictly to work of such an unusual and unique nature performed specifically for Sound Transit and no other INIT customers. Please note that the mandatory FTA clause permitting the Government right is also limited to work that is experimental and for which the Government has contributed funds directly for this purpose.

Commented [CL176R175]: NO RESPONSE BY ST INFERS ACCEPTANCE.

Commented [CL177]: Renumber clausing.

Commented [Legal178]: Language is added. Based on the obligation put on the Contractor in this paragraph, it is only reasonable that these policies are provided to Contractor.

Commented [AB179R178]: Proposed edit rejected. Enforcement of policies are not conditional to supplying them.

Commented [CL180R178]: Is Sound Transit refusing to provide INIT the policies it compels INIT to comply with? Are they posted on the Internet? If so; put the site address in.

Commented [BA181R178]: Recent revision should address the concern. They will be supplied, but it still stands that enforcement is not conditional to supplying them.

Commented [CL182R178]: Agreed with my new addition on time of policy delivery

to Sound Transit the facts and information ascertained in the investigation and shall allow Sound Transit to examine all of Contractor's documentation related to the investigation. If Sound Transit reasonably believes access to any individual worker is necessary for a Sound Transit investigation, whether such worker is an employee of Contractor or a Subcontractor of any tier, Contractor must make available, within ~~15~~2 days of a written request, such worker for interview by Sound Transit's representative who has been designated in the written request. Exceptions ~~could~~ shall be made by Sound Transit should the Contractor demonstrate a reasonable attempt to contact and schedule the worker for interview in a timely manner. The Contractor may withhold communications properly considered attorney-client privileged.

E. The Contractor is liable for all actual costs reasonably incurred by Sound Transit directly related to Sound Transit's response to or necessary actions required for the violation of any Governmental Requirement or a settlement by Contractor associated with such alleged violation, including the total personnel costs of Sound Transit employees and other Sound Transit costs, outside attorneys' fees and costs, and outside consultants' fees and costs. Sound Transit may withhold such amounts from sums otherwise payable to Contractor under the Contract. For purposes of this Article 7.14:

1. Environmental Violation occurs when any federal, state, or local governmental entity or other applicable environmental permitting authority has found any portion of the Work or Contractor's performance thereof to be in violation of any environmental permit or other applicable federal, state, or local environmental law, regulation, or requirement.
2. Safety Violation occurs when any federal, state, or local governmental entity or other applicable authority has found any portion of the Work or Contractor's performance thereof to be in violation of any applicable federal, state, or local safety law, regulation, or requirement.
3. Violations of Title VI occur (a) when any federal, state, or local governmental entity or other applicable authority has found the Contractor or any subcontractor to have been in violation of Title VI or any other anti-discrimination or equal opportunity law, or (b) when Sound Transit has hired an independent investigator who determines that sufficient facts exist to support a *prima facie* violation of Title VI or any other anti- discrimination or equal opportunity law.

7.15 ~~[INTENTIONALLY OMITTED]~~ CONTRACTOR LIMITATION OF LIABILITY

ANYTHING IN THIS AGREEMENT TO THE CONTRARY NOTWITHSTANDING, THE LIABILITY OF CONTRACTOR, ITS AFFILIATES, EMPLOYEES, SUBCONTRACTORS OR AGENTS FOR ANY LOSS, DAMAGES, COSTS OR EXPENSES OF WHATSOEVER NATURE ARISING OUT OF OR RELATED TO THIS AGREEMENT SHALL BE LIMITED TO THE TOTAL PRICE SET FORTH IN THIS AGREEMENT. UNDER NO CIRCUMSTANCES SHALL CONTRACTOR BE LIABLE FOR CONSEQUENTIAL, PUNITIVE OR INCIDENTAL DAMAGES, INCLUDING WITHOUT LIMITATION, PRODUCTION FAILURE, LOSS OF UTILIZATION, LOSS OF ORDERS, LOSS OF PROFIT, AND ALL OTHER SUCH INDIRECT DAMAGES.

Commented [Legal183]: Language is added. Based on the obligation put on the Contractor in this paragraph, it is only reasonable that these policies are provided to Contractor.

Commented [AB184R183]: This comment isn't relevant to the proposed edit.

Commented [CL185R183]: Agree. Comment withdrawn.

Commented [AB186]: Willing to agree to no more than two. It is unclear why an employee of the Contractor or Subcontractor wouldn't be available during an investigation.

Commented [CL187R186]: The question is not one of availability but of attendance at work. For example the individual may be ill, in hospital, on holiday etc. Can we agree upon 10 days?

Commented [BA188R186]: It was originally within 1 day, INIT tried for 15, I stated we are willing to agree to no more than two. See additional language to address the concern stated above.

Commented [CL189R186]: Agreed with minor addition.

Commented [BA190]: Reject the proposed insertion of this provision. Public agencies cannot agree to limit liability to this extent; further ST does not agree to place caps on damages named in this contract.

Commented [CL191R190]: REJECTION OF LIMITATION OF LIABILITY WOULD BE A SHOW STOPPER. INIT HAS NEVER ENTERED INTO A CONTRACT WHERE IT CAN NOT LIMIT LIABILITY AND IT IS AN INDUSTRY STANDARD. WE CAN DISCUSS THE LIMITASTION AMOUNT BUT NOT THE PRINCIPLE.

Commented [CL192R190]: NO AGREEMENT ON LIMITATION THEN NO PARTICIPATION. REQUIRES IMMEDIATE VERBAL DISCUSSION

7.16 [INTENTIONALLY OMITTED]

7.17 [INTENTIONALLY OMITTED]

7.18 ENVIRONMENTAL COMPLIANCE AND SUSTAINABILITY

Sound Transit has an established environmental policy, a sustainability initiative, and an environmental management system certified under the International Standards Organization (ISO) 14000. Sound Transit is committed to protecting the environment for present and future generations. The purposes of these policies are to:

A. Implement environmental stewardship and sustainable development

B. Reduce environmental risks and liabilities

C. Enhance image with public, regulators, agencies and stakeholders

D. Ensure regulatory compliance

E. Improve environmental performance

F. Simplify environmental communication

Sound Transit is committed to meeting or exceeding all environmental commitments during all phases of the project. The purpose is to prevent environmental degradation, reduce work delays and cost increases, minimize negative publicity, and reduce the number of upset citizens, landowners, and regulating agencies.

Within thirty (30) days of effective date of the Notice to Proceed, Sound Transit shall provide to the Contractor a copy of Sound Transit's environmental policy, its sustainability initiative, and its environmental management system.

7.19 TAXES

A. Retail Sales Taxes

Commented [AB193]: Rule 171 is not applicable to this Work.

1. Sound Transit has determined that the work to be performed under this Contract is exempt from the retail sales tax pursuant to RCW 82.04.050(7) and WAC 458-20-171 ("Rule 171"). Consequently, the Contract Price is not subject to Washington State retail sales tax and no retail sales tax shall be invoiced to or collected from Sound Transit with respect to the Contract Price.

2. The Contractor is advised that it will be considered the consumer of all materials, equipment and supplies, including prefabricated and precast items that are purchased, used or consumed by them in performing the work and all sales taxable services, and must pay the applicable sales/use tax on all taxable items.

3. In the event that the Washington State Department of Revenue should determine, on audit or otherwise, that all or any portion of the work does not qualify for exemption under Rule 171, or that Sound Transit is otherwise obligated to pay sales/use tax on the

Contract, the Contract and any subsequent invoices will be amended to add and separately state any applicable retail sales tax to the Contract Price. In this event, the Contract Price will be adjusted to eliminate any duplication of retail sales tax for retail sales tax amounts already included in the Contractor's proposal. Sound Transit shall be liable for and hold Contractor harmless from and all penalties, costs and expenses of whatever nature suffered by Contractor or its subcontractors arising out of or related to the failure of Sound Transit to pay sales/use tax related to the Work.

4. If a Contractor has questions regarding the application of Rule 171, the Contractor should contact the Washington State Department of Revenue

B. Federal Excise Taxes - Sound Transit is exempt from Federal Excise Taxes and an exemption certification will be furnished upon request.

C. Other Taxes - The Contract Price includes all other taxes applicable to the Contractor's completion of the Work, including without limitation, B&O taxes applicable to all tiers performing the Work.

D. No increase will be made to the amount to be paid by Sound Transit under this Contract because of any misunderstanding by or lack of knowledge of the Contractor as to liability for, or the amount of, any taxes for which the Contractor is liable or responsible by law or under this Contract.

Commented [CL194]: This portion of the clause must remain.

Commented [BA195R194]: Either Rule 171 applies (and all of the language stays) or it doesn't apply (and all of the language is deleted).

Commented [CL196R194]: Leave all the language, including the added language.

Commented [Legal197]: Sound Transit should pay for any penalties caused by Contractor being penalized for Sound Transit's failure to pay these taxes.

7.20 LIENS PROHIBITED

The Contractor shall not permit any lien or claim to be filed or prosecuted against Sound Transit, its property or its right-of-way on account of any labor or material furnished or any other reason for work arising out of this Contract. If any lien shall be filed, the Contractor shall satisfy, discharge and extinguish or cause such lien to be satisfied, discharged and extinguished immediately, including at Sound Transit's option obtaining a court order extinguishing the lien, as a condition precedent to release of retainage and/or final payment.

Commented [Legal198]: The added language clarifies that the prohibition of liens is not with regards to monies owed Contractor under the Contract.

Commented [AB199R198]: Proposed edits rejected. The available remedies are outlined in this contract.

Commented [CL200R198]: Contractor is entitled to assert its own lien as a materialman for Sound Transit failure to pay. Where is this remedy provided in the contract?

Commented [BA201R198]: Liens cannot be placed on public property or public agencies.

Commented [CL202R198]: As stated earlier, if no liens are permitted for non-payment then passage of title needs to be revised such that title does not pass until payment in full is made.

Commented [CL203R198]: Dealt with in 9.08

7.21 [INTENTIONALLY OMITTED]

7.22 [INTENTIONALLY OMITTED]

7.23 [INTENTIONALLY OMITTED]

7.24 [INTENTIONALLY OMITTED]

7.25 [INTENTIONALLY OMITTED]

7.26 [INTENTIONALLY OMITTED]

7.27 CONTRACTOR ACQUISITION AND / OR MERGER

If the Contractor executing this Agreement ceases to exist as an independent business entity by means of acquisition by and / or merger with a successor or otherwise, the Contractor shall notify Sound Transit in writing not less than thirty (30) days prior to the effective date of the circumstance causing the cessation of the independent business status. Sound Transit reserves the right to take steps to ensure it has contractual privity with the successor. The Contractor shall cooperate with this effort by agreeing to an

assignment, a novation, or other document required to transfer the rights and responsibilities of the Contractor to the successor.

7.28 APPLICABLE LAWS AND JURISDICTION

This Agreement and all provisions hereof shall be interpreted in accordance with the laws of the State of Washington and, to the extent incorporated into (or made applicable to the Work by) the Contract Documents, the laws of the United States of America. Subject to the provisions herein regarding exhaustion of administrative remedies, the Superior Court of King County, Washington, shall have exclusive jurisdiction and venue over any legal action arising under this Agreement.

7.29 INTELLECTUAL PROPERTY PROVISIONS

Commented [BA204]: Reserve for discussion.

A. **Definition of Intellectual Property of Contractor**

1. All intellectual property owned, licensed, sub-licensed or otherwise transferred. Wholly or partially to Contractor, Subcontractors, sub Subcontractors existing at the Effective date of the Contract shall be owned by the respective parties and Sound Transit interest shall be limited by the terms of any license issued to Sound Transit.

2.Software System

Contractor grants to Sound Transit a perpetual, ~~unlimited~~ site specific, royalty-free, non-exclusive and irrevocable license for Sound Transit (including without limitation its officers, directors, employees, and agents) to install, use, copy, modify, and maintain the Software system (and each and every part of the system) in accordance with the terms and conditions of its End User License incorporated herein as Section 07~~7~~, with no limitation on the number of sites or users. For further clarity, and without limitation to the generality of the foregoing, this grant of license includes without limitation:

Commented [BA205]: Proposed edits rejected. Sites may be added from time-to-time and site specificity is not agreeable.

Commented [CL206R205]: The term "site specific" is commonly used by INIT to mean the geographic area of the current project. In the event the project expands in geographic scope INIT is prepared to sell additional hardware and software with accompanying licenses to Sound Transit. However, INIT will not permit the equipment to be moved to a different state.

Commented [BA207]: Proposed edit accepted.

Commented [Legal208]: The first change clarifies that the license refers to a program site for which Contractor was engaged. The second change reflects that the software system's use is regulated by the End User License agreement between the parties.

1. rights to practice any inventions owned, controlled, or licensed by Contractor (or any of its permitted subcontractors) (or any of its or their parent, subsidiary, sister or otherwise affiliated or related companies) as reasonably desirable or necessary to operate or maintain the Software System (and each and every part of the system);

2. rights to use any know-how disclosed or otherwise provided by Contractor (or any of its permitted subcontractors) (or any of its or their parent, subsidiary, sister or otherwise affiliated or related companies) as reasonably desirable or necessary to operate or maintain the Software System (and each and every part of the system); and

3. rights to use, copy and modify (and create derivative works from) Contractor software, with no limitation on the number of sites or users, as reasonably desirable or necessary to operate or maintain the Software System (and each and every part of the system).

~~A. Materials~~

~~Contractor further grants to Sound Transit a perpetual, unlimited, royalty-free, non-exclusive and irrevocable license for Sound Transit (including without limitation its officers, directors, employees~~

~~and agents) to use, copy, distribute, display publicly, perform, and modify (and create derivative works from) all Materials.~~

~~B.~~A. Third Party Software

In providing the Software System, Contractor will use only that Third Party Software that has been expressly approved in writing by Sound Transit. Contractor will procure, maintain, and otherwise be responsible for all licenses for Sound Transit, in Sound Transit's name, for any such Third Party Software reasonably necessary to operate or maintain the Software System. Sound Transit retains sole, ultimate authority on executing and entering into any such licenses. Contractor shall provide to Sound Transit copies of such licenses, along with any related software or license documentation. To the extent that any other licenses or permissions are reasonably desirable or necessary for Sound Transit to operate or maintain the Software System, Contractor hereby grants to Sound Transit to the maximum extent within its rights – or will procure for Sound Transit, in Sound Transit's name, to the maximum extent reasonably negotiable and at Sound Transit's expense – any such licenses and permissions.

~~C.~~B. Right to Sublicense

1. Sound Transit may, in its sole discretion and without incurring any further or additional charges, sublicense any of its rights under this Agreement as reasonably necessary to operate or maintain the Software System, including without limitation: to third-party vendors, contractors, or consultants whom Sound Transit may retain to assist in operation or maintenance of the Software System; and to other transportation entities as reasonably desirable or necessary to implement back-up systems or disaster planning.

2. Licenses Under Bankruptcy Code: All rights and licenses granted under or pursuant to this Agreement are and shall be deemed to be, for purposes of Section 365(n) of the U.S. Bankruptcy Code, licenses of rights to "intellectual property," as defined under Section 101 of the U.S. Bankruptcy Code. The parties agree that Sound Transit, as a licensee of such rights under this Agreement, shall retain and may fully exercise all of its rights and elections under the U.S. Bankruptcy Code; however, nothing herein shall be deemed to constitute a present exercise of such rights and elections.

~~D.~~C. Source Code Escrow

Contractor agrees that as a condition of Final Acceptance it will deposit the source code for any Contractor Software into escrow (including all updates, versions, releases, and upgrades licensed under this Agreement, with a source code agent, nationally recognized, selected by Contractor capable of providing Level 2 certification/~~verification.~~verification. Sound Transit shall become a party to and be governed by the terms of the escrow agreement. Deposit shall be at reasonable periodic intervals based generally on the pace at which the software is being developed or changed – and shall include any and all subsequent updates, versions, releases, and upgrades licensed under this Agreement. The source code escrow agreement shall remain in place, and source code deposits shall be updated and maintained, for as long as Sound Transit and Contractor have entered into a software maintenance or support agreement. The applicable source code will be released to Sound Transit (or any Contractor acting on its behalf) in the event of

Commented [Legal209]: The subparagraphs are deleted because the End User License agreement covers these situations. In case of Materials, there is no applicable license since Materials are purchased.

Commented [BA210R209]: These rights must be reinstated as they are not fully covered in the EULA..

Commented [CL211R209]: The EULA is the determinative document regarding use of the licenses and limitations. If additional rights are required they should be introduced into the EULA text and not here.

Commented [BA212]: Proposed deletion of the Materials paragraph accepted.

Commented [Legal213]: The subparagraph is changed from C to B. There is added language to reflect that any cost involved with the obligation referenced will be an expense of Sound Transit.

Commented [BA214R213]: Proposed edit accepted.

Commented [Legal215]: D is changed to C.

Commented [BA216]: Proposed edits accepted.

nonperformance or the inability of Contractor to execute or maintain the portion of the Software System controlled by or through its applicable software. Contractor agrees that Sound Transit (or any Contractor acting on its behalf) may use the source code to maintain, fix, or modify Contractor Software as reasonably necessary to operate or maintain any portions of the Software System. Contractor and Sound Transit will separately execute an escrow agreement concurrently with this Agreement. Contractor shall be solely responsible for any costs related to the source code escrow during the warranty period. Thereafter all costs and expenses related to the source code escrow shall be for account of Sound Transit.

D. Software Developed by Contractor for this Project

Contractor agrees that for any software that is developed and paid for as part of this Project, Contractor shall grant Sound Transit a perpetual, ~~unlimited~~, royalty-free, Project specific, non-exclusive and irrevocable license for Sound Transit (including without limitation its officers, directors, employees, and agents) to install, use, copy, modify, and maintain the Software system (and each and every part of the system)) in accordance with the terms and conditions of its End User License ~~incorporated herein as Section 07~~, with no limitation on the number of sites or users. For further clarity, and without limitation to the generality of the foregoing, this grant of license includes without limitation, and without license fees:

1. rights to practice any inventions owned, controlled, or licensed by Contractor (or any of its permitted subcontractors) (or any of its or their parent, subsidiary, sister or otherwise affiliated or related companies) as reasonably desirable or necessary to operate or maintain the Software System (and each and every part of the system);
2. rights to use any know-how disclosed or otherwise provided by Contractor (or any of its permitted subcontractors) (or any of its or their parent, subsidiary, sister or otherwise affiliated or related companies) as reasonably desirable or necessary to operate or maintain the Software System (and each and every part of the system); and
3. rights to use, copy and modify (and create derivative works from) Contractor software, with no limitation on the number of sites or users, as reasonably desirable or necessary to operate or maintain the Software System (and each and every part of the system)

Commented [Legal217]: The first change is to the subparagraph reference (E is changed to D.) The other changes relate to input as to the escrow material agent to be selected, and that Contractor needs to be a party to any such agreement. In addition, it needs to be clarified that Contractor is only responsibly for costs relating to source code escrow during the warranty period.

Commented [BA218]: Proposed edit rejected. This requirement is part of O&M as well. See note in weaknesses document regarding this topic.

Commented [CL219R218]: Requires further discussion.

Commented [CL220R218]: NO DISCUSSION HELD. OPEN ISSUE.

Commented [CL221]: EULA is a separate contract and stands by itself. Section 7 might contain a document indicating the parties will execute a EULA in substantially the form set forth in Section 7

Commented [Legal222]: The first change clarifies that the license refers to a program site for which Contractor was engaged. The second change reflects that the software system's use is regulated by the End User License agreement between the parties.

Commented [CL223]: Items 1-3 require additional discussion.

Commented [CL224]: NO DISCUSSION HELD. ISSUE REMAINS OPEN.

ARTICLE 8 INSURANCE

See Section 03 for insurance requirements.

ARTICLE 9 PAYMENT

9.01 COMPLIANCE PREREQUISITE TO PAYMENT

A. Sound Transit shall pay the Contractor Partial Payments for completed Work in accordance with the Partial Payment Schedule as described in Section 9.02, Partial Payment Schedule. Payment to the Contractor shall be based upon Work performed in conformance with the Contract as approved by Sound Transit's review of the payment request. Sound Transit will not approve payments for portions of the Work not performed in full compliance with provisions of the Contract, and applicable laws, ordinances, resolutions, regulations, permits and/or easements,

and may withhold such payments to the Contractor in accordance with Section 9.06, Withholding Payments.

B. The Contractor shall be responsible, and have no claim whatsoever against Sound Transit, for all costs and effects of delays resulting or arising from suspension and/or Stop Work orders issued by Sound Transit and/or any governmental authority as a result of incidents of non-compliance with the Contract or any laws, ordinances, or regulations by the Contractor and/or its Subcontractors and Suppliers. This paragraph shall be void and of no effect in the event that Sound Transit is found to have unreasonably and/or wrongfully issued a suspension or Stop Work order to Contractor.

9.02 MILESTONE AND PARTIAL PAYMENT SCHEDULE

The ~~Contractor shall submit a~~ Milestone or Partial Payment Schedule for the Contract Price is set forth in Section 08 Negotiated Price Sheet~~which is acceptable to Sound Transit~~. ~~The initial submittal shall be made within thirty (30) days after issuance of the Notice to Proceed.~~ The Milestone or Partial Payment Schedule is prepared in accordance with the requirements of the Contract Documents. The Contractor warrants that such values are accurate representations and allocations of the value of the work in each delivery or performance increment on which Sound Transit may rely. ~~Failure to submit a Partial Payment Schedule that is acceptable to Sound Transit will delay the processing of Partial Payments.~~

9.03 MILESTONE AND PARTIAL PAYMENTS

A. The Contractor shall submit no more than one invoice a month, and each invoice may include any number and combination of delivery or performance increments that are completed that month. Invoices need not be based on sequential delivery or performance increments. Each invoice shall be submitted upon forms provided by Sound Transit, and shall include:

1. Contract number and Purchase Order number;
2. Applicable delivery or performance increment (s) and vehicle(s);
3. Unit and total prices by delivery or performance increment;
4. Total invoice amount;
5. The Contractor's statement regarding payment of prevailing wages as specified in the Labor Compliance Manual;
6. The Contractor's current progress schedules, cash flow projections and reports if specified in the Specifications;
7. A completed Affidavit of Amounts Paid to all businesses participating on the Contract, and additional information related to the Contractor's commitment to Small Business and DBEs, if applicable to this Contract;
8. A Pre-Apprentice Training Program Fund Contribution Report, if applicable to this Contract,
9. A Monthly EEO/Apprentice Utilization Report, if applicable to this contract; and

Commented [Legal225]: The added language is to protect Contractor against any unreasonable and/or wrongfully suspension or Stop Work order.

Commented [BA226R225]: Proposed edit rejected.

Commented [CL227R225]: Requires further discussion.

Commented [BA228R225]: Perhaps this should be divided into two paragraphs:
B. Stop work orders issued by Sound Transit
C. Stop work orders issued by other governmental agencies

Commented [CL229R225]: No objection to this suggestion.

Commented [CL230R225]: SEPARATION MADE.

Commented [BA231]: This is requested as part of the revised proposal 2 for evaluation.

10. Certification Regarding Alleged Civil Rights Violations.

If requested by Sound Transit, the Contractor shall provide such additional data as may be reasonably required to support the payment for materials and labor, including payments to Subcontractors and Suppliers. The term "materials", as used herein, shall be considered to include those items which are fabricated and manufactured material and equipment. Only those materials for which the Contractor can transfer clear title to Sound Transit will be qualified for Partial Payment, except as specifically provided below.

B. Partial Payment for Materials Purchased and Delivered but not Installed – To receive Partial Payment for materials purchased and delivered but not yet incorporated into the Work, the Contractor shall submit a list with certified invoices of such materials to Sound Transit for approval together with the Contractor's partial payment request. The required documents to support the Contractor's partial payment request for materials purchased and delivered but not installed will be determined by the storage location of the delivered materials: (1) materials delivered to and stored on the Site (aka Project Site) and (2) materials delivered to and stored in a location not on the Site.

1. For materials delivered to and stored on the site, the Contractor's claimed purchase price shall be supported by (i) certified invoices of Subcontractors or Suppliers (ii) together with proof of payment of such invoices (in the form of cancelled checks or acknowledgment by such Subcontractors or Suppliers of receipt of payment in full for such invoices).
2. For materials delivered to and stored in a location other than the site, For materials delivered to and stored in a location other than the Site, the Contractor's claimed purchase shall be supported by (i) certified invoices of Subcontractors or Suppliers (ii) together with proof of payment of such invoices (in the form of cancelled checks or acknowledgment by such Subcontractors or Suppliers of receipt of payment in full for such invoices), (iii) together with proof that the materials have been delivered to and accepted by the Contractor and are in its possession and control.

   As a condition precedent to making Partial Payment for materials delivered and stored in a location other than the site, Sound Transit shall require that the Contractor, at its expense:

   a. Furnish Sound Transit with an irrevocable letter of credit with terms acceptable to Sound Transit or other security acceptable to Sound Transit. The issuer of the Letter of Credit, if provided, shall be a national bank acceptable to Sound Transit. The amount of the Letter of Credit shall be equal to the amount of the Partial Payment requested for the materials delivered to and stored in a location other than the Site. Sound Transit shall be entitled to draw on the Letter of Credit in one or more draws in any of the following circumstances: (a) the Contractor fails to deliver the materials to the Project Site when required;
   (b) the Contractor, Subcontractor, Supplier or Fabricator, at whose location the material is stored, becomes insolvent, or becomes the subject of a voluntary petition for relief in bankruptcy or other insolvency proceeding (or an involuntary bankruptcy or insolvency proceeding is commenced against the Contractor and

not dismissed within thirty (30) days; or (c) Sound Transit receives notice from the issuer that the Letter of Credit will not be automatically renewed or extended; or

b. Subject to Sound Transit's consent, provide Sound Transit with a first and only priority perfected security interest ("Security Interest") in the materials covered by the payment request, pursuant to a written security agreement in form and substance acceptable to Sound Transit. Such security agreement shall be supported by Uniform Commercial Code ("UCC") financing statements describing the subject materials, UCC searches and other terms and conditions acceptable to Sound Transit in its discretion. Sound Transit may require the Contractor to physically segregate materials from other inventory of the Contractor. The Contractor shall plainly, distinctly, and conspicuously place or cause to be placed upon such other places as may reasonably be designated by Sound Transit from time to time a mark, label, or other identification bearing words that indicate Sound Transit's interest in the material.

Contractor's progress of Work shall not include materials delivered and not installed. Progress shall be determined solely on an estimate of the Work completed. Payment for materials purchased and delivered but not installed shall be at the sole discretion of Sound Transit.

C. Partial Payment for Subcontracted Work - In its payment requests, the Contractor shall include payments for Subcontractors whose work was satisfactorily performed and part of the completed Work covered by the payment request. The Contractor shall not request payment from Sound Transit of amounts for Subcontractors until the Contractor has determined that the Subcontractors are entitled to the payment of such amounts for Work satisfactorily completed. Review of Payment Request - Within ten (10) days after receipt of the partial payment request and the required documentation, Sound Transit will review the request and either indicate approval in writing or indicate in writing to the Contractor specific reasons why part or all of the payment is being withheld and what remedial actions the Contractor must take to receive the withheld amount. Any amounts approved by Sound Transit for payment will, within thirty (30) days of acceptance of the Contractor's properly completed invoice or receipt of the goods or services, whichever is later, pay the Contractor a Partial Payment on the basis of the approved partial payment request. The payments will take into account the retention provisions provided for herein.

D. In the event Sound Transit does not concur with the request, the Contractor may make the changes necessary to obtain Sound Transit's concurrence and resubmit the partial payment request. Sound Transit will, within thirty (30) days of acceptance of the Contractor's properly completed payment request, or receipt of the goods or services, whichever is later, and after the Contractor satisfactorily completes the remedial actions identified in Sound Transit's rejection of the payment request, pay the Contractor a partial payment on the basis of the approved partial payment request.

E. The Contractor shall receive a payment from Sound Transit no more than once per calendar month unless otherwise approved by Sound Transit, at its sole discretion.

F. Notwithstanding the payment provisions of this Contract, Sound Transit may make partial

payment against any delivery or performance increment when Sound Transit deems such payment to be appropriate and in the best interest of Sound Transit to the extent of work has been satisfactorily completed.

G. No approval for payment, nor any payment by Sound Transit, shall constitute an acceptance of Contract deliverables that are not in accordance with the Contract.

9.04 RETAINAGE (WHEN APPLICABLE)

A. Pursuant to RCW 60.28.011, Sound Transit will retain 5 percent of all Partial Payments as a trust fund for the protection and payment of any person or persons, mechanic, Subcontractor, or material provider who performs labor upon the contract or Work hereunder, and all persons who shall supply such person or persons or Subcontractors with provisions and supplies for carrying on such Work, and the State with respect to taxes imposed pursuant to Title 82 RCW which may be due from the Contractor. Such funds shall be deemed as public funds under RCW 39.58. In the event that during the performance of the Contract and prior to the expiration of the claim period as provided in RCW 60.28.011, the amount retained is reduced to an amount below 5 percent, then Sound Transit may retain additional sums from monies earned by the Contractor so as to maintain at all times a 5 percent retained trust fund, unless otherwise reduced or excused by provisions of Chapter 60.28 RCW.

B. Monies reserved under provisions of Chapter 60.28 RCW shall, at the option of the Contractor, be:

1. Retained in a fund by Sound Transit with no interest paid thereon to the Contractor; or Deposited by Sound Transit in an interest-bearing account in a bank, mutual savings bank, or savings and loan association, not subject to withdrawal until after Final Acceptance of all Work, or a portion thereof, as may be approved by Sound Transit; or

2. Placed in escrow in a bank or trust company by Sound Transit. When the monies reserved are to be placed in escrow, Sound Transit will issue a check representing the sum of the monies reserved payable to the bank or trust company and the Contractor jointly. Such check shall be converted into bonds and securities chosen by the Contractor and approved by Sound Transit, and the bonds and securities held in escrow; or

3. Released to the Contractor after the Contractor has provided a ~~P~~retainage ~~B~~bond for the Contract retainage.

Under options 2 and 3 above, interest will be paid to the Contractor as the interest accrues.

C. The Contractor shall designate the option desired on a form as may be provided by Sound Transit. The Contractor in choosing option 2 or 3 agrees to assume full responsibility to pay all costs which may accrue from escrow services, brokerage charges, or both, and further agrees to assume all risks in connection with the investment of the retained monies.

D. In accordance with RCW 60.28.011(5), the Contractor may withhold payment of not more than 5 percent from the monies earned by any Subcontractor or Supplier contracted with by the Contractor to provide labor, materials, or equipment to the Project. The Contractor shall pay

interest to the Subcontractors, and Suppliers as required in RCW 60.28.011(5). The Contractor shall inform Subcontractors and Suppliers of their right to receive these interest payments.

E. If the Contractor provides a retainage bond, the Contractor shall comply with the requirements of RCW 60.28.011 with respect to retained funds of subcontractors and suppliers.

F. Sound Transit makes no warranties as to the amount of interest to be paid on any investments. Upon final payment, the Contractor shall be entitled to all retention and accumulated interest, less monies due to Sound Transit.

9.05 RELEASE OF RETENTION (WHEN APPLICABLE)

A. The retention will be held and applied by Sound Transit as a trust fund as required by Chapter 60.28 RCW. Except as provided in Paragraph 9.05C below, payment or release of retention will be made in the ordinary course of business no earlier than forty-five (45) days following Final Acceptance of the Work provided the following conditions are met:

1. If the Contract Price hereunder exceeds $35,000, Certificates approved by the Washington State Department of Revenue, the Washington State Department of Labor and Industries, Washington State Employment Security Department, and other departments and agencies having jurisdiction over the activities of the Contractor have been provided to Sound Transit ~~have been provided to Sound Transit~~.

2. "Affidavits of Wages Paid" for the Contractor and each Subcontractor approved by the Industrial Statistician of the Washington State Department of Labor and Industries have been provided to Sound Transit.

3. No claims or notices of lien, as provided by law, have been filed against the retention and/or that any such asserted liens have been satisfied, discharged and extinguished as required by the Contract.

4. Contractor signs and returns the Release of Retainage and Indemnity form for this Contract.

5. Sound Transit has no outstanding claims under this Contract.

B. If any taxes have not been discharged or any claims, expenses, and fees have not been paid, Sound Transit shall either retain in its fund, or in an interest bearing account, or retain in escrow, at the option of the Contractor, an amount equal to such unpaid taxes and unpaid claims together with a sum sufficient to defray the costs and attorney fees incurred in foreclosing the lien of such claims, and shall pay, or release from escrow, the remainder to the Contractor.

C. If, under Article 9.07, the Contractor released and paid withheld monies to a Subcontractor, the following provisions shall apply.

1. Sound Transit may in its discretion, in furtherance of 49 CFR § 26.29 or otherwise, decline to withhold retainage from the Contractor and prohibit Contractor from withholding retainage from Subcontractors and/or require a contract clause obligating the Contractor to make prompt and full payment of any retainage paid by Sound Transit to Contractor to

Commented [Legal232]: Sentence deleted. Duplicate.

Commented [BA233R232]: Accepted.

the Subcontractor within 30 days after the Subcontractor's work is Accepted. The Contractor may request release of a portion of the retainage withheld by Sound Transit under Chapter 60.28 RCW equal to the amount the Contractor released and paid to the Subcontractor under Article 9.07. Sound Transit will release a portion of such retainage following submittal to the Regional Program Manager of the Subcontractor's Affidavit of Wages Paid approved by the Industrial Statistician of the Washington State Department of Labor and Industries, and submittal of a proper and complete Declaration of Completion of Subcontractor's Work and Release of Withheld Amount (including the acknowledgement by the Subcontractor of the declaration form, to be provided by Sound Transit).

2. Upon receipt of a proper and complete Affidavit of Wages Paid and a Declaration of Completion of Subcontractor's Work and Release of Withheld Amount (Declaration), the Regional Program Manager will review the affidavit and any accompanying documentation and may review the work completed by the Subcontractor identified on the Declaration. Review of the Subcontractor's work by Sound Transit shall not relieve the Contractor of its responsibility and liability to ensure all Work under the Contract is performed in accordance with the requirements set forth in the Contract and will not commence warranties of Article 3.12, Warranty of Work.
3. If the Regional Program Manager does not concur with the assurances contained in the Declaration, the Regional Program Manager shall notify the Contractor in writing of that conclusion, provide the reasons for that conclusion and identify the remedial actions that the Contractor must take to gain the concurrence of the Regional Program Manager. Sound Transit shall not release any portion of the retainage withheld under Chapter 60.28 RCW until the Regional Program Manager gives his or her concurrence with the assurances contained in the Declaration.

4. If the Regional Program Manager concurs with the assurance contained in the Declaration, the Regional Program Manager shall notify the Contractor in writing of that conclusion and prepare and submit documentation for Sound Transit to release the applicable portion of the retainage withheld under Chapter 60.28 RCW. Sound Transit will release such portion of the retainage within thirty (30) days from the date of the written notice from the Regional Program Manager to the Contractor.

5. Release to the Contractor of any portion of the retainage withheld by Sound Transit under Chapter 60.28 RCW shall not relieve the Contractor of its responsibilities and liabilities for liens and claims duly filed and prosecuted under applicable Washington State law. In consideration of Sound Transit releasing any portion of the retainage withheld by Sound Transit under Chapter 60.28 RCW on account of satisfactorily completion of work by one or more Subcontractors, the Contractor shall defend, indemnify and hold harmless Sound Transit from all responsibilities and liabilities related to such liens and claims. The Contractor acknowledges that failure to make timely payment to the Subcontractor may result in sanctions pursuant to Sound Transit's Diversity Program Provisions, and other legal consequences.

9.06 WITHHOLDING PAYMENTS

A. The Contractor shall only be paid monies earned by fulfilling its responsibilities under this Contract less the 5 percent retention required by 60.28.011 RCW. Monies shall not be considered earned if any of the following conditions applies:

1. The Work for which the Contractor is claiming payment was not performed in accordance with the Contract;
2. The Contractor's pay request does not contain all the required documentation or is otherwise not in conformance with the requirements of this Contract;
3. There is a good faith dispute over all or a portion of the amount due, as detailed in Article 9.07;
4. Failure of the Contractor to make payments owed to Subcontractors, or for labor, materials, or equipment;
5. Failure of Contractor to submit Project Schedule, or updated Project Schedules that are acceptable to Sound Transit and timely in accordance with the Contract;
6. Failure to maintain progress of the Work in accordance with the accepted Project Schedule unless such failure is ~~solely~~ caused by Sound Transit or by Unavoidable Delays, or failure to take necessary steps to regain time or deliver the Work in the prescribed Contract Time;
7. Failure to comply with Contract safety requirements;
8. Imposition of any liquidated damages under the Contract;
9. Defective or Non-Conforming Work;
10. Failure to comply with Governmental Requirements; and/or
11. Third party claims filed or reasonable evidence that third party claims will be filed.

B. In the event Sound Transit withholds all or a part of a payment for deficiencies in either performance, or in a payment request, Sound Transit will notify the Contractor in accordance with RCW 39.76. The Contractor shall have the right to correct all deficiencies that are the basis for the withholding and resubmit the pay request at any time for reconsideration.

C. In the event Sound Transit withholds all or part of a payment because of a dispute, the Contractor may receive the payment by resolving the dispute, or by agreeing to accept the payment tendered by Sound Transit as full and final resolution as between Sound Transit and the Contractor to all claims arising from the dispute.

9.07 PROMPT PAYMENT TO SUPPLIERS AND RELEASE OF AMOUNTS WITHHELD FROM SUBCONTRACTORS

A. When the Contractor receives a payment under this Contract, the Contractor shall comply with

Commented [Legal234]: Term deleted. Payment is not withheld if the delay it is caused by Sound Transit in which case such withholding shall be proportional of the fault of Sound Transit.

Commented [BA235R234]: Proposed edit rejected. The removal of "solely" diminishes the effect of this risk mitigation provision.

Commented [CL236R234]: Rejection accepted.

the following provisions:

1. The Contractor shall pay to each Subcontractor not later than five (5) business days after the receipt of the payment, amounts paid to the Contractor on account of the work performed by the Subcontractor.

    a. In the event of a good faith dispute over all or any portion of the amount due on a payment from Sound Transit to the Contractor, or from the Contractor or subcontractor to a subcontractor, Sound Transit, or the Contractor or subcontractor, may withhold no more than one hundred fifty percent of the disputed amount. Those not a party to a dispute are entitled to full and prompt payment,

2. If the Contractor fails or neglects to make such payment within five (5) business days, the Contractor shall pay to the Subcontractor interest computed at one percent per month on amounts due for the period beginning on the day after the required payment date and ending on the day on which payment of the amount due is made.

3. The Contractor shall include in each of its Subcontracts a provision setting forth the payment and interest penalty clause set forth in this Article 9.07. In addition, the Contractor shall require its Subcontractors to include such a payment and interest clause in each of their Subcontracts and to require each of their Subcontractors to include such clauses in their Subcontracts with each lower tier Subcontractor or Supplier. The time limit for payment under all Subcontracts below the first tier shall be five (5) business days.

B. The payment and interest clauses in this Article 9.07 shall not be construed to impair the right of the Contractor or a Subcontractor at any tier to negotiate and include in their Subcontracts provisions related to retention of a specified percentage or withholding of part or all of Partial Payments without incurring any obligation to pay a late payment interest penalty thereon in accordance with the Subcontract agreement. If the Contractor withholds any portion of payments to a Subcontractor during performance of the Subcontractor's work, whether under Washington State law or otherwise, the Contractor shall comply with the provisions in this Paragraph 9.07B to release such withhold monies following satisfactory completion of the Subcontractor's work.

1. The Contractor shall monitor the work of each Subcontractor to ensure such work is consistent with the terms of the subcontract between the Contractor and Subcontractor.

2. The Contractor shall determine that a Subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required in the subcontract and the Contract between Sound Transit and the Contractor. Upon making such determination, the Contractor shall provide a written notice of such determination to the Subcontractor and submit a copy of the notice to the Regional Program Manager.

3. As required by 49 CFR § 26.29, Contractor shall implement regular and incremental acceptances of portions of the Work as completed by Subcontractors covered by said regulation and shall, within thirty (30) days from and after the date of its determination

that a Subcontractor's work is satisfactorily completed in whole or part, the Contractor shall release and make full payment of all monies withheld from Partial Payments to the Subcontractor during performance of all or any incremental part of the Subcontractors work.

9.08 FINAL PAYMENT

A. Sound Transit will make Final Payment, excluding held retention, to the Contractor following Final Acceptance of Work, and submittal of a final Affidavit of Amounts Paid to all businesses participating under the Contract. Final Payment shall include the entire sum found to be due hereunder after deducting therefrom such amounts as the terms of this Contract permit. Prior estimates and payments, including those relating to extra work or work omitted, shall be subject to correction by the Final Payment. At time of Final Payment by Sound Transit to Contractor title to all goods, materials and services shall pass to Sound Transit. Final Payment will be made only for materials actually incorporated in the Work; and, all materials remaining for which Partial Payments have been made shall revert to the Contractor, unless otherwise agreed, and Partial Payments made for these items shall be deducted from the Final Payment for the Work.

B. By accepting Final Payment, the Contractor shall be deemed thereby to have released Sound Transit from all claims of Contractor and all liability to the Contractor for things done or furnished in connection with the Work and for every act and neglect of Sound Transit and others relating to or arising out of the Work. Payment by Sound Transit shall not release the Contractor or its surety from any obligation under the Contract or under the Performance and Payment Bonds, which obligations shall continue through the Contract Warranty period.

9.09 PAYMENT ON TIME AND MATERIAL BASIS

A. Direct Labor

1. For all labor, foreman and below, engaged in the extra work subject to this Article, the Contractor shall receive:
   a. The applicable wage and fringe benefits on the Contract for each hour that labor is actually engaged in changed work.
   b. The cost of the payroll taxes and unemployment compensation premiums.
   c. The cost of any health, welfare, pension, or collective bargaining agreement benefits paid, including Worker's Compensation.
2. No overtime will be allowed, unless written authorization has been given by Sound Transit.

B. Materials

For all materials and prices approved by Sound Transit used in the extra work subject to this Article, the Contractor shall receive the cost of material, including freight charges and Washington State Sales Tax (if applicable), as shown by the receipted bills for materials and freight.

C. Equipment

1. For all work and automotive equipment required in the performance of the extra work subject to this Article, payment for the use and operation of equipment (owned, leased or rented on a monthly basis by the Contractor) shall be made by Sound Transit under the provisions of this Article. Such charge shall not include any item of equipment or tool with a new cost of less than $500.

2. For Work being performed pursuant to these time and material provisions, reimbursement shall fall into one of two types of equipment ownership (Owned or Rental) and two categories of usage: operated equipment, and standby equipment.

    a. Owned Equipment is defined to include that equipment, owned by or under a lease/purchase or lease/option to purchase agreement with the Contractor, a constituent member of the Contractor, or an entity owned and/or controlled by the Contractor or one of its constituent members.

    b. Rented Equipment is defined to include equipment that is on a short-term rental, long term rental, or lease. Equipment that is on a lease/purchase or lease/option to purchase agreement will be considered as Owned Equipment. If Owned Equipment is not available and Rented Equipment necessary to perform the changed Work is obtained from an outside source, payment for the "ownership" aspect of the cost will be made as stipulated below. In addition, if the rental rate does not include an "operation" component, the Contractor shall be reimbursed for the estimated hourly operating costs as provided below. The Contractor shall be responsible for monitoring the use of such rental equipment to obtain the overall best rates for its utilization. The Contractor shall use its best efforts to minimize the overall cost of such rentals to Sound Transit.

    c. Tunnel Equipment is defined to include the Tunnel-Boring Machines and accessories; tunnel and shaft backup equipment; conveyors (horizontal, vertical, or inclined, either in the tunnel, in the shaft, or on the surface), hoppers or bins; locomotives; all rolling stock; air compressors; shotcrete and grouting equipment; concrete equipment; pumps: water, dewatering, etc.; batch facilities: shotcrete, concrete, grout, etc.; concrete form, travelers, work jumbos; hoists, man or equipment; discharge water treatment facilities and linear facilities; all track and necessary accessories; switches; car dumpers; pipes with valves, couplings, etc.; ventilation line (soft or hard) and fans; electrical (transformers, switch gear, substations, power cable, light lines, etc.); communications equipment and lines; and other fixed or mobile facilities and equipment associated with the tunneling operations.

3. Cost Computations for Owned Equipment:

    a. The basis for cost computations for operated Owned Equipment in the performance of the extra work subject to this Article, shall be as stated in the Cost Reference Guide for Construction Equipment (CRG) by Primedia Information, Inc. or its successor. The CRG version that shall be used will be that which is in effect at the time of performance of the Work. The equipment costs shall be calculated

Commented [Legal237]: Term misspelled.

Commented [BA238R237]: Corrected.

as follows:

1) Charges to Sound Transit for the "ownership" component of the equipment shall be computed and charged to yield the hourly rate based on the sum of depreciation, cost of facilities capital, and overhead components of the CRG for said equipment.

2) After eight (8) hours of equipment use in a twenty-four (24) hour period, and after forty (40) hours of equipment use in a week, the equipment "ownership" rate shall be 50 percent of the rate established in Sub-paragraph (1) above.

3) The costs of fuel, lubricants, tires and other expendables, repairs, parts, service, maintenance, and overhaul (the operating cost) shall be charged at the sum of the Total Operating Cost/Hour plus the Overhaul Costs/Hour (which shall collectively be referred to hereafter as the "Operating Cost/Hour") set forth in the CRG. This rate shall be paid only for hours that the equipment is operated in performance of the changed Work that is subject to these time-and-materials provisions. If the item of equipment is electrically powered with the electricity being supplied by a public utility and if the CRG does not have an electrical fuel cost per hour component in the Operating Cost/Hour, the cost of electricity to operate the equipment will be calculated and submitted to Sound Transit for approval. The approved rate shall be added to and become a part of the "Operating Cost/Hour."

4) The application of any adjustment factors is hereby excluded.

5) Normal working conditions will be assumed and used as the basis for the rate calculation.

6) Equipment Operators will be paid for as direct labor under Paragraph 9.09A, Direct Labor, above and are not part of the calculated rate for equipment. Compensation for equipment mechanics, oilers (not assigned to a specific item of equipment on a full time basis), and other indirect support (labor or equipment) for the equipment fleet is included within the equipment rates otherwise established herein.

7) Transportation costs to and from the work Site for equipment mobilized to the Site specifically to perform the changed Work, if approved in advance by Sound Transit, will be paid as an item to be billed to Sound Transit. This cost will be treated as a Service when performing the markup calculations. No separate payment for transportation costs will be made if the equipment is brought to the Site for other than changed Work.

8) If a rate is not provided in the CRG, and the Contractor and Sound Transit cannot otherwise arrive at a mutually agreeable rate for its use, the Contractor shall furnish appropriate equipment and cost information to

Sound Transit. Sound Transit will calculate an appropriate rate following the principles established in the CRG.

9) If practicable under the circumstances, all equipment rates shall be established in writing before commencing any changed Work. If it is necessary to employ such equipment in performance of the changed Work before it is practicable to provide rates to Sound Transit, the Contractor shall provide rates at the earliest opportunity available to it without hindering the prosecution of the Work.

b. For Owned Equipment on standby in the performance of the extra work subject to this Article, if approved by Sound Transit, the standby rate will be only the ownership portion of the applicable rate. The total standby cost per day will be based on the number of hours that the equipment is on standby in the performance of the changed Work. The standby hours will be calculated as follows:

1) The total standby hours per day will be a maximum of eight (8) hours less the operating hours paid as a result of the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

2) The total standby hours per week will be a maximum of forty (40) less the operating hours paid for the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

4. Cost Computation for Rental Equipment

1) For Rented Equipment that is operated in the performance of the extra work subject to this Article, the cost shall be calculated as follows: The ownership rate per hour shall be calculated by dividing the invoiced amount by the normal hours covered by the invoice. If the normal rental period would be by the month, then Sound Transit shall not approve rental invoices submitted on a weekly, daily or hourly rate basis or allow ownership rates to be calculated on any rate other than a monthly rate. The same logic shall apply for a normal rental period of a week or a day.

2) If the invoice is based on a single shift of operation, then after eight (8) hours of equipment use in a twenty four (24) hour period, and after forty (40) hours of equipment use in a week, the equipment "ownership" rate shall be 50 percent of the rate established in Sub- paragraph (1) above.

3) The costs of fuel, lubricants, tires and other expendables, repairs, parts, service, and maintenance (the "operating" cost) shall be charged at the

Total Operating Cost/Hour set forth in the CRG unless the rental invoice is for equipment which is "operated and maintained", in which case there will be no additional payment for operating costs. This rate shall be paid only for hours that the equipment is operated in performance of the changed Work that is subject to these time-and-materials provisions. If the item of equipment is electrically powered with the electricity being supplied by a public utility, the cost of electricity to operate the equipment will be calculated and submitted to Sound Transit for approval. The approved electrical cost per hour shall be added to and become a part of the "Total Operating Cost/Hour.

4) The application of any adjustment factors is hereby excluded.

5) Normal working conditions will be assumed and used as the basis for the rate calculation.

6) Equipment Operators will be paid for as direct labor under Paragraph 9.09A, Direct Labor, and are not part of the rate calculated for rented equipment unless the rental invoice is for equipment which is "operated and maintained", in which case there will be no additional payment for equipment operators and/or oilers. Compensation for equipment mechanics, oilers (not assigned to a specific item of equipment on a full time basis), and other indirect support (labor or equipment) for the equipment fleet is included within the equipment rates otherwise established herein.

7) Transportation costs to and from the work Site for equipment mobilized to the Site specifically to perform the changed Work, if approved in advance by Sound Transit, will be paid as a discrete item to be billed to Sound Transit. This cost will be treated as a Service when performing the markup calculations. No separate payment for transportation costs will be made if the equipment is brought to the Site for changed Work and is also used on Contract Work items.

8) If a rate is not provided in the CRG and the Contractor and Sound Transit cannot otherwise arrive at a mutually agreeable rate for its use, the Contractor shall furnish appropriate cost information to Sound Transit. Sound Transit will calculate an appropriate rate following the principles established in the CRG.

9) If practicable under the circumstances, all equipment rates shall be established in writing before commencing any changed Work. If it is necessary to employ such equipment in performance of the changed Work before it is practicable to provide rates to Sound Transit, the Contractor shall provide rates at the earliest opportunity available to it without hindering the prosecution of the Work.

b. For Rented Equipment on standby in the performance of the extra work subject to this Article, if approved by Sound Transit, the rate per hour to be paid will be only the ownership portion of the applicable rental rate as calculated above. The total standby cost per day will be based on the number of hours that the equipment is on standby in the performance of the changed Work. The standby hours will be calculated as follows:

1) The total standby hours per day will be a maximum of eight (8) hours less the operating hours paid as a result of the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

2) The total standby hours per week will be a maximum of forty (40) hours less the operating hours paid for the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

D. Markups-Percentage Allowances

The Contractor will be permitted to apply overhead and profit markups, not exceeding the percentage stated herein, to its increased cost resulting from any change in the Work ordered by Sound Transit for which payment is to be made under the time-and-material provisions of this Contract. These overhead and profit markups are maximum allowable percentages subject to reduction by audit.

Markup allowable at the tier for the entity performing the extra work with its own forces, whether the Contractor or a Subcontractor at any tier, shall not exceed 15% of total direct costs of the changed Work. The Contractor's markup allowable to cover the overhead and profit for Work performed by a Subcontractor shall not exceed 6% of the Subcontractor's cost. In no event shall the combined overhead and profit markup paid to Contractor and first tier Subcontractors exceed 21%, unless the work is performed by Subcontractors at the second-tier or lower, in which case an additional 6% markup is allowed at each tier. The markup allowance made shall constitute compensation for all management and supervision above the foreman level, engineering and surveying, safety, administration; use of equipment and tools costing $500 or less; all administrative and overhead expense; insurance premiums not paid herein; profit; other indirect expense; losses of all kinds; home office overhead expense; and all other items of cost not specifically designated herein as items for which specific payment is to be made. No other reimbursement, compensation, or payment will be made for any such services, costs, or other items.

E. Time and Material Records and Invoices

1. All charges related to Time and Material Work authorized by the Regional Program

Manager shall be tracked on a daily basis. The Contractor shall complete a comprehensive Time and Material work report form, furnished by Sound Transit or alternate approved by Sound Transit, which details all the labor, services, material and equipment utilized in the course of completing the Time and Material Work. The report shall itemize the materials used, and shall cover the direct cost of labor and materials, and the charges for equipment rental and operation, whether furnished by the Contractor, Subcontractor or other force. The daily report sheets shall provide names or identifications and classifications of workers, the hourly rate of pay and hours worked; quantity, type and cost of materials used; and also the size, type, and identification number of equipment; the hours operated, and the hours of Sound Transit authorized standby.

2. All charges related to Time and Material Work shall be verified in the field by Sound Transit at the end of each Work shift. The Contractor shall complete a field report at the end of each shift that itemizes and summarizes all the charges. The report shall be signed by the Contractor's Representative and, upon verification by Sound Transit, copies of the signed report shall be provided immediately to Sound Transit's representative. The signature of Sound Transit's Inspector shall not be construed as acceptance of the Work or approval of the value invoiced by the Contractor. The Regional Program Manager shall have the authority to review the charges related to Time and Material Work for reasonableness and efficiency, and to determine if the work for which the Time and Material reports have been submitted is in fact extra work. In the event that certain charges are deemed unreasonable or unnecessary for the Time and Material Work being performed by the Contractor, the Regional Program Manager shall direct the Contractor to delete such charges from the Time and Material Work Records. Evidence of Sound Transit's verification of all field reports shall be submitted by the Contractor with its draft invoice.

3. Invoices for Time and Material Work shall show, in payroll form, the dates, names, hours worked each day, rates of pay, and amounts paid for each individual employed on such Work and shall give in detail the nature of the Work performed by each employee.

4. Invoices for materials and services shall be fully itemized showing dates of delivery, quantities, unit prices, amounts, and discounts, and shall be accompanied by photocopies of vendor invoices covering each item. Such invoices shall be submitted with the daily report sheets. If invoices are not available, they shall be submitted with subsequent daily report sheets; however, except as provided by law, no payment shall be made for material charges until valid copies of vendor's invoices are submitted. Should said vendor's invoices not be submitted within sixty (60) days after the date of delivery of the material or fifteen (15) days after completion and acceptance of the Work, whichever comes first, the Regional Program Manager reserves the right to establish the cost of such materials at the lowest current wholesale prices at which such materials are available in the quantities concerned delivered to the location of the Work, less any discounts provided in these General Conditions.

5. Invoices for Owned or Rented Equipment charges shall be fully itemized showing a complete description including size and capacity of equipment, number of hours operated and/or number of hours at Sound Transit ordered standby for each day, the hourly rates

being charged to Sound Transit for both ownership and operating elements, and the total amount charged, for each individual piece of equipment used. If rates were not pre-approved by Sound Transit as specified herein, the Contractor shall also include the rate computation and appropriate back-up materials as described herein.

6. Invoices for Time and Material Work shall be prepared and submitted in accordance with the payment procedures outlined in this Contract. All invoices, payrolls, and other documents which support the invoice for the Time and Material work shall be submitted with the partial payment request, shall state the Contract number, and Contract Item under which the Work was performed.

7. Failure to present complete Time and Material records and invoicing in proper form after the close of the month in which the time and materials Work was performed shall constitute a waiver by the Contractor of its right to present such a billing or invoice thereafter or to receive payment therefore, unless the Contractor promptly corrects and resubmits the Time and Material Records and Sound Transit approves the re-submittal.

F. The Regional Program Manager will compare the Regional Program Manager's records with the daily report sheets furnished by the Contractor, make any necessary adjustment, and adjust the costs of work paid for on a Time and Material basis on the Time and Material Work forms. When these daily reports are agreed upon and signed by both parties, they shall become the basis of payment for the work performed, but shall not preclude subsequent adjustment based on a later audit.

G. Payment as provided in this Article shall constitute full compensation to the Contractor for performance of work paid for on a Time and Material basis and no additional compensation will be allowed therefore.

H. The Contractor shall maintain its records in such a manner as to provide a clear distinction between the direct costs of Work paid for or required to be paid for on a Time and Material basis and the costs of other operations.

9.10 PROVISIONAL SUM WORK

A. No Provisional Sum Work will be performed, or paid for, without prior issuance of a Provisional Sum Authorization (PSA).

B. Sound Transit may, without request from the Contractor, issue a PSA for work to be performed under a Provisional Sum Contract Pay Item.

C. If the Contractor believes that a PSA is required, the Contractor shall notify Sound Transit. Sound Transit will:

1. Issue a PSA; or

2. Request additional information; or

3. Make a written determination that the event or condition does not justify a PSA.

D. The Contractor shall maintain records and invoices for all costs associated with the Provisional Sum Work in accordance with the requirements specified in Section 9.09 Payment on Time and Material Basis.

E. Any potential time impacts arising from Provisional Sum Work shall be resolved in accordance with Article 4, Changes and Change Order Process, and Article 10, Delays and Claims.

ARTICLE 10 DELAYS AND CLAIMS

10.01 CLAIMS

A. Notice of Intent to Claim

1. In order to receive any recovery or relief in connection with the Contract, the Contractor must submit a written Notice of Intent to Claim to Sound Transit through the Regional Program Manager in accordance with the provisions of this Article. Written Notice as provided herein shall be a condition precedent to the Contractor's right to recover on a claim, and failure to comply with these requirements shall constitute a waiver by the Contractor on any right, equitable or otherwise, to bring any such claim against Sound Transit.

2. The written Notice of Intent to Claim shall set forth:

   a. Detailed description of the facts and/or conditions giving rise to the Contractor's demand for additional compensation ;

   b. nature of the costs involved;

   c. the Contractor's plan for mitigating such costs; and

   d. the Contractor's best estimate of the amount of the potential claim, and

   e. the Contractor's best estimate of Critical Path(s) impacts.

3. The Notice shall be submitted within ten (10) days after Contractor discovers or ~~becomes aware of~~should have discovered, whichever comes first, the event or occurrence giving rise to the potential claim, or the denial of a Request for Change or the issuance of a Unilateral Change Order by Sound Transit. However, if the event or occurrence is claimed to be an act or omission of Sound Transit, a Notice of Intent to Claim shall be given by the Contractor within ten (10) days after the Contractor discovers or ~~becomes aware of~~should have discovered, whichever comes first, the act or omission ~~and prior to the time for performance of that portion of the Work~~ to which such alleged act or omission relates.

4. The notice requirements of this Article are in addition to any other notice requirements set forth in the Contract.

B. Claims

1. General

Commented [CL239]: Rejection accepted.

Commented [BA240]: Proposed deletion rejected.

Commented [Legal241]: Language is added to clarify that the clock does not start to run until the Contractor becomes aware of, and/or discovers any potential claims. The other changes are made to reflect the added language in the first sentence and to clarify the overall meaning of the paragraph.

Commented [BA242R241]: See counter-language.

Commented [BA243R241]: No response so have to assume this is accepted.

Commented [CL244R241]: Accepted.

a. The Contractor shall file all claims within sixty (60) days of the submission of the Notice of Intent to Claim, with a reasonably detailed factual statement of the Claim providing at minimum (i) all necessary details, locations and items of Work affected, (ii) the specific causes(s) of the Claim or alleged damages sustained, (iii) an explanation as to how Contractor diligently attempted to mitigate its damages for the Claim, (iv) copies of documents Contractor believes support the Claim, (v) all cost records meeting the requirements of Article 3.03, and (vi) if the claim seeks an extension of the Contract Time, the specific days and dates sought and Contractor's analysis of the Contract Schedule demonstrating entitlement to the time extension. When requested by Sound Transit, the Contractor shall submit such further information and details as may be required to determine the facts and contentions involved in said claim. The Contractor shall give Sound Transit access to its books, records, and other materials relating to the Work claim, and shall cause its Subcontractors to do the same, so that Sound Transit can investigate said claims. The Contractor shall provide Sound Transit at its cost, on request, with copies of theany and all portions of all such books, records, and other material determined to be pertinent to the claim.

b. Failure to submit the reasonably detailed factual statement described above will may result in rejection of the Claim.

c. Each claim the Contractor submits for an adjustment that is related to a delay for any cause shall be accompanied by:

1) a revised project schedule reflecting the effects of the delay; and

2) proposals to minimize these effects.

d. If the Contractor fails to submit any Claim in writing in the time and manner specified herein, it shall waive any relief that might otherwise be due with respect to such claim. Depending upon the grounds for the relief and the nature of the relief sought, additional information and/or conditions of submittal may be specified elsewhere in this Contract.

e. At all times during the course of claim evaluation or dispute resolution, the Contractor agrees to continue to perform the Work with due diligence and in accordance with the Contract, unless a Stop Work Order has been issued by Sound Transit. In the event the disputed matter impedes continuing performance, the Contractor shall inform Sound Transit in writing of the impediment and seek direction as to how to proceed. If the Contractor fails to provide such notice to Sound Transit, it shall be assumed that the Contractor is proceeding with performance of the Contract.

f. Compliance with the cost record requirements related to the Claim is a condition precedent to making of any Claim for recovery of any costs or damages related to or arising from performance of the Contract or the Work. In the event Contractor or any Subcontractor or Supplier seeks to make a Claim without complying with

Commented [BA245]: Proposed edit rejected.

Commented [CL246]: These require further discussion.

Commented [BA247R246]: Reserve for discussion

Commented [CL248R246]: OPEN ITEM. NO DISCUSSION FROM ST.

Commented [BA249]: Proposed edit rejected.

Commented [CL250R249]: OPEN ISSUE.

Commented [BA251]: okay

Commented [BA252]: okay

Commented [BA253]: Proposed edit rejected.

Commented [CL254R253]:

Commented [Legal255]: Language has been added to make it clear that the Contractor's responsibilities are to provide sufficient information to make Sound Transit aware of the basis of the claim and not to provide every fact and detail.

Commented [BA256]: Proposed edit rejected.

Commented [BA257]: okay

Commented [Legal258]: Language has been added and changed to clarify the paragraph and to make it optional to reject the Claim.

Commented [CL259R258]: NO RESPONSE BY ST. ASSUME ACCEPTANCE.

such requirements (inclusive of Article 3.03), such Claim is deemed waived and no adjustment shall be made to the Contract Price or Contract Time with respect to such Claim.

g. Both parties have a duty to take all reasonable steps necessary to mitigate losses resulting from the dispute whether those losses are their own or another party's losses.

h. All claims filed by Contractor or counterclaims filed by Sound Transit shall be verified under penalty of perjury by an officer or principal authorized to act for Contractor or in the case of a counterclaim for Sound Transit (or, in the case of claims made by or for the benefit of any Subcontractors, by an authorized officer or principal of both Contractor and Subcontractor) containing a sworn certification that the Claim is made in good faith after the exercise of reasonable diligence and investigation, that the supporting cost and pricing data are true and accurate based upon reasonable investigation, that the Claim is fully supported by accompanying data and accurately reflects the adjustment in the Contract Price and/or Contract Time for which Contractor believes Sound Transit is liable, and that in the event the Claim proceeds to alternate dispute resolution or litigation that the Claim amount will not exceed the amount set forth in the Claim plus any increased costs or expenses of any nature increased as a result of alternate dispute resolution and/or litigation.

2. Claims Processing

a. The Contractor shall submit its claim in writing to the Regional Program Manager for evaluation and resolution. Sound Transit shall respond within sixty (60) days after receipt of the claim. ~~Sound Transit~~ Either party may request in writing, within thirty (30) days of receipt of the claim by Sound Transit, that the ~~Contractor~~ other party provide any additional documentation that may be required to support the Contractor's claim or documentation that may relate to defenses or claims Sound Transit may have against the Contractor. Sound Transit shall respond in writing to the Contractor's claim including any additional documentation as requested by Sound Transit, within either thirty (30) days of receipt of said additional documentation, if the Contractor responds during the initial sixty (60) day period, or within a period no longer than that taken by the Contractor in producing the additional documentation, whichever is greater. In no event shall the extension of the response time resulting from Sound Transit's request for additional documentation and the Contractor's response time be deemed to waive any statutory limits or rights to Sound Transit.

b. The Regional Program Manager shall issue a ~~reasoned~~ written decision with reasons regarding the claim and deliver such decision promptly to Contractor in accordance with subsection 2.a. above. If the claim is found to have merit by the Regional Program Manager, the settlement will be negotiated in compliance with Article 4, Changes and Change Order Process.

Commented [Legal260]: Language has been added to clarify the paragraph.

Commented [CL261R260]: NO RESPONSE FROM ST. ASSUME AGREEMENT.

Commented [LC262]: Applies when Sound Transit files a counterclaim

Commented [BA263R262]: Proposed edits rejected. If ST has a claim it is not a "contract claim" and it will not follow this process.

Commented [CL264R262]: A counterclaim is a claim filed to offset the original claim and it is likely Sound Transit would want this. In any event the term here is "counterclaim".

Commented [CL265R262]: NO RESPONSE FROM ST. ASSUME ACCEPTED.

Commented [Legal266]: Additional language was added to take into account that the Contract provides for Sound Transit to make a counterclaim and to give Contractor the opportunity to recovery additional legal costs arising from proceeding taking place after the claim was submitted.

Commented [BA267R266]: Proposed edit rejected.

Commented [CL268R266]: Please explain basis for rejection.

Commented [BA269R266]: We just don't understand the purpose of the addition.

Commented [CL270R266]: The addition reserves the right of Contractor to claim for legal costs, interest, mediator fees etc. in the event Contractor prevails.

Commented [CL271R266]: NO OBJECTION FROM ST. ASSUMES ACCEPTANCE.

Commented [Legal272]: Language has been added/changed to clarify the paragraph and the claims process.

Commented [BA273R272]: Proposed edit rejected.

Commented [CL274R272]: Please explain the basis for your rejection.

Commented [BA275R272]: After reconsideration, proposed edit accepted.

Commented [Legal276]: The language is added to clarify the claims process, and to assist and facilitate a settlement.

Commented [BA277R276]: Proposed edits rejected. Response is addressed in paragraph 2.a. above.

Commented [CL278R276]: With respect I do not understand how the comment above addresses this section.

Commented [BA279R276]: Most recent revision should satisfy the concern.

Commented [CL280R276]: AGREED

3. Claims Two Hundred Fifty-Thousand Dollars ($250,000) and Less.

   If Sound Transit finds the claim not to have merit, the Contractor may, within ten (10) calendar days of receipt *of* the finding, submit written appeal to Sound Transit's Director of Construction Management. The finding on the appeal will be provided in writing within sixty (60) calendar days unless a longer review period is deemed necessary, in which case the Contractor will be notified of the response period within the initial 60 days after the appeal.

4. Claims Over Two Hundred Fifty-Thousand Dollars ($250,000)

   If Sound Transit finds the claim not to have merit the Contractor may, within ten (10) calendar days of receipt of the finding, submit the claim for dispute resolution in accordance with Article 11, Dispute Resolution.

   ~~If the Dispute Resolution process finds the claim to have merit and if both parties accept the finding, Sound Transit and the Contractor will negotiate the terms and value of a~~ bilateral ~~Change Order in accordance with Article 4, Changes and Change Order Process.~~

5. In no event shall any claims be made, except for claims for Work conducted after Final Acceptance, after Final Acceptance is issued. Failure by the Contractor to submit claims in a timely manner shall result in a waiver by the Contractor as to such claims.

6. Failure to comply strictly with the notice and other procedures set forth in the Contract Documents shall bar the Contractor from asserting any claim or right to compensation, damages, schedule extension, or any other relief.

10.02 DELAYS

A. Liquidated Damages ~~[to be negotiated]~~

1. For each and every day that Contractor fails to achieve a designated Contract Milestone, as specified in the Special Conditions, damage will be sustained by Sound Transit. These damages may include, but are not necessarily limited to the following:

   a. Delays in completion and operation of the system;

   b. Increased costs of Contract administration, inspection, and other ORCA agency functions related to the design and execution of the Project;

   c. Costs resulting from delays to interfacing Contractors;

2. Because of the difficulty in computing the actual material loss and damages to Sound Transit, it is determined in advance and agreed by the parties hereto that the Contractor will pay Sound Transit the amount(s) set forth in Section 04 Liquidated Damages Amounts for each day of delay as representing a reasonable forecast of the actual damages that

Commented [Legal281]: Second Paragraph deleted since the amount to be awarded must be determined by the trier of fact and not through negotiations.

Commented [BA282R281]: Proposed deletion rejected. A change order still has to be negotiated.

Commented [CL283R281]: Why would a change order need to be "negotiated" if both parties agree. I propose that the language be extended to require the parties to enter into a bilateral change order on the terms. After all, the Sound Transit Regional Program Manager made the decision.

Commented [BA284R281]: Added "bilateral" to clarify that the Change Order would be signed by both parties.

Commented [CL285R281]: Accepted

Commented [Legal286]: The language is added to clarify the paragraph.

Commented [BA287R286]: Proposed edit accepted.

Sound Transit will suffer by the failure of the Contractor to complete such Work, or portion thereof, within said time(s). The execution of this Contract shall constitute acknowledgement by the Contractor that it has ascertained and agreed that Sound Transit will actually suffer damages in the amount herein fixed for each and every day during which the completion of the Work or portions thereof is avoidably delayed beyond the specified time(s).

3. Sound Transit may deduct assessed liquidated damages from any monies due or that may become due to the Contractor under the Contract. If such deducted monies are insufficient to recover the liquidated damages owing, the Contractor or the Contractor's surety or sureties shall pay to Sound Transit any deficiency within thirty (30) days after completion of the Work.

4. Where liquidated damages for contractor-caused delays are applicable, Sound Transit shall not seek actual damages for delay; however, to the extent liquidated damages are not applicable, Sound Transit reserves all other rights and remedies provided by law or under this Contract.

B. Extension of Time for Certain Delays

1. Notice of Delay or Potential Delay. Immediately, but in any event no more than five (5) days, after the Contractor foresees or should foresee a delay or a potential delay in the prosecution of the Work or upon the occurrence of a delay or potential delay that the Contractor regards as Unavoidable or compensable, the Contractor shall provide notice to Sound Transit of such delay or potential delay. Within five (5) days of such notice the Contractor shall provide in writing the extent of the delay, the specific impacts and effects of the delay on critical path activities and the Project Schedule, and its cause. The notice requirement in this Paragraph 10.02B.1 is in addition to notice required by other parts of this Contract, inclusive of Article 4.02. At a minimum the written notice under this Paragraph shall include:

   a. The facts underlying the potential delay;

   b. The nature of any additional costs which may be caused by the potential delay;

   c. The nature of any additional time which may be needed;

   d. The Contractor's plan for mitigating such costs and delay; and

   e. An estimate of the cost impacts due to the delay or the potential delay and an estimate of the time extension required for mitigation, along with all substantiating facts and supporting data.

2. The Contractor shall take immediate steps to prevent, if possible, the occurrence or continuance of the delay. If this cannot be done, the Contractor and Sound Transit will determine how long the delay will continue and to what extent the prosecution and completion of the Work are being or will be delayed thereby. Sound Transit will also determine whether the delay is to be considered Avoidable or Unavoidable and notify the

Contractor of Sound Transit's determination.

3. Compliance with the notice requirements of this Article shall be a condition precedent to the Contractor's claim for delay. The Contractor agrees that no claim shall be made for delays for which timely written notice, as specified above, is not made to Sound Transit.

C. Avoidable Delays

1. Avoidable Delays in the prosecution of the Work shall include delays to the critical path of the Work that could have been avoided by the exercise of due care, prudence, coordination, foresight and diligence on the part of the Contractor, its Subcontractors, or its Suppliers at any tier. Examples of Avoidable Delays include, but are not limited to:

   a. Delays that may in themselves be unavoidable but do not necessarily prevent or delay the prosecution of parts of the Work or the completion of the Work within the Contract Time (e.g., fit within the Float time shown on the Project Schedule(s).)

   b. Time associated with the reasonable activities of Sound Transit, third party stakeholders or other contractors employed by Sound Transit that do not necessarily prevent the completion of the Contract within the Contract Time.

   c. Individualized labor actions or strikes within Contractor's control, normal weather conditions, mechanical breakdown, equipment failure, and acts of negligence by the Contractor's forces, including Subcontractors and Suppliers.

   d. Delays in the prosecution of the Work due to:

      1) The Contractor's failure to provide sufficient resources, including, but not limited to: personnel, equipment, material, or facilities;

      2) The Contractor's failure to submit required work products in a timely manner;

      3) The Contractor's failure to procure and/or deliver materials and/or equipment in a timely manner.

2. Contractor shall not be entitled to any time extension or additional compensation for any Avoidable Delay. However, Sound Transit may in its sole discretion grant an extension of time for Avoidable Delay, if Sound Transit determines that an extension is in Sound Transit's best interest. Any such discretionary time extension shall be issued through a Change Order.

D. Unavoidable Delay

1. An Unavoidable Delay means a delay to the critical path of the prosecution of the Work that results from causes beyond the control of the Contractor and that could not have been avoided by the exercise of care, prudence, coordination, foresight, and diligence on the part of the Contractor, its Subcontractors or its Suppliers at any tier, and for which no

provision is specifically provided in the Contract Documents for managing or mitigating such delay.

2. Examples of Unavoidable Delays include, but are not limited to:

   a. Acts of God.

   b. Fire or other casualty for which Contractor is not responsible.

   c. War.

   d. Riot.

   e. Unusually Severe Weather. Unusually severe weather conditions shall not be deemed unusually severe if they fall within two (2) standard deviations from the mean of data recorded by the U.S. Weather bureau for the Seattle and Tacoma metropolitan area over the past twenty (20) years. Impacts of on-going weather conditions shall be updated weekly by the Contractor and provided to Sound Transit. To preclude the difficulties of actual measurement the parties hereto agree that weather data at the Site shall be expressly deemed to be the same as that measured at the Seattle-Tacoma International Airport by the Environmental Data and Information Service of the National Oceanic and Atmospheric Administration ("NOAA") of the U.S. Department of Commerce.

   f. Epidemic.

   g. Earthquake.

   h. Terrorism.

   i. General industry strikes or labor disputes beyond the reasonable control of the Contractor.

3. Extension of Time - For delays that the Contractor has given notice as required by the Contract, and considers to be Unavoidable Delay, the Contractor shall submit to Sound Transit complete written information demonstrating the effect of the delay on the critical path on the accepted Project Schedule. The submission shall be made within ten (10) days after the end of the occurrence that is claimed to be responsible for the Unavoidable Delay. Sound Transit will review the Contractor's submission and determine the number of days of Unavoidable Delay and the effect of such Unavoidable Delay on such critical path. Sound Transit may grant an extension of time to the extent that Unavoidable Delays necessarily affect the critical path(s) in the Project Schedule. During such extension of time, liquidated damages will not be charged to the Contractor. It is understood and agreed by the Contractor and Sound Transit that time extensions due to Unavoidable Delays necessarily involve critical path operations that would prevent completion of the Work, or portion thereof, within the Contract Time. Time extensions shall be issued via a Change Order. Contractor shall not be entitled to any additional compensation or Equitable Adjustment for any Unavoidable Delay.

E. Concurrent Delay

If Sound Transit determines that there are delays to the project as a result of concurrent delays, Sound Transit may grant a time extension. However, no compensation will be due to the Contractor for this time extension due to the concurrent nature of delays. Concurrent delay means a situation where both Contractor and Sound Transit are responsible for delays affecting the critical path where none of the delay events are utilizing available project float. If a delay for which Contractor seeks compensation under Article 10.02F is caused concurrently with either Avoidable Delay or Unavoidable Delay, then Sound Transit is only responsible for that portion of any compensable delay which it caused in excess of such Avoidable Delay or Unavoidable Delay, provided Contractor is able to prove such apportionment.

F. Compensation for Certain Delays

To the extent that the Contractor ~~proves~~ demonstrates (a) that the Contractor has been delayed in completion of the Work by reason of changes made by Sound Transit under these General Conditions, or a Stop Work Order, or a failure by Sound Transit to comply with its obligations under the Contract;
(b) that the Contractor was not concurrently responsible for the delay; (c) that the Contractor has suffered actual losses as a result of the delay; (d) ~~that but for Sound Transit's actions, the Contractor could not have suffered such actual losses~~; (e) that the Contractor could not have mitigated such actual losses despite taking all precautionary and remedial actions; and (f) ~~that the delay was not within the contemplation of the Contract;~~ then Sound Transit shall pay to the Contractor as full compensation for any such delay, and for any actual and real disruption which may have been associated with any such delay which the Contractor can clearly quantify and calculate, the amount of the actual loss as computed in accordance with the Contract Documents, provided that the Contractor shall strictly comply with the notice and other claims procedures set forth in Article 10.01, Claims. Unless the Contractor satisfies the provisions of this Article, the Contractor's sole remedy for Sound Transit-caused delay shall be an extension of time under Paragraph 10.02B, Extension of Time for Certain Delays.

In no event may Contractor or any of its Subcontractors at any tier recover compensation for unabsorbed home office overhead unless (1) Sound Transit directs a suspension of indefinite duration due to Sound-Transit-caused circumstances and (2) Contractor and/or its Subcontractors were unable, in the exercise of reasonable care, to reallocate resources so as to mitigate losses or damages.

ARTICLE 11 DISPUTE RESOLUTION

11.01 PURPOSE OF DISPUTE RESOLUTION

The purpose of this Dispute Resolution Article is to provide a structured approach for the parties to resolve disputes fairly at the lowest level possible without incurring significant administrative costs. It is agreed by the parties that the parties shall enter into the dispute resolution process in good faith and that use of the dispute resolution processes for purposes other than resolving a legitimate dispute (e.g. as a delay tactic) shall be evidence of bad faith in the performance of this Contract.

Commented [Legal288]: Language has been deleted and added to clarify the paragraph.

Commented [BA289R288]: Proposed edits to paragraph F rejected.

Commented [CL290R288]: Please explain the basis for the rejection.

Commented [BA291R288]: The replacement of the term "proves" with the term "demonstrates" is accepted.

Commented [BA292R288]: For the rest of the edits in this paragraph: It is fair to require the Contractor to show that ST was the cause of any damages and that it wasn't anticipated.

Commented [CL293R288]: The head paragraph makes Contractor responsible for demonstrating it has been damaged by ST the burden of proving concurrent negligence of Contractor is on ST. Contractor has the burden to show it made attempts to mitigate damages but only if mitigation is raised by ST. Subparagraph (f) is an affirmative defense and must be raised and proved by ST. Requires further discussion.

Commented [CL294R288]: OPEN ISSUE.ST HAS NOT DISCUSSED.

11.02 CONTINUATION OF WORK WHILE DISPUTE RESOLVED

At all times during the course of the Claim, conflict or dispute resolution, the Contractor agrees to continue to perform the Work with due diligence, unless a Stop Work Order under Article 12.01 has been issued by Sound Transit.

11.03 DUTY TO MITIGATE

Both parties have a duty to take all reasonable steps necessary to mitigate losses resulting from the Claim or dispute whether those losses are their own or another party's losses

11.04 PARTNERING

A. Preventing Conflict

1. The parties agree to use the principles of Project Partnering: collaboration and cooperation to identify and engage in measures to prevent and resolve potential sources of conflict before they escalate into disputes, claims, or legal actions. Such measures should extend to all levels of the Work, including lower-tiered Subcontractors, and may include the following:

    a. Conducting a one-day workshop to "kick-off" the performance of the Work by introducing the concepts of Project Partnering and holding follow-up workshops at least annually.

    b. Developing and implementing a Partnering Action Plan devoted to developing and maintaining a collaborative atmosphere on the project at all levels.

    c. Developing and implementing a Dispute Escalation Process.

    d. Conducting facilitated, Executive Partnering Sessions among the senior managers of each party to discuss issues related to potential conflicts and to engage in collaborative problem solving.

    e. Conducting training for all parties in teambuilding, collaborative problem solving and conflict resolution skills.

    f. Conducting evaluations of the Project's partnering efforts.

    g. Including language from this Article in contracts for Subcontractors who become involved in the performance of the Work.

2. Sound Transit will provide the ~~Partnering~~ partnering ~~Facilitator~~ facilitator and ~~Facilities~~facilities. All other costs associated with the Contractor's participation in the partnering program shall be included in the Contract Price.

B. Resolving Conflicts

1. Sound Transit and the Contractor agree to use their best efforts to resolve disputes arising out of or related to this Contract using good faith negotiations and the principles of Project

Commented [Legal295]: Term is capitalized but has not been defined in Article 1, "Definitions," nor in the paragraph where the term is used. Term should to be defined by Sound Transit.

Commented [BA296R295]: Un-capitalized the terms.

Partnering by developing and implementing a Dispute Escalation Process that provides for the timely resolution of disputes as close to the their point of origin as possible. It is agreed that the foregoing will not negate any of the Contract requirements for providing timely notice and the timely submission of documents that are required elsewhere in the Contract Documents.

2. In the event the parties are unable to resolve their dispute using the Dispute Escalation Process, if a Dispute Review Board (DRB) has been established for this Contract and if the claim is over $250,000, the dispute shall be referred to a DRB as a condition precedent to mediation. If the claim is $250,000 or less or, if no DRB has been established for this Contract or, if the dispute remains unresolved after a hearing by and recommendation from the DRB, the dispute shall be referred to mediation as a condition precedent to the commencement of a civil action. For mediation, a mediator shall be chosen that is agreeable to all parties involved in the dispute and such agreement shall not be unreasonably withheld. All statements made by parties involved in the dispute to the mediator shall remain confidential and shall not be disclosed by the mediator in any litigation or other claim proceedings. All parties hereby agree to such terms and signature of the Contract provides written confirmation of these terms.

11.05 DISPUTES REVIEW BOARD

A. A Disputes Review Board (DRB) may be established to assist in resolving claims arising out of this Contract. Disputed claims may be heard by the DRB only after the claims process detailed in Article 10.01, Claims, has been exhausted.

B. The provisions for establishing a DRB, if a DRB is to be utilized in this Contract, will be provided in the Special Conditions in the Article entitled Disputes Review Board Procedures. The form of the Three Party Agreement to be used in establishing a DRB will also be provided in that section.

C. Where no approved DRB is currently established or currently operating, the parties will utilize their best efforts to negotiate resolution of claims in good faith.

11.06 EXHAUSTION OF ADMINISTRATIVE REMEDIES/TIME LIMITATION FOR SUIT

It is the intention of this Article that differences between the parties arising under and by virtue of the Contract shall be brought to the attention of Sound Transit at the earliest possible time in order that such matters may be settled without a claim being filed, if possible, or other appropriate action promptly taken. The Contractor agrees to defer, in the absence of special written notice given by Sound Transit, the commencement of any legal action against Sound Transit on a matter required to be covered by written Notice of Intent to Claim pursuant to Paragraph 10.01A, Notice of Intent to Claim, until all of the administrative and dispute resolution processes have been exhausted. ~~Contractor may not sue, cross-claim or bring any action of any kind whatsoever against Sound Transit after the expiration of one hundred eighty (180) days from overall Acceptance, provided, however, that the proper pendency of contract-required dispute resolution procedures shall toll this deadline until thirty~~

~~(30) days after such contract-required dispute resolution procedure is concluded.~~

Commented [Legal297]: Language has been deleted to ensure that delay in the preliminary dispute resolution process does not operate as a bar to bringing a court action.

Commented [BA298R297]: Proposed edits rejected. Delay for dispute resolution process is already carved out.

Commented [CL299R297]: INIT's proposal is reasonable response to the demand of deferral. What is the issue?

Commented [BA300R297]: Reserve for discussion.

Commented [CL301R297]: ST HAS NEVER HELD DISCUSSIOPN. OPEN ISSUE.

ARTICLE 12 SUSPENSION AND TERMINATION

12.01 STOP WORK ORDER

A. Sound Transit may at any time and for any reason ~~within its sole discretion~~ issue a written order to the Contractor thereby suspending, delaying, or interrupting all or any part of the Work for a specified period of time ("Stop Work Order"). A Stop Work Order must be in the form of an explicit written Notice and will not be inferred from any oral statement, course of conduct or informal field communication, except in the case of an emergency or exigent safety concern.

Commented [Legal302]: Language deleted since the wording is redundant.

Commented [BA303R302]: Proposed deletion accepted.

B. In the event that it becomes necessary for Sound Transit to suspend all, or a part, of the Work, Sound Transit will deliver a written Stop Work Order to the Contractor, which shall describe the following:

1. Identification of the work to be suspended;
2. The date and time upon which the Stop Work Order shall be effective;
3. The period of time during which Work will be suspended, if known;
4. Directions to be taken regarding subcontracts; and Other instructions required to safeguard the Work and to prevent property damage and personal injury.

C. The Contractor shall comply immediately with any written order it receives from Sound Transit suspending the Work and take all reasonable steps to minimize costs allocable to the Work covered by the suspension during the period of Work stoppage. The Contractor shall resume performance of the suspended Work upon expiration of the notice of suspension, or upon direction of Sound Transit.

D. Within the period specified by the Stop Work Order, or within any extension of that period, Sound Transit may:

1. Terminate the work covered by the Stop Work Order;
2. Cancel the Stop Work Order; or
3. Allow the period of the Stop Work Order to expire.

E. Costs Associated with a Stop Work Order

1. If a Stop Work Order is canceled or the period of the Stop Work Order expires, the Contractor shall resume work.
2. The Contractor may be allowed an increase in the Total Contract Price or an extension of time, or both, directly attributable to any suspension, provided that:
   a. The Contractor submits a Request for Change in accordance with the requirements of the Contract Documents;
   b. The Stop Work Order results in an increase in the time required for, or in Contractor's cost properly allocable to, the performance of any part of this

Contract; and

c. The Stop Work Order was not caused by Contractor's default or other act or omission within the control or responsibility of Contractor.

3. No adjustment shall be made under this Paragraph for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an equitable adjustment or extension of time is provided or excluded under any other term or condition of this Contract.

4. The provisions of this Paragraph shall only apply if a written Stop Work Order is issued by Sound Transit.

F. During a suspension of work, Contractor shall take appropriate action to prevent damage to or deterioration of the Work. Contractor shall repair or replace, at no additional cost to Sound Transit Work that is damaged or deteriorated during a Work stoppage due to Contractor's failure to comply with this Paragraph. If Sound Transit finds that the Contractor is not taking appropriate action and the Contractor fails to take the appropriate action within the time frame specified by Sound Transit in written notice to the Contractor, Sound Transit may take appropriate action and recover from the Contractor the reasonable costs of such action.

G. In the event that a suspension of the work is ordered, the Contractor shall do all the work necessary to provide any safe, smooth, and unobstructed passageway through the work as deemed necessary by the Regional Program Manager for use by Sound Transit, other Sound Transit contractors, public agencies or their contractors, and/or public traffic during the period of such suspension as specified in the Contract Documents. In the event that the Contractor fails to perform the work above specified, Sound Transit will perform such work and the cost thereof shall be deducted from payments due the Contractor. If the suspension is due to some failure on the part of the Contractor, all costs and delays shall be at no additional expense to Sound Transit.

H. In the event of a suspension of the Work, the Contractor shall not be relieved of the Contractor's responsibilities as set forth in Article 7, Legal Requirements.

12.02 TERMINATION FOR DEFAULT

A. Sound Transit will have the right to terminate the Contract in whole or in part, for default, under any of the following circumstances:

1. If the Contractor refuses or fails to prosecute the Work with such diligence as will ensure its completion within the Contract Time and any extension thereof;

2. Material failure of the Contractor to perform any obligation required under the Contract or violation of any duty required of the Contractor, including but not limited to the following:

a. Violation of a~~n~~ legal authorized order or requirement of Sound Transit by the Contractor;

Commented [Legal304]: Term added to clarify that the order must apply with applicable law.

Commented [BA305R304]: Proposed edit accepted.

b. Abandonment of the Contract;

c. Failure of the Contractor to pay its undisputed debts owing to any parties performing Work on the Contract, provided that such failure continues for a period of fourteen (14) days after written notice to the Contractor by Sound Transit;

d. Failure to comply with any law, ordinance, rule, regulation, or order of a legal authority applicable to the Contractor, the Work, the Contract, or the Project;

e. Failure to indemnify any party that the Contractor is obligated to indemnify under the General Conditions and other provisions of the Contract;

f. Failure to replace rejected Work or correct rejected workmanship when directed by Sound Transit;

g. Failure to provide required insurance and/or bonds, or proceeds thereof;

h. Submittal of false or misleading information or Claims to Sound Transit; or

i. Disregard of applicable laws, ordinances, rules, codes, regulations, orders, or similar requirements of any public entity having jurisdiction.

B. If the Contractor is adjudged bankrupt or insolvent, or makes a general assignment for the benefit of creditors, or if the Contractor or a third party files a petition to take advantage of any debtor's act or to reorganize under the bankruptcy or similar laws concerning the Contractor, or if a trustee or receiver is appointed for the Contractor or for any of the Contractor's property on account of the Contractor's insolvency, and the Contractor or its successor in interest does not provide adequate assurance of future performance in accordance with the Contract within fifteen (15) days of receipt of a request for assurance from Sound Transit.

C. If, in the opinion of Sound Transit, the Contractor is in default of the Contract, Sound Transit will issue a written Notice of Default to the Contractor and its Surety. If the Contractor, within fourteen (14) days after receipt of such notice, fails to remedy or provide assurance acceptable to Sound Transit of its specific plan and timetable to remedy the default ~~within fourteen (14) days after receipt of such notice~~, Sound Transit may terminate the Contractor's right to proceed under all or such part of the Contract as Sound Transit deems to be in its best interest. Sound Transit shall furnish written Notice of Termination for Default to the Contractor, upon which date the Termination for Default shall be effective. The Contractor and its Surety shall be liable for any damage to Sound Transit resulting from the Contractor's refusal or failure to complete the Work in the specified time.

D. Upon receipt of a Notice of Termination for Default from Sound Transit, the Contractor shall, except as otherwise directed by Sound Transit:

1. Stop all Work under the Contract on the date and to the extent specified in the Notice of Termination for Default.

Commented [Legal306]: Change made to clarify the intent of the paragraph.

Commented [BA307R306]: Rejected.

Commented [CL308R306]: Unacceptable. Contractor may have a legitimate disputed claim. Agree that any undisputed debt should be cleared.

Commented [BA309R306]: After reconsideration, the insertion is accepted as proposed.

Commented [Legal310]: Change made to clarify the paragraph.

Commented [BA311R310]: Proposed edits accepted.

Commented [Legal312]: Changes made to clarify the paragraph and to provide that the Notice to Contractor should be in writing.

Commented [BA313R312]: Proposed edit accepted.

2. Place no further orders or Subcontracts for materials, equipment, or services except as may be necessary for completion of such portions of the Work expressly excluded from the Notice of Termination.

3. Communicate any Notice of Termination to the affected Subcontractors and Suppliers, and any other parties at any tier, and take reasonable steps to minimize cancellation charges and other costs arising from termination.

4. Terminate all orders and Subcontracts to the extent that they relate to the performance of Work covered by the Notice of Termination or, at the option of Sound Transit, assign to the Surety or any replacement contractor all such Subcontracts and purchase orders.

5. Comply with all other reasonable and legal requirements of Sound Transit as may be specified in the Notice of Termination.

Commented [Legal314]: Language added to clarify paragraph.

Commented [BA315R314]: Proposed edits accepted.

E. Upon Sound Transit's termination of the Contractor's right to proceed with the Work because of the Contractor's default under the Contract, Sound Transit shall have the right to complete the Work by whatever means and methods it deems advisable, including transfer of performance of the work from the Contractor to the Surety. Sound Transit shall have the right to take possession of and use any or all the Contractor's design, goods, facilities, tools, equipment, and property of any kind, at the Project, or related thereto, provided by or on behalf of the Contractor to complete the Work or any portion thereof, without being responsible to the Contractor for fair wear and tear. The Contractor shall have no rights in such property during its use by Sound Transit. Sound Transit may complete the Work by obtaining the services of another Contractor, or by any other reasonable and legal means that Sound Transit deems in its best interest. Sound Transit shall have the right to exercise its sole discretion as to the manner, method and reasonableness of the costs of completing the work subject to a reasonable duty to mitigate costs. Materials and equipment for which Sound Transit has paid any amount to the Contractor may be incorporated in the Work regardless of whether they are stored at the site or elsewhere.

Commented [Legal316]: Language added to clarify paragraph.

Commented [BA317R316]: Proposed edits accepted.

F. The expense of completing the Work together with a reasonable charge for engineering, managerial, and administrative services arising from the default shall be charged to the Contractor. Sound Transit shall deduct said amount out of any monies that may be due or may at any time thereafter become due the Contractor. In case such expense is in excess of the sum that would otherwise have been payable to the Contractor under the Contract, the Contractor or its Surety shall promptly pay the amount of said excess to Sound Transit upon notice thereof. Sound Transit may, at its sole discretion, withhold all or any part of any Partial Payments or other monies otherwise due the Contractor until completion and final settlement of the Work covered by the Notice of Termination for Default.

G. If Sound Transit terminates the Contractor for default, the resulting damage shall include, but not be limited to, actual and liquidated damages, any increased costs incurred by Sound Transit in completing the Work, and amounts paid to third parties by Sound Transit on account of any claims made against Sound Transit relating to the Work.

H. If the Contract is terminated for default, Sound Transit may require that the Contractor transfer title to and deliver the following items to Sound Transit as directed: any goods, work in progress,

tools, dies, jigs, fixtures, plans, drawings, information, contract rights, and other items that the Contractor has specifically produced or acquired for the terminated portion of the Contract and that would have been required to be furnished to Sound Transit if the Contract had been completed. The Contractor shall also protect and preserve property in its possession at its sole expense in which Sound Transit has an interest.

I. If, after Notice of Termination for Default, it is determined for any reason that the Contractor was not in default under the provisions of the Contract, or that the Contractor was properly entitled to an extension of time under the provisions of the Contract, the rights, obligations, and remedies of the parties shall be the same as if the Notice of Termination for Default had been issued pursuant to the Article entitled Termination for Convenience.

12.03 TERMINATION FOR CONVENIENCE

A. Upon written notice to Contractor Sound Transit may terminate the Work under this Contract, in whole or in part, at any time, for the convenience of Sound Transit.

B. After receipt of a Notice of Termination for Convenience, and unless directed otherwise by Sound Transit, the Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due under this clause:

1. Stop performance of Work and meet with Sound Transit to develop a Termination Work Plan, including a scope, schedule and budget to safely terminate the Contractor's progress of Work.

2. Place no further subcontracts or orders (referred to as subcontracts in this clause) for materials, services, or facilities, except as necessary to complete the continued portion of the Contract.

3. Terminate all Subcontracts or orders to the extent they relate to the work terminated or, at the option of Sound Transit, assign to the Surety or any replacement contractor all such Subcontracts and purchase orders. Assign to Sound Transit, as directed by Sound Transit, all right, title, and interest of the Contractor under the Subcontract(s) terminated, in which case Sound Transit shall have the right to settle or to pay any termination settlements proposal arising out of those terminations.

4. With approval or ratification to the extent required by Sound Transit, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontract; the approval or ratification will be final for purposes of this clause.

5. As directed by Sound Transit, transfer title and deliver to Sound Transit (1) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced or acquired for the work terminated, and (2) the completed or partially completed plans, drawings, information and other property that, if the Contract had been completed, would be required to be furnished to Sound Transit.

6. Complete performance of any Work not terminated.

7. Take any action that may be necessary, or that Sound Transit may direct, for the

protection and preservation of the property related to this Contract that is in possession of the Contractor and in which Sound Transit has or may acquire an interest.

8. Use its best efforts to sell, as directed or authorized by Sound Transit, any property of the types referred to in Sub-paragraph 12.03B.5 above; provided, however, that the Contractor (1) is not required to extend credit to any purchaser and (2) may acquire the property under the conditions prescribed by, and at prices approved by, Sound Transit. The proceeds of any transfer or disposition will be applied to reduce any payments to be made by Sound Transit under this Contract, credited to the price or cost of the work, or paid in any other manner directed by Sound Transit.

C. Payment

In the event of a Termination for Convenience, if such termination occurs after the effective date of the Notice to Proceed, Sound Transit will pay the reasonable, verifiable ~~direct~~ costs incurred by the Contractor toward any incomplete item on the Partial Payment Schedule before the termination. Reimbursable costs incurred by the Contractor will be determined by taking into consideration the following facts, circumstances and limitations:

1. ~~The budget established for the Termination Work Plan,~~Fees charged to Contractor by suppliers for cancellation of hardware and /or software custom designed and to be produced specifically for the Project.

2. The physical progress of the Work satisfactorily completed to the effective date of the termination, evaluated against the approved Partial Payment Schedule,

3. Costs of removing equipment and materials and otherwise demobilizing,

4. Costs reasonably incurred in anticipation of performing the Work; provided, said amounts are reasonable, verifiable and ~~directly~~ attributed to the Contractor's performance of the Work, Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of the termination inventory,

5. Termination for Convenience notwithstanding anything to the contrary set forth herein, the Contractor shall not be entitled to, and Sound Transit shall not be liable for, any consequential losses or damages incurred by the Contractor including, but not limited to: loss of profits, business opportunity, reputation or financing. Amounts retained and accumulated under RCW 60.28.011 will be held as provided therein for a period of not less than forty-five (45) days following termination.

12.04 SOUND TRANSIT'S RIGHTS AND OBLIGATIONS UPON TERMINATION

A. Upon any termination contemplated herein, Sound Transit may take over the Work and prosecute the same to completion by agreement with another party or otherwise complete the Work.

B. Upon any termination contemplated herein, amounts retained and accumulated under RCW 60.28.011 will be held as provided therein for a period of not less than sixty (60) days following termination and consistent with state law.

Commented [Legal318]: Term deleted. If costs are found reasonable they should be recovered by Contractor.

Commented [BA319R318]: Proposed edits rejected. The costs should be limited to direct costs only.

Commented [BA320R318]: No response so we have to assume the rejection is accepted.

Commented [CL321R318]: Agree.

Commented [Legal322]: Language deleted. Costs are found reasonable and justifiable since the Termination is for the convenience of Sound Transit.

Commented [BA323R322]: Proposed edit rejected. Fees (WA does not recognize penalties) may be considered as part of the Termination Work Plan.

Commented [CL324R322]: The use of the term penalty was inadvertent. The charge for work performed and costs incurred by contractors is the same as that incurred under the clause.

Commented [CL325R322]: ASSUME ITEM 1 AS REVISED IS ACCEPTED.

Commented [Legal326]: Language is deleted to clarify paragraph. If it is reasonable and justifiable, the Contractor should be entitled to recover.

Commented [BA327R326]: Proposed edits rejected. The costs should be limited to direct costs only.

Commented [CL328R326]: AGREED

12.05 CONTRACTOR'S OBLIGATIONS UPON TERMINATION

Upon receipt of Notice of Termination, the Contractor shall immediately discontinue Work, but shall do such Extra Work as may be ordered by Sound Transit to safeguard the Work then completed, to safeguard the materials and equipment then delivered to the site and to leave the Work in a safe and useful condition. The Contractor shall promptly deliver, or otherwise make available to Sound Transit, all Contract Records reasonably necessary for Sound Transit to complete the Work with its own forces, including but not limited to software, data, drawings, specifications, as-built drawings, calculations, reports, estimates, summaries, and other such information as the Contractor or Subcontractors may have accumulated in performing this Contract, whether completed or in progress, and all materials and equipment purchased specifically for the Contract where Sound Transit has reimbursed the Contractor for such costs. The Contractor shall also take all reasonable steps with its Suppliers and Subcontractors to minimize cancellation charges and other costs.

12.06 OWNERSHIP OF EQUIPMENT, MATERIALS AND SUPPLIES UPON TERMINATION

As of the date of termination, all the Contractor's right, title and interest in and to equipment, materials, and supplies ordered by the Contractor prior to the termination (including placement or priority in production runs of materials, equipment, or supplies), whether or not they have been delivered to the site, shall be vested in Sound Transit and the Contractor shall, upon demand of Sound Transit, execute and deliver to Sound Transit all requisite bills of sale, assignments, and other documents of transfer that may be necessary to give effect to the intention of the termination procedures set forth in this Article.

END OF SYSTEMS GENERAL CONDITIONS

SECTION 02 – FEDERAL PROVISIONS

ARTICLE 1 INCORPORATION OF FTA PROVISIONS

1.01 APPLICABILITY OF FEDERAL GRANT CONTRACT

A. This procurement may be subject to one or more financial assistance contracts between Sound Transit and the U.S. Department of Transportation (DOT), which incorporate the current FTA Master Agreement and Circular 4220.1 as amended.

B. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1, as amended, and the Master Grant Agreement, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Contract. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any Sound Transit request that would cause Sound Transit to be in violation of the FTA terms and conditions.

C. The FTA Master Agreement obligates Sound Transit to incorporate certain provisions into this Contract and any lower tier subcontracts at any level and to take appropriate measures to ensure that Contractor and its lower tier Subcontractors at any level comply with certain applicable requirements set forth in the Master Agreement. The following provisions of the FTA Master Agreement are hereby incorporated by reference into this Contract, and the Contractor shall comply with all such requirements.

D. Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement between Sound Transit and FTA, as they may be amended or promulgated from time to time during the term of this contract. Contractor's failure to so comply shall constitute a material breach of this contract.

E. Copies of the FTA Circular 4220.1, as amended, and the Master Grant Agreement are available from Sound Transit.

1.02 FEDERAL FUNDING LIMITATION

The Contractor understands that a portion of the funds to pay for the Contractor's performance under this Contract are anticipated to be made available from the United States Department of Transportation through the Federal Transit Administration (FTA). All such funds must be approved and administered by FTA. Sound Transit's obligation hereunder is, in part, payable from funds that are appropriated and allocated by FTA for the performance of this Contract. If such funds are not allocated, or ultimately are disapproved by FTA, Sound Transit may be required to terminate or suspend the Contractor's services. In such event, the Contract may at Sound Transit's option be terminated for convenience in accordance with these General Conditions.

1.03 NO OBLIGATION BY THE FEDERAL GOVERNMENT

A. Notwithstanding that the Federal Government may have concurred in or approved the solicitation

for this Contract, the Federal Government is not a party to this Contract and has no obligations or liabilities to any entity other than Sound Transit, including the Contractor and its Subcontractors and Suppliers at any tier.

B. The Contractor agrees to include the above clause in each Subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clause shall not be modified, except to identify the Subcontractor who will be subject to its provision.

1.04 CERTIFICATION REGARDING DEBARMENT, SUSPENSION AND OTHER RESPONSIBILITY MATTERS

A. This contract is a covered transaction for purposes of 49 CFR Part 29. As such, the Contractor is required to verify that the Contractor, its principals, as defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945.

B. The Contractor is required to comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CFR 29, Subpart C in any lower tier covered transaction it enters into.

C. By signing and submitting its Bid, the Bidder certifies as follows:

> The certification in this clause is a material representation of fact relied upon by Sound Transit. If it is later determined that the Bidder knowingly rendered an erroneous certification, in addition to remedies available to Sound Transit, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The Bidder agrees to comply with the requirements of 49 CFR 29, Subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The Bidder further agrees to include a provision requiring such compliance in its lower tier covered transactions.

1.05 FEDERAL LOBBYING RESTRICTIONS

A. This Contract is subject to Section 319, Public Law 101-121 (31 U.S.C. §1352) and U.S. DOT regulations "New Restrictions on Lobbying," 49 CFR Part 20, which prohibits Federal funds from being expended to influence or to attempt to influence an officer or employee of any agency, members of Congress, an office or employee of Congress or an employee of a Member of Congress in connection with the awarding of any federally funded contract, the making of any Federal grant or loan, or entering into any cooperative agreement and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

B. Contractors and Subcontractors at any time who apply or bid for an award of $100,000 or more shall file the certification required by 49 CFR Part 20, "New Restrictions on Lobbying." Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or any employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier shall also disclose the name of any registrant under the Lobbying Disclosure Act of 1995 who has made lobbying contacts on its behalf with non-Federal funds with respect to that Federal contract, grant or award covered by 31 U.S.C. 1352. Such disclosures are forwarded from tier to tier up to the recipient.

C. The Contractor shall submit the "Certification Regarding Lobbying," included in the Bid documents.

The Contractor's signature on this certification shall certify that: a) it has not engaged in the prohibited activity and b) the language of the certification shall be included in all lower tier subcontracts, which exceed $100,000, and that all such Subcontractors shall certify and disclose accordingly. Sound Transit is responsible for keeping the certification form of the Contractor, who is in turn responsible for keeping the certification forms of Subcontractors. Further, by executing the Contract, the Contractor agrees to comply with these laws and regulations.

D. If the Contractor has engaged in any lobbying activities to influence or attempt to influence the awarding of this Contract, the Contractor must disclose these activities. In such a case, the Contractor shall complete Standard Form SF-LLL, "Disclosure of Lobbying Activities." Sound Transit must also receive all disclosure forms.

E. The Contractor and any Subcontractors shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of a previously filed disclosure form. An event that materially affects the accuracy of the information reported includes:

1. A cumulative increase of $25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence this federally funded Contract; or
2. A change in the person(s) influencing or attempting to influence this federally funded Contract; or
3. A change in the officer(s), employee(s) or member contracted to influence or attempt to influence this federally funded Contract.

1.06 PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS

A. The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § § 3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to this Contract. Upon execution of the underlying contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract or the FTA-assisted project for which this contract work is being performed. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.

B. The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. § 5307, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Contractor, to the extent the Federal Government deems appropriate.

C. The Contractor agrees to include the above two clauses in each Subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the Subcontractor who will be subject to the provisions.

1.07 ANTI-KICKBACK

A. Sound Transit and contractors are required to comply with the Copeland "Anti-Kickback" Act, 18 USC § 874 and 40 USC § 276(c), as supplemented in U.S. Department of Labor regulations, 29 CFR Part 3. Under state and federal law, it is a violation for Sound Transit employees, proposers, bidders, contractors or subcontractors to accept or offer any money or benefit as a reward for favorable treatment in connection with the award of a contract or the purchase of goods or services.

B. "Kick-Back" as defined by Federal Acquisition Regulations (FAR), means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind that is provided directly or indirectly to any prime contractor, prime contractor employee, subcontractor or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contractor in connection with a subcontract relating to a prime contract.

1.08 CIVIL RIGHTS

In addition to the provisions in Section 00 73 39 00, Diversity Program Provisions, the following requirements pertaining to nondiscrimination and civil rights apply to the underlying contract:

A. Nondiscrimination

In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, Executive Order 11246 as amended, and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, gender identity, status as a parent, marital status, age, or disability. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

B. Equal Employment Opportunity

The following equal employment opportunity requirements apply to the underlying contract:

1. Race, Color, Creed, National Origin, Sex

In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulation, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 et seq., (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Project. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

As required by 41 CFR 60-1.4, during the performance of this Contract, the Contractor agrees as follows:

a. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, marital status, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, gender identity, status as a parent, marital status, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

b. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, marital status or national origin.

c. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this Section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

d. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, as amended, and of the rules, regulations, and relevant orders of the Secretary of Labor.

e. The Contractor will furnish all information and reports required by Executive Order 11246, as amended, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his or her books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

f. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246, as amended, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246, amended, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

2. The Contractor will include the portion of the sentence immediately preceding paragraph 1.a and the provisions of paragraphs 1.a through 1.f in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246, as amended, so that such provisions will be binding upon each

subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance, provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

3. Age

    a. The Contractor and its Subcontractors shall include the equal employment opportunity clause set forth in paragraph 1.a above in each of their non-exempt Subcontracts. In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. §§ 623 and federal transit law at 49 U.S.C. § 5332, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

4. Disabilities

    In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the "Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

5. Federal Equal Employment Opportunity Requirements

    As required by 41 CFR 60-4.2, the Contractor shall take into account the following provisions in performing the Work:

    a. The Contractor shall comply with the Federal Equal Employment Opportunity (EEO) Requirements.

    b. The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows (unless modified by the federal government):

        - Minority participation in each trade (King County) – 7.2%
        - Minority participation in each trade (Snohomish County) – 7.2%
        - Minority participation in each trade (Pierce County) – 6.2%
        - Female participation in each trade (Nationwide) – 6.9%

        These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-

federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the Contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

c. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) Business Days of award of any construction Subcontract in excess of $10,000 at any tier for construction work under this Contract. The notification shall list the name, address and telephone number of the Subcontractor; employer identification number of the Subcontractor; estimated dollar amount of the Subcontract; estimated starting and completion dates of the Subcontract; and the geographical area in which the Subcontract is to be performed.

d. As used in this Notice, and in this Contract, the "covered area" is Snohomish, King and Pierce Counties of the State of Washington.

6. EEO Construction Contract Specifications

As required by 41 CFR 60-4.3, the Contractor shall comply with the following:

Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246)

a. As used in these specifications:

(1) "Covered area" is Snohomish, King and Pierce Counties of the State of Washington.

(2) "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

(3) "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

(4) "Minorities" includes:

(a) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(b) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(c) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification.

b. Whenever the Contractor, or any Subcontractor at any tier subcontracts a portion of the Work involving any construction trade, it shall physically include in each Subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which are set forth in this Contract.

c. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

d. The Contractor shall implement the specific affirmative action standards provided in paragraphs g(1) through g(16) below. The goals set forth in this Contract are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

e. Neither the provisions of any collective bargaining agreement, nor the failure by a union with which the Contractor has a collective bargaining agreement, to refer

either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

f. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

g. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

(1) Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

(2) Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

(3) Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

(4) Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor minority persons or women sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

(5) Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and training programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under g(2) above.

(6) Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

(7) Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

(8) Disseminate the Contractor's EEO policy externally by including it in any advertising in the new media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipate doing business.

(9) Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

(10) Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

(11) Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

(12) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

(13) Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

(14) Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

(15) Document and maintain a record of all solicitations of offers for subcontract from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

(16) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

h. The Contractor is encouraged to participate in voluntary associations which assist in fulfilling one or more of its affirmative action obligations (paragraphs g(1) through g(16) above). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under g(1) through g(16) of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

i. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the

Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

j. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.

k. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

l. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

m. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph g of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

n. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

o. Nothing herein provided shall be construed as limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

7. The Contractor also agrees to include these requirements in each Subcontract financed in whole or in part with Federal assistance provided by FTA, modified only if necessary to identify the affected parties.

C. Flow Down

The Civil Rights requirements flow down to the Contractor and its subcontractors at every tier.

1.09 BUY AMERICA REQUIREMENTS

A. The Contractor agrees to comply with the requirements of section 165(a) of the Surface Transportation Assistance Act of 1982, as amended, and the applicable regulations in 49 CFR Part 661, which provide that federal funds may not be obligated unless steel, iron and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by the FTA or the product is subject to a general waiver. General Waivers are listed in 49 CFR 661.7. Separate requirements for rolling stock are set out in section 165(b)(3), of the Surface Transportation Assistance Act of 1982 and 49 CFR 661.11. Rolling stock must be assembled in the United States and have a 60 percent domestic content.

B. A bidder or offeror must submit to Sound Transit the appropriate Buy America certification, attached herein, with all bids or offers on FTA-funded contracts, except those subject to a general waiver. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive. This requirement does not apply to lower tier subcontractors

C. Whether or not a Bidder certifies that it will comply with the applicable requirement, Bidder will be bound by its original certification and is not permitted to change its certification after the time that the Bid is submitted, except for clerical error. A Bidder that certifies that it will comply with the applicable Buy America requirements may not change its certification at any point, and is not eligible for waiver of those requirements. (Buy America Regulations, 49 CFR Part 661.13(c))

D. If the Bidder is unable to certify compliance, but believes that it may qualify for an exception to the requirement consistent with section 165(a) of the Surface Transportation Assistance Act of 1982, as amended, Sound Transit, on behalf of the Bidder, will tender the request for exception(s) to FTA for review and approval. Sound Transit does not warrant that any such request will be acted upon in accordance with the Bidder's time frame. Failure to achieve an exception will not relieve the Bidder of its responsibilities under this Section.

1.10 CARGO PREFERENCE

Pursuant to 46 CFR Part 381, the Contractor agrees:

A. To utilize privately owned United States flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, materials, or commodities pursuant to this Contract, to the extent such vessels are available at fair and reasonable rates for United States flag commercial vessels.

B. To furnish within twenty (20) Days following the date of loading for shipments originating within the United States, or within thirty (30) Business Days following the date of loading for shipment originating outside the United States, a legible copy of a rated, commercial ocean bill of lading in English for each shipment of cargo described in paragraph A above to Sound Transit (through the prime Contractor in the case of Subcontractor bills of lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, 400 Seventh Street, SW, Washington, D.C., 20590, marked with appropriate identification of the Project.

C. To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this Contract.

1.11 FLY AMERICA REQUIREMENTS

The Contractor agrees to comply with 49 U.S.C. § 40018 (the "Fly America" Act) in accordance with the General Services Administration's regulations at 41 CFR Part 301-10, which provide that recipients and subrecipients of Federal funds and their contractors are required to use U.S. Flag air carriers for U.S. Government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. The Contractor shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a U.S. flag carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance with the Fly America requirements. The Contractor agrees to include the requirements of this Section in all subcontracts that may involve international air transportation.

1.12 RECOVERED MATERIALS

A. The Contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in subpart B of 40 CFR Part 247.

B. These requirements flow down to all Contractor and Subcontractor tiers.

1.13 ENERGY CONSERVATION

A. The Contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

B. These requirements extend to all third party contractors and their contracts at every tier and subrecipients and their subagreements at every tier.

1.14 CLEAN WATER

A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. The Contractor agrees to report each violation to Sound Transit and understands and agrees that Sound Transit will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

B. The Contractor also agrees to include these requirements in each Subcontract exceeding $100,000 financed in whole or in part with Federal assistance provided by FTA.

1.15 CLEAN AIR

A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §.§ 7401 et seq. The Contractor agrees to report each violation to Sound Transit and understands and agrees that Sound Transit will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional

Office.

B. The Contractor also agrees to include these requirements in each Subcontract exceeding $100,000 financed in whole or in part with Federal assistance provided by FTA.

1.16 MIGRATORY BIRD TREATY ACT

The Contractor shall comply with the Migratory Bird Treaty Act (MBTA), 16 U.S.C. Sections 703-712, 50 C.F.R. Section 10.13 and all amendments, which makes it illegal for anyone to take, possess, import, export, transport, sell, or offer for sale, purchase, or barter, any migratory bird, or other parts, nests, or eggs of such a bird except unless and except as permitted by regulations or under the terms of a valid permit issued by the Secretary of the Interior.

1.17 SEISMIC SAFETY

The Contractor agrees that any new building or addition to an existing building will be constructed in accordance with the standards for Seismic Safety required in Department of Transportation Seismic Safety Regulations 49 CFR Part 41 and will certify to compliance to the extent required by the regulation. The contractor also agrees to ensure that all work performed under this contract including work performed by a Subcontractor is in compliance with the standards required by the Seismic Safety Regulations and the certification of compliance issued on the project.

1.18 ELECTRONIC AND INFORMATION TECHNOLOGY

When providing reports or other information to Sound Transit, or to the Federal Transit Administration (FTA), among others, on behalf of Sound Transit, the Contractor agrees to prepare such reports or information using electronic or information technology capable of assuring that the reports or information delivered will meet the applicable accessibility standards of Section 508 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794d, and U.S. ATBCB regulations, "Electronic and Information Technology Accessibility Standards," 36 C.F.R. Part 1194.

1.19 DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

In addition to the Disadvantaged Business Enterprise Program provisions set forth in Section 00 733 39, the Contractor shall comply with the following requirements:

A. As a recipient of financial assistance from the federal Department of Transportation (DOT), through the Federal Transit Administration (FTA), Sound Transit developed and administers a Disadvantaged Business Enterprise (DBE) Program in accordance with 49 Code of Federal Regulations (CFR) Part 26. The Contractor shall review and comply with applicable provisions in 49 CFR Part 26 and Section 00 73 39 of this Contract.

B. The Contractor shall comply with the following assurance:

The Contractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or such other remedy as Sound Transit deems appropriate.

C. The Contractor shall include in each Subcontract it awards pursuant to this Contract the following

assurance:

"The subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this subcontract. The subcontractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the subcontractor to carry out these requirements is a material breach of this subcontract, which may result in the termination of this subcontract or such other remedy as the Contractor or Sound Transit deems appropriate."

1.20 NO TEXTING WHILE DRIVING

A. Contractor shall comply with Executive Order No. 13513, Federal Leadership on Reducing Text Messaging While Driving, October 1, 2009, 23 U.S.C.A. § 402 note, and DOT Order 3902.10, Text Messaging While December 30, 2009. Contractor shall:

1. Adopt and enforce workplace safety policies to decrease crashes caused by distracted drivers including policies to ban text messaging while driving;
2. Contractor-owned or Contractor-rented vehicles or Government-owned, leased or rented vehicles;
3. Privately-owned vehicles when on official Project related business or when performing any work for or on behalf of the Project; or
4. Any vehicle, on or off duty, and using an employer supplied electronic device.
5. Conduct workplace safety initiatives in a manner commensurate with the Contractor's size, such as:
    a. Establishment of new rules and programs or re-evaluation of existing programs to prohibit text messaging while driving; and
    b. Education, awareness, and other outreach to employees about the safety risks associated with texting while driving.

B. "Driving" is defined as operating a motor vehicle on a roadway, including while temporarily stationary because of traffic, a traffic light, stop sign, or otherwise. "Driving" does not include being in your vehicle (with or without the motor running) in a location off the roadway where it is safe and legal to remain stationary.

C. "Text Messaging" is defined as reading from or entering data into any handheld or other electronic device, including for the purpose of short message service texting, e-mailing, instant messaging, obtaining navigational information, or engaging in any other form of electronic data retrieval or electronic data communication. The term does not include the use of a cell phone or other electronic device for the limited purpose of entering a telephone number to make an outgoing call or answer an incoming call, unless the practice is prohibited by State or local law.

D. Contractor shall include this provision in all subcontracts at all tiers.

SECTION 03 - INSURANCE REQUIREMENTS

ARTICLE 1 INSURANCE REQUIREMENTS

1.01 Description

A. Except as otherwise specified, the Consultant, shall at its sole cost and expense, obtain and maintain during the entire term of this Agreement the minimum insurance set below.

B. In the event the Consultant is a Joint Venture, these insurance requirements shall apply to each Joint Venture member separately.

C. By requiring such minimum insurance, Sound Transit shall not be deemed or construed to have assessed the risks that may be applicable to the Consultant under this Agreement. The Consultant shall assess its own risks and, if it deems appropriate and/or prudent, maintain greater limits and/or broader coverage.

D. The fact that insurance is obtained by Consultant shall not be deemed to release or diminish the liability of the Consultant, including without limitation, liability under the indemnity provisions of this Agreement. Damages recoverable by Sound Transit shall not be limited to the amount of the required insurance coverage.

1.02 Insurance Coverages

E. **Commercial General Liability**: Commercial General Liability for bodily injury including death, personal injury, and property damage, with contractual and completed operations liability endorsements, and Employer's Liability coverage, utilizing insurers and coverage forms acceptable to Sound Transit, with limits of at least $5,000,000 per occurrence and $5,000,000 general aggregate, with $5,000,000 products and completed operations coverage.

F. **Commercial Automobile Liability:** Commercial Auto Liability coverage for bodily injury and property damage utilizing insurers and coverage forms acceptable to Sound Transit, with a limit of at least $1,000,000 combined single limit.

Such liability insurance, identified in 2.a and 2.b above, shall name Sound Transit, its officers, directors, agents, and employees and Community Transit, King County, Kitsap Transit, Pierce Transit, Everett Transit and Washington State Ferries as additional insured with respect to the work, including completed operations, under this Agreement.

G. **Workers Compensation:** The Consultant will secure its liability for industrial injury to its employees in accordance with the provisions of Title 51 of the Revised Code of Washington. The Consultant will be responsible for Workers Compensation insurance for any subconsultant who provides work under subcontract.

If the Consultant is qualified as a self-insurer under Chapter 51.14 of the Revised Code of Washington, it will so certify to Sound Transit by submitting a letter signed by a corporate officer, indicating that it is a qualified self-insurer, and setting forth the limits of any policy of excess insurance covering its employees.

The protection provided by the Workers Compensation Policy Part 2 (Employers Liability), or in states with monopolistic state funds, the protection provided by the Stop Gap endorsement to the General Liability must have a minimum required limit of $1,000,000.

H. **Professional Liability:** This Agreement includes "professional services". The Consultant shall maintain the appropriate Professional Liability insurance, with limits of liability of at least $5,000,000 per claim, for damages sustained by reason of or in the course of operations under this Agreement, whether occurring by reason of acts failing to meet the standard of care required by this Agreement, negligent acts, errors, or omissions of the Consultant.

I. **Commercial Crime and Employee Dishonesty:** A policy with minimum required limits of $2,500,000 per occurrence for losses of money and property as a result of theft, burglary, forgery, alteration, disappearance and destruction and for losses due to the dishonest acts of employees.

J. **Railroad Protective Liability**: During any construction or demolition work within 50 feet on either side of railroad or light rail tracks, Contractor shall provide Railroad Protective Liability coverage either by (1) endorsing the General Liability policy with an ISO form CG 24 27 10 01 – Contractual Liability – Railroads endorsement, or equivalent, or (2) obtaining a separate Railroad Protective Liability policy. This insurance shall name Central Puget Sound Regional Transit Authority, dba Sound Transit, its officers, directors, agents and employees as additional insured with coverage of at least $2,000,000 per occurrence and $6,000,000 in the aggregate. The coverage shall be effective for the entire duration of the work to be performed. The policy shall be issued on a standard ISO form CG 00 35 10 93, or equivalent.

K. **Builders Risk Insurance:** Prior to any new construction, the Contractor shall purchase and maintain in force throughout the course of construction "All-Risk" Builders Risk Insurance on the Work provided under this Agreement until Acceptance of the Work by Sound Transit and when the project has been put to its intended use. Such insurance shall be written on a completed value in an amount equal to the initial Contract Price, subject to subsequent modifications of the Contract Price. The insurance coverage shall apply on a replacement cost basis. The insurance policy shall name Sound Transit as an additional insured and loss payee, as its interest may appear. The insurance shall cover the entire Work at the Site. Insured property shall also include portions of the Work located away from the Site but intended for use at the Site, and shall also cover portions of the Work in transit. The insurance policy shall cover the cost of removing debris, including demolition of the undamaged portion of property insured, as may be made legally necessary by the operation of any law, ordinance, or regulation which is in force at the time of any physical loss, damage or destruction to insured

property by a peril insured by the insurance policy. Deductibles or Self-Insured Retentions (SIRs) in excess of $10,000 each loss must be disclosed and are subject to Sound Transit's approval. The Contractor shall be responsible for and pay any deductible or SIR. The insurance policy, and all endorsements, is subject to Sound Transit approval as to form.

L. **Network Privacy & Security Insurance / Cyber Liability:** Contractor agrees to purchase and maintain throughout the term of this Agreement, Privacy & Security liability insurance (or its equivalent "cyber/network security" insurance) covering liabilities resulting or arising from acts, errors, or omissions, in connection with the services provided under this Agreement, which are associated with any breach or loss of any personally identifiable information. Such insurance shall provide coverage for up to $5,000,000.00 per claim. Costs and damages to be covered by this insurance policy shall include without limitation: (a) costs to notify individuals whose personally identifiable information was lost or compromised; (b) costs to provide credit monitoring and credit restoration services to individuals whose personally identifiable information was lost or compromised; (c) costs and damages associated with third-party claims arising from the breach or loss of personally identifiable information, including litigation costs and settlement costs; and (d) any investigation and enforcement costs. The policy must be kept in force during the life of the Agreement and for three (3) years (either as a policy in force or extended reporting period) after Agreement termination. Contractor shall also ensure that any Subcontractors that create, receive, maintain, or transmit protected health information or personally identifiable information on behalf of the Contractor agree to the same insurance requirements that apply to the Contractor.

M. **Other Insurance:** Other insurance as may be deemed appropriate to cover the specified risk and exposure of the scope of work or changes to the scope of work evaluated by Sound Transit. The costs of which shall be borne by contracting parties as mutually agreed.

1.03 General Provisions

A. **Certificates and Policies**: Prior to commencement of Work for this Agreement, the Consultant shall provide Sound Transit with certificates of insurance showing insurance coverage in compliance with the foregoing paragraphs. All insurance coverage outlined above shall be written by insurance companies meeting Sound Transit's financial security requirements, (A.M. Best's Key Rating A-; VII or higher). **Such certificates shall reference Sound Transit's contract number, RTA/RP 0119-17 and title, next generation ORCA Systems Integrator.** The Consultant will provide 30 calendar days' advance written notice to Sound Transit in the event the Consultant's insurance policies are cancelled, not renewed, or materially reduced in coverage. Should the Consultant neglect to obtain and maintain in force any of the insurance required in this Section, Sound Transit may suspend or terminate this Agreement. Suspension or termination of this Agreement shall not relieve the Consultant from insurance obligations hereunder.

B. Taking into account the scope of work and services to be performed by a subcontractor and/or subconsultant, the Consultant shall prudently determine

whether, and in what amounts, each subcontractor and/or subconsultant shall obtain and maintain commercial general liability and any other insurance coverage. Any insurance required of subcontractors and/or subconsultants shall, where appropriate and/or applicable, name Sound Transit as an additional insured.

C. Consultant's insurance for General Liability, Automobile Liability and Railroad Protective Liability (if applicable) shall be primary as respects Sound Transit, and any other insurance maintained by Sound Transit shall be excess and not contributing insurance with the Consultant's insurance.

D. The Consultant and its insurers shall require that the applicable insurance policy(ies) be endorsed to waive their right of subrogation against Sound Transit. The Consultant and its insurers also waive their right of subrogation against Sound Transit for loss of their owned or leased property or property under their care, custody and control.

E. The Consultant shall provide Sound Transit with complete copies of all insurance policies to comply with the insurance requirements in this Agreement, including, but not limited to, the Additional Insured Endorsement(s) required in 2.a and 2.b above, the Waiver of Subrogation Endorsements, Primary and Non-Contributory Endorsements, Products and Completed Operations Endorsement and any other endorsements.

F. No provision in this Section shall be construed to limit the liability of the Consultant for work not done in accordance with the Agreement, or express or implied warranties. The Consultant's liability for the work shall extend as far as the appropriate periods of limitation provided by law and up to any legal limits.

G. The Consultant may obtain any combination of coverage or limits that effectively provides the same or better amounts and types of coverage as stipulated above, subject to review and approval by Sound Transit.

H. The Consultant warrants that this Agreement has been thoroughly reviewed by the Consultant's insurance agent/broker, who have been instructed by the Consultant to procure the insurance coverage required by this Agreement.

1.04 Claims Management

The Contractor agrees to the following claims management terms and conditions. The Contractor further agrees to include the following terms and conditions in its contract with its Subcontractors and require its Contractor to comply with the following provisions.

I. The Contractor, after award of a Sound Transit contract, shall provide the names, titles, addresses, telephone numbers, and email addresses of the individual(s) employed by Contractor who handles insurance matters and notifies insurance companies of claims. This individual(s) will be the primary contact for communications between Sound Transit Risk Management Division and the Contractor and its Subcontractors. If the individual(s) change, Contractor shall notify Sound Transit Risk Management Division of the replacement.

J. Contractor shall provide written notice of any incident involving bodily injury and/or property damage to Sound Transit. An "incident" is defined as any event or occurrence involving bodily injury or property damage that may give rise to an insurance claim. Incidents include those involving serious bodily injury, hospitalization, death, or property damage.

K. Contractor's written notice to Sound Transit of any incident or claim shall include the following information:

1) A description of the incident, including any bodily injuries or property damage,

2) The names of anyone injured and/or whose property was damaged,

3) The names and contact information of any insurance company(ies) who may provide insurance coverage related to any aspect of the incident,

4) Policy number(s), claim numbers(s), and policy(ies) effective dates, and

5) A copy of any written Acknowledgement of Claim Receipt issued by any applicable insurance company(ies).

If some information requested above is not available at the time of the initial report, the Contractor shall provide the missing information to Sound Transit as soon as it is available.

L. If Sound Transit receives a claim from a Third Party related to the project, Sound Transit will tender such claim to the Contractor through the established claim management process for handling and resolution. Upon receipt of a Third Party claim from Sound Transit, the Contractor shall acknowledge in writing to Sound Transit that:

1) The Contractor received and accepts Sound Transit's claim tender,

2) The Contractor shall notify its Commercial General Liability insurance company and any other applicable insurance company (ies) of the claim as per Sound Transit insurance requirements that Sound Transit is named as Additional Insured, under the Commercial General Liability policy and as stipulated in the contract between Sound Transit and the contractor.

3) The Contractor shall provide Sound Transit with copies of any/all Acknowledgements of Claim Receipts issued by its Commercial General Liability or other applicable insurance company(ies),The Contractor and its insurance company(ies) shall indemnify and defend Sound Transit, as an Additional Insured, against any/all claims related to the project.

4) The Contractor's General Liability and other applicable insurance company(ies) will investigate and process the claim, provide a coverage determination, an objective disposition and claim resolution for either denial or settlement.

5) The Contractor shall provide copies of any/all documentation related to

a claim's disposition and resolution, such as, but not limited to, acknowledgements, settlement agreements, releases, claim denial letters, judgments, payments, and satisfaction of judgments.

M. Contractor shall provide to Sound Transit quarterly status reports on all open and closed claims related to the project that implicates Sound Transit. The report shall include the assigned adjusters, policy numbers, claim numbers and at least the following:

1) A description of the claim handling activities during the quarter,

2) Any changes to the assigned and/or investigating adjuster, and, if so, the name and contact information of the newly assigned adjuster(s),

3) A description of the next steps in the claims adjusting process,

4) A description of the disposition and resolution of any claim, and

5) Copies of any pertinent documents, including, but not limited to, expert reports, reports on investigations, photographs, settlement agreements, releases, claim denial letters, judgments, payments, and satisfaction of judgments.

Contractor shall notify Sound Transit of their final resolution, or the applicable insurance company's(ies') final resolution, any/all claims related to the project, which Sound Transit Risk Management can review and document as a formal notification from the contractor, or its insurance company(ies) that the claims has been fully dispositioned and closed.

SOUNDTRANSIT

SECTION 04 – LIQUIDATED DAMAGES

INIT respectfully requests to continue discussions on the Liquidated Damages as the schedule is fine-tuned before contract award. As part of the continued negotiations, discussion must include the amount of each damage and a cap for damages and corresponding incentives for milestones achieved ahead of schedule. Additionally, should the opening of a station or BRT platform change (even to a later date), that may impact INIT's ability to perform.

Both parties understand that project progress can't be hindered by non-essential issues, the project has to be totally schedule driven, agile, not waterfall.

Key Milestones and Dates (as provided by Sound Transit)

Milestone	Date	Comment
Factory Acceptance Testing	September 22, 2021	
Stations and Fleet Expansions:		
a. Northgate Link Extension	December 1, 2020	Occurs prior to scheduled Pilot Test
b. Tacoma Link Extension	July 1, 2021	Occurs prior to scheduled Pilot Test
c. BRT Stations I	July 1, 2021	Occurs prior to scheduled Pilot Test
d. BRT Stations II and Fleet Expansion I	January 1, 2022	Shall be part of the pilot
e. East Link Extension	January 1, 2022	Shall be part of the pilot
f. BRT Stations III and Fleet Expansion II	January 1, 2023	
g. Lynwood Link Extension	June 1, 2023	
h. Federal Way Link Extension and Redmond Link Extension	December 1, 2023	
i. BRT Stations IV and Fleet Expansion III	January 1, 2024	
3. Final System Acceptance:	December 31, 2022	Remove this milestone
3. Decommissioning of legacy ORCA system	December 31, 2022	Replacement for above

The liquidated damages listed herein are based upon deadlines that will be either tied to contract milestones or bilaterally agreed to project schedule dates. Days are considered calendar days.

It is understood that Sound Transit's primary goal is to maintain the ability to collect revenue during the transition from the existing ORCA fare collection system to the Next Generation ORCA system. Contractor may employ alternatives temporary measures, at its expense, in order to maintain the ability to collect revenue.

For example, an alternative means to collect revenue for the first three system expansions is described in *Section 2.7.4 Accommodating the Early System Expansions* of *Tab 2 Methodology & Approach to*

Commented [BA329]: This is not the correct liquidated damages language from the RFP Addendum No. 2. I have inserted the correct language below with comments.

Commented [BA330]: Any cap for damages is not agreeable.

Commented [CAC331R330]: INIT requires a cap on damages. Without a cap, the risk profile is too high. That would require risk provision, which would have an effect on price.

Commented [CAC332R330]: INIT proposes a cap of 15% of the value of the project portion of the contract (not O&M), i.e. approximately $7mill.

Commented [BA333]: These should be proposed as part of the milestone/partial payment schedule.

Commented [CAC334R333]: agreed

Commented [BA335]: Incentives are not for milestone achieved on time. Incentives are for milestones achieved early.

Commented [CAC336R335]: See incentives proposed below for early milestones.

Commented [BA337]: Actual dates for the milestones will live within the critical path of the project schedule.

Commented [CAC338]: This needs to remain our goal whether stated here or elsewhere. Work-arounds and open items should not delay deployments that impact the end-customer. We need to agree that launching an imperfect system (within reason) is acceptable to keep the schedule.

Commented [SR339R338]: Added this back in.

Implementation and Operations & Maintenance. As another alternative, Contractor could employ staff with handheld validators if stations open before equipment is installed.

Factory Acceptance Testing (FAT) – Contractor's failure to receive Notice of Acceptance from the Regional Program Manager for all Factory Acceptance Testing (FAT) in the scope of work:

- $2,500 per day for each day beyond the agreed upon deadline.

Stations and Fleet Expansions:

a. **Northgate Link Extension** – Not Applicable because occurs before Pilot Test is complete

b. **Tacoma Link Extension** – Not Applicable because occurs before Pilot Test is complete

c. **BRT Stations I** – Not Applicable because occurs before Pilot Test is complete

d. **BRT Stations II and Fleet Expansion I** – Contractor's failure to enable revenue collection at the second 40 BRT Stations and the first 75 buses in the multi-agency bus fleet expansion:

- $5,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.

Commented [BA340]: These proposed amounts are not acceptable.

e. **East Link Extension** – Contractor's failure to receive to enable revenue collection at East Link Extension:

- $5,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.

Commented [BA341]: Not acceptable

f. **BRT Stations III and Fleet Expansion II** – Contractor's failure to enable revenue collection at the next 100 BRT Stations and the next 15 buses in the multi-agency bus fleet expansion:

- $5,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.

Commented [BA342]: Not acceptable

g. **Lynnwood Link Extension –** Contractor's failure to enable revenue collection at the Lynnwood Link Extension:

- $5,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.

Commented [BA343]: Not acceptable

h. **Federal Way Link Extension and Redmond Link Extension** – Contractor's failure to enable revenue collection at the Federal Way Link Extension and Redmond Link Extension:

- $5,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.

Commented [BA344]: Not acceptable

i. **BRT Stations IV and Fleet Expansion III** – Contractor's failure to enable revenue collection at the next 90 BRT stations and next 65 buses in the multi-agency bus fleet expansion:

- $5,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.

Commented [BA345]: Not acceptable

3. Final System Acceptance (FSA) – removed and replaced with milestone below

3. Decommissioning of Legacy ORCA system – Contractor's failure to have ngORCA ready for revenue service to allow for decommission the existing legacy ORCA system

- damages equal to the actual amount to maintain the legacy ORCA system will be assessed until decommissioning is complete.

This liquidated damage provision shall not preclude Sound Transit from declaring a material breach and seeking all available remedies by law or by Contract.

~~1.~~ **Factory Acceptance Testing (FAT) –** Contractor's failure to receive Notice of Acceptance from the Regional Program Manager for all Factory Acceptance Testing (FAT) in the scope of work:

- ~~a. $3,500 per day for each day beyond the agreed upon deadline.~~

Commented [SR346]: FAT date does not link to damages, thus delted

~~2.~~ 1. Liquidated Damages associated with stations and fleet expansions:

~~a. **Northgate Link Extension** – Contractor's failure to receive Notice of Acceptance from the Regional Program Manager for all equipment installation and commissioning for Northgate Link Extension:~~

~~i. $300,000 in damages will be assessed on the first day after the agreed upon deadline, followed by;~~

~~ii. $1,000 in damages per day beyond the deadline agreed upon deadline in 2.a.i. above until Notice of Acceptance is received.~~

~~b. **Tacoma Link Extension** – Contractor's failure to receive Notice of Acceptance from the Regional Program Manager for all equipment installation and commissioning for Tacoma Link Extension:~~

~~i. $350,000 in damages will be assessed on the first day after the agreed upon deadline, followed by;~~

~~ii. $2,000 in damages per day beyond the deadline agreed upon deadline in 2.b.i. above until Notice of Acceptance is received.~~

~~c. **BRT Stations I** – Contractor's failure to receive Notice of Acceptance from the Regional Program Manager for all equipment installation and commissioning for the first 40 BRT Stations:~~

~~i. $2,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Notice of Acceptance is received.~~

a. **BRT Stations II and Fleet Expansion I**~~–~~

~~ii.~~i. Contractor's failure to ~~receive Notice of Acceptance from the Regional Program Manager for~~ complete all equipment installation and commissioning for the second 40 BRT Stations and the first 75 buses in the multi-agency bus fleet expansion to allow customers the ability to utilize the Next Generation ORCA system without hinderance:

1. $~~145~~,000 in damages will be assessed per day for each day beyond the agreed upon deadline ~~until Notice of Acceptance is received~~.

INIT may elect alternative methods to avoid Sound Transit damages (loss of revenue, the need to purchase Orca legacy equipment) at INIT's cost. Provided that INIT's measures prevent Sound Transit from said damages the LDs will be waived.

b. **East Link Extension**

~~iii.~~i. ~~–~~Contractor's failure to ~~receive Notice of Acceptance from the Regional Program Manager for~~complete all equipment installation and commissioning for East Link Extension to allow customers the ability to utilize the Next Generation ORCA system without hinderance:

1. ~~$300,000~~ $30,000 in damages will be assessed per day for each day beyond the agreed upon deadline ~~until Notice of Acceptance is received~~.

2. ~~$7.1M~~ $1M in further damages will be assessed on an agreed upon deadline six (6) months after the deadline in 1.b.i.1 ~~2.e.i~~. above followed by;

Commented [BA347]: Based on the pilot test schedule, the proposed deletion of LD's for Northgate Link Extension is accepted.

Commented [CAC348]: Proposed LD amounts were rejected by ST in a comment above but no counter offer was made. The LDs are meant to provide an (negative) incentive for INIT to perform. This level of LD would cause serious financial distress that INIT would struggle to complete the project.

INIT and Sound Transit need to agree to LDs that are reasonable and provide appropriate motivation without creating a toxic atmosphere. For example, imagine Sound Transit returning a document review a day late. We would have to argue about that because it could potentially cost INIT $300,000. We want to focus our energy on completing the project and not on protecting INIT from the financial risks that these LDs pose.

Commented [BA349R348]: Reserve for discussion.

Commented [CAC350R348]: Proposed new LDs in this and all other sections.

3. $~~2~~1,000 in damages per day for each additional day beyond the agreed upon deadline in 1.b.i.2 ~~2.e.ii.~~ above ~~until Notice of Acceptance is received~~.

INIT may elect alternative methods to avoid Sound Transit damages (loss of revenue, the need to purchase Orca legacy equipment) at INIT's cost. Provided that INIT's measures prevent Sound Transit from said damages the LDs will be waived.

~~d.~~c. **BRT Stations III and Fleet Expansion II** – Contractor's ~~failure to receive Notice of Acceptance from the Regional Program Manager for~~ complete all equipment installation and commissioning for the next 100 BRT Stations and the next 15 buses in the multi-agency bus fleet expansion to allow customers the ability to utilize the Next Generation ORCA system without hinderance:

i. $~~178~~,000 in damages will be assessed per day for each day beyond the agreed upon deadline the next 100 BRT Stations and the next 15 buses in the multi-agency bus fleet expansion.

INIT may elect alternative methods to avoid Sound Transit damages (loss of revenue, the need to purchase Orca legacy equipment) at INIT's cost. Provided that INIT's measures prevent Sound Transit from said damages the LDs will be waived.

~~e.~~d. **Lynnwood Link Extension** – Contractor's ~~failure to receive Notice of Acceptance from the Regional Program Manager for~~ complete all equipment installation and commissioning for the Lynnwood Link Extension to allow customers the ability to utilize the Next Generation ORCA system without hinderance:

i. $~~125,000~~ 20,000 in damages will be assessed per day for each day beyond the agreed upon deadline ~~until Notice of Acceptance is received~~.
ii. $~~2.4M~~ 0.5M in further damages will be assessed on the date that is six (6) months after the deadline in 1.d.i 2.g.i. ~~above~~, followed by;
iii. $~~2~~1,000 in damages per day for each additional day beyond the date in 1.d.ii ~~2.g.ii.~~ above ~~until Notice of Acceptance is received~~.

INIT may elect alternative methods to avoid Sound Transit damages (loss of revenue, the need to purchase Orca legacy equipment) at INIT's cost. Provided that INIT's measures prevent Sound Transit from said damages the LDs will be waived.

~~f.~~e. **Federal Way Link Extension and Redmond Link Extension** – Contractor's ~~failure to receive Notice of Acceptance from the Regional Program Manager for~~ complete all equipment installation and commissioning for the Federal Way Link Extension and Redmond Link Extension to allow customers the ability to utilize the Next Generation ORCA system without hinderance:

i. $~~175,000~~ 30,000 in damages will be assessed per day for each day beyond the agreed upon deadline ~~until Notice of Acceptance is received~~.

ii. $~~3.3M~~ 0,5M in further damages will be assessed on the date that is six (6) months after the deadline in 1.e.i ~~2.h.i.~~ above, followed by;

iii. $~~2~~1,000 in damages per day for each additional day beyond the date in 1.d.ii~~2.h.ii.~~ above ~~until Notice of Acceptance is received~~.

INIT may elect alternative methods to avoid Sound Transit damages (loss of revenue, the need to purchase Orca legacy equipment) at INIT's cost. Provided that INIT's measures prevent Sound Transit from said damages the LDs will be waived.

~~g.~~f. **BRT Stations IV and Fleet Expansion III** – Contractor's failure to ~~receive Notice of Acceptance from the Regional Program Manager for~~ complete all equipment installation and commissioning for the next 90 BRT stations and next 65 buses in the multi-agency bus fleet expansion to allow customers the ability to utilize the Next Generation ORCA system without hinderance:

i. $~~25,000~~ 8,000 in damages will be assessed per day for each day beyond the agreed upon deadline ~~until Notice of Acceptance is received~~.

INIT may elect alternative methods to avoid Sound Transit damages (loss of revenue, the need to purchase Orca legacy equipment) at INIT's cost. Provided that INIT's measures prevent Sound Transit from said damages the LDs will be waived.

~~3.~~2. **Final System Acceptance (FSA)** – Contractor's failure to receive Notice of Acceptance from the Regional Program Manager for FSA by the agreed upon deadline:

a. Year 1:

i. Customers able to utilize the system without hinderances.

ii. Contractor fails to enable customers to fully utilize the system without hinderances.

~~i.~~1. ~~$6.4M in damages will be assessed on the first day after the agreed upon FSA deadline, followe~~d by;

~~ii.~~2. $~~15,000~~2,000 in damages per day for each day beyond the deadline ~~in 3.a.ii.1 above~~.

b. Year 2 :

~~i. $7.7M in damages will be assessed on the date that is one (1) year after the agreed upon FSA deadline, followed by;~~

~~ii.~~i. $~~18,000~~5,000 in damages per day for each day beyond the date in 2.a ~~3.b.i.~~ above until Notice of Acceptance is received.

~~c. Year 3:~~

~~i. $9.3M in damages will be assessed on the date that is two (2) years after the agreed upon FSA deadline, followed by;~~

~~ii. $21,000 in damages per day for each day beyond the date in 3.c.i. above until Notice of Acceptance is received.~~

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For the avoidance of doubt, if multiple liquidated damages apply throughout this Contract, then Sound Transit will be entitled to receive the sum of all liquidated damages that apply.

The sum of all liquidated damages that apply is capped at 15% of the value of the project portion of the

contract (not including O&M)

This liquidated damage provision shall not preclude Sound Transit from declaring a material breach and seeking all available remedies by law or by Contract.

SECTION 05 – LABOR COMPLIANCE MANUAL

ARTICLE 1 GENERAL

1.01 INSERTION OF PROVISIONS INTO SUBCONTRACTS

Contractor shall insert the provisions set forth in this Labor Compliance Manual ("Manual") in all construction subcontracts of any tier.

1.02 DRUG FREE WORKPLACE

Contractor shall comply with applicable Drug Free Workplace requirements as set forth in 49 CFR Part 29, Subpart F, as modified by 41 U.S.C. 702, 49 U.S.C. 5331 and other applicable requirements.

In addition to other remedies available to Sound Transit, the Contractor's failure to comply with the requirements of this Section may render the Contractor subject to suspension of contract payment or termination for default pursuant to the General Conditions.

1.03 DISPUTES CONCERNING LABOR STANDARDS

Disputes arising out of terms and provisions of this Manual shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7, the Washington State Department of Labor and Industries, or other applicable procedures. Disputes within the meaning of this clause include disputes between the Contractor (or any of its Subcontractors) and Sound Transit, the U.S. Department of Labor, the Washington State Department of Labor and Industries, or the employees or their representatives.

ARTICLE 2 WAGES OF EMPLOYEES.

2.01 GENERAL

This Contract is subject to Washington Department of Labor & Industries ("L&I") prevailing wage requirements and may be subject to the federal Department of Labor ("DOL") prevailing wage requirements. In the event that both state and federal prevailing wages apply, the higher of the two prevailing wage rates will prevail. If a state prevailing rate for a particular classification is available but a federal rate is not available, the procedure outlined below for determination of a federal rate shall be followed. In the event that a federal prevailing rate for a particular classification is available but a state prevailing rate is not available, the procedure outlined below for determination of a state prevailing rate shall be followed. The Contractor shall comply with the requirements of both the state L&I and the federal DOL, for posting notices of applicable wages, submission of certified payrolls, record keeping and other applicable administrative requirements.

Overtime shall be paid in accordance with the highest wage amount determined under the Washington Department of Labor & Industries ("L&I") prevailing wage requirements or the federal Department of Labor ("DOL") prevailing wage requirements.

2.02.STATE PREVAILING WAGES.

All determinations of the state prevailing rate of wage shall be made by the Industrial Statistician of the Department of Labor and Industries of the State of Washington. The state schedule of prevailing wage rates applicable to this Contract are set forth in Section 06. If employing labor in a class not listed in such schedule, the Contractor shall require the industrial statistician to determine the correct wage rate for that class and locality.

A. Disputes. In case any dispute arises as to what are the state prevailing rates of wages for work of a similar nature and such dispute cannot be adjusted by the parties in interest, including labor and management representatives, the matter shall be referred for arbitration to the Director of the Department of Labor and Industries of the state of Washington and said Director's decision therein shall be final and conclusive and binding on all parties involved in the dispute. In the event of a dispute as to what the federal rates of wages are, the dispute shall be referred to the Administrator of the Wage and Hour Division, Employment Standards Administration whose decision shall be final and conclusive and binding on all parties involved in the dispute.

B. Posting Notices. Except as provided otherwise in Chapter 39.12 RCW, the Contractor, each Subcontractor and other persons required to pay the prevailing rate of wage shall post in a location(s) readily visible to workers at the site: (1) a copy of the Statement Of Intent To Pay Prevailing Wages approved by the industrial statistician of the Department of Labor and Industries under RCW 39.12.040; and (2) the address and telephone number of the industrial statistician of the Department of Labor and Industries where a complaint or inquiry concerning prevailing wages may be made.

C. Apprentices. Apprentice workers employed hereunder for whom an apprenticeship agreement has been registered and approved with the state apprenticeship council pursuant to Chapter 49.04 RCW shall be paid at least the prevailing hourly rate for an apprentice for that trade. Any worker for whom an apprenticeship agreement has not been registered and approved by the state apprenticeship council shall be considered to be a fully qualified journey worker, and, therefore, shall be paid at the prevailing hourly rate for journey workers.

D. Required Documents. Pursuant to Chapter 39.12 RCW, the Contractor and each Subcontractor shall submit the following documents to Sound Transit:

1. Before payment is made by Sound Transit, the Contractor and each Subcontractor shall submit a "Statement of Intent to Pay Prevailing Wages" that has been approved by the industrial statistician of the Department of Labor and Industries.
2. With each request for payment, the Contractor shall submit a statement that prevailing wages have been paid in accordance with the "Statement of Intent to Pay Prevailing Wages" filed with Sound Transit.
3. Following Final Acceptance of the Work and before funds retained according to RCW 60.28.010 are released to the Contractor, the Contractor and each Subcontractor shall submit an "Affidavit of Wages Paid" that has been approved by the industrial statistician of the Department of Labor and Industries.

4. Any fees charged by the Department of Labor and Industries for filing the "Statement of Intent to Pay Prevailing Wages" and the "Affidavit of Wages Paid" shall be paid by the Contractor and each Subcontractor, as applicable; if Sound Transit pays such fees for any reason, then the Contractor shall be charged the amounts thereof, and shall remit the same to Sound Transit.

E. Worker's Benefits. Contractor shall make all payments required for unemployment compensation under Title 50 RCW and for industrial insurance and medical aid required under Title 51 RCW. The Contractor shall also obey all federal, state and local laws, ordinances, and regulations that establish safety standards for the protection of employees. If any payment required by Title 50 or 51 is not made when due, Sound Transit may retain such payments from any money due the Contractor and apply the same into the appropriate fund. The Department of Labor and Industries will provide the Contractor with applicable industrial insurance and medical aid classification and premium rates. Sound Transit may withhold payment of any amounts needed to pay Industrial Insurance premiums until the Contractor has satisfied to Sound Transit that the Contractor has paid all applicable premiums it owes on the work performed.

2.03 FEDERAL PREVAILING WAGES

If this Contract is also subject to federal prevailing wages, Section 06 contains the wage determination decision of the Secretary of Labor.

A. Minimum wages -- All laborers and mechanics employed or working upon the Site will be paid unconditionally and not less than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor, Section 06, and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis- Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of this Section. Also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its Subcontractors at the Site of the Work in a prominent and accessible place where it can be easily seen by the workers.

B. The Resident Engineer will require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the Contract shall be classified in conformance with a wage determination. The Resident Engineer shall approve an additional classification and wage rate and fringe benefits only when the following criteria have been met:

1. Except with respect to helpers as defined as 29 CFR 5.2(n)(4), the work to be performed by the classification requested is not performed by a classification in the wage determination; and
2. The classification is utilized in the area by the construction industry; and
3. The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and
4. With respect to helpers as defined in 29 CFR 5.2(n)(4), such a classification prevails in the area in which the work is performed.

C. If Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and Sound Transit agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by Sound Transit to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within thirty (30) Days of receipt and so advise Sound Transit or will notify Sound Transit within the thirty (30) Day period that additional time is necessary.

D. In the event Contractor, the laborers or mechanics to be employed in the classification or their representatives, and Sound Transit do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), Sound Transit shall refer the questions, including the views of all interested parties and the recommendation of Sound Transit, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within thirty (30) Days of receipt and so advise Sound Transit or will notify Sound Transit within the thirty (30) Day period that additional time is necessary.

E. The wage rate (including fringe benefits where appropriate) determined pursuant to these provisions, shall be paid to all workers performing work in the classification under this Contract from the first day on which work is performed in the classification.

1. Whenever the minimum wage rate prescribed in the Contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
2. If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or

program, provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2.04 WITHHOLDING

Sound Transit shall, upon its own action or upon written request of an authorized representative of the federal Department of Labor or state Department of Labor and Industries, withhold or cause to be withheld from Contractor under this Contract or any other federal contract with the same prime Contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any Subcontractor the full amount of wages required by the Contract. In the event of failure to pay any laborer or mechanic, including any apprentice trainee, or helper, employed or working on the site of the work all or part of the wages required by the Contract, Sound Transit may, after written notice to Contractor, sponsor, applicant, or owner take such action as may be necessary to cause the suspension of any further payment, advance or guarantee of funds until such violations have ceased.

2.05 PAYROLLS AND BASIC RECORDS

A. Payrolls and basic records relating thereto shall be maintained by Contractor during the course of the Work and preserved for a period of three (3) years thereafter for all laborers and mechanics working at the Site of the Work.

1. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits, daily and weekly number of hours worked, deductions made, and actual wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid.

2. For Contracts that include federal prevailing wage requirements, whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

3. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates

prescribed in the applicable programs.

B. Certified Payrolls.

1. If this Contract includes federal prevailing wage requirements, Contractor shall submit weekly, for each week in which any Contract Work is performed a copy of all certified payrolls to the Resident Engineer or his designee. In addition, Contractor shall submit monthly reports in electronic format (MS Excel software) summarizing wages and bona fide fringe benefits paid to all laborers and mechanics employed or working upon the Site. Report data, report format and due date to be determined by Sound Transit. The certified payrolls submitted shall set out accurately and completely all of the information required to be maintained under Section 5.5(a)(3)(i) of Regulations, 29 CFR Part 5. This information may be submitted in any form to be approved by Sound Transit. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, DC 20402. Contractor is responsible for the submission of copies of payrolls by all subcontractors.

   a. Each certified payroll shall be accompanied by a "Statement of Compliance", signed by Contractor or Subcontractor, or his or her agent, who pays or supervises the payment of the persons employed under the Contract and shall certify the following:

      (1) That the payroll for the payroll period contains the information required to be maintained under Section 5.5(a)(3)(i) of Regulations, 29 CFR Part 5 and that such information is correct and complete;

      (2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the Contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR Part 3; and

      (3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the Contract.

   b. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the “Statement of Compliance”.

   c. The falsification of any of the above certifications may subject Contractor or Subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

   d. Contractor or Subcontractor shall make the records required under this Paragraph

available for inspection, copying, or transcription by authorized representatives of Sound Transit, the U.S. Department of Transportation, the
U.S. Department of Labor, or the Washington State Department of Labor and Industries and shall permit such representatives to interview employees during working hours on the job. If the Contractor or Subcontractor fails to submit the required records upon request or to make such records available, the FTA may, after written notice to the Contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

2.06 APPRENTICE AND TRAINEES

A. Apprentices

Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to an individually registered in a bona fide apprenticeship program registered with a State Apprenticeship Agency recognized by the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or if a person is employed in his or her first ninety (90) days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by a State Apprenticeship Agency to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or Subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division of the U.S. Department of Labor determines that a different practice prevails for the applicable apprentice classification, fringe benefits shall be paid in accordance with the determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

B. Trainees

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

C. Equal Employment Opportunity

The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

D. Compliance with Copeland Act Requirements

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this Contract.

E. Subcontracts

The Contractor or Subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the Federal Transit Administration (FTA) may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The Contractor shall be responsible for the compliance by any Subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

F. Contract Termination: Debarment

A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the Contract, and for debarment as a Contractor and a Subcontractor as provided in 29 CFR 5.12.

G. Compliance with Davis-Bacon and Related Act Requirements

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CRF parts 1, 3, and 5 are herein incorporated by reference in this Contract.

H. Certification of Eligibility

5. By entering into this Contract, Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis Bacon Act or 29 CFR 5.12(a)(1).

6. No part of this Contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

7. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 USC 1001.

I. Contract Work Hours and Safety Standards Act

1. Overtime Requirements. Neither the Contractor nor any Subcontractor shall require or permit any laborer or mechanic in any workweek in which he or she is employed on such Work to work in excess of forty (40) hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half (1 ½) times the basic rate of pay for all hours worked in excess of forty (40) hours in such workweek.

2. Violation; Liability For Unpaid Wages; Liquidated Damages. In the event of any violation of the clause set forth above, the Contractor and Subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth above, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard work week of forty (40) hours without payment of the overtime wages required by the clause set forth above.

3. Withholding For Unpaid Wages And Liquidated Damages. Sound Transit shall upon its own action, or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from any moneys payable on account of work performed by the Contractor or Subcontractor under any such contract or any other federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or Subcontractor for unpaid wages and liquidated damages as provided in the clause set forth above.

4. Subcontracts. The Contractor shall insert in any subcontracts the clauses set forth in this section and also a clause requiring the Subcontractors to include these clauses in any lower

tier subcontracts. The Contractor shall be responsible for compliance by any Subcontractor or lower tier subcontractor with the clauses set forth in this section.

J. Material Suppliers

The requirements of this section do not apply to contracts or subcontracts for the purchase of supplies or materials or articles normally available on the open market.

ARTICLE 3 APPRENTICE UTILIZATION GOALS

For Contracts where the Engineer's estimate or the Bidder's Total Bid Price is $1,000,000 or more, the Apprentice Utilization Goal applies and is set forth in Section 00 73 39 Diversity Program in this IFB. The Bidder, by submitting a Bid is thereby certifying that, if awarded the Contract, it shall make good faith efforts to locate, qualify and increase the skills of the region's labor force by using apprentices on the Contract and to comply with the apprenticeship provisions contained in Section 05 Labor Compliance Manual. During Bid evaluation, the apparent low Bidder shall verify its intent to utilize good faith efforts to comply with these provisions by executing the Certification of Intent Regarding Apprentice Utilization, contained in Section 00 45 00 Representations and Certifications in this IFB.

A. Contractor Shall Develop and Implement Apprentice Utilization Plan Subject to Sound Transit Approval

The Contractor shall use good faith efforts to utilize apprentices registered with the Washington State Apprenticeship and Training Council ("SAC") for a portion of the total Contract labor hours utilized on the Project. Prior to Notice of Award, the apparent low Bidder shall submit for Sound Transit approval an Apprentice Utilization Plan, if the Engineer's Estimate or if the Bidder's Total Bid Price is $1,000,000 or more. The Plan shall outline how the apprenticeship goals will be met on the total contract labor hours. The Plan, on a form provided by Sound Transit in Section 00 45 00 Representations and Certifications, shall include the following information:

1. Total Contract labor hours include additional hours worked as a result of change orders.
2. Total Contract labor hours exclude hours worked by foremen, superintendents, supervisors, owners, and workers who are not subject to prevailing wage requirements. However, total Contract labor hours shall include the hours worked by supervisors, foremen, and superintendents if it is determined that they are subject to prevailing wage requirements pursuant to WAC 296-127-015.
3. The Contractor shall include the apprentice utilization requirements of this Section in all subcontracts executed for the Project, and ensure that all subcontractors working on the Project are notified of the apprentice utilization requirements. The Contractor is responsible for using good faith efforts to meet the apprentice utilization requirements of the Contract, including overall compliance on all Contract labor hours worked by subcontractors.

B. The Contractor shall make good faith efforts to:

1. Equally distribute the apprentice hours worked among each trade/craft and consistent with the apprentice utilization percentage requirement set forth

herein.

2. Use reasonable and practicable means to recruit and hire apprentices to achieve the apprentice utilization goal accepted by Sound Transit.

3. Use reasonable and practicable means to recruit and hire minority and women apprentices for the Project so that of the apprentice utilization requirement percentage in this Section, the Contractor shall use women and people of color to perform at least fifty percent (50%) of all first-year apprentice hours in all trades and to perform at least thirty-three percent (33%) of all apprentice hours worked.

4. Comply with the apprenticeship training standards for each trade/craft classification used on the Project, as set forth by the Washington State Department of Labor and Industries.

5. It is expected that an apprentice will normally begin training on the Project as soon as feasible after start of work, utilizing the skill involved and remain on the Project as long as training opportunities exist in the work classification or until the completion of the training program. It is not required that all apprentices be retained for the entire length of the Contract.

C. Changes to the Apprentice Utilization Requirement

1. If, during the term of the Contract, the Contractor determines that it will be unable to meet the apprentice utilization identified in the Apprentice Utilization Plan as accepted by Sound Transit, the Contractor may make a written request to Sound Transit, to modify the Plan. The request shall include documentation of the Contractor's affirmative efforts to use apprentices registered with the Washington State Apprenticeship and Training Council ("SAC"), including copies of correspondence between the Contractor and the SAC-approved apprentice programs, union locals, community stakeholders, and others. The documents must demonstrate that an adequate number of apprentices are not available to meet the apprentice utilization percentage.

2. Sound Transit shall evaluate the request, and if appropriate, shall authorize modification of the Apprentice Utilization Plan. If Sound Transit determines that a modification is not justified, Sound Transit shall communicate the decision in writing to the Contractor.

D. Apprentice Utilization Monitoring and Enforcement

1. Sound Transit or its designee shall verify the registration of each apprentice used on the Contract with the Washington State Apprenticeship and Training Council.

2. Sound Transit or its designee shall monitor the apprentice utilization data provided by the Contractor. In the event that the Contractor is deficient in the use of apprentices, Sound Transit or its designee will meet with the Contractor to discuss the reasons for the deficiency and help the Contractor develop a written plan for meeting the goals.

3. Sound Transit may make routine visits to the Site for the purpose of confirming the use of apprentices. The Contractor acknowledges that parties designated by Sound Transit may make visits to the Site for the purpose of confirming the use of apprentices. Said third party visitors will be required to abide by the Contractor's

and Sound Transit's work rules and safety plan.

ARTICLE 4 NON-DISCRIMINATION, EEO, APPRENTICE AND CURRENT EMPLOYEE REPORTING REQUIREMENTS

A. With each Request for Progress Payment, the Contractor shall submit to Sound Transit a Monthly EEO in electronic format to be provided by Sound Transit, for the Contractor and all Subcontractors. The monthly reports shall be completed by the Contractor and all Subcontractors performing work on the Contract during the reporting period. The reports shall accompany the Contractor's Request for Progress Payment. A Request for Progress Payment that is not accompanied by the monthly reports will not be processed for payment until said monthly reports are received and approved by Sound Transit.

B. With each Request for Progress Payment, the Contractor will also submit to Sound Transit a certification, in the form provided by Sound Transit, stating that they have no knowledge of allegations (whether as a written or oral statement from a worker or in the form of formal EEOC complaints, union grievances, or other complaints in any other administrative or legal form) regarding the violation of applicable Civil Rights and non-discrimination laws or policies against the Contractor or subcontractors performing work on the contract. If the Contractor has such knowledge, the Contractor shall provide a brief explanation of the alleged violation(s), and a description of any actions that have been or will be taken to address or remedy the alleged violation(s). The Contractor will provide Sound Transit access to all records pertaining to the alleged violation (s) and reasonable access to interview employees or workers that may have information related thereto.

C. Within five (5) working days of receiving notice of any complaint that has been filed against the Contractor regarding allegations of discrimination on this contract by any federal, state or local civil rights enforcement agency, the Contractor shall provide a copy of the complaint to Sound Transit. The Contractor will provide to Sound Transit access to all records pertaining to the complaint.

D. The Contractor shall be responsible for reporting EEO data required by Sound Transit beginning with the first day of work for each apprentice. The Contractor's first submittals are due at the end of the first month after the Contract start date specified in the Notice to Proceed, and at monthly intervals thereafter as specified above. Subcontractor submittals are due at the end of the month after commencement of their work and monthly thereafter, as specified above.

E. The Contractor shall report the following information on journey level employees:

1. Labor hours for reporting period by ethnicity/gender, for each trade/craft.
2. Total journey level labor hours by ethnicity/gender, for each trade/craft.
3. Total labor hours and number of journey level employees for reporting period by ethnicity/gender.
4. Total journey level labor hours and number of employees to-date.
5. Summary information as noted on the reporting form.

F. On a weekly basis, the Contractor shall submit to Sound Transit a Current Employee Report which shall be completed by the Contractor and all Subcontractors of all employees performing work on the Contract for the previous week. In addition, the Contractor will be required to maintain and provide on the report racial and gender data regarding the hiring and termination of craft workers, including the number of hours worked before termination, and upon request, provide to Sound Transit the documentation supporting the reason the worker was terminated. If the work is performed in shifts, the Contractor will also report racial and gender data regarding the staffing of each shift. A sample of this form is included in Section 00500 of this IFB and may be provided in an electronic format by Sound Transit.

G. The Contractor shall submit such other information as may be requested by Sound Transit to verify compliance with the EEO requirements of the Contract. Sound Transit reserves the right to add, delete, or change as necessary the information required by the Contractor on the Monthly EEO and Apprentice Utilization Report form.

ARTICLE 5 SUBSTANCE ABUSE PREVENTION PROGRAM

A. Unauthorized use, possession or sale of controlled substances or alcohol on the Project is prohibited. Persons who violate this rule or who are convicted for selling, using, or possessing controlled substances off the job will not be permitted to work on the Project.

B. Applicants for Project employment will be subject to pre-employment controlled substance, alcohol and adulterant testing. Thereafter, employees will be subject to reasonable cause, post-accident, random and return-to-work testing for the presence of controlled substances, alcohol or adulterants in their systems.

C. Employees who report for work with alcohol, adulterants or unauthorized controlled substances in their system will not be permitted to remain on the Project. Employees who violate the substance abuse policy and applicants who fail the pre-employment testing, will be denied employment and will not be eligible for reassignment to any Contractor on the Project until a period of not less than ninety (90) calendar days has passed. Such employees/applicants shall be subject to pre-employment, random and periodic controlled substance, adulterant or alcohol testing thereafter at the request of Sound Transit for up to one year. The program will apply to all Contractor craft personnel, union and non-union, at all construction sites.

D. The Contractor shall assure a drug-free workplace by implementation of a substance abuse program that complies with all applicable federal and state laws. Documentation of the Contractor's program and evidence of testing shall be maintained by the Contractor and provided o Sound Transit for review and inspection upon request.

SECTION 06 – PREVAILING WAGE RATES

Washington State prevailing wage rates can be found at: http://www.lni.wa.gov/TradesLicensing/PrevWage/WageRates/.

Davis-Bacon Act Wage determinations are available at http://www.wdol.gov/dba.aspx, and the current rates are included in the following pages.

Questions may be directed to the local Seattle office:

Seattle District Office
US Dept. of Labor Wage & Hour Division
300 Fifth Avenue, Suite 1130
Seattle, WA 98104

Phone:
(206) 398-8039
1-866-4-USWAGE (1-866-487-9243)

[Insert prevailing wage rates pdf]

SECTION 07 END-USER LICENSE AGREEMENT

SECTION 08 NEGOTIATED PRICE SHEET

SECTION 09 CONTRACTOR'S NEGOTIATED PROPOSAL SUBMITTAL

This End-User License Agreement ("EULA" or "License Agreement") is effective as of ~~April 1, 2014~~the ____day of _____, 20xx ("Effective Date") by and between INIT Innovations in Transportation, Inc., a Virginia corporation located at 424 Network Station, Chesapeake, Virginia 23320 ("INIT" or "Licensor"), and Central Puget Sound Regional Transit Authority dba Sound Transit on behalf of the ORCA Agencies~~[INSERT TRANSIT AGENCY]~~ ("Licensee").

Commented [BA1]: 1.This EULA will be Section 07 of the Purchase Contract

Commented [CL2R1]: The model agreement may be section 7, however, the final signed EULA will be a stand-alone document.

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Commented [BA3]: 2.Would be the "Central Puget Sound Regional Transit Authority dba Sound Transit on behalf of the ORCA Agencies"

RECITALS

A. INIT represents that it possesses the right to license certain computer software programs that support the access, delivery and management of the Licensee Efare System (as hereinafter defined) across multiple platforms.

B. Licensee desires to license the INIT Workstation Software, the INIT Server Software, the INIT Device Software, and the INIT Interface Software, all as set forth and including any other INIT software on Exhibit A hereto (collectively, the "INIT Software"), from INIT and INIT desires to license the INIT Software to Licensee, in each instance subject to the terms and conditions set forth below.

C. This License Agreement is granted in connection with the Purchase Contract. This License Agreement survives any termination of the Purchase Contract.

TERMS AND CONDITIONS

NOW, THEREFORE, in consideration of the premises and the mutual covenants and agreements set forth below and other good and valuable considerations, the receipt and sufficiency of which are hereby acknowledged, the parties hereto do hereby covenant and agree as follows:

1. DEFINITIONS. The following definitions apply in this EULA:

1.1. "~~"~~License Efare System" means the total system defined in ~~Appendix A Technical Specifications to Licensee's Request for Best and Final Offer for contract _____~~Sound Transit Contract No. RTA/RP 0119-17 Contract Documents hereinafter referred to as "Purchase Contract".

1.2. "Documentation" means any written documentation that is supplied by INIT in connection with the INIT Software.

1.3. "INIT Software" shall have the meaning ascribed to that term in Recital B above. The term INIT Software shall also include, without limitation, any and all corrections, bug fixes, enhancements, updates or other modifications that INIT may hereafter provide to Licensee.

1.4. "Licensed Products" means the Documentation and the INIT Software, collectively.

~~**1.5.** "Maximum Number" means the number of licenses as listed in Exhibit A, subject to increase as provided in the Purchase Contract . Licensee may increase the Maximum Number unilaterally at any time by providing written notice thereof to INIT; provided, however, that in the event of any such increase Licensee agrees to pay INIT the applicable fee specified in the Purchase Contract. Any such fee shall be due within thirty (30) days after the end of each calendar quarter in which an increase in the Maximum Number occurs.~~

Commented [BA4]: 3.We do not agree to be limited by a maximum number. Fixed tiered pricing (including yearly escalation) is requested and ORCA would be charged for the actual licenses purchased.

~~**1.6.**~~**1.5.** "Price Sheet" means that certain price proposal of INIT dated _____ , which is hereby incorporated herein.

~~**1.7.**~~**1.6.** "Purchase Contract" means that Sound Transit Goods and Professional Services Contract _____.No. RTA/RP 0119-17 dated _____.

1.8 "System Acceptance" shall mean system acceptance as set forth in Section___ ~~of the Technical Specification~~ of the Purchase Contract.

2. OWNERSHIP AND RIGHTS IN SOFTWARE. Nothing in this License Agreement shall transfer ownership of any intellectual property or other rights in the INIT Software to Licensee. Licensee acquires only the limited license rights expressly stated herein.

3. LICENSE GRANTS.

3.1 INIT Workstation Software. INIT hereby grants to Licensee a non-transferable, non-exclusive, perpetual, royalty-free, irrevocable, fully-paid project specific license to~~, during the term of this EULA~~, use the Workstation Software ~~on up to the Maximum Number of workstation computers (some workstation licenses can also be used for one CITRIX workstations instance on a CITRIX server; these are marked accordingly in Exhibit A)~~

3.2 INIT Server Software. INIT hereby grants to Licensee a non-transferable, non-exclusive, perpetual, royalty-free, irrevocable, fully-paid license to~~, during the term of this EULA,~~ use the Server Software on one (1) server or as one (1) instance on a server cluster. ~~The license price depends on the number of attached entities (vehicles, message signs etc.)~~

3.3 INIT Device Software. INIT hereby grants to Licensee a non-transferable, non-exclusive, perpetual, royalty-free, fully-paid, irrevocable, project specific license to~~, during the term of this EULA,~~ use the Device Software on the specific hardware on which such software is installed as such hardware may be updated from time-to-time ~~but, for further clarity, not on any other hardware platforms.~~

3.4 INIT Interface Software: INIT hereby grants a perpetual, royalty-free, fully-paid, project specific license to use interfaces, delivered as a connection to third-party software or a third-party system, but exclusively for that third-party software or system that is licensed for the interface or delivered or specified as part of the Licensee Efare System. ~~Further specific conditions might be applicable as specified in the INIT offer.~~

3.5 Documentation. INIT hereby grants to Licensee a non-transferable, non-exclusive, perpetual, royalty-free, project specific license to~~, during the term of this EULA,~~ use, copy, adapt, modify, enhance and create derivative works from the Documentation solely in order to support Licensee's use of INIT Software, including the right to: (a) reproduce, at no additional cost, as many copies of the Documentation as Licensee requires to support such use, (b) translate the Documentation into other languages as required for Licensee's use provided that INIT shall have no responsibility in respect of any such translation not effected by it, (c) reproduce, at no additional cost, any worn or damaged copies of the Documentation, (d) reproduce in hard copy form from the electronic format any excerpts that Licensee requires to prepare internal manuals for staff and personnel use, and (e) reproduce and maintain additional copies of the Documentation as Licensee may require to comply with applicable laws and its data retention policies.

3.6 Other Licensed Uses. In any event, at no additional cost, Licensee is entitled to make and keep additional archival copies of the INIT Software as Licensee may require to comply with applicable laws and its data retention policies.

3.7 Other Interfaces. Licensee is entitled to develop interfaces between the INIT Software and any of Licensee's other software, including licensed software; provided that INIT shall have no responsibility of any nature in respect of any such interfaces not developed by it, including but not limited to failure or substandard performance of the INIT Software subject to interface. INIT shall not be required to provide Licensee with any assistance in the development of such interfaces, other than professional services required as part of the Purchase Agreement.

3.8 Clarifications. For further clarity, (a) the licenses granted in Section 3.1 through ~~3.4~~63.7 above include, without limitation, the right for Licensee to install, view, and operate the INIT Software, and (b) the parties acknowledge and agree that Licensee's rights in the Licensed Products may be exercised by any personnel of Licensee, including all ORCA Agencies,

Commented [BA5]: 4.Need clarification about the intent here.

Commented [IJ6R5]: Fully paid: If INIT does not get paid the licensing may be revoked.
Project specific: The license is granted for the project described in the RFP.

Commented [BA7]: 5.There is no term as this is a perpetual license.

Commented [BA8]: 6.This limitation is not agreeable.

Commented [BA9]: 7.This does not appear to be relevant to this project.

Commented [BA10]: 8.Perpetual

Commented [BA11]: 9.Specific pricing would be detailed on the Price Sheet.

Commented [BA12]: 10.If a device/hardware goes out of commission we need to be able to transfer the license to its replacement without having to purchase an additional license.

Commented [IJ13R12]: Your statement is correct. Transferable is meant in the way defined in 4.5

Commented [BA14]: 11.Perpetual

Commented [BA15]: 12.This limitation is not agreeable.

Commented [BA16]: 13.Perpetual

Commented [BA17]: 14.There may need to be some cooperation/collaboration with third-parties with respect to interfacing with INIT software.

whether an employee, intern or an independent contractor who has agreed to the same Confidentiality restrictions as Licensee. Other than as set forth herein Licensee shall make no attempt to reverse compile, disassemble, or otherwise reverse engineer all or any part of the INIT Software. Except as provided herein or in the terms of the Purchase Contract, Licensee shall not copy, reproduce, modify, adapt or translate the Licensed Products, without the advance express written consent of INIT. Licensee, its staff, subcontractors and consultants shall not permit disclosure of, access to, or use of the INIT Software by any third party unless authorized in writing in advance by INIT.

4. RESTRICTIONS AND LIMITATIONS ON USE.

4.1 **Archival and Backup Copies.** Licensee is authorized to make no more than two additional copies of the INIT Software for archival or backup purposes.

4.2 **Modification of Software.** Modifications to the INIT Software are prohibited and such modifications will void any warranty or maintenance agreement covering the INIT Software.~~.~~

4.3 **Reverse Engineering Prohibited.** Reverse engineering, decompilation, disassembly, or other similar techniques are prohibited by this EULA. This EULA does not authorize use nor grant any rights in the source code for the INIT Software.

4.4 **Rental of Software Prohibited.** You may not rent, lease, ~~sublicense,~~ distribute, transfer, or time share the Licensed Products.

4.5 **Assignment and Transfer of License Rights**. Licensee may not assign or transfer the Licensed Products or this EULA to any third person or organization except with the prior written permission of INIT, which shall not be unreasonably withheld or delayed. Upon thirty (30) days prior notice, INIT may assign this Agreement and rights for benefit of Licensee.

4.6 **No Other Rights in Copyrights, Trademarks, or Patents Granted.** Except as expressly granted herein, Licensee acquires no other rights in any copyright, patent, trademark, or trade secret incorporated in or applicable to the Licensed Products.

4.7 **Term and Termination**. The term of this EULA shall commence on the Effective Date and continue perpetually thereafter~~ until terminated as provided hereafter in this Section 4.7. In the event Licensee breaches a material term of this EULA and fails to cure such breach within ninety (90) days after the receipt of written notice thereof from INIT specifying such breach (such thirty (30) day period shall be referred to herein as the "Cure Period"), then INIT may terminate this EULA by giving Licensee written notice thereof within thirty (30) days after the end of the Cure Period, and, in such event, this EULA shall terminate ninety (90) days after Licensee 's receipt of such notice. Licensee may terminate this EULA at any time by giving written notice thereof to INIT and, in such event, this EULA shall terminate on the date specified in such notice. Upon termination of this EULA, Licensee agrees to, as directed by INIT, destroy or return to INIT all copies of the Licensed Products, except that Licensee may keep one copy for archival purposes. Licensee shall certify to INIT in writing its compliance with the return or destruction provisions.~~.

4.8 **Media** Subject only to Licensees' complying with any request for information according to any statutory requirements that apply to Licensee, neither party shall communicate with representatives of the general or technical press, radio, television, or other communication media regarding the work under this License Agreement without the prior written consent of the other party. Neither party nor any of its personnel shall publish or reproduce or arrange press releases regarding the other party without the prior written consent of the other party upon such terms as may be agreed.

4.9 ~~Trade Secrets~~**PUBLIC DISCLOSURE** The Licensor acknowledges that the Licensee (and all ORCA Agencies) are subject to Chapter 42.56 RCW. ~~Licensee acknowledges that the INIT Software, the Documentation and other related information (Trade Secrets) are owned by INIT or INIT has the rights of use in them. Licensee is obliged~~

Commented [BA18]: 15.Conflicts with sublicensing rights per Purchase agreement

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Commented [BA19]: 16.Perpetual.

Commented [CL20R19]: 17.In the event Sound Transit breaches the EULA and fails to remedy the breach after notice INIT has the right to terminate the license.

Commented [CL21R19]: Not acceptable. Termination is limited to breach of license and Licensee failure to correct breach after written notice.

Commented [CL22]: 18.Chapter 42.56 contains an exception for Trade Secrets in the event of a public request for disclosure. Other than 42.56 do you agree that the limitations are effective?

Commented [CL23R22]: NOT RESPONDED TO BY ORCA.

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~~to maintain the Trade Secrets in confidence and not to disclose the Trade Secrets to any third party, without INIT's prior written consent. These obligations of confidentiality shall survive termination of Contract _____.~~

5 **Additional Licenses.** Except for prices which are expressly set forth in the Purchase Contract, Licensee acknowledges INIT's right, to be exercised in its sole discretion and without notice, to modify from time to time its price structure for new licenses of INIT Software and Licensed Products.

6 **LICENSOR'S RIGHT TO AUDIT LICENSE RESTRICTIONS**. Licensee agrees to allow INIT access to the Licensed Products, upon reasonable notice and during normal business hours, to verify compliance with the provisions of the EULA so long as INIT does not unreasonably interfere with Licensee's daily operations. Licensee shall make available the necessary operational records, database equipment, employees and facilities required by INIT to perform its audit.

7 **PROTECTION OF SOFTWARE AND DOCUMENTATION** Licensee agrees to use commercially reasonable measures to protect the Licensed Products, including documentation, from unauthorized use, copying, or distribution.

8 **MAINTENANCE AND UPGRADES.** INIT provides no maintenance or upgrades as part of this EULA. Maintenance and software upgrades are provided under the terms of the Purchase Contract or by separate agreements with INIT.

9 **Export Compliance.** The export of INIT Software may controlled by federal law. You agree that you will not: (a) export or re-export, directly or indirectly, any software and/or technical data (as defined by the U.S. Export Administration Regulations) provided by INIT or (b) disclose such software/technical data for use in, or export or re-export directly or indirectly, any direct product of such technical data, including Software, to any destination to which such export or re-export is restricted or prohibited by United States, without obtaining prior authorization from the U.S. Department of Commerce and other competent government entities to the extent required by applicable laws and/or regulations.

10 **US GOVERNMENT RESTRICTED RIGHTS.** This EULA provides only RESTRICTED RIGHTS in the Licensed Products. Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subparagraph FAR section 52.227-19 (48 CFR 52.227-19) (December 2007) and the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013, as applicable

11 **LIMITED WARRANTIES.**

11.1 **Authority.** INIT represents and warrants that (a) INIT is a corporation duly organized, validly existing and in good standing under and in accordance with the laws of the Commonwealth of Virginia, (b) INIT has full legal power and authority to enter into this Agreement, and (c) the person who executes and delivers this Agreement for INIT and on its behalf is duly authorized and has all requisite authority to do the same.

11.2 **No Infringement.** INIT represents and warrants that (a) Licensee shall have quiet enjoyment of the Licensed Products and other materials delivered hereunder and that Licensee's use of, and/or other authorized exercise of its rights in, the Licensed Products and/or such other materials shall not infringe or otherwise violate any patent, copyright, trademark, trade secret, nondisclosure, and/or any other intellectual property right of any third party, (b) no third party has made any claim of infringement of intellectual property rights with respect to the Licensed Products, (c) INIT has not previously and will not hereafter grant any rights to any third party that are in conflict

Commented [BA24]: 19.All prices will be expressly set forth in the Purchase Contract, and if not would be negotiated via change order.

Commented [CL25R24]: Pricing in the Purchase Agreement is not perpetual. This document anticipates the eventual Final Acceptance under the purchase agreement after which new contracts must be concluded.

Commented [BA26]: 20.Provide draft copy of maintenance and support agreement(s)

Commented [IJ27R26]: Was provided with submission on June 8th: Please see "Standard Maintenance_Agreement.doc"

with any of the rights granted herein, (d) any services performed pursuant to this EULA (or otherwise in respect of the Licensed Products) by INIT will not infringe or otherwise violate any patent, copyright, trademark, trade secret, nondisclosure, right of publicity, right of privacy and/or any other intellectual property right of any third party.

11.3 No Viruses. INIT represents and warrants that the INIT Software does not contain, and will not contain, any feature which could in any way impair the operation of such software (and/or any of Licensee's other software and/or hardware) including, without limitation, (a) software locks, license keys, drop dead devices, back doors, time bombs, or other software routines which may disable a computer program automatically with the passage of time or under the positive control of a person other than Licensee, or (b) any form of virus, a Trojan horse, worm or other software routines or hardware components which may (i) permit unauthorized access, (ii) disable, erase, or otherwise harm software, hardware, or data, or (iii) remove, provide access to or disclose any data or other personal information, health information or financial information of any person.

11.4 No Security Interests. INIT represents and warrants that the INIT Software has not been pledged, in whole or in part, as security for any loans or other obligations and there are otherwise no security interests, liens or other types of encumbrances on the INIT Software.

12 LIMITATION AND EXCLUSION OF WARRANTIES. EXCEPT AS EXPRESSLY SET FORTH IN THIS LICENSE AGREEMENT, INIT MAKES NO WARRANTIES, REPRESENTATIONS, OR PROMISES. EXCEPT AS EXPRESSLY SET FORTH IN THIS LICENSE AGREEMENT, INIT EXPRESSLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY, TITLE, AND SUITABILITY FOR ANY SPECIFIC PURPOSE, OR SYSTEM. ~~INIT DOES NOT WARRANT THAT THE LICENSED PRODUCTS WILL PERFORM WITHOUT INTERRUPTION OR ERROR, AND DOES NOT WARRANT THAT THEY WILL SATISFY ANY PARTICULAR REQUIREMENTS NOT SET OUT IN THE LICENSEE EFARE SYSTEM TECHNICAL SPECIFICATION.~~

13 APPLICABLE LAW/VENUE/JURISDICTION. This License Agreement shall be governed by, and construed in accordance with, the laws of the State of ~~_____~~ Washington, without regard to any applicable conflict of laws rules. The exclusive venue and jurisdiction shall lie in the federal and state _____ courts of ~~_____~~ King County County, ~~_____~~ Washington.

14 LIMITATION OF LIABILITY. EXCEPT FOR (A) DAMAGES RESULTING FROM A BREACH BY EITHER PARTY OF THEIR RESPECTIVE OBLIGATIONS UNDER SECTION 16 BELOW, (B) INIT'S OBLIGATIONS UNDER SECTION 15 BELOW, AND/OR (C) A PARTY'S WILLFUL MISCONDUCT, ~~GROSS NEGLIGENCE~~ NEITHER PARTY SHALL BE LIABLE TO THE OTHER PARTY FOR ANY INCIDENTAL, CONSEQUENTIAL, OR INDIRECT DAMAGES OR LOSS OF PROFITS OR PUNITIVE DAMAGES ARISING OUT OF THIS LICENSE AGREEMENT. TO THE MAXIMUM EXTENT ALLOWABLE BY LAW AND EXCEPT FOR (A) DAMAGES RESULTING FROM A BREACH BY INIT OF ITS OBLIGATIONS UNDER SECTION 16 BELOW, (B) INIT'S OBLIGATIONS UNDER SECTION 15 BELOW, AND/OR (C) INIT'S WILLFUL MISCONDUCT, ~~GROSS NEGLIGENCE,~~ INIT'S TOTAL LIABILITY ARISING FROM OR RELATING TO THIS LICENSE AGREEMENT OR THE SALE OR DISTRIBUTION OF THE LICENSED PRODUCTS, WHETHER IN CONTRACT, TORT OR ANY OTHER GROUNDS, IS ~~LIMITED TO THE TOTAL AMOUNT OF LICENSE FEES LICENSEE HAS ACTUALLY PAID FOR THE LICENSED PRODUCTS AT THE TIME THE CLAIM IS MADE.~~ UNLIMITED.

Commented [BA28]: 21.Not agreeable.

Commented [CL29R28]: 22.Disclaimer of all warranties except those stated is standard contract language. The items you have stricken clearly reflect the construction contract terms.

Commented [CL30R28]: NOT RESPONDED TO BY ORCA . Deletion unacceptable.

Commented [BA31]: 23.This standard is not agreeable.

Commented [CL32R31]: 24.Please explain specifically what it is that you consider disagreeable. Limitation of liability is a standard contract provision.

Commented [CL33R31]: This is a mutual limitation of liability clause. Limitation is sacrosanct and may only be unavailable in the event of exceptional circumstances, e.g. gross negligence or willful misconduct. Limitation amount is mutual. LIM ITATION AMOUNT NOT COUNTERED BY ORCA.

15 INDEMNIFICATION. Notwithstanding anything herein to the contrary, INIT shall, at its sole cost and expense, indemnify, defend and hold harmless Licensee and its respective or collective directors, officers, employees, contractors and agents (collectively, the "Indemnified Parties"), and each of them, from and against any and all loss or liability, claims, demands, damages, costs and expenses including, without limitation, reasonable attorneys', accountants' and expert witness fees, costs and expenses, that the Indemnified Parties, or any one or more of them, may sustain or incur, directly or indirectly (collectively, "Claims"), from, or as a result of the infringement (or claim thereof) by an Indemnified Party of any patent, copyright, trademark, trade secret, nondisclosure, and/or other intellectual property right through such Indemnified Party's use, or other exercise of its rights in, the Licensed Products, and/or any other materials delivered hereunder. This indemnification clause shall be null and void to the extent that Licensee has directed INIT to incorporate the infringing object, Licensee modifies the use of the INIT Software without INIT approval or Licensee combines, operates or uses the INIT Software with anything INIT did not approve, develop, ~~of~~ or provide and any of the foregoing Licensee actions cause or contribute to the infringement..

16 CONFIDENTIALITY.

16.1 Definition of Confidential Information. As used in this EULA, the term "Confidential Information" means, subject to Section 16.2 below, any and all nonpublic information that a party to this EULA (each a "Disclosing Party") designates as being confidential to the party that receives such information (each a "Receiving Party") ~~or~~ and which, under the circumstances surrounding disclosure ought to be treated as confidential by the Receiving Party. Subject to Section 16.2 below, "Confidential Information" includes the INIT Software and may also include, without limitation, information in tangible or intangible form relating to and/or including (a) the marketing or promotion of any Disclosing Party product or service (b) the Disclosing Party's business policies or practices, (c) the Disclosing Party's customers, and/or ~~(d) information received from others that the Disclosing Party is obligated to treat as confidential.~~

16.2 Exceptions to Confidential Information. The term "Confidential Information" does not include information, however designated, that (a) is or subsequently becomes publicly available without the Receiving Party's breach of any obligation owed to the Disclosing Party; (b) is known to the Receiving Party prior to the Disclosing Party's disclosure of such information to the Receiving Party, (c) becomes known to the Receiving Party from a source other than the Disclosing Party other than by the breach of an obligation of confidentiality owed to the Disclosing Party, ~~and/or~~, (d) is independently developed by the Receiving Party and/or is determined by a court of competent jurisdiction not to be entitled to protection under the laws of the State of Washington.

16.3 Obligations Regarding Confidential Information. The Receiving Party agrees that during the term of this EULA and forever thereafter it will (a) refrain from disclosing any Confidential Information of the Disclosing Party to third parties, (b) take reasonable security precautions, at least as great as the precautions it takes to protect its own confidential information but no less than reasonable care, to keep confidential the Confidential Information of the Disclosing Party, and (c) refrain from using, disclosing, reproducing, summarizing and/or distributing the Confidential Information of the Disclosing Party, in each instance except as expressly provided in this EULA. Furthermore, the Receiving Party agrees to promptly upon the termination of this License Agreement, deliver to the Disclosing Party all originals, copies, reproductions and summaries of the Confidential Information of the Disclosing Party, or at the Disclosing Party's option, certify the destruction of the same; provided, however, that the Receiving Party may keep one copy for archival purposes.

16.4 *Required Disclosures.* Notwithstanding anything contained herein to the contrary, a Receiving Party may disclose the Confidential Information of a Disclosing Party in

Commented [CL34]: See new exception below, which should resolve your concerns.

Commented [BA35]: 25.We have to know this for Public Records Act purposes.

Commented [CL36R35]: 26.Unsure of what "this" refers to.

Commented [BA37]: 27.Too broad and vague.

accordance with a law, regulation, rule or judicial or other governmental order, provided that the Receiving Party either (a) gives the Disclosing Party reasonable notice prior to such disclosure to allow the Disclosing Party a reasonable opportunity to seek a protective order or equivalent, or (b) obtains written assurance from the applicable judicial or governmental entity that it will afford the Confidential Information the highest level of protection afforded under applicable law, regulation or rule.

16.5 **No License.** All Confidential Information is and shall remain the property of Disclosing Party. By disclosing Confidential Information to the Receiving Party, the Disclosing Party does not grant any express or implied rights to the Receiving Party to or under any patents, copyrights, trademarks, or trade secret information except as otherwise provided herein. Disclosing Party reserves, without prejudice, the ability to protect its rights under any such patents, copyrights, trademarks, or trade secrets.

16.6 **Injunctive Relief.** INIT and Licensee each acknowledge and agree that there can be no adequate remedy at law for any breach (or threatened breach) of either party's obligations under Section 16.3 above, that any such breach (or threatened breach) may allow the breaching party (or the party threatening breach) or third parties to unfairly compete with the other party resulting in irreparable harm to the other party, and, therefore, that upon any breach (or threatened breach) of any provision of Section 16.3 above, the non-breaching party will be entitled to obtain from a court extraordinary relief including but, not limited to, temporary restraining orders, preliminary injunctions, permanent injunctions, and/or decrees of specific performance, in each instance without the necessity of posting a bond.

17 MISCELLANEOUS PROVISIONS.

17.1 **Complete Agreement**. This License ~~Agreement represent~~Agreement represents the complete agreement between Licensee and INIT with regard to rights to use the Licensed Products except for applicable terms and conditions of the Purchase Agreement, and all prior oral or written agreements, representations or understandings are superseded and void.

Commented [CL38]: This is a stand alone license and its terms are independent of the Purchase Agreement.

17.2 **Modifications.** This License Agreement may not be modified, amended, rescinded, canceled or waived, in whole or in part, except pursuant to a written agreement signed by both parties. Without limiting the foregoing, in the event of any conflict between the terms and conditions of this Agreement and the terms and conditions of the Purchase Contract and appendices, and attachments thereunder, the terms of the Purchase Contract shall prevail. All other documents, such as any purchase order, invoice, shrink-wrap agreement, click through agreement or other document of one of the parties purporting to override the terms of this License Agreement, the terms and conditions of this License Agreement shall prevail.

17.3 **Severability.** If any provision of this License Agreement is declared or found to be illegal, unenforceable or void, then both parties shall be relieved of all obligations arising under such provision, but only to the extent that such provision is illegal, unenforceable or void, it being the intent and agreement of the parties that this License Agreement shall be deemed amended by modifying such provision to the extent necessary to make it legal and enforceable while preserving its intent or, if that is not possible, by substituting therefore another provision that is legal and enforceable and achieves the same objective. If the remainder of this License Agreement shall not be affected by such declaration or finding and is capable of substantial performance, then, each provision not so affected shall be enforced to the extent permitted by law.

17.4 **Relationship of Parties.** Each of the parties to this License Agreement is acting only as an independent contractor and assumes full responsibility for each of its employees and shall be solely responsible for the payment of compensation to its personnel. This License Agreement does not constitute either party hereto as the agent or legal

representative of the other party and does not create a partnership or joint venture between them.

17.5 **Assignment.** Neither this License Agreement nor any of the rights, interests or obligations hereunder may be assigned by INIT (whether by operation of law or otherwise) without the prior written consent of Licensee. Subject to the foregoing, this License Agreement shall be binding upon, inure to the benefit of and be enforceable by the parties and their respective successors and permitted assigns.

17.6 **Headings, Defined Terms, Use of Terms.** Headings of articles and sections in this License Agreement are for the convenience of the parties only. Accordingly, they shall not constitute a part of this License Agreement when interpreting or enforcing this License Agreement. All defined terms used in this License Agreement shall be deemed to refer to the masculine, feminine, neuter, singular and/or plural, in each instance as the context and/or particular facts may require. Use of the terms "hereunder", "herein", "hereby", and similar terms refer to this License Agreement.

17.7 **Survival.** All of INIT's obligations under this License Agreement which are not, by the express terms of this License Agreement, fully to be performed during the term of this License Agreement shall indefinitely survive the termination of this License Agreement for any reason. Such obligations include, without limitation, obligations under Sections 15 and 16 above. Similarly, Licensee's obligations under Section 16 above shall indefinitely survive the termination of this License Agreement for any reason.

17.8 **Cumulative Remedies.** No right or remedy conferred by this License Agreement is exclusive of any other right or remedy conferred herein or by law or in equity; rather, all of such rights and remedies are cumulative of every other such right or remedy and may be exercised concurrently or separately from time-to-time

17.9 **Recitals.** The recitals to this License Agreement are hereby incorporated herein as an integral part hereof.

17.10 **Notices.** All notices required by this License Agreement shall be in writing. To be effective, notices from INIT to Licensee shall be delivered or mailed to Licensee at Licensee's address set forth above, Attn: Mr. Tim McHugh, Chief Technology Officer. Any such notice to Licensee shall be deemed given or served and received hereunder when delivered personally or three (3) days after being mailed certified mail, postage prepaid, in each instance in accordance with this Section 17.10. Notices from Licensee to INIT shall be delivered or mailed to INIT Chief Financial Officer at INIT's address designated above. Any such notice to INIT shall be deemed given or served and received hereunder when delivered personally or three (3) days after being mailed certified mail, postage prepaid, in each instance in accordance with this Section 17.10.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized representatives as of the Effective Date.

INIT Innovations in Transportation, Inc.

By: _____

Printed Name: _____

Title: _____

By: _____
Printed Name: _____
Title: _____

Exhibit A

The contracted Software Modules will be listed here.

Please refer to the document “Software Licensing Information.pdf” for proposed Software Licenses.

PROPOSAL FORM NO. 3B DBE/SMALL BUSINESS COMMITMENT FORM

				Diversity Contract Goals		
Procurement No.	1. RTA/RP 0119-17	Company Name	3. INIT, Innovations in Transportation	Small Business Commitment	9.	10 %
		Address	4. 424 Network Station Road	DBE Commitment		10 %
Procurement Title	2. Systems Integrator for Next Generation ORCA	City/State/Zip	5. Chesapeake, VA, 23320	**Small Business Goal**	10.	**5%**
		Contact Name	6. Mr. Jim Hicks	**DBE Goal**		**2%**
		Contact Phone	7. 757-413-9100 ext 314			
		Contact Email	8. JHicks@INITusa.com	11. Total Proposal Price		$ 49,958,703.11

12. DBE/Small Business Participants (May include Proposer if counted towards Goal)	13. Small Business Indicator (DBE, MBE, WBE, Size, etc.)	14. Description of Work	DBE/Small Business Participants	
			15. Proposed Subcontract Amount	16. Percent of Proposed Contract
ESP Enterprises, Inc.	DBE/MBE	Vending Machine and Validator Installation Services	[redacted]	
Edco Incorporated	DBE/WBE	Contract Manufacturing		
West Sound Workforce	DBE/WBE	Customer Service Terminal Installation Services		
Go Systems and Solutions	DBE/WBE	Business Analyst Consultant		
Babinec Consulting	DBE/WBE	Technical Writing		
Subtotal and percent from attached list of DBE/Small Business participants:				
(Please attach a separate list of additional planned DBE/Small Business participants, as necessary)		**DBE/Small Business Participants Total:**	**19.** $ 5,023,281.77	20. 10.1 %

item	Software or Application Title	Proposal Reference - associate the License with the applicable Proposal Section	Brief description of the license purpose including major rights/restrictions	License QTY	License Term	Licensor	Licensee	Comments	Pricing Sheet Movement	INIT serving as reseller (YES/NO)	Project Phase in which 3rd party license is planned to be executed/implemented (Referencing the Proposed Program Schedule)	6.01 Software Licenses (Capital Phase - one time)	5.01 Software Maintenance (Operating Phase - Annual) Annual license fee or subscription fee	5.24 Hosting	Notes
[redacted]															

item	Software or Application Title	Proposal Reference - associate the License with the applicable Proposal Section	Brief description of the license purpose including major rights/restrictions	License QTY	License Term	Licensor	Licensee	Comments	Pricing Sheet Movement	INIT serving as reseller (YES/NO)	Project Phase in which 3rd party license is planned to be executed/implemented (Referencing the Proposed Program Schedule)

6.01 Software Licenses (Capital Phase - one time)

5.01 Software Maintenance (Operating Phase - Annual) Annual license fee or subscription fee

5.24 Hosting

Notes

item	Software or Application Title	Proposal Reference - associate the License with the applicable Proposal Section	Brief description of the license purpose including major rights/restrictions	License QTY	License Term	Licensor	Licensee	Comments	Pricing Sheet Movement	INIT serving as reseller (YES/NO)	Project Phase in which 3rd party license is planned to be executed/implemented (Referencing the Proposed Program Schedule)	6.01 Software Licenses (Capital Phase - one time)	5.01 Software Maintenance (Operating Phase - Annual) Annual license fee or subscription fee	5.24 Hosting	Notes
[redacted]															

Next Generation ORCA System Integrator RFP
Proposal Pricing Form

Pricing Summary

Item No.	Description	Total Price
1	Implementation Services	[redacted]
2	System Software and Design	
3	Equipment and Spares	
4	Fare Media	
5	Operations and Maintenance Support Services	
6	Software Licenses	
7	Value-added Features and Capabilities	
	GRAND TOTAL	**$ 91,601,456.82**

Signed:

9/13/2018

Date

Roland Staib, President & CEO

Name & Title

Next Generation ORCA System Integrator RFP
Pricing Form

Item No.	SOW Ref.*	Description	Unit	Est. Quantity	Unit Price	Amount
1. IMPLEMENTATION SERVICES						
	Program and Contract Management					
1.01	2	Program & Contract Management (NTP to System Acceptance)	LS	1	[redacted]	
		UI/UX Consulting				
1.01a		Project Management, Project Initiation and Onboarding	LS	1		
1.01b		Corporate Desgin Style Guide	LS	1		
1.01c		Website Design Guide	LS	1		
1.01d		Validator	LS	1		
1.01e		Driver Display Unit	LS	1		
1.01f		Front Office Ticket Sales	LS	1		
1.01g		TVMs	LS	1		
		Software Escrow				
1.01h		Initial Desposit - Level 1 Escrow	LS	1		
					Subtotal - Program and Cont	

	Installation and Transition Services				
1.02	2	Transition Strategy and Planning	LS	1	[redacted]
1.03	2	Back-Office Installation and Configuration, Including Documentation	LS	1	
1.04	2	Field Device Site Surveys and Prototyping	LS	1	
1.05a	2	Onboard Equipment (validator and DDU) Installation (Excluding KCM)	EA	650	
1.05b	2	Onboard Equipment (validator and DDU) Commissioning (Excluding KCM)	EA	650	
1.05c	2	Onboard Equipment Documentation	LS	1	
1.06	2	Onboard Validator Equipment Installation, Commissioning, and Documentation (KCM Only)	EA	0	
1.07a	2	Wayside Validator Installation	EA	1095	
1.07b	2	Wayside Validator Commissioning	EA	1095	
1.07c	2	Wayside Validator Documentation	LS	1	
1.08a	2	VM Installation	EA	291	
1.08b	2	VM Commissioning	EA	291	
1.08c	2	VM Documentation	LS	1	
1.09a	2	CST Installation	EA	41	
1.09b	2	CST Commissioning	EA	41	
1.09c	2	CST Documentation	LS	1	
				Subtotal - Installation and T	
	Testing				[redacted]
1.10	2	Agency Test Facility Implementation, Housing, and Documentation	LS	1	
1.11	2	Factory Testing and Documentation	LS	1	
1.12	2	Integration Testing and Documentation	LS	1	
1.13	2	Pilot Testing and Documentation	LS	1	
1.14	2	System Acceptance Testing and Documentation	LS	1	

	Training			
1.15	2	Training Course Development Services	LS	1
1.16	2	Training Course Delivery and Materials	EA	1
	Manuals			
1.17	2	System Manuals	LS	1
			TOTAL PRICE - 1. IMPLEMENT	
Item No.	**SOW Ref.***	**Description**	**Unit**	**Est. Quantity**
2. SYSTEM SOFTWARE DESIGN				
	Back Office Applications			
2.01	6	Account-based Transaction Processor	LS	1
2.02	6	Customer Relationship Management	LS	1
2.02a	6	Salesforce User - qty 100+	EA	1
2.02b	6	Salesforce User - qty 1-99	EA	1
2.03	6	Asset Incident Management	LS	1
2.04	6	System Manager	LS	1
2.05	6	Fare Media Management	LS	1
2.06	6	Financial Management	LS	1
2.06a	6	Sage 300c User - qty 26+	EA	1
2.06b	6	Sage 300c User - qty 15-25	EA	1
2.06c	6	Sage 300c - qty 1-14	EA	1
2.07	6	Central Payment	LS	1
2.08	6	Configuration and Change Management	LS	1
2.09	6	Tariff Management	LS	1
2.10	6	API Management	LS	1
			Subtotal - Back O	

					[redacted]
	Externally Sourced Applications				
2.11	5	Customer Mobile App	LS	1	
2.12	5	Agency Mobile Apps (Fare Inspection & Fare Payment)	LS	1	
2.13	5	Customer Website	LS	1	
				Subtotal - Externally Sou	
	Field Device and Equipment Software				
2.14	4	Onboard and Wayside Validator Software	LS	1	
2.15	4	Driver Display Unit Software	LS	1	
2.16	4	Customer Service Terminal Software	LS	1	
2.17	4	Full Feature Vending Machine Software	LS	1	
				Subtotal - Field Device and Eq	
	API Development				
2.18	3	Application Programming Interface (API) Development	LS	1	
				Subtotal -	
	System Integration Services				
2.19	3	Onboard Integration (PT, CT, KT, ET)	LS	3	
2.20	3	Onboard Integration (KCM)	LS	1	
2.21	3	Washington State Ferries Integration	LS	1	
2.22	3	Data Access and Reporting Platform (DARe) Integration	LS	1	
2.23	3	Retail Network Integration	LS	1	
2.24	3	Integration with Legacy ORCA Back Office	LS	1	
2.25	3	ADA Paratransit Integration	LS	1	
2.26	6	Integration of Agency Provided CRM Application ($0 if SI-provided CRM application is proposed)	LS	1	
2.27	6	Integration of Agency Provided Financial Application ($0 if SI-provided financial application is proposed)	LS	1	
		Vanpool Integration	LS	1	
				Subtotal - System Int	

	Transit Payment Application				
2.28	7	Transit Payment Application	LS	1	[redacted]
Subtotal - Transit Pay					
TOTAL PRICE - 2. SYSTEM SOF					

Item No.	SOW Ref.*	Description	Unit	Est. Quantity	[redacted]
3. EQUIPMENT AND SPARES					
	Producion Equipment and Spares				
3.01	4	Back Office Hardware - Four Environments ($0.00 if cloud is proposed)	LS	1	
3.02	4	Onboard Validator (including spares)	EA	2,926	
3.03	4	Onboard Validator Mounting System and Installation Kit (including spares)	EA	2,926	
3.04	4	Driver Display Unit (including spares)	EA	1,086	
3.05	4	Driver Display Unit Mounting System and Installation Kit (including spares)	EA	1,086	
3.06	4	Wayside Validator (including spares)	EA	1,160	
3.07	4	Wayside Validator Mounting System and Installation Kit (including spares)	EA	1,160	
3.08	4	Customer Service Terminal (including spares)	EA	41	
3.08a	4	CST Standard Printer	EA	15	
3.09	4	CST Portable Printer	EA	12	
3.10	4	CST Mail Center Printer	EA	2	
3.11	4	Full Feature Vending Machine (including spares)	EA	146	
3.11a	4	Credit for omission of bill and coin acceptance	EA		
3.11b	4	Credit for omission of coin acceptance	EA		
3.11c	4	Credit for omission of change issuance	EA		
3.11d	4	Credit for omission of media issuance	EA		
		Light Vending Machine	EA	146	
				Subtotal - Production Equipm	

	Test Equipment			
3.12a	2	Test System with online applications of the Main System License	LS	1
3.12b	2	1 Vehicle BiB Per Agency (excluding WSF)	EA	6
3.12c	2	Platform Validator	EA	1
3.12d	2	Large Full Service TVM	EA	1
3.12e	2	Small Profile Full Service TVM	EA	1
3.12f	2	CST Test Unit	EA	1
				Subtota
	Training Equipment			
3.13	2	On-board Training Unit (BIB) - including validator, DDU and other SI equipment)	EA	12
3.14	2	Wayside Training Unit - including wayside validator	EA	3
3.15	2	CST Training Unit	EA	7
				Subtotal - T
				TOTAL PRICE - 3. EQUIPME
Item No.	**SOW Ref.***	**Description**	**Unit**	**Est. Quantity**
4. FARE MEDIA				
	Fare Media			
4.01	7	Contactless Extended-use Smart Cards (including training and test cards)	EA	1,000,000
				TOTAL PRICE

[redacted]

Item No.	SOW Ref.*	Description	Unit	Est. Quantity	Unit Price	Amount
5. OPERATIONS AND MAINTENANCE SUPPORT SERVICES						
	Software Maintenance Agreement					
5.01	**8**	**Year 1 – Software Maintenance Agreement**				
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)				
5.01a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1		
5.01b		Shareplex Subscription	LS	1		
		Monthly Recurring SW Maintenance (Billed Monthly)				
5.01c		INIT Software	MO	12		
		Monthly Recurring Licenses (Billed Monthly)				
5.01d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12		
5.02	**8**	**Year 2 – Software Maintenance Agreement**				
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)				
5.02a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1		
5.02b		Shareplex Subscription	LS	1		
		Monthly Recurring SW Maintenance (Billed Monthly)				
5.02c		INIT Software	MO	12		
		Monthly Recurring Licenses (Billed Monthly)				
5.02d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12		

5.03	**8**	**Year 3 – Software Maintenance Agreement**				
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)				
5.03a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1	$	
5.03b		Shareplex Subscription	LS	1	$	
		Monthly Recurring SW Maintenance (Billed Monthly)				
5.03c		INIT Software	MO	12	$	
		Monthly Recurring Licenses (Billed Monthly)				
5.03d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12	$	
5.04	**8**	**Year 4 – Software Maintenance Agreement**				
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)				
5.04a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1		
5.04b		Shareplex Subscription	LS	1		
		Monthly Recurring SW Maintenance (Billed Monthly)				
5.04c		INIT Software	MO	12		
		Monthly Recurring Licenses (Billed Monthly)				
5.04d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12		
5.05	**8**	**Year 5 – Software Maintenance Agreement**				
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)				
5.05a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1		
5.05b		Shareplex Subscription	LS	1		
		Monthly Recurring SW Maintenance (Billed Monthly)				
5.05c		INIT Software	MO	12		
		Monthly Recurring Licenses (Billed Monthly)				
5.05d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12		

5.06	**8**	**Year 6 – Software Maintenance Agreement**				
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)				
5.06a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1		
5.06b		Shareplex Subscription	LS	1		
		Monthly Recurring SW Maintenance (Billed Monthly)				
5.06c		INIT Software	MO	12		
		Monthly Recurring Licenses (Billed Monthly)				
5.06d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12		
5.07	**8**	**Year 7 – Software Maintenance Agreement**				
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)				
5.07a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1		
5.07b		Shareplex Subscription	LS	1		
		Monthly Recurring SW Maintenance (Billed Monthly)				
5.07c		INIT Software	MO	12		
		Monthly Recurring Licenses (Billed Monthly)				
5.07d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12		
5.08	**8**	**Year 8 – Software Maintenance Agreement**				
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)				
5.08a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1		
5.08b		Shareplex Subscription	LS	1		
		Monthly Recurring SW Maintenance (Billed Monthly)				
5.08c		INIT Software	MO	12		
		Monthly Recurring Licenses (Billed Monthly)				
5.08d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12		

5.09	**8**	**Year 9 – Software Maintenance Agreement**			
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)			
5.09a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1	
5.09b		Shareplex Subscription	LS	1	
		Monthly Recurring SW Maintenance (Billed Monthly)			
5.09c		INIT Software	MO	12	
		Monthly Recurring Licenses (Billed Monthly)			
5.09d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12	
5.10	**8**	**Year 10 – Software Maintenance Agreement**			
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)			
5.10a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1	
5.10b		Shareplex Subscription	LS	1	
		Monthly Recurring SW Maintenance (Billed Monthly)			
5.10c		INIT Software	MO	12	
		Monthly Recurring Licenses (Billed Monthly)			
5.10d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12	
5.11	**8**	**~~Year 11 – Software Maintenance Agreement~~**			
Subtotal - Software Maintena					

[redacted]

	System Operations and Maintenance				
5.12a	8	Year 1 – System Operations & Maintenance	MO	12	
5.12b	8	Year 1 – Hardware Maintenance	MO	12	
5.13a	8	Year 2 – System Operations & Maintenance	MO	12	
5.13b	8	Year 2 – Hardware Maintenance	MO	12	
5.14a	8	Year 3 – System Operations & Maintenance	MO	12	
5.14b	8	Year 3 – Hardware Maintenance	MO	12	
5.15a	8	Year 4 – System Operations & Maintenance	MO	12	
5.15b	8	Year 4 – Hardware Maintenance	MO	12	
5.16a	8	Year 5 – System Operations & Maintenance	MO	12	
5.16b	8	Year 5 – Hardware Maintenance	MO	12	
5.17a	8	Year 6 – System Operations & Maintenance	MO	12	
5.17b	8	Year 6 – Hardware Maintenance	MO	12	
5.18a	8	Year 7 – System Operations & Maintenance	MO	12	
5.18b	8	Year 7 – Hardware Maintenance	MO	12	
5.19a	8	Year 8 – System Operations & Maintenance	MO	12	
5.19b	8	Year 8 – Hardware Maintenance	MO	12	
5.20a	8	Year 9 – System Operations & Maintenance	MO	12	
5.20b	8	Year 9 – Hardware Maintenance	MO	12	
5.21a	8	Year 10 – System Operations & Maintenance	MO	12	
5.21b	8	Year 10 – Hardware Maintenance	MO	12	
5.22a	8	Year 11 – System Operations & Maintenance	MO	12	
5.22b	8	Year 11 – Hardware Maintenance	MO	12	
5.23	8	~~Year 12 – System Operations & Maintenance~~			
				Subtotal - System Operations a	
	System Hosting				
		Monthly Recurring			
5.24	**3 & 8**	**Year 1 - Back Office, Test Facility, and Website Hosting**			
5.24a		Mobile Payment System Hosting	MO	12	
5.24b		INIT Back Office, Test Facility and Website Hosting	MO	12	

5.25	**3 & 8**	**Year 2 - Back Office, Test Facility, and Website Hosting**			
5.25a		Mobile Payment System Hosting	MO	12	
5.25b		INIT Back Office, Test Facility and Website Hosting	MO	12	
5.26	**3 & 8**	**Year 3 - Back Office, Test Facility, and Website Hosting**			
5.26a		Mobile Payment System Hosting	MO	12	
5.26b		INIT Back Office, Test Facility and Website Hosting	MO	12	
5.27	**3 & 8**	**Year 4 - Back Office, Test Facility, and Website Hosting**			
5.27a		Mobile Payment System Hosting	MO	12	
5.27b		INIT Back Office, Test Facility and Website Hosting	MO	12	
5.28	**3 & 8**	**Year 5 - Back Office, Test Facility, and Website Hosting**			
5.28a		Mobile Payment System Hosting	MO	12	
5.28b		INIT Back Office, Test Facility and Website Hosting	MO	12	
5.29	**3 & 8**	**Year 6 - Back Office, Test Facility, and Website Hosting**			
5.29a		Mobile Payment System Hosting	MO	12	
5.29b		INIT Back Office, Test Facility and Website Hosting	MO	12	
5.30	**3 & 8**	**Year 7 - Back Office, Test Facility, and Website Hosting**			
5.30a		Mobile Payment System Hosting	MO	12	
5.30b		INIT Back Office, Test Facility and Website Hosting	MO	12	
5.31	**3 & 8**	**Year 8 - Back Office, Test Facility, and Website Hosting**			
5.31a		Mobile Payment System Hosting	MO	12	
5.31b		INIT Back Office, Test Facility and Website Hosting	MO	12	
5.32	**3 & 8**	**Year 9 - Back Office, Test Facility, and Website Hosting**			
5.32a		Mobile Payment System Hosting	MO	12	
5.32b		INIT Back Office, Test Facility and Website Hosting	MO	12	
5.33	**3 & 8**	**Year 10 - Back Office, Test Facility, and Website Hosting**			

[redacted]

5.33a		Mobile Payment System Hosting	MO	12	
5.33b		INIT Back Office, Test Facility and Website Hosting	MO	12	
5.34	**3 & 8**	**Year 11 - Back Office, Test Facility, and Website Hosting**			
5.34a		Mobile Payment System Hosting	MO	12	
5.34b		INIT Back Office, Test Facility and Website Hosting	MO	12	
5.35	**3 & 8**	**Year 12 - Back Office, Test Facility, and Website Hosting**			
5.35a		Mobile Payment System Hosting	MO	12	
5.35b		INIT Back Office, Test Facility and Website Hosting	MO	12	

5.36	**3 & 8**	**Year 13 - Back Office, Test Facility, and Website Hosting**			
5.36a		Mobile Payment System Hosting	MO	12	
5.36b		INIT Back Office, Test Facility and Website Hosting	MO	12	
5.37	**3 & 8**	~~Year 14 - Back Office, Test Facility, and Website Hosting~~			
					Subtotal
	Warranty				
5.38	8	System Warranty (1 Year System Warranty Included)	LS	1	
					Su
	Software Escrow				
5.39		Year 1 - Level 1 Software Escrow	LS	1	
5.40		Year 2 - Level 1 Software Escrow	LS	1	
5.41		Year 3 - Level 1 Software Escrow	LS	1	
5.42		Year 4 - Level 1 Software Escrow	LS	1	
5.43		Year 5 - Level 1 Software Escrow	LS	1	
5.44		Year 6 - Level 1 Software Escrow	LS	1	
5.45		Year 7 - Level 1 Software Escrow	LS	1	
5.46		Year 8 - Level 1 Software Escrow	LS	1	
5.47		Year 9 - Level 1 Software Escrow	LS	1	
5.48		Year 10 - Level 1 Software Escrow	LS	1	
					Subtotal -
					TOTAL PRICE - 5. OPERATIONS AND MAINTENANCE SUPP

[redacted]

Item No.	SOW Ref.*	Description	Unit	Est. Quantity
6. SOFTWARE LICENSES				
		Software Licenses - All Environments		
6.01	3	Oracle Enterprise Edition with Advanced Security & Maintenance	LS	1
6.02	3	Shareplex Subscription & Professional Setup Services	LS	1
6.03	3	IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	LS	1
			TOTAL PRICE - 6. SOFTW	

Item No.	SOW Ref.*	Description	Unit	Est. Quantity
7. Value-added Features and Capabilities				
		Open Payments		
		Open APIs		
		Fare Capping/Loyalty Programs		
			TOTAL PRICE - 7. Value-added Features a	

*Refers to sections in the RFP SOW where capabilities associated with the pricing item are listed. Capabilities for any given pricing item may also be included in other sections of the SOW not listed on the pricing form.

System Integrator -- As-Needed Services

Item No.	Description	Unit	[redacted]
AS-NEEDED SUPPORT SERVICES			
AS.01	Senior Project Manager	HR	
AS.01	Project Manager	HR	
AS.02	Systems Engineer (Sr)	HR	
AS.03	Systems Engineer (Mid)	HR	
AS.04	Systems Engineer (Jr)	HR	
AS.05	Software Engineer (Sr)	HR	
AS.06	Software Engineer (Mid)	HR	
AS.07	Software Engineer (Jr)	HR	
AS.08	Technician	HR	

* Agreed upon rates (applicable to CY 2017) may be subject to modification on an annual basis only, and may not exceed a percentage equivalent to the change in the BLS Consumer price index (CPI), from end of prior year, to the most recent available 6 month data period. Requests for rate adjustments must be submitted to the Contract Manager 45 days prior to the beginning of a new calendar year.

Signed:

9/13/2018

Date

Roland Staib, President & CEO

Name and Title

System Integrator - Tiered Equipment

[redacted]

Item No.	Description	
TIERED EQUIPMENT PRICING		**Unit**
	On Board Validators, 1-10 quantity	EA
	On Board Validators, 11-20 quantity	EA
	On Board Validators, 21-50 quantity	EA
	On Board Validators, 51-100 quantity	EA
	On Board Validators, 100+ quantity	EA
	Driver Display Unit, 1-10 quantity	EA
	Driver Display Unit, 11-20 quantity	EA
	Driver Display Unit, 21-50 quantity	EA
	Driver Display Unit, 51-100 quantity	EA
	Driver Display Unit, 100+ quantity	EA
	Wayside Validators, 1-10 quantity	EA
	Wayside Validators, 11-20 quantity	EA
	Wayside Validators, 21-50 quantity	EA
	Wayside Validators, 51-100 quantity	EA
	Wayside Validators, 100+ quantity	EA
	Customer Service Terminal, 1-10 quantity	EA
	Customer Service Terminal, 11-20 quantity	EA
	Customer Service Terminal, 21-50 quantity	EA
	Full Featured Vending Machines, 1-2 quantity	EA
	Full Featured Vending Machines, 3-10 quantity	EA
	Full Featured Vending Machines, 11-20 quantity	EA
	Full Featured Vending Machines, 21-50 quantity	EA
	Full Featured Vending Machines, 51-100 quantity	EA
	Full Featured Vending Machines, 100+ quantity	EA
	Light Vending Devices, 1-2 quantity	EA
	Light Vending Devices, 3-10 quantity	EA
	Light Vending Devices, 11-20 quantity	EA
	Light Vending Devices, 21-50 quantity	EA
	Light Vending Devices, 51-100 quantity	EA
	Light Vending Devices, 100+ quantity	EA
	Training BIB - On Board Validator, DDU, 1-10 quantity	EA
	Training BIB - On Board Validator, DDU, 11-20 quantity	EA
	Training BIB - On Board Validator, DDU, 21-50 quantity	EA
	Training BIB - Wayside Validator, 1-10 quantity	EA
	Training BIB - Wayside Validator, 11-20 quantity	EA
	Training BIB - Wayside Validator, 21-50 quantity	EA
	Training BIB - CST Unit, 1-10 quantity	EA

	Training BIB - CST Unit, 11-20 quantity	EA	$
	Training BIB - CST Unit, 21-50 quantity	EA	$

Item No.	Description	
Spare Part Modules		**Unit**
	customer display size 15", TOUCH 15" + controller, cables, 1-10 quantity	EA
	customer display size 15", TOUCH 15" + controller, cables, 11-20 quantity	EA
	customer display size 15", TOUCH 15" + controller, cables, 21+ quantity	EA
	FEIG Card Reader for TVM, 1-10 quantity	EA
	FEIG Card Reader for TVM, 11-20 quantity	EA
	FEIG Card Reader for TVM, 21+ quantity	EA
	Coin handling Unit with change (6x carousel without hoppers), 1-10 quantity	EA
	Coin handling Unit with change (6x carousel without hoppers), 11-20 quantity	EA
	Coin handling Unit with change (6x carousel without hoppers), 21+ quantity	EA
	Bill Handling Unit (MEI SCR), 1-10 quantity	EA
	Bill Handling Unit (MEI SCR), 11-20 quantity	EA
	Bill Handling Unit (MEI SCR), 21+ quantity	EA
	Banknote Vault (for 1400 notes), 1-10 quantity	EA
	Banknote Vault (for 1400 notes), 11-20 quantity	EA
	Banknote Vault (for 1400 notes), 21+ quantity	EA
	Bank Card Processing Unit, 1-10 quantity	EA
	Bank Card Processing Unit, 11-20 quantity	EA
	Bank Card Processing Unit, 21+ quantity	EA
	1 x Double printers (2 paper rolls in total), 1-10 quantity	EA
	1 x Double printers (2 paper rolls in total), 11-20 quantity	EA
	1 x Double printers (2 paper rolls in total), 21+ quantity	EA
	Smartcard Dispenser, 1-10 quantity	EA
	Smartcard Dispenser, 11-20 quantity	EA
	Smartcard Dispenser, 21+ quantity	EA
	VENDstation board, 1-10 quantity	EA
	VENDstation board, 11-20 quantity	EA
	VENDstation board, 21+ quantity	EA
	VENDstation extension board, 1-10 quantity	EA
	VENDstation extension board, 11-20 quantity	EA
	VENDstation extension board, 21+ quantity	EA

	Power Supply, 1-10 quantity	EA	[redacted]
	Power Supply, 11-20 quantity	EA	
	Power Supply, 21+ quantity	EA	
	UPS, 1-10 quantity	EA	
	UPS, 11-20 quantity	EA	
	UPS, 21+ quantity	EA	
	HP Elite USB-C Dock	EA	
	HP EliteDisplay E220t 21.5-inch Touch Monitor	EA	
	Logitech MK520 Wireless Keyboard and Mouse Combo	EA	
	INIT USB Card Reader	EA	
	Logitech 4K Pro Web	EA	
	Epson DS-1630 Flatbed Color Document Scanner	EA	
	Epson DS-40 Color Portable Scanner	EA	
	MS-Cash Drawer (J-423-USB-M-B)	EA	
	Ingenico IPP350-11P1914A Payment Terminal	EA	
	Epson C31CB25A8791 Receipt Printer w/Power Supply	EA	
	Brother Ruggedized RJ-4030	EA	
	Hewlett-Packard LV3000 Pole Display 7" Video with USB Connector, Dark Grey	EA	
	TrippLite USB Hub	EA	
	TrippLite UPS 500VA 280W UPS	EA	
	Fargo HDP5600 ID Card Printer & Encoder	EA	
	Fargo DTC1250e	EA	
	Fargo HDP8500 ID Card Printer & Encoder	EA	
	Coin Vault, 1-10 quantity	EA	
	Coin Vault, 11-20 quantity	EA	
	Coin Vault, 21+ quantity	EA	
	Coin Hopper, 1-10 quantity	EA	
	Coin Hopper, 11-20 quantity	EA	
	Coin Hopper, 21+ quantity	EA	
	VENDstation Door Alarm, 1-10 quantity	EA	
	VENDstation Door Alarm, 11-20 quantity	EA	
	VENDstation Door Alarm, 21+ quantity	EA	
	MEI SCR Rebuild, 1-10 quantity	EA	
	MEI SCR Rebuild, 11-20 quantity	EA	
	MEI SCR Rebuild, 21+ quantity	EA	

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SOUNDTRANSIT

Contract No. RTA/RP 0119-17 Systems Integrator for next generation ORCA
INIT Innovations in Transportation, Inc.

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VOLUME 2 OF 2:

CONTRACTOR'S NEGOTIATED PROPOSAL SUBMITTAL

- Final negotiated price sheet dated August 29,2018
- Proposal Addendum No. 2 dated August 17, 2018
- Proposal Addendum No. 1 dated July 23, 2018
- Revised Proposal dated June 8, 2018

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Contract No. RTA/RP 0119-17 Systems Integrator for next generation ORCA
INIT Innovations in Transportation, Inc.
VOLUME 1 OF 2

SECTION 00 – AGREEMENT FORM

THIS AGREEMENT between CENTRAL PUGET SOUND REGIONAL TRANSIT AUTHORITY ("Sound Transit" as defined in the Definitions section of this Agreement), and INIT INNOVATION IN TRANSPORTATION, INC., hereinafter called the "Contractor" agree as follows:

The Contractor, for the consideration specified in the Contract Documents, shall in strict accordance therewith perform all the activities required by the Contract Documents for the following project:

SYSTEMS INTEGRATOR FOR NEXT GENERATION ORCA
Contract No. RTA/RP 0119-17

Sound Transit agrees to pay the Contractor for fulfillment of the Work and performance of the covenants set forth the Contract Documents.

The Contract Documents consist of the documents listed below issued prior to execution of this Contract Agreement and all Change Orders issued subsequent to execution of this Contract Agreement. The following is an enumeration of the documents, not in their order of precedence:

- Change Orders
- This Agreement Form
- Addenda, issued for RFP No. RTA/RP 0119-17
- RFP No. RTA/RP 0119-17
- Contractor's Negotiated Proposal Submittal
- Systems General Conditions
- All other Agreement Sections

Such Contract Documents form the Contract and all are as fully a part of the Contract as if attached to this Contract Agreement or repeated herein.

The Contractor agrees to complete the Work, furnish all tools, materials, facilities, and equipment necessary on the terms and conditions specified in the Contract Documents. The Contractor further agrees to assume and perform all of the covenants and conditions required of the Contractor pursuant to these Contract Documents, for the total not-to-exceed Contract Price of **$94,940,044.00**, plus applicable taxes.

Except as expressly provided in the Contract Documents, no liability shall attach to Sound Transit by reason of entering into this Contract Agreement.

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IN WITNESS WHEREOF, the parties have caused this Contract Agreement to be executed as of the dates indicated below.

INIT Innovations in Transportation, Inc. (Contractor)	Central Puget Sound Regional Transit Authority, on behalf of the ORCA Agencies
By: [redacted]	By: [redacted]
Name: Roland Staib	Name: Michael Harbour
Title: Chief Executive Officer	Title: Deputy Chief Executive Officer
Date: 9/28/2018	Date: 10/2/2018
By: [redacted]	APPROVED AS TO FORM:
Name: Linda Keith	By: [redacted]
Title: Chief Financial Officer	Name: Amy Jo Pearsall
Date: 9/28/2018	Title: Legal Counsel

END OF FORM

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SECTION 01 – SYSTEMS GENERAL CONDITIONS

ARTICLE 1 GENERAL

1.01 DEFINITIONS

A. **Acceptance** – A written notice from Sound Transit to Contractor indicating full and satisfactory physical completion of specific Work or part of the Work including all physical Punch List work.

B. **Addenda/Addendum** – Written modifications issued by Sound Transit to the Request for Proposals (RFP) that make changes to the Instruction to Proposers and /or Contract Documents.

C. **As-Built Drawings** – Neatly and legibly marked set of Contract Drawings, maintained by the Contractor with up to date information, showing all Changes in the Work, including final locations of all items of Work.

D. **Change** – A written alteration that modifies the scope of Work, equipment, materials, facilities, services, site, performance, schedule, or other material provision of the Contract.

E. **Change Notice** – Request for Proposal (CN-RFP) - A written request by Sound Transit to the Contractor for a Cost and Schedule proposal for a Change to the Contract. A CN-RFP does not authorize the Contractor to commence performance of the changed Work

F. **Change Notice** – Work Directive (CN-WD) - A written directive by Sound Transit to the Contractor to immediately proceed with a Change in the Work. Work Directives are incorporated into the Contract by a subsequent Change Order(s).

G. **Change Order** – A signed written document that alters the scope of the Work, the Contract Time, the Contract Price, or makes any other change to the Contract.

H. **Claim** – A written demand by the Contractor seeking (1) the payment of money or adjustment to the Contract Price; (2) an extension of Contract Time; (3) an adjustment of Contract terms; and /or, (4) other relief arising under or relating to this Contract.

I. **Contract (aka "Agreement")** – Written agreement executed by Sound Transit and the Contractor which sets forth the rights and obligations of the parties in connection with the Work.

J. **Contract Documents** – The Change Orders, Agreement Form with attachments,, General Conditions, Contract Specifications, Contract Drawings, Diversity Program Provisions, any materials referenced therein, and any other documents listed in the Contract as embodying the legally binding obligations between Sound Transit and the Contractor for completion of the Work.

K. **Contract Drawings** – Plans, profiles, typical cross sections, general cross sections, elevations, schedules, and details listed or included in the Contract Documents.

L. **Contract Milestone** – A date specified in the Contract by which the Contractor is required to complete a designated portion, delivery or increment of the Work.

M. **Contract Price** – The amount payable to the Contractor under the terms and conditions of the Contract based on lump sum prices, unit prices, provisional sums, or combination thereof, with adjustments made in accordance with the Contract.

N. **Contract Specifications** – The part of the Contract Documents containing written directions or requirements that specify the requirements which have to be fulfilled for the completion of the

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Work.

O. **Contract Time** – The time allotted in the Contract Documents for completion of the Work. The base term of the contract begins upon full execution of the Contract and ends in four years. At Sound Transit's sole discretion, the contract may be extended for eleven (11) additional one year terms. Contract Time incorporates the Contract Milestones established for the Contract.

P. **Contractor (aka "Consultant")** – The person, persons, partnership, joint venture, company or corporation which enters into this Contract with Sound Transit for the performance of Work required by this Contract.

Q. **Contractor's Project Manager** – Contractor's authorized representative designated to perform technical and administrative functions of this Contract, as designated in writing to Sound Transit.

R. **Cost and Schedule Proposal** – A document prepared by the Contractor at the request of Sound Transit, which proposes in detail changes to the Work and/or adjustments to the Contract Price and/or Contract Time.

S. **Critical Path** – The longest, continuous sequence of activities that begins at the start of the Contract (effective date contained in the Notice to Proceed) and concludes with the completion of the Contract Milestone(s). This path represents the longest chain of interrelated activities throughout the network from beginning to end. These activities are critical because delay to an activity on this path will extend the Contractor's attainment of one or more Contract Milestone(s).

T. **Days or days** – Calendar days, unless otherwise specified.

U. **Defective Work** – Specific elements of the Work that do not conform to the requirements of the Contract and that will not be accepted by Sound Transit, at Sound Transit's discretion.

V. **Equitable Adjustment** – An adjustment to the Contract Price and / or Contract Time to compensate the Contractor for Extra Work, as part of a negotiated Change Order.

W. **Equivalent** – Equal or better quality and performance to that specified in the Contract Documents.

X. **Extra Work** – Furnishing of materials and equipment and the performance of Work neither directly nor by implication called for in the Contract Documents that is necessary for the Contractor's timely completion of the Work through no fault, error, omission, negligence, neglect, lack of planning, or lack of diligence of the Contractor.

Y. **Field Clarification** – a document prepared by Sound Transit and issued to the Contractor that clarifies and/or corrects minor discrepancies in the Contract Documents that do not affect the cost or schedule of the Work.

Z. **Final System Acceptance** – Written notice from Sound Transit acknowledging that the Contractor has fulfilled all of its obligations under the Contract and that Sound Transit has accepted the Work as of the date stated in the Notice. Final System Acceptance is a condition precedent to Final Payment.

AA. **General Conditions** – Sound Transit's standard general contractual provisions for contracts which, as augmented and supplemented by other Contract Documents, describe the contractual relationship of the parties and their rights and responsibilities to each other.

BB. **Hazardous or Contaminated Substance** – (a) any substance, product, waste, or material of any nature whatsoever which is or becomes listed, regulated, or addressed pursuant to the

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Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. Section 9601, et seq. ("CERCLA"); the Hazardous Materials Transportation Act, 49 U.S.C. Section 1801, et seq.; the Resource Conservation and Recovery Act, 42 U.S.C. Sections 6901, et seq. ("RCRA"); the Toxic Substances Control Act, 15 U.S.C. Sections 2601, et seq.; the Clean Water Act, 33 U.S.C. Sections 1251, et seq.; or any other federal, state, or local statute, law, ordinance, resolution, code, rule, regulation, order, or decree regulating, or imposing liability or standards of conduct concerning any hazardous, toxic, or dangerous waste, substance, or material, as now or any time thereafter in effect; (b) any substance, product, waste, or other material of any nature whatsoever that may give rise to liability under any of the above statutes or under any reported decision of a state or federal court; (c) petroleum or crude oil, excluding de minimus amounts; and (d) asbestos.

CC. **Industry Standards** – Drawings and specifications or portions thereof published by industry organizations, which are not Contract Documents unless specifically listed as such in a Specification.

DD. **Intellectual Property of Contractor** – All intellectual property owned, licensed, sub-licensed or otherwise transferred, wholly or partially to Contractor, Subcontractors, sub Subcontractors existing at the Effective date of the Contract shall be owned by the respective parties set forth in this definition and Sound Transit interest shall be limited by the terms of any license issued to Sound Transit.

EE. **Milestone or Partial Payment Schedule** – The breakdown of the Contract Price into incremental performance stages or deliveries.

FF. **Non-Conforming Work** – Specific elements of the Work that do not conform to the requirements of the Contract but that otherwise may be acceptable to Sound Transit, at Sound Transit's discretion.

GG. **Notice** – Communication in writing, unless otherwise specified, which complies with the notice requirements of the Contract Documents, to provide or issue any information, warning, announcement, instruction, consent, approval, certificate or determination by any person or party to the Contract.

HH. **Notice of Intent to Claim** - A written notice of a potential claim submitted by the Contractor to Sound Transit within the time limits and in accordance with the conditions specified in the Contract Documents.

II. **Notice to Proceed** – Written notice delivered by overnight courier, issued by Sound Transit which, contains the effective date on which the Contractor may commence Work and directs the Contractor to proceed with all or a portion of the Work.

JJ. **ORCA** – The regional fare collection system in which this contract is a part.

KK. **ORCA Partner Agencies** – Any and all agencies that have entered into the interlocal cooperation agreement for design, implementation, operation and maintenance of the ORCA fare collection system, pursuant to the Interlocal Cooperation Act, chapter 39.24 RCW.

LL. **Partial Payment** – Payment of a portion of the Contract Price before the contract is completed for delivery or performance in increments. Delivery and performance incremental stages are defined in the Milestone or Partial Payment Schedule.

MM. **Product Data** – Information furnished by the Contractor to describe materials used for some portion of the Work, such as written or printed descriptions, illustrations, standard schedules,

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performance charts, instructions, brochures, and diagrams.

NN. **Project** – next generation ORCA Program's Project, of which this Contract is a part.

OO. **Project Schedule** – The schedule, prepared by the Contractor in accordance with the requirements of the Contract and accepted by Sound Transit, setting forth the logical sequence of activities required for the Contractor's orderly performance and completion of the Work in accordance with the Contract and specifically to meet the specified Contract Milestones.

PP. **Proposal** – The written proposal submitted to Sound Transit as required by the Request for Proposals.

QQ. **Proposal Documentation** – Any and all work papers, spreadsheets, takeoffs, material lists, subcontractor quotes, vendor or material quotes, lists of wage rates and equipment rates (both rented and owned) and any and all papers, documents and electronic information or computer files created or used by Contractor when preparing its Proposal.

RR. **Proposer** – An individual, firm, partnership, corporation, joint venture or other legal entity submitting a proposal for the work.

SS. **Provisional Sum or Allowance** - An amount established in the Contract Documents for inclusion in the Contract Price to cover the cost of prescribed items not specified in detail, with provision that variations between such amount and the finally determined cost of the prescribed items will be reflected in Change Orders appropriately adjusting the final Contract Price. Any amount included in the Contract Price but not used in the course of the Work shall be returned to Sound Transit by way of deductive Change Order.

TT. **Punch List** – The list(s) of elements of the Work that remain to be completed or corrected after achievement of Substantial Completion of the Work or portions of the Work which must be completed as a condition of Acceptance.

UU. **Reference Documents** – Drawings, specifications, and other documents that do not specify Work required by the Contract, but which provide supplemental information regarding the Contract.

VV. **Reference Specifications** – Specifications prepared by or belonging to Utilities or third parties (including but not limited to other governmental bodies) in whose rights-of-way, easements or properties all or part of the Work is to be executed.

WW. **Request for Information (RFI)** – The document by which the Contractor requests clarification, verification or information on a portion of the Work.

XX. **Regional Program Manager** – Sound Transit's authorized representative designated to perform technical and administrative functions of this Contract.

YY. **Safety Certification** – A formal process implemented to ensure that all Transit System facilities, equipment, and training programs conform to the established requirements. This includes reviewing and certifying items for compliance with operational safety requirements prior to the start of revenue service to ensure a safe operating Transit System.

ZZ. **Safety Critical Item** – Any submittal, installation, inspection, or test identified in the Specification Conformance Checklist that has been determined by Sound Transit to have an impact on the safe operation of the transit system.

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AAA. **Samples** – 1) Representative quantities of materials taken in specified amounts and frequencies for subsequent testing in accordance with specified procedures; or 2) physical examples of materials to be supplied or workmanship, which shall, when approved by Sound Transit, establish standards by which the Work shall be compared and evaluated.

BBB. **Site (aka Project Site)** – The areas that are occupied by or used by the Contractor, Subcontractors, Consultants, Subconsultants during performance of the Work in the Puget Sound area of Washington, and are indicated in the Contract Documents as being within the project limits. This includes any areas outside the project limits, which are designated in writing by Sound Transit as being part of the Project Site. For purposes of the Contract Documents, and not for prevailing wage determinations, off-site precast factories/facilities will not be considered part of the Site.

CCC. **Software System** – A term used for the ORCA system software, written programs or procedures, or rules, and associated documentation designed to perform an intended purpose and identified in the contract documents and requirements. This system may be made up of multiple software programs that are developed by Contractor and licensed to Sound Transit, and/or third party software applications.

DDD. **Sound Transit** – The Central Puget Sound Regional Transit Authority. Sound Transit is the lead agency for next generation ORCA, and for the purpose of this Agreement and in any license related to this agreement, Sound Transit shall include all ORCA Partner Agencies.

EEE. **[INTENTIONALLY OMITTED]**

FFF. **Specification Conformance Checklist** – A document that provides evidence that the Sound Transit's Rail Transit System will operate safely in accordance with safety critical requirements for documentation, installation, inspection and testing referenced in the Contract Specifications.

GGG. **Subcontract** – Any Contract between the Contractor and a Subcontractor, or between Subcontractors of any tier, to perform a portion of the Work.

HHH. **Subcontractor** – An individual, firm, partnership, or corporation that has a contractual obligation with a Consultant, Contractor or other Subcontractor to perform some part of the Work required for the completion of the Contract, and whose principals or employees are actively performing such Work at the Project Site.

III. **Submittal** – Written or graphic document or sample that is required by the Contract Documents and is prepared for the Work by the Contractor, a Subcontractor or Supplier, and submitted to Sound Transit by the Contractor, including shop drawings, product data, samples, certificates, schedules of material or other data. Submittals are not Contract Documents.

JJJ. **Substantial Completion** – The time at which the Work or a portion thereof has progressed to the point where it is sufficiently complete in accordance with the Contract Documents, so that the Work, or a specified portion thereof, can be utilized for the purpose for which it is intended.

KKK. **Substitution** – An item of significant difference in material, equipment or configuration which functionally meets the requirements of the Contract Documents but does not meet the Specifications and is equivalent to the specified item.

LLL. **Suppliers** – Any person, firm, partnership, corporation, joint venture, or combination thereof, other than a Subcontractor, contracting with the Contractor, either directly or through a lower-tiered contractual relationship, to furnish goods or services in connection with the Contract.

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MMM. **Technical Data** - Any plans, drawings, designs, specifications, technical reports, operating manuals, notes, data, documentation, and computer software (in source code and object code form), not specifically designated as Intellectual Property of the Contractor, which are required to be supplied as part of the Work.

NNN. **Third Party Software** – Any software, firmware, or program reasonably necessary to operate or maintain any part of the System that does not constitute Contractor Software.

OOO. **Termination Work Plan** – A plan that is developed after notice of termination for convenience, including a scope, schedule and budget to safely terminate the Contractor's progress of Work.

PPP. **Unknown Hazardous and Contaminated Substances** – Hazardous or Contaminated Substances that were not indicated in the Contract Documents that were present on the Site, and that are unexpectedly encountered by the Contractor during the performance of the Work.

QQQ. **Utility or Utilities** – All public and private facilities, other than the Sound Transit system facilities, which relate to 1) the conveyance and supply of water, sewage, gas, chemicals, steam, petroleum products, and other piped installations; or 2) electrical energy, telephone, telegraph communications, radio, television, and public transit installations.

RRR. **Utility Standards** – Drawings and specifications for Utilities published or issued by municipalities or utility companies.

SSS. **Work** – The requirements of the Contract as specified, shown, indicated or implied in the Contract Documents, including all alterations, amendments or extensions thereto made by Change Orders.

1.02 INTENT AND INTERPRETATION OF CONTRACT DOCUMENTS

A. The intent of the Contract Documents is to describe the Work and completion of the Work. Where the Contract Documents describe portions of the Work in general terms, but not in complete detail, the Contractor shall use best practice as used by the electronic fare collection industry and, unless otherwise specified herein, Contractor shall use only materials and workmanship of best quality. Unless otherwise specifically stated in the Contract, the Contractor shall furnish, deliver, provide, and pay for all materials, labor, professional services, tools, equipment, water, light, power, heat, transportation, supervision, temporary Work of any nature, consumables, and other services and facilities of any nature, whatsoever necessary, to execute, complete and deliver the Work within the Contract Time. The Work shall be executed in strict conformance to the Contract requirements.

B. The Contract Documents set forth the requirements as to the nature of the completed Work and do not purport to control the means and methods of performing Work, unless specifically set forth in the Contract Documents. The Contractor is wholly responsible for making its own decisions about the means and methods of performing the Work. If any references have been made in the Contract Documents to responsibilities of work by crafts and specialty or trade contractors, these references were made for the convenience of preparing the Contract Documents and are not intended to limit any responsibility of the Contractor to provide a complete installation under the Contract.

1.03 CONTRACT IS SUBJECT TO FEDERAL PROVISIONS

The Contract is partially funded by the Federal Transit Administration ("FTA") and/or the Federal Highway Administration (“FHWA”) is therefore subject to certain federal provisions. Further, the FTA and FHWA

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require that certain terms and conditions of the Contract Documents be included in all Subcontracts. The Contractor shall be responsible for ensuring all applicable mandatory Federal provisions are included in all Subcontracts. These mandatory Federal provisions are set forth in Section 02 Federal Provisions.

1.04 CONFORMITY TO CONTRACT DOCUMENTS

The Work in all cases shall conform to the Contract Documents or approved modifications thereto, and shall be within the tolerances specified, or, if no tolerance is specified, as determined by the Regional Program Manager.

1.05 ORDER OF PRECEDENCE

A. The Contract Documents are intended to be complimentary and to describe and provide for a complete Work. They are also to be interpreted in harmony so as to avoid conflict, with words and phrases interpreted consistent with design industry standards. The documents identified below are listed in order of precedence. To the extent that there are different provisions in Contract Documents that address the same matter or subject and these different provisions conflict, the document having the highest priority that addresses the matter or subject shall control. If conflicting provisions within the same level of Contract Documents exist, and one is more stringent than another, the more stringent provision will prevail.

- Change Orders (bilateral and unilateral), with the most recent taking precedence over earlier dated
- Section 00 Agreement Form
- Section 01 Systems General Conditions
- Section 02 Federal Provisions
- Section 07 Software License and Maintenance Agreements
- Section 08 Contract Price Schedule
- Section 09 Project Schedule
- Section 04 Liquidated Damages
- Section 10 Contractor's Negotiated Proposal Submittal with the most recent revised Proposal or Proposal Addendum taking precedence
- Section 03 Insurance Requirements
- Section 05 Labor Compliance Manual
- Section 06 Prevailing Wage Rates
- Addenda to RFP No. RTA/RP 0119-17
- RFP No. RTA/RP 0119-17
- Industry Standards, only when specifically incorporated into a Contract Scope of Work
- Reference Specifications
- Reference Drawings

B. In case of differences between small and large-scale drawings, the large-scale drawings shall govern. Schedules on drawings shall take precedence over conflicting notations on drawings. In the event of discrepancy between any drawing and the figures written thereon, the figures, unless otherwise indicated, shall govern over-scaled dimensions.

C. References to Industry Standards, material specifications, test methods, or other publications of the Washington Department of Transportation (WSDOT), American Association of State Highway and Transportation Officials (AASHTO), Federal Railroad Administration (FRA), American Association of Railroads (AAR), American Railroad Engineering and maintenance of Way Association (AREMA), Institute of Electrical and Electronic Engineers (IEEE), America Society

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for Testing and Materials (ASTM), other governmental agencies, or other recognized national organizations are those officially adopted by those agencies and organizations. Industry Standards (if specifically incorporated by any Specification) apply only to material, workmanship and procedure. Commercial terms (e.g. Control of Work, Temporary Traffic Control, Legal Relations and Responsibilities to the Public, and Measurement and Payment) are not included in the reference. All material, equipment and workmanship specified by the number, symbol, or title of a referenced Industry Standard shall comply with the latest edition or revision thereof and all amendments and supplements thereto in effect on the date of the Request for Proposals, except where a particular edition or revision thereof is indicated in the reference.

1.06 REQUESTS FOR INFORMATION / FIELD CLARIFICATIONS

A. Request for Information

1. If the Contractor discovers, or in the exercise of reasonable diligence should have discovered, that the Work to be performed is not sufficiently detailed or explained in the Contract Documents, or that there is an apparent conflict or inconsistency between any part of the Contract Documents, the Contractor shall promptly apply a Request for Information in writing to the Regional Program Manager for such further written explanations as may be necessary. The Regional Program Manager will promptly address the RFI in writing. Before submitting a RFI, the Contractor shall diligently and thoroughly examine the Contract Documents. Costs incurred by Sound Transit to respond to RFIs which could have been avoided had the Contractor examined the Contract Documents shall be the responsibility of the Contractor. The Contractor shall also plan its Work in an efficient manner so as to allow for timely responses to RFIs. If requested by the Regional Program Manager, the Contractor shall prioritize its RFIs and explain the reasons for such priority. The Contractor's submission of an RFI shall be a condition precedent to a Contractor submitting a claim related to any conflict or inconsistency, and the Contractor's failure to apply to the Regional Program Manager for interpretation or clarification of any known conflict or inconsistency shall bar any subsequent claim related to the conflict or inconsistency. The Contractor's submission of an RFI does not fulfill the requirements of Article 10 for timely Notice of Intent to Claim or Notice of Delay and shall not constitute a Claim.

2. Sound Transit will reply to the RFI with reasonable promptness. If Contractor submits an RFI on an activity less than twenty (20) days prior to the commencement of that activity, Contractor shall not be entitled to any time extension or adjustment to the Contract Price due to the time it takes Sound Transit to respond to the RFI.

3. Responses by Sound Transit to RFIs are not changes to the Contract. If Contractor believes a response to an RFI constitutes changed work or causes an adverse impact to performance of the Work or schedule, the Contractor is required to submit a Request for Change in accordance with the requirements of Article 4.02.

B. Field Clarification

If Sound Transit identifies minor discrepancies in or a need to clarify information contained in the Contract Documents, Sound Transit may issue a Field Clarification to so correct the minor discrepancies or provide the clarification. Because Field Clarifications should not have any effect on the cost or time of performance of the Work, they do not provide for either a time extension or a change in the Contract Price. If Contractor believes that a Field Clarification constitutes

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changed work for which a time extension or additional compensation is necessary, the Contractor is required to submit a Request for Change in accordance with the requirements of Article 4.02.

1.07 SITE INVESTIGATION AND CONDITIONS AFFECTING WORK

A. By submitting its Proposal for the Work and executing the Contract, the Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the condition of the site itself, including without limitation the general and local conditions which can affect the work or its costs, including but not limited to local weather, traffic patterns, availability of labor, available utilities, local requirements, adequacy and accuracy of Contract Documents, the character of equipment and materials required to perform the Work, and conditions bearing upon utilities as relates to temporary or permanent relocation or installation thereof.

B. The Contractor acknowledges that any equipment or site reports referenced in the Contract Documents are only intended to describe the conditions at a particular point in time, and are not guaranteed to represent the actual conditions the Contractor will encounter during the course of the Work. The Contractor acknowledges that it has satisfied itself as to the character, quality and quantity materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the equipment or site and information available to the Contractor in the Contract Documents or Reference Documents.

C. Any failure of the Contractor to take actions described and acknowledged in this Article will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the Work, or for proceeding to successfully perform the Work without additional expense to Sound Transit.

D. By submitting a Proposal for the Work and by executing the Contract, the Contractor certifies that it has carefully reviewed, has had clarified, and understands all of the Contract Documents; has inspected the equipment and site as needed to evaluate and assess all pertinent existing conditions applicable to the Work, and is satisfied as to its ability and intention to conduct and complete the Work required in the Contract Documents on the terms and conditions stated in the Contract. In particular, the Contractor certifies that it has reviewed the requirements for the format and detail of records to be maintained at all times during the performance of Work, and that it has instituted or will implement the preparation and maintenance of all such records. In particular, the Contractor represents as follows:

1. It is familiar with and is satisfied as to all Federal, state and local laws and regulations that may affect the cost, progress, performance and furnishing of the Work;

2. It has correlated with the Contract Documents the information known to the Contractor, information and observations obtained from visits to the site, and reports and drawings identified in the Contract Documents; and

3. It has given Sound Transit written notice of all conflicts, errors, ambiguities or discrepancies that the Contractor has discovered in the Contract Documents and that the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

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ARTICLE 2 AUTHORITY AND RESPONSIBILITY

2.01 CONTRACT IS BETWEEN CONTRACTOR AND SOUND TRANSIT

The Contractor is an independent contractor with respect to the performance of all Work hereunder, retaining control over the detail of its own operations and the Contractor shall not be considered the agent, partner, fiduciary or trustee of Sound Transit. The Contractor shall not conduct itself as nor claim to be an officer or employee of Sound Transit. The Contractor will not make any claim, demand or application to or for any right or privilege applicable to an officer or employee of Sound Transit, including, but not limited to, worker's compensation coverage, unemployment insurance benefits, social security coverage or retirement membership or credit. No employee of the Contractor or any Subcontractor is or shall be deemed to be an officer or employee of Sound Transit. Subcontractors to the Contractor will not be recognized as having a direct relationship with Sound Transit, nor are Subcontractors intended or incidental third-party beneficiaries to this Contract.

2.02 DUTY OF CONTRACTOR

A. The Contractor has sole authority and responsibility to employ, discharge and otherwise control its employees and has complete and sole responsibility as a principal for its agents, for all Subcontractors and for all other persons that the Contractor or any Subcontractor hired to perform or assist in performing the Work.

B. The Contractor shall enforce strict discipline and good order among its employees at all times and shall not employ on the Work any unfit person or anyone not skilled in the task assigned to him or her. Any person employed on the project by the Contractor or any of its Subcontractors who, in the opinion of Sound Transit, is not needed to perform assigned work, is not qualified or licensed, does not perform his or her work in a proper and skillful manner or is intemperate, disorderly, reckless, or engages in any abuse or harassment, shall, at the written request of Sound Transit, be removed forthwith by his or her employer, shall not again be employed on the project without the approval of Sound Transit, and shall at the Contractor's own expense be replaced by a suitably qualified person.

2.03 AUTHORITY OF REGIONAL PROGRAM MANAGER

A. Sound Transit will designate a Regional Program Manager prior to or concurrent with Sound Transit's issuance of the Notice to Proceed. The Regional Program Manager is Sound Transit's point of contact for the Contractor. The Regional Program Manager shall have the authority to manage the Contract so that the completion thereof may be accomplished in accordance with the contractual requirements.

B. The Regional Program Manager may designate technical support staff to perform functions under the Contract, such as inspection of the Work, review and/or inspection and acceptance of materials, supplies, services, witness of functional testing, and other functions of a technical or administrative nature.

C. Sound Transit and the Regional Program Manager, or a designee, shall have access to the Site and the Work at all times. Should the performance of the Contractor, or the quality of the Contractor's work or materials furnished, not meet the standards specified, the Regional Program Manager may take or require such measures as the Regional Program Manager deems necessary to ensure compliance with contractual requirements. Any failure by the Regional Program Manager to take these actions shall not relieve Contractor from performing its Contract obligations. The Contractor shall carry out the instructions of the Regional Program Manager or

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any person to whom the Regional Program Manager delegates authority and gives the Contractor written notice of said delegation, concerning the Work.

2.04 CONTRACTOR'S PROJECT MANAGEMENT AND SUPERVISION

A. The Project Manager shall be Sound Transit's main point of contact for the Contractor. The Project Manager shall have the authority to manage the Contract, including engaging the necessary resources, so that the completion thereof may be accomplished in accordance with the contractual requirements. If for any reason and at any time, the Project Manager and/or Lead Engineer submitted by the Contractor is not acceptable to Sound Transit, or becomes unacceptable, the Contractor shall propose additional candidates within ten (10) days of receiving written notice from Sound Transit. If the Contractor wishes to replace its Project Manager or Lead Engineer at any time during the performance of this Contract, it first shall submit the résumé of its new candidate to Sound Transit for Sound Transit's approval, which shall not be unreasonably withheld or delayed. The Contractor shall not make the substitution without Sound Transit's prior written approval. Sound Transit shall have the right to require the Contractor to remove the Project Manager or Lead Engineer from the Project in the event either fails to uphold or meet the requirements of the Contract or fails to perform in a competent, qualified or professional manner. Failure by Sound Transit to remove such personnel shall not relieve Contractor of its Contract obligations.

B. The Contractor's Project Manager, or a designee, shall be present at the site of the Work at all times while the Work is actually in progress. The Contractor's Project Manager shall notify the Regional Program Manager of the name(s) and means to contact the individual(s) who have the authority to act for the Contractor's Project Manager at such times that the Contractor's Project Manager is not present on any particular part of the Work. In the absence of such notification, the Regional Program Manager may give direction to the superintendent or foreman in charge of the particular part of the Work in reference to which the directions are given so long as said directions are confirmed by the Regional Program Manager in writing to the Contractor's Project Manager.

C. The Contractor was awarded the Contract due in part to the Contractor's submittal of qualifications for key personnel (Project Manager and Lead Engineer). Contractor's failure to use such key personnel after award of the Contract shall (subject to the exception in Article 2.04D) constitute a breach of Contract entitling Sound Transit at its option to any and all remedies, including but not limited to specific performance, revocation of the Contract Award, refusal to authorize Notice to Proceed, suspension of Work for such time period as is necessary for Contractor comply with the Contract by mobilizing the specific individuals, and/or termination of the Contract. If Sound Transit elects to continue the Work with Contractor's replacement key personnel, Sound Transit may, in addition to all other remedies available to it, deduct $175,000 from the Total Contract Price as liquidated damages for such substitution of one or more of the key personnel. Contractor acknowledges that in that event such amount is not a penalty and constitutes a reasonable estimate of damages to Sound Transit associated with the replacement of the key personnel on which Sound Transit relied for the award of this Contract.

D. Sound Transit will not enforce the provisions in Article 2.04C in the event compliance becomes impossible or commercially impracticable, or upon achieving Final System Acceptance, provided Contractor first submits substitute key personnel of equivalent skills, credentials and experience for approval by Sound Transit which shall not be unreasonably withheld or delayed. For the avoidance of doubt Article 2.04C and 2.04D are applicable only in occasions that are within Contactor's control.

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2.05 SUBCONTRACTING

A. The Contractor was awarded the Contract due in part to the Contractor's submittal of qualifications for major Subcontractors and suppliers. Contractor's failure to use such Subcontractors after award of the Contract shall (subject to the exception in Article 2.05B constitute a breach of Contract entitling Sound Transit at its option to any and all remedies, including but not limited to specific performance, revocation of the Contract Award, refusal to authorize Notice to Proceed, suspension of Work for such time period as is necessary for Contractor comply with the Contract by mobilizing the specific individuals, and/or termination of the Contract. If Sound Transit elects to continue the Work with Contractor's replacement Subcontractor, Sound Transit may, in addition to all other remedies available to it, deduct 0.3 percent of the initial Contract Price as liquidated damages for such substitution of one or more of the Subcontractors. Contractor acknowledges that in that event such amount is not a penalty and constitutes a reasonable estimate of damages to Sound Transit associated with the replacement of the Subcontractor on which Sound Transit relied for the award of this Contract.

B. Sound Transit will not enforce the provisions in Article 2.04A in the event compliance becomes impossible or commercially impracticable, provided Contractor first submits substitute Subcontractor of equivalent skills, credentials and experience for approval by Sound Transit which shall not be unreasonably withheld or delayed.

C. The Contractor shall be responsible for obtaining from its Subcontractors and submitting to Sound Transit all required certifications, documentation, and submittals, including but not limited to technical submittals, federal certificates, small business compliance forms, or other documentation that is required to be submitted under the terms of this Contract. The Contractor shall be responsible for ensuring that all Contract requirements provided for in the Contract Documents that are specific to subcontracting will be included in Subcontracts, including but not limited to all reporting requirements and mandatory Federal provisions set forth in Section 02, Federal Provisions.

D. The Contractor is responsible for evaluating each of its Subcontractors under this Contract and shall award subcontracts only to responsible Subcontractors. All Subcontractors shall be properly licensed, registered, or certified, as applicable, to perform the assigned Work. If requested by Sound Transit, the Contractor shall provide documentation regarding the Contractor's evaluation of any Subcontractor's responsibility and that the Subcontractor is properly licensed, registered or certified, as applicable. The Contractor shall require all Subcontractors to comply with all provisions of this Contract and shall pass down the requirements of this Contract to its Subcontractors so that all the applicable provisions of this Contract are fully effective.

E. Within thirty (30) days of the signing of each subcontract, the Contractor shall submit to Sound Transit a Subcontractor Participation Plan. The Subcontractor Participation Plan shall identify the Subcontractor, provide the data on which the responsibility determination was based, and provide the socio-economic profile data of the Subcontractor. The Contractor shall include a copy of the subcontract (or at least that portion of the subcontract that demonstrates that all required federal clauses were included in the subcontract) with the Subcontractor Participation Plan. The copy of the subcontract that is submitted to Sound Transit shall have been signed by both the Contractor and the Subcontractor. Proprietary provisions may be redacted but will be made available for review if a non-disclosure agreement is executed. A sample Subcontractor Participation Plan form will be provided by Sound Transit.

F. Contractor shall submit a Monthly Report on Subcontractors, on a form provided by Sound Transit,

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as part of its monthly partial payment request. Submission of a completed Monthly Report of Subcontractors shall be a condition precedent to Sound Transit processing partial payment requests.

G. If the Contractor believes that a Small Business / Disadvantage Business Enterprise (SB/DBE) Subcontractor that was listed at any tier to fulfill the Contractor's SB/DBE commitment may not be able to successfully complete any portion of the subcontracted Work, the Contractor shall immediately identify to the Regional Program Manager the Subcontractor at issue, the reason for believing such subcontractor may not be able to perform the subcontracted Work, and any actions being taken by the Contractor to mitigate such possibility.

H. No Work shall be subcontracted to new Subcontractors without written notification to Sound Transit, on a form provided by Sound Transit. No substitutions shall be made for any Small Business/Disadvantaged Business Enterprise Subcontractor that was listed to fulfill the Contractor's SB/DBE commitment without written notification to, and approval by, Sound Transit; such approval to be neither unreasonably withheld or delayed. The Contractor's Request for Substitution of Subcontractors shall be made on a form provided by Sound Transit.

I. Subcontracting shall create no contract between Sound Transit and the Subcontractor, nor shall the Subcontractor have any rights against Sound Transit by reason of its Subcontract with the Contractor. The Contractor shall be responsible for all Work furnished, and no Subcontract shall relieve the Contractor of any of the Contractor's obligations or liabilities under the Contract.

J. The Contractor shall be fully responsible and liable for the acts or omissions of all Subcontractors and Suppliers including persons directly or indirectly employed by them, their guests, and invitees. The Contractor shall have sole responsibility for managing and coordinating the operations of its Subcontractors and Suppliers, including the settlement of disputes with or between them.

K. If a Subcontractor's work fails to meet Contract requirements or demonstrates careless or unacceptable workmanship and the Subcontractor fails to respond to notice of such defective work or to improve workmanship, the Regional Program Manager may direct the Contractor to replace the Subcontractor, in which event the Subcontractor shall not again be employed on the Work under the Contract.

L. The on-site production of materials produced by other than the Contractor's forces shall be considered as subcontracted. The erection, establishment, or reopening of on-site facilities for production of materials and the operation thereof in the production of said materials for use on the Work shall conform to the requirements relating to labor and insurance set forth in the Contract Documents.

M. The performance of the Work may require Sound Transit or other ORCA partner agencies to work and/or communicate directly with Subcontractors from time to time. As such, Sound Transit or other ORCA partner agencies shall not direct Subcontractors to do work without advance written permission from the Contractor.

2.06 CONTRACTOR'S FACILITIES AND EQUIPMENT

The Contractor shall furnish facilities and equipment that shall be of adequate number, size, and condition to produce satisfactory quality of Work, including without limitation all applicable federal requirements. All facilities and equipment used by the Contractor shall meet all applicable safety, noise, and emission regulations and permit requirements as well as other requirements of the Work. Facilities and equipment that fails to meet the requirements of the Contract or to produce a satisfactory product or result shall,

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upon written order by Sound Transit, be removed immediately and not used again on the Project without Sound Transit's prior written approval. All additional costs, delay or impact resulting from Contractor's use of facilities or equipment failing to meet Contract requirements shall be at Contractor's expense.

2.07 ACCEPTANCE OF EXISTING CONDITIONS

If any part of the Contractor's Work depends on proper execution of the work of other forces or existing conditions, the Contractor shall report to the Regional Program Manager, before using the work, all defects found in such work that render it unsuitable for the Contractor's Work. Such report shall be in writing and shall be submitted within thirty (30) days of being granted access to the work. Failure of the Contractor to report such defects shall constitute an acceptance of the other forces' work or existing conditions as fit and proper for the execution of the Contractor's Work and shall preclude any claim for additional compensation or schedule extension for uncovering the Work or correcting defects, except for defects in the other force's work which are latent and not reasonably discernible. Any request for additional compensation based on defective work of others or existing conditions shall be governed by the procedures of Article 4, Changes and Change Order Process.

ARTICLE 3 CONTROL OF THE WORK

3.01 NOTICES AND COMMUNICATIONS

A. Sound Transit

All notices, communications, product data, submittals, and other documentation (hereinafter "Communications") submitted by the Contractor to Sound Transit during the course of Contract performance shall be in writing and in English. The Contractor shall deliver Communications to the Regional Program Manager either in person or at his/her designated office via courier, U.S. Postal Service, or overnight delivery service. Communications by facsimile and e-mail shall be confirmed with original documents properly numbered and delivered.

B. Contractor

Communications from Sound Transit shall be delivered through the Project Manager and shall be deemed to be well and sufficiently given to the Contractor if delivered to its project office, if mailed or delivered to the Contractor's post office box or address as stated in the Contract, or if faxed to the Contractor at a designated fax number or emailed, followed up by hard copy.

Communications shall be numbered and marked in accordance with specifications related to the Contract Documents.

3.02 COORDINATION WITH OTHERS

A. Sound Transit reserves the right to perform work not included in the Contract or let other contracts to third parties to perform other work in the vicinity of, or relating to, this Contract. Other government agencies may also be performing other work in the vicinity of or relating to this Contract such as inspections, maintenance / relocation / equipment installation / and other activities. Private developers or businesses may be engaged in activities in the vicinity of, or relating to, this Contract. The Contractor shall cooperate with Sound Transit, other agencies, and other contractors or developers in scheduling and coordinating the Contractor's Work with the work of others in order to minimize conflicts, avoid interruptions or delays to others and promote the orderly completion of the Work as a whole. The Contractor shall not commit or permit any act that will interfere with the performance of work by any government agency, contractor,

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developer, or Sound Transit.

B. Unless specifically identified otherwise, the Contractor may not have exclusive access to or use of work areas. Unless the Contractor has exclusive access to a work area, the Contractor may be required to use facilities and areas concurrently with others. When other forces are employed on related or adjacent work, the Contractor shall conduct its operations in such manner as to cause the least possible delay and hindrance to the other forces. The Contractor shall be responsible to Sound Transit for all damage to the Work, persons, and property caused to other forces by Contractor's operations and for loss to other forces caused by the Contractor's unnecessary delays and for failure to finish the Work within the time specified for completion.

C. If the Contractor is unreasonably delayed by others, immediate notification shall be made in writing to the Regional Program Manager. Any request for a time extension or additional compensation allegedly resulting from such delay shall be made in accordance with the procedures of Article 4, Changes and Change Order Process and Article 10.02 B, Delays. The Contractor shall mitigate and minimize any such delay by other forces.

3.03 CONTRACT RECORDS

A. The Contractor shall keep and maintain comprehensive records and documentation relating to the Work under this Contract, as well as documents related to the Contractor's proposal for this Contract. The Project Records shall include, but are not limited to, submitted Proposal, Contract Documents, subcontracts (if any), purchase order(s), employment records, payrolls, project cost accounting records, prevailing wage records, plans, specifications, addenda, shop drawings, Change Orders, and all working documents leading to Change Orders, field test records, quality control documents, daily logs by all field supervisors and project management personnel, correspondence relating to the Contract, and drawings labeled as as-built. Project records shall be maintained and retained by the Contractor for the audit period required under Article 3.04 below.

B. EEO/Non-Discrimination Documentation. The purpose of this sub-section is to ensure that the Contractor and all of its subcontractors at every tier maintain sufficient written documentation so that Sound Transit can easily and quickly verify that all hiring and termination decisions related to workers fully complies with applicable Title VI, equal employment opportunity and non-discrimination laws, regulations, and policies. When any employee or prospective employee of the Contractor or a subcontractor at any tier (including, but not limited to, an apprentice or journey-level worker sent by the appropriate union hall) is terminated, turned away without the opportunity to work, or otherwise denied the opportunity to work on the Site for any reason other than completion of all work to be performed by individuals with the skills of the particular worker, the Contractor shall retain, and make available to Sound Transit within 10 business days of a request to review, the following documentation:

1. Written documentation explaining why the specific individual was terminated, turned away, or otherwise denied the opportunity to work on the Site; and

2. Written objective, non-discriminatory criteria used to determine whether such individual was sufficiently qualified to perform the work and how such criteria relates to the particular work.

Except for Unavoidable Delay, if Contractor fails to provide its complete and detailed documentation to Sound Transit within 10 business days of receipt of Sound Transit's emailed written request, liquidated damages in the amount of $10,000 will be assessed per business day

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that such documentation has not been provided to Sound Transit. Contractor acknowledges that liquidated damages will not be considered a penalty and constitutes a reasonable estimate of damages to Sound Transit associated with the Contractor's failure to timely submit the required documentation and Sound Transit's inability to publicly demonstrate that the Contractor is fully complying with Title VI, EEO and non-discrimination requirements in the Contract.

C. Cost records shall be kept in accordance with generally accepted accounting principles and the Contract Documents and shall include all records reasonably necessary, as determined by Sound Transit, to verify all costs incurred and any schedule revision required.

D. The Contractor shall ensure each of its Subcontractors maintains and retains for said audit period all Project Records pertaining to the performance of the Subcontractor's Work under this Contract in full compliance with Article 3.03A and B. In the event this Contract is funded in part with federal funds, and the federal grant requires different reporting or retention periods, the more stringent requirement will apply.

3.04 AUDIT ACCESS TO RECORDS

The Contractor shall permit, and shall require Subcontracts to permit, authorized representatives of Sound Transit, the U.S. Department of Transportation, and the Comptroller General of the United States to audit, inspect, examine, and copy the Project Records that are maintained by Contractor, any affiliated company or any Subcontractor involved in the Contract at any reasonable time and shall provide such assistance as may be reasonably required in the course of such inspection, including the right to interview personnel. Sound Transit further reserves the right to examine and re-examine the Contract Records during the six (6) year period following the Final Payment and until all pending matters are closed. Such audit(s) may include examination of the Contract Records for evaluation of any Change Order or Claim, or any issue related to performance of the Work. The Contractor shall in no event dispose of, destroy, alter, or mutilate said Contract Records in any manner whatsoever for six (6) years after Final Payment and until all pending matters are closed. No additional compensation will be provided to the Contractor for compliance with the requirements of this Article.

3.05 SUBMITTALS AND SHOP DRAWINGS

A. Where required by the Contract Documents, the Contractor shall submit specified information that will demonstrate that the Contractor's proposed materials, equipment, or methods of Work are in compliance with the Contract Documents. Sound Transit will not be obligated to accept or pay for materials, equipment or Work for which submittals are required herein, unless and until all submittals have been submitted and reviewed in accordance with the Contract Documents.

B. Review and other appropriate action with regard to Submittals by Sound Transit shall be for general conformance with the Contract requirements and shall not relieve the Contractor of responsibility for any errors or omissions in such Submittals, nor from compliance with the requirements of the Contract Documents; and further, the Contractor shall have no claim under the Contract on account of the failure, or partial failure, of the method of work, material, or equipment so reviewed. Review by Sound Transit shall not constitute approval of the safety precautions employed by the Contractor or constitute approval of the Contractor's means or methods of the Work. The Contractor shall not deviate from shop drawings, product data, samples, or similar submittals that have been reviewed with a finding of "No Exception Taken" without submitting the proposed deviation for Sound Transit's review and appropriate action.

C. Sound Transit reserves the right to charge the Contractor for all, or some portion of, the costs of excessive or unreasonable costs of reviewing submittals repeatedly rejected for being incomplete

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or inadequate.

D. Submittals offered to demonstrate methods, procedures, sequences, or duration for performing the Work or to detail temporary elements such as shoring or formwork, shall be reviewed by Sound Transit for general compliance with applicable requirements of the Contract. Such review will not include a detailed analysis of the design or an evaluation of the adequacy of the method, procedure, resource commitments, or time allocated for performance.

E. Contractor shall make Submittals to Sound Transit only after (1) reviewing all Contractor and Subcontractor Submittals for accuracy and compliance with the Contract and (2) coordinating all Submittals with all Work by other trades.

3.06 CUTTING AND PATCHING

The Contractor shall be responsible for all cutting, fitting, and patching required to complete the Work or to make its parts fit together properly. The appearance following any cutting, fitting, or patching shall conform to the appearance of adjacent like materials or surfaces and be consistent with the overall appearance of the Project. The Contractor shall be responsible for any damages caused by its cutting, fitting, and patching, whether of its own Work or of other work affected by the cutting, fitting or patching. The Contractor may not alter any work other than its own except by permission by Sound Transit. Such permission by Sound Transit shall not relieve the Contractor from responsibility for the Work affected by the cutting, fitting, or patching.

3.07 INSPECTION, SAMPLING, AND TESTING

A. Contractor Testing

1. It is the Contractor's responsibility to provide materials, supplies, equipment and workmanship that conforms to the Contract Documents. Unless specifically provided otherwise in the Contract Documents, the Contractor shall be responsible for demonstrating and documenting that the materials or equipment to be incorporated into the Work comply with the Contract Documents. Materials testing shall be performed by the Contractor in accordance with the Contract Documents. The Contractor shall bear all costs of said tests.

2. In the event that a third-party public agency has authority over materials or equipment, approval must be obtained from said third-party public agency prior to Sound Transit's approval. Approval by a third-party public agency does not constitute approval by Sound Transit. The Contractor shall provide Sound Transit, and any applicable third- party public agency, with a schedule by which any testing will be conducted as well as timely notice of the time and place of any such tests. The Contractor shall maintain complete test records and submit them to Sound Transit upon request or as required elsewhere by the Contract Documents.

3. Any mechanical, electrical and instrumentation systems which function as a completed system must be tested or inspected as a complete system in addition to any tests or inspections conducted for the component parts.

4. If conformance of materials or equipment to the requirements in the Contract is not determinable through inspection and tests, the Contractor shall provide properly authenticated documents, certificates, or other satisfactory proof of conformance. Such documents, certifications, and evidence shall include performance characteristics,

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materials, and the physical and chemical characteristics of materials. All costs associated with such certification shall be paid by the Contractor.

B. Sound Transit Inspection and Testing

1. Sound Transit reserves the right to sample, inspect, or test the materials, equipment, and Work, as it deems necessary at any reasonable time during the Work. Said testing and inspection may occur on or off the site. Sound Transit shall conduct such tests or inspections in a manner that will cause no undue delay in the Work. The Contractor shall provide Sound Transit with sufficient notice, access, and assistance to allow Sound Transit's representative to inspect, sample, and test materials and equipment prior to their incorporation into the Work or to inspect, sample, or test Work prior to covering the Work. Re-inspection or re-testing required because of non-conformance to specified requirements will be charged to the Contractor.

2. Sound Transit, at any time prior to Final System Acceptance, may require the Contractor to uncover either portions of or all of the Work for inspection, sampling, and testing. The Contractor shall restore these portions of Work to the standard required by the Contract. The uncovering and restoration shall be done at the Contractor's expense, if the Work uncovered does not comply with the Contract, if it complies but was done without required documentation, or if Sound Transit was given insufficient notice to allow adequate time for inspection, sampling, or testing. If the Work uncovered meets the Contract requirements and was done with sufficient notice to Sound Transit, the costs of uncovering and restoration shall be paid by Sound Transit in accordance with Article 4, Changes and Change Order Process.

3. The Regional Program Manager may inspect the production of material or the manufacture of products at the source of supply. Facilities inspection, however, will be undertaken with the cooperation and assistance of both the Contractor and the material producer. The Regional Program Manager or the Regional Program Manager's authorized representative shall have reasonable entry at all times to such parts of the facilities as concern the manufacture or production of the materials. Adequate facilities shall be furnished free of charge to make the necessary inspection. The Regional Program Manager assumes no obligation to inspect materials at the source of supply. The responsibility for incorporating satisfactory materials in the Work rests entirely with the Contractor, notwithstanding any prior inspections or tests.

4. The Regional Program Manager's inspection is conducted to verify that the Contractor has performed its work properly. Any observation, verification, inspection, or approval of the Work or materials by Sound Transit shall not relieve the Contractor of any of the Contractor's obligations to fulfill the Contract as prescribed. Work and materials not meeting Contract requirements shall be made acceptable to Sound Transit. Unsuitable work or materials may be rejected, notwithstanding that payment for such Work or materials may have been previously authorized and included in a Partial Payment.

5. Unless the subject items are expressly accepted by Sound Transit in writing, any inspection and testing done by Sound Transit is for the sole benefit of Sound Transit only and does not constitute or imply acceptance; relieve the Contractor of responsibility for providing adequate quality control measures; relieve the Contractor of responsibility for risk of loss or damage to the Work, materials, or equipment; relieve the Contractor of its responsibility to comply with the requirements of the Contract Documents; or impair

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Sound Transit's authority to reject defective or non-conforming Work or invoke any remedy to which it may be entitled.

3.08 NON-CONFORMING WORK AND DEFECTIVE WORK

A. Defective Work - If Sound Transit determines that material, equipment, or workmanship proposed for or incorporated in the Work does not fully comply with the requirements of the Contract and will not be accepted by Sound Transit (Defective Work), Sound Transit may reject such Work upon written notice to the Contractor. In such event, Sound Transit may, at its discretion, (1) require the Contractor to promptly repair, replace or correct all Work not performed in accordance with the Contract; (2) require the Contractor to provide a suitable corrective action plan, which shall only be performed if approved by Sound Transit; or (3) provide a suitable corrective action plan and direct the Contractor to execute it, and in such case Contractor shall have the option of (i) implementing the Sound Transit plan or (ii) promptly repairing, replacing or correcting all Work not performed in accordance with the Contract. Regardless of the option chosen by Sound Transit, the Contractor shall implement such plan with no delay to the Project Schedule, at no additional cost to Sound Transit, and within a period provided by Sound Transit. If the corrective action plan as accepted or directed by Sound Transit does not remedy the Defective Work, the Contractor shall remain responsible for remedying the Defective Work to Sound Transit's satisfaction and at no additional cost or schedule delay to Sound Transit. The Contractor shall also be responsible for repairing all property and work damaged by the Contractor at no cost or schedule delay to Sound Transit.

B. Non-Conforming Work - Sound Transit may at its option retain Work that does not fully comply with the requirements of the Contract. Sound Transit shall promptly provide Contractor with detailed written notice of the manner in which it considers the Work not fully in compliance with the requirements of the Contract. Until written notice is provided, Contractor shall assume that the work is in full compliance in order to continue advancing the Project. A reasonable value for such Non-Conforming Work will be determined by Sound Transit, and appropriate deductions will be made in the payments due or to become due to the Contractor. Final System Acceptance will not act as a waiver of Sound Transit's right to recover from the Contractor an amount representing the deduction for retention of Non-Conforming Work.

C. Sound Transit's inspection of the Work or right to reject Work that does not fully comply with the Contract shall not relieve the Contractor of its responsibility for performing the Work in full conformance with the Contract Documents. Other than as set forth herein, no failure or forbearance of Sound Transit in notifying the Contractor of Work that does not fully comply with the Contract shall relieve the Contractor of its Contract responsibility to ensure that the Work is performed in accordance with the Contract Documents.

3.09 ACCEPTANCE OF WORK

A. Inspection - When the Contractor has concluded the Work or a designated portion thereof, the Contractor shall notify Sound Transit in writing that the work is complete and ready for inspection. Upon receipt of the notification, Sound Transit will promptly by inspection determine the actual status of the Work in accordance with the terms of the Contract. If Sound Transit finds materials, equipment, or workmanship not in conformance with the Contract, Sound Transit will prepare a punch list of such corrective items and submit the list to the Contractor. At any time prior to Acceptance, Sound Transit may add punch list items. The Contractor shall complete all punch list items and notify Sound Transit that the Work is ready for Acceptance. Upon such notice, Sound Transit will verify that the Work has been completed. If such Work has not been completed and

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additional inspections become necessary because of the acts or omissions of the Contractor, the Contractor shall reimburse Sound Transit for its costs related to such inspections. Following completion of the corrective Work and inspection by Sound Transit, Sound Transit shall issue a Notice of Acceptance of the Work or a designated portion thereof.

B. Substantial Completion - At the Contractor's request or as determined by Sound Transit, Sound Transit will conduct an inspection and review of required documents to determine Substantial Completion of all or a designated portion of the Work. If upon inspection and document review, Sound Transit determines that the Contractor has in fact achieved Substantial Completion, Sound Transit will issue to the Contractor a Notice of Substantial Completion. The Notice of Substantial Completion will provide the Contractor with a punch list of corrective actions or other work to be completed for Acceptance. The Contractor shall complete all punch list work within thirty (30) days after receiving the Substantial Completion Notice. Failure to do so may result in a determination by Sound Transit to have the work done by others. The Contractor will be responsible for all costs associated with completing the punch list work. Further, Sound Transit reserves the right to commence use of any portion of Work that has been substantially completed. In such event, Sound Transit will assume care, custody and control of said portion of the Work, including responsibility for operation and maintenance costs associated with use of said Work. In no case shall the Notice of Substantial Completion be construed as relieving the Contractor from liquidated damages due to delay for any portion(s) of the Work not specifically referenced therein, or any other requirement under the Contract Documents. Such Notice shall not constitute Acceptance or Final System Acceptance.

Prior to Sound Transit granting Substantial Completion for any Contract Milestone, the Contractor is required to have submitted acceptable copies of all as-built drawings, operation and maintenance manuals, test report and warranties, and Contractor must have provided and completed all training of operations and maintenance personnel required by the Contract that are associated with the Milestone for which Substantial Completion is being requested.

C. Acceptance - In the event Sound Transit shall revoke Acceptance Sound Transit shall not have the right to immediate reimbursement of any payment to Contractor made prior to the revocation of Acceptance. A written Notice of Acceptance issued by Sound Transit shall constitute Acceptance of a designated portion of the Work. A Notice of Acceptance shall not waive claims by or statutory rights of Sound Transit to revoke acceptance or for any unauthorized, Non-Conforming or Defective Work, nor shall the making of any Partial Payment be deemed a waiver of claims or rights of Sound Transit under this Contract. In addition, after Notice of Acceptance, Sound Transit shall not be barred from requiring the Contractor to remove, replace, repair, or dispose of any unauthorized, Non-Conforming or Defective Work or from recovering damages for any such Work. Contractor shall remain responsible for site security where it has sole access or where it controls right of access through the date of Final System Acceptance. Sound Transit's rights hereunder shall exist and remain to the full extent permitted by law and as set forth in this Contract. The Contract Warranty shall commence upon Acceptance.

D. Final System Acceptance - A written Notice of Final System Acceptance shall constitute Sound Transit’s acknowledgement that the Contractor has fulfilled all of its obligations under the Contract and that Sound Transit has accepted the Work as of the date stated in the Notice. The Contractor may request Final System Acceptance from Sound Transit upon full and satisfactory completion of all Contract Work and fulfillment of all obligations under this Contract.

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3.10 USE OF COMPLETED OR PARTIALLY COMPLETED PORTIONS OF THE WORK

A. Sound Transit shall have the right to take possession of or use completed or partially completed portions of the Work notwithstanding that the time for completing such portions may not have expired. Such use by Sound Transit shall in no case be construed as Substantial Completion, Acceptance or Final System Acceptance of the Work, and shall neither relieve the Contractor of any of its responsibilities under the Contract, nor act as a waiver by Sound Transit of any of the conditions thereof. Such use shall not trigger the commencement of Warranty provisions under this Contract or as provided by manufacturers, unless specifically provided otherwise in writing by Sound Transit. Operations and maintenance costs, as well as repair costs for any damages caused solely by Sound Transit, incurred as a result of Sound Transit's use of such portions will be borne by Sound Transit.

B. If such use increases the cost or delays the completion of remaining portions of the Work for which Contractor seeks payment and/or additional time, the Contractor must notify Sound Transit of its Request for Change in writing as required by the Contract and may be entitled to such additional compensation or extension of time, or both, as determined in accordance with Article 4, Changes and Change Order Process. Any disputes regarding such entitlement shall be resolved in accordance with the provisions of Article 10, Delays and Claims. The Contractor shall not be entitled to extra compensation for Sound Transit's possession of portions of Work that are specifically required in the Contract to be placed into use and operation or that are required to be turned over to Sound Transit upon a given Contract Milestone date before completion of the entirety of the Work.

C. In the course of such use, if the Work proves to not be in compliance with the Contract, Sound Transit shall have the right to continue such use until such portion of the Work can be taken out of service so that the Contractor can, at no additional cost to Sound Transit, correct defects, errors, omissions, or replace unsatisfactory materials, as necessary for such portions of the Work to comply with the Contract. Upon notice and opportunity to cure by the Contractor, Sound Transit, at its option, may perform or have another entity perform the corrective work. The Contractor shall remain responsible for the cost of the corrective work. In the event that the Work is determined to be in compliance with the Contract at the time Sound Transit takes possession Sound Transit shall be fully responsible for all costs of whatever nature required to return the Work to its original state.

3.11 LOSS OR DAMAGE TO WORK AND MATERIAL

Other than as provided above, until Sound Transit's Acceptance of any completed or partially completed Work, the Contractor shall have the responsibility for care, custody and control of the Work and of the materials to be used therein, including materials for which the Contractor has received partial payment, materials in transit, and materials which have been furnished by Sound Transit, and shall, unless otherwise provided herein, bear the risk of injury, loss or damage to any part thereof by the action of the elements or from any other cause. The Contractor shall replace, rebuild, repair or restore all damage to any portion of the Work and materials occasioned by any cause, unless otherwise provided herein, before its completion and Acceptance, at no additional cost to Sound Transit. Contractor shall, at the Contractor's expense, provide suitable drainage and erect such temporary structures as are necessary to protect the Work and materials as herein specified. A suspension of Work shall not relieve the Contractor of responsibility for the Work and materials as herein specified. The Contractor shall properly store materials for which partial payments have been made by Sound Transit or which have been furnished by Sound Transit. Such storage by the Contractor shall be on behalf of Sound Transit and Sound Transit shall at all times be entitled to possession of such materials, and the Contractor shall promptly return the same to

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the site of the Work when requested. The Contractor shall not dispose of any of the materials so stored except on written authorization from the Regional Program Manager.

3.12 WARRANTY OF WORK

A. The Contractor warrants that the Work and any portion thereof: (a) shall meet the requirements of the Contract, (b) shall be free of defects in material and workmanship, and (c) shall be free of defects in design(s) where such design(s) is performed or provided by the Contractor, Subcontractors or Suppliers. This Warranty shall apply to Defective Work and Non- Conforming Work that is discovered within twelve (12) months after the date of Acceptance. If corrective work is performed by the Contractor under this Warranty, the Warranty shall also apply to discrepancies and defects in the corrective work that are discovered within twelve (12) months after the corrected work is again placed in operation. These warranty terms shall be extended for any period that a portion of the Work cannot be used for the purpose intended as a result of discrepancies or defects. This Warranty shall apply whether or not designs, data or information have been reviewed or approved by Sound Transit or the Regional Program Manager, but shall not apply to defects caused by vandalism, misuse and/or improper operation or maintenance of the Work by Sound Transit.

B. Sound Transit will notify the Contractor in writing or facsimile confirmed in writing, on discovery of Defective Work or Non-Conforming Work covered by this Warranty in accordance with the provisions of Article 3.08, Non-Conforming Work and Defective Work. The Contractor shall commence to remedy the Defective Work or Non-Conforming work in accordance with the provisions of Article 3.08, Non-Conforming Work and Defective Work.

1. The Warranty provided under this Article shall be in addition to those specific warranty requirements for particular equipment or work items indicated in the Contract Documents, and in addition to other rights or remedies available to Sound Transit under this Contract or at law. Warranties shall be secured by the Performance Bond, or in Sound Transit's sole discretion, other financial security acceptable to Sound Transit, such as a warranty bond or letter of credit. In circumstances in which Sound Transit determines that it would be inefficient or impracticable for the Contractor to perform the corrective work, Sound Transit reserves the right to select another firm to perform the corrective work or to perform the corrective work itself upon notice to the Contractor. Such corrective work by another firm, or by Sound Transit, shall be at Contractor's expense, provided that Contractor is kept fully informed as to the details and costs of any such corrective work. If the Contractor performs work at the job site under these guaranty provisions, the Contractor shall furnish insurance coverage therefore as specified in Section 03 Insurance Requirements. Prior to beginning such work the Contractor shall furnish certification of insurance satisfactory to Sound Transit.

2. Unless otherwise required by Sound Transit, the Contractor shall commence to perform the corrective work required to satisfy this warranty within fifteen (15) days from the date of written notification. The Contractor shall at its sole expense perform the corrective work on an overtime and/or shift work basis, and shall procure required materials using the fastest means available when necessary to minimize the impact to other Sound Transit contractors or Sound Transit's loss of operating time. The Contractor shall diligently prosecute the corrective work and shall complete such corrective work within the time frame stipulated by Sound Transit.

3. If the Contractor fails to make or undertake the corrections or removal/replacement with

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due diligence within the time periods specified above, Sound Transit is hereby authorized to make such corrections. In case of an emergency, whereby delay could cause serious loss or damage in the opinion of Sound Transit, corrections or replacement may be made prior to or concurrent with notice being sent to the Contractor. All expenses in connection with such corrections or replacement by Sound Transit, including the cost for professional services, will be charged to the Contractor.

C. Nothing in this warranty is intended to limit any manufacturer's warranty, which provides Sound Transit with greater warranty rights than set forth in the Contract Documents.

3.13 WARRANTY OF TITLE

A. The Contractor shall have no property right in the equipment used after they have been attached or affixed to the Work or existing real property, or after any payment has been made by Sound Transit towards the value of materials delivered to the site of the Work, or stored subject to or under the control of Sound Transit. Title to all such materials shall become the property of Sound Transit upon being so attached or affixed or after any payment towards the value of materials stored off site or delivered to the site of the Work or stored subject to or under the control of Sound Transit, whichever occurs earlier.

B. No material, supplies, equipment, or items for the Work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein, or in any part thereof is retained by the seller or Supplier. The Contractor shall warrant good title to all materials, supplies, equipment, and items installed or incorporated in the Work. Upon completion of all the Work, the Contractor shall deliver the same together with all improvements and appurtenances constructed or placed thereon by the Contractor to Sound Transit free from any claims, liens, or charges. Neither the Contractor nor any person, firm, or corporation furnishing any material or labor for any Work covered by this Contract shall have any right to lien upon any improvement or appurtenance thereon. This Article shall not defeat or impair the right of the persons furnishing materials or labor to recover under any payment bond given by the Contractor for their protection, or any rights under state law permitting such persons to look to retained funds due the Contractor in the hands of Sound Transit.

C. The provisions of this Article shall be inserted or referenced in or otherwise made a part of all subcontracts and material contracts, and notice of its provisions shall be given to all persons furnishing materials for the Work whenever no formal contract is entered into for such materials. Additionally, as a part of the subcontract, material contract, or notice, the Contractor shall provide to such Subcontractors and Suppliers the name, address, and phone number of the Contractor's bonding company and the bond number applicable to the Contract under which the Subcontractor or Supplier would make its claim.

3.14 MANUFACTURER'S WARRANTIES

The Contractor shall furnish to Sound Transit any manufacturer's or Supplier's guarantee or warranty furnished in connection with the purchase by the Contractor or any Subcontractor of any equipment, materials, or items required, provided such guarantee or warranty shall be in addition to those specific guarantee or warranty requirements for particular equipment or Work items indicated in the Specifications and shall not relieve the Contractor of its obligations under Article 3.12, Warranty of Work.

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ARTICLE 4 CHANGES AND CHANGE ORDER PROCESS

4.01 CHANGES

A. Sound Transit reserves the right to make by written order, designated to be a Change Order, alterations to, deviations from, additions to, or deletions from the Contract Documents. Such changes may be made without notice to any surety(ies) or guarantors. Within the performance and payment bonds , if applicable, and any financial guarantees, the surety(ies) and guarantors must waive notice of any Change Orders and agree to be bound in all ways to Sound Transit for any such Change Orders as if it (they) had received notice of the same. Change Orders are required to make any changes to the Contract Price, Contract Documents, or Contract Time. All additions, deductions, or changes to the Work as directed by Change Orders shall be executed under the conditions of the Contract.

B. Pending resolution of any issue or dispute related to a Change Order, RFC, CN-RFP and/or CN- WD, Contractor shall continue to perform all Work, including the Contract Work associated with the pending change unless Sound Transit explicitly waives this requirement in writing. Contractor shall also be governed by all applicable provisions of the Contract related to compensation and/or additional time for changed work, inclusive of Article 10.

C. Adjustments in the Contract Price - One of the following methods shall be used to determine the cost and/or value of any work covered by a Change Order, RFC, CN-RFP, CN-WD or Claim. Sound Transit and the Contractor shall negotiate in good faith to determine an equitable adjustment of the Contract Price. The available methods are:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities involved in the changed Work; Where Provisional Sums are provided for work items, the provisional sums shall be applied to changes for those work items;

2. By establishment of new unit prices and related quantities for the changed work;

3. By reference to catalog prices or other published prices offered to the public in the open marketplace;

4. By mutual acceptance of a firm fixed price (also referred to as lump sum);

5. On a time and materials basis in accordance with Article 9.09, Payment on Time and Material Basis.

In the event of disagreement, Sound Transit shall determine the method for calculating the adjustment to increase or decrease the Contract Price.

D. All Change Orders (CO) and Change Notices (CN) shall be issued through Sound Transit. No other order, statement, act of omission or conduct of any representative of Sound Transit or third party will be treated as a change hereunder. Nothing in this Article shall be construed to bind Sound Transit for acts of its employees or agents exceeding their authority.

E. Nothing in this Article shall be deemed to require a change in Contract Price or Contract Time when additional, extra, or changed work is the result of actual conditions or performance differing from that assumed by the Contractor (except for differing site conditions) or as a result of the Contractor's error in judgment or mistake in designing, estimating, contracting, constructing or otherwise performing the Work. The Contractor shall not be entitled to a change in the Contract

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Price or Contract Time for delays caused by the Contractor or its Subcontractors, employees, or agents or for any non-compliance with any Contract provisions, applicable law, regulations, or permit requirements affecting the Work.

F. The Contractor's records pertaining to Changes pursuant to this Article are subject to audit as set forth in Article 3.04, Audit Access to Records.

G. Where the firm fixed price/lump sum method is used, the Contractor shall provide a detailed cost breakdown supporting its requested compensation and any additional cost documentation requested by Sound Transit. Any adjustment to the Contract Price made under the firm fixed price/lump sum method shall include all applicable costs for labor, equipment, material, overhead and profit.

H. Where the firm fixed price/lump sum method is used and the cost of the Change is negotiated after completion of the Work, the allowed profit and overhead markup shall not exceed that for work performed on a time and material basis as permitted in Article 9.09, Payment on a Time and Material Basis.

I. Where the firm fixed price/lump sum method is used and the cost of the Change is negotiated before completion of the Extra Work, the negotiated profit and overhead markup is not subject to a fixed maximum and is to be based on a reasonable calculation of direct and indirect costs incurred in executing the Extra Work, including any delays, impacts or inefficiencies. Where any unit price method is used, the applicable unit price shall include reimbursement for all direct and indirect, onsite and offsite, costs of the changed Work, including profit and overhead.

4.02 REQUEST FOR CHANGE

A. If the Contractor believes it is entitled to an adjustment of the Contract Price or Contract Time for any reason, Contractor shall submit a Request for Change (RFC) to Sound Transit in writing (in a format acceptable to Sound Transit) in accordance with the provisions of the Contract. The Contractor in the RFC must specify the reasons for such change, including relevant facts and any impacts on the cost and / or schedule.

B. The Contractor may request additional compensation and/or time through a RFC, but only in the event Contractor provides a written Notice to Sound Transit no later than fourteen (14) days after the onset or occurrence of the event or condition giving rise to the RFC.

C. The Contractor in its RFC shall provide Sound Transit with a reasonably detailed explanation of the nature and cause of the event or condition giving rise to the RFC, a reasonably accurate calculation of the adjustment to the Contract Price and/or Contract Time, and the reasons why Sound Transit is responsible for the relief sought. Sound Transit shall review the RFC and may require additional information or cost documentation from Contractor to help determine the validity and / or value of the requested change.

D. Any RFC that is approved by Sound Transit will be incorporated into a Change Notice or a Change Order. If the RFC is denied, but the Contractor believes that it does have merit, the Contractor must submit a Notice of Intent to Claim in accordance with Paragraph 10.01A, Notice of Intent to Claim, if it wishes to preserve its right to seek any adjustment to the Contract Price and/or Contract Time.

4.03 CHANGE NOTICE

A. Change Notice - Request for Proposal (CN-RFP).

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1. Sound Transit may issue a Change Notice – Request for Proposal to the Contractor describing a proposed change and requesting the Contractor to submit a Cost and Schedule Proposal (in a format acceptable to Sound Transit). A CN-RFP does not authorize a Contractor to commence performance of the changed Work. After receipt of the Cost and Schedule Proposal, Sound Transit may:

    a. Proceed no further with the proposed change,

    b. Issue a Change Notice – Work Directive incorporating part or all of the proposed change, or

    c. Issue a Change Order incorporating part or all of the proposed change.

B. Change Notice - Work Directive (CN-WD).

1. Sound Transit may issue a Change Notice - Work Directive ordering the Contractor to proceed with a change in the Work. A CN-WD may be issued under one of the following circumstances:

    a. To execute changes in the Work covered by the unit prices or a lump sum price contained in the Contract;

    b. To execute changes in the Work on a Time and Material basis, in accordance with Article 9.09, Payment on Time and Material Basis; or

    c. To direct the Contractor to execute change(s) in the Work pending resolution of an equitable adjustment to the Contract Price and/or Contract Time. If Sound Transit and the Contractor cannot reach agreement on changes to the Contract Price and/or Contract Time prior to starting on the changed Work, the Contractor shall maintain cost records in accordance with Article 9.09, Payment on Time and Material Basis.

2. The Contractor shall not commence performance of the Work described in the CN-WD, until the CN-WD is issued by Sound Transit. The CN-WD shall expressly specify the:

    a. Intention to treat such items as changes in the Work;

    b. Scope of the changes in the Work; and

    c. Basis under which changes to the Total Contract Price and/or Contract Time will be determined.

3. When the Contractor receives a CN-WD, the Contractor shall promptly proceed with the Work as indicated in the CN-WD. The Contractor shall carry on the Work and adhere to the schedule. No work shall be delayed or postponed pending resolution of any dispute or disagreement except as Sound Transit and the Contractor may otherwise agree in writing.

4. Until such time as resolution of an equitable adjustment is reached, the Contractor shall maintain its records in accordance with Article 9.09, Payment on Time and Material Basis. The CN-WD shall become the basis for a Change Order when the amount of the adjustment to the Total Contract Price and/or Contract Time can be determined. The issuance of a CN-WD is sufficient authority for a Change Order, but only within the stated limits of the value of the CN-WD.

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5. The CN-WD shall contain a Not to Exceed (NTE) amount. Contractor may invoice Sound Transit for changed work performed under the CN-WD but only up to and not in excess of the NTE amount. The Contractor is required to notify Sound Transit at the point at which 80 percent of the NTE amount has been expended, and provide an estimate of the cost to complete the changed Work. If Sound Transit agrees that costs in excess of the NTE amount are justified, Sound Transit may issue a revised CN-WD increasing the NTE amount or negotiate a lump sum amount for the changed Work.

C. Contractor's Cost and Schedule Proposal - If directed by Sound Transit in the Change Notice, the Contractor shall submit a Cost and Schedule Proposal to Sound Transit within fifteen (15) days (or more, if Sound Transit at its option so determines) after receipt of the Change Notice. The Cost and Schedule Proposal shall detail price and scheduling information, showing all of the impacts on the Contract Price and Schedule, and the changes in the level of commitment for Small Business and Disadvantaged Business Enterprises as a result of the changes identified in the Change Notice. If any prices or other aspects are conditional, such as orders being made by a certain date or the occurrence of a particular event at a specified time, the Contractor shall identify these conditions in its Cost and Schedule Proposal. The cost breakdown shall have separate estimates of the costs of added Work and any deleted Work and shall be prepared using one or more of the cost methods described in Article 4.01C as directed by Sound Transit, and shall be presented in a manner such that all phases of work can be easily identified. The Contractor shall submit detailed cost breakdowns as described above for any Subcontractor proposed to perform Work under the change. The Contractor shall also provide detailed scheduling analysis demonstrating the effect of the changed work on the Contract Milestones.

4.04 CHANGE ORDER

A. The Change Order shall expressly state that it is Sound Transit's intention to treat the items described therein as changes in the Work; identify scheduling requirements, time extensions, prices, and all costs of any nature arising out of the Change Order; and shall contain a statement that the adjustment to the Total Contract Price, if any, includes all amounts to which the Contractor is entitled as a result of the events giving rise to the Change Order. The execution of a Change Order by both parties shall be deemed to be an agreement to all costs and time of performance related to the change, including full and complete payment and final settlement of all extensions of time, changes, Claims, damages and costs for all time, direct or indirect overhead costs, profit and any and all other costs associated with delay, disruption, impact, inefficiency, acceleration, stand-by or any other costs related to the Work covered by or affected by the change.

B. Bilateral Change Order: Sound Transit will issue a Change Order as soon as practicable following agreement with Contractor's Cost and Schedule Proposal, if Sound Transit decides to proceed with the changed work. If the Contractor agrees with the terms and conditions of a Change Order, the Contractor shall sign the Change Order and return it to Sound Transit for execution by Sound Transit. There will be no reservation of rights by either party on a bilateral Change Order.

C. Unilateral Change Order: Sound Transit may unilaterally issue a Change Order at any time making changes within the general scope of the Contract, without invalidating the Contract and without providing notice to sureties. In addition, in the event that the Contractor and Sound Transit are unable to agree on the terms and conditions, the amount of any change or adjustment to be made to the Total Contract Price or Contract Time, Sound Transit may execute a Unilateral Change Order. If Contractor disagrees with the adjustment to Contract Price or Contract Time as stated in the Unilateral Change Order, Contractor must file a claim in accordance with the requirements of

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Article 10, Delays and Claims. If the Contractor fails to follow the claim procedures in Article 10, the Contractor shall not be entitled to any claim for additional compensation or schedule extension arising out of or relating to the Unilateral Change Order other than that specified in the Unilateral Change Order. The Contractor is required to continue with performance of all work associated with the Unilateral Change Order pending resolution of any Claim under Article 10.

D. When a Change Order has been executed by Sound Transit, the Contractor shall promptly proceed with the Work as indicated in the Change Order. The Contractor shall carry on the Work and adhere to the schedule during all disputes or disagreements with Sound Transit. No work shall be delayed or postponed pending resolution of any dispute or disagreement, except as Sound Transit and the Contractor may otherwise agree in writing.

E. At Sound Transit's request the Contractor shall submit, on a form provided by Sound Transit, a Non-Conflict of Interest Certification for any Change Order

F. Special Rules When Pricing Change Orders

1. If this Contract is subject to the Project Labor Agreement, in accordance with the requirements of the Labor Compliance Manual, the Contractor and its Subcontractors are required to contribute five cents ($0.05) per hour for each hour of contract labor (those subject to prevailing wages requirements) utilized on the Contract to a Pre- apprentice Training Program Fund. Accordingly, the Contractor shall incorporate into each Change Order an amount equal to five ($0.05) per hour for each hour of contract labor.

2. Premium increase(s)/decrease(s) for Performance and Payment Bonds:

a. Premium increase(s) / decrease(s) for Performance and Payment Bonds will not be paid as a part of Change Order payments, but will be paid / deducted as a lump sum in the final payment. Verification of increased / decreased payment, from the surety, must be provided and will be included in the final reconciling Change Order.

b. If the surety should require an immediate payment for the increased Bond(s) value as a result of a large Change Order, the Contractor must supply evidence of the payment made and a copy of the surety's request for early payment.

4.05 SCHEDULE EXTENSIONS

If the Contractor is delayed in completion of the critical path of the Work either by reason of changes made under this Article, or by a delay for which the Contractor is entitled to additional time as specified in Article 10, Delays and Claims, and if Contractor meets all Contract requirements for seeking an increase in time to complete the Work associated with a Contract Milestone(s), the Contractor shall submit a Request for Change within the time allowed by the Contract Documents specifying the number of days of time requested. The Contractor shall demonstrate the schedule impact of changes and delays in order to justify any schedule extensions.

4.06 CONSTRUCTIVE CHANGE ORDER

Except as herein expressly stated, no order, statement, act, or omission of Sound Transit unless provided in writing shall be treated as a change or Change Order under the Contract or entitle the Contractor to an adjustment under the Contract. If the Contractor considers that an act, omission, order or statement by the Regional Program Manager or Sound Transit deviates from the Contract requirements or may entitle the Contractor to extra compensation or a time extension, the Contractor shall submit a Request for

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Change as provided above. Failure to submit a timely and documented RFC shall constitute a waiver of any Claim associated with the subject of such alleged constructive change. The Contractor shall not proceed with the Work until appropriate directions are received from Sound Transit.

4.07 EXCLUSIVE REMEDIES

The procedures specified herein and in Article 10, Delays and Claims, of these General Conditions are the Contractor's exclusive remedy for any claim against Sound Transit, whether for extension of the Contract Time, an increase in the Contract Price, actual or constructive changes, delays, impacts, inefficiencies, equitable adjustments or otherwise. The requirements of Article 10 cannot be waived except by explicit written waiver signed by Sound Transit and Contractor. No course of conduct or dealings between the parties, no express or implied acceptance of change or alterations to the Work, and no claim that Sound Transit has been unjustly enriched by an alteration or Change to the work, shall be the basis of any other claim for an increase in Contract Price or extension in the Contract Time for completion of the Work.

4.08 CHANGES IN QUANTITIES

A. This Article applies to unit price items on the Contract Price Schedule with an estimated quantity of four (4) or more and the measured quantities required to complete the Work.

B. Increases in Quantities of More than 25 percent.

Should the actual total quantity of a Contract Pay item of work shown on the Price Form exceed the estimated quantity shown on the Price Form by more than 25 percent, the Work in excess of 125 percent of such estimated quantity and not covered by an executed Change Order specifying the compensation to be paid, will be paid for by adjusting the Contract unit price as hereinafter provided or at the option of the Regional Program Manager, payment for the Work involved in such excess will be made on a time and material basis as provided in Article 9.09, Payment on Time and Material Basis.

1. The adjustment of the Contract unit price for such excess quantities will be the difference between the Contract unit price and the actual unit cost to perform the work, as determined in this Article. If the costs applicable to such item of Work include fixed costs, such fixed costs will be deemed to have been recovered by the Contractor by the payments made for 125 percent of the estimated quantity shown on the Price Form for such item, and in computing the actual unit cost; such fixed costs will be excluded. Subject to the above provisions, such actual unit cost will be determined by the Regional Program Manager in the same manner as if the Work were to be paid for on time-and- materials basis as provided in Article 9.09, Payment on Time and Material Basis, or such adjustment as agreed to by the Contractor and the Regional Program Manager.

2. When the total compensation payable for the number of units of an item of Work performed in excess of 125 percent of the estimated quantity is less than $5,000 at the applicable Contract unit price, the Regional Program Manager reserves the right to make no adjustment in said unit price.

C. Decreases of More Than 25 percent.

1. Should the total pay quantity of any item of Work required under the Contract be less than 75 percent of the estimated quantity thereof, an adjustment in compensation pursuant to this Article will not be made unless the Contractor so requests in writing. If the Contractor so requests, the quantity of said item performed, unless covered by an

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executed Change Order specifying the compensation payable therefore, will be paid for by adjusting the contract unit price, or at the option of the Regional Program Manager, payment for the quantity of the Work of such item performed will be made on time and materials basis as provided in Article 9.09, Payment on Time and Material Basis.

2. Adjustment of the Contract unit price for such decreased quantities will be the difference between the Contract unit price and the actual unit cost, which will be determined as hereinafter provided, of the total pay quantity of the item, including fixed costs. Such actual unit cost will be determined by the Regional Program Manager in the same manner as if the Work were to be paid for as provided in Article 9.09, Payment on Time and Material Basis, or such adjustment will be as agreed to by the Contractor and the Regional Program Manager.

3. No compensation shall be made in any case for loss of anticipatory profits.

D. If the Contractor disagrees with an equitable adjustment determination by the Regional Program Manager, the Contractor shall strictly follow all procedures in accordance with Article 10, Delays and Claims. Failure to do so shall constitute the Contractor's acceptance of determinations by the Regional Program Manager. When ordered by the Regional Program Manager, the Contractor shall proceed with the Work pending determination of the adjustment in costs or time, as applicable.

E. When Sound Transit has entered an amount for any proposal price item, whether unit or otherwise, solely for the purpose of providing a common proposal price for all proposers, this Article 4.09, Changes in Quantities, shall not apply. Any impact due to an increase or decrease in the amount provided for the purpose of obtaining a common proposal price shall be the sole risk of the Contractor.

4.09 ELIMINATED WORK

A. Sound Transit may, by written order to the Contractor, omit work, equipment and/or material to be provided under this Contract, and the value of the omitted work equipment and/or material (inclusive of associated profit and overhead) will be deducted from the Contract Price. The deducted value will be based upon the applicable unit price or lump sum, or if there is no such price, the deducted value will be a lump sum agreed upon in writing by the Contractor and Sound Transit based on the Contract Price Schedule and other cost information submitted by the Contractor or obtained otherwise by Sound Transit. In the event that no agreement can be reached on a lump sum basis, Sound Transit shall be entitled to a deduction based on the value as if the work were to be paid for on a Time and Material basis as provided in Article 9.09, Payment on Time and Material Basis.

B. Should any Contract item of the Work be eliminated in its entirety, in the absence of an executed Change Order covering such elimination, payment will be made to the Contractor for actual costs incurred in connection with such eliminated Contract item if incurred prior to the date of notification in writing by the Regional Program Manager of such elimination.

C. If acceptable material is ordered by the Contractor for the eliminated work prior to the date of notification of such elimination by the Regional Program Manager, and if orders for such material cannot be canceled, it will be paid for by Sound Transit at the actual cost to the Contractor. In such case, the material paid for shall become the property of Sound Transit and the actual cost of any further handling will be paid for by Sound Transit. If the material is returnable to the vendor and if the Regional Program Manager so directs, the material shall be returned and the Contractor

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will be paid for the actual cost of charges made by the vendor for returning the material. The actual cost of handling returned material will be paid for by Sound Transit.

4.10 DIFFERING SITE CONDITIONS

A. The Contractor shall immediately upon discovery and before the conditions are further disturbed, notify the Regional Program Manager, verbally and in writing of:

1. Subsurface or latent physical conditions at the Site which differ materially from the conditions indicated in the Contract Documents;

2. Unknown physical conditions at the site, of an unusual nature, which differ materially from the conditions ordinarily encountered and generally recognized as inherent in the Work of the character provided for in the Contract.

B. In areas not affected by the alleged differing site conditions, the Contractor shall continue with performance of the Work.

C. The Regional Program Manager will promptly investigate the conditions and provide direction with respect to continuing performance of the Work in the area of the alleged differing site conditions.

D. Unless otherwise agreed upon in writing by Sound Transit, within seven (7) days of the Contractor's initial written notification of the Differing Site Condition to Sound Transit, the Contractor shall provide:

1. A detailed description of the Differing Site Condition;

2. A reasonable estimate of the price and time impacts such Differing Site Condition shall cause to the Contract; and

3. Substantive, contractual, and technical basis supporting the existence of the Differing Site Condition and its impacts.

E. Within fourteen (14) days from receipt of the Contractor's detailed description of impacts, Sound Transit shall either:

1. Issue a Change Notice (CN) or a Change Order (CO);

2. Make a written determination that the event or condition does not justify any changes to the Contract;

3. Request additional information, or

4. Respond to the Contractor and indicate when a determination will be made, if it cannot be made within the above stated fourteen (14) days.

F. If Sound Transit finds that conditions are materially different and cause a material increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the Work under this Contract, the Regional Program Manager will make an equitable adjustment in the cost or the time required for the performance of the Work, as provided in Paragraph H below.

G. No request by the Contractor for an equitable adjustment to the Contract or claim for a Differing Site Condition shall be allowed unless the Contractor has fully complied with the written notice

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required in Paragraphs A and D above, unless by explicit written waiver Sound Transit has agreed to extend the applicable notice deadline prior to its expiration. Such notice shall be a condition precedent to any request for an equitable adjustment or claim, and failure to comply shall waive the Contractor's right to make a request for an equitable adjustment or claim.

H. Cost and time adjustments for a differing site condition accepted as a change by Sound Transit shall be resolved in accordance with this Article and Article 10, Delays and Claims, except to the extent that an equitable adjustment for any condition, otherwise within the scope of this Article, has been addressed by unit price or Provisional Sum item, which shall control if provided. All other provisions and requirements of this Article shall apply to such conditions, including without limitation, notification obligations and investigation requirements with respect to any such conditions.

I. After providing Notice to Sound Transit and upon receiving direction from the Regional Program Manager, the Contractor shall be required to continue with performance of all work and maintain its progress with the Work pending resolution of the Differing Site Condition.

J. If the Contractor does not agree with Sound Transit's determination that the event or condition does not justify any change to the Contract, the Contractor must file a Claim in accordance with Article 10, Delays and Claims, or such right to any adjustment in Contract Price and/or Contract Time shall be waived.

4.11 VALUE ENGINEERING CHANGE PROPOSALS (VECPS)

A. Sound Transit encourages the Contractor to submit Value Engineering Change Proposals (VECPs) in order to avail Sound Transit of potential cost or time savings or increased safety during the Work. The Contractor and Sound Transit will share any savings in accordance with this Article. VECPs may be submitted at any time after Notice to Proceed. A proposal merely to delete or reduce scope of Work does not constitute a VECP.

B. The Contractor shall submit VECPs directly to the Regional Program Manager. As a minimum, the following information shall be submitted by the Contractor with each VECP:

1. Description of the existing Contract requirements that are involved in the proposed change;

2. Description of the proposed change;

3. Discussion of differences between existing requirements and the proposed change, together with advantages and disadvantages;

4. Itemization of the Contract requirements that shall be changed if the VECP is accepted (e.g., drawing numbers and specification);

5. Justification for changes in function or characteristics of each affected item, and effect of the change on performance of the end item;

6. Effect of proposed change on life-cycle costs, including operation, maintenance, replacement costs, and life expectancy;

7. Date or time by which a Change Order adopting the VECP shall be issued in order to obtain the maximum cost reduction, noting any effect on contract completion time or delivery schedule; and

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8. Cost estimate for existing Contract requirements correlated to the Contractor's unit price or lump sum breakdown and the proposed changes in those requirements.

9. Costs of development and implementation by the Contractor shall be provided.

10. Additional costs to Sound Transit (e.g., costs of testing, redesign, and effect on other contracts) shall also be estimated.

C. Sound Transit retains the right to reject a VECP without review, without recourse by the Contractor if a similar change is already under review; or if in Sound Transit's sole opinion, the potential savings are unlikely to justify the cost of the review; or if the proposed change is otherwise unacceptable to Sound Transit.

D. Sound Transit shall expeditiously process VECPs accepted for review but shall not be liable for any delay in acting upon any VECP submitted pursuant to this Article. Sound Transit may accept, in whole or in part, by Change Order, any VECP submitted pursuant to this Article. Until an order to proceed is issued on a VECP, the Contractor shall remain obligated to perform in accordance with this Contract. Change Orders made pursuant to this Article will so state. Sound Transit's decisions as to acceptance or rejection of any VECP shall be at Sound Transit's sole discretion and shall be final and not subject to review by a dispute resolution process or otherwise.

E. If a VECP submitted by the Contractor pursuant to this Article is accepted, the Contract Price shall be reduced by an amount equal to 50 percent of the Estimated Net Savings (ENS) to the Contractor plus 50 percent of Sound Transit's Review Costs (STRC) (or the reduction = 0.5ENS + 0.5STRC). The Estimated Net Savings shall be calculated by subtracting the Contractor's Costs from the Contractor's Estimated Gross Savings. For the purposes of this Article, the Contractor's Costs are defined as the reasonable costs incurred by the Contractor in preparing the VECP and making the change, such as cancellation or restocking charges; and the Contractor's Estimated Gross Savings are defined as the difference between the cost of performing the Work according to the existing requirement and the cost to perform the Work according to the proposed change. The Contractor's profit shall not be considered part of the cost and shall not be reduced by application of the VECP.

F. The Contractor shall include appropriate value engineering incentive provisions in all subcontracts of $100,000 or greater, and may include those provisions in any subcontract. In determining Estimated Net Savings for cost reduction proposals that involve a Subcontractor, only actual costs to the Contractor and Subcontractor, as defined in Paragraph E above, will be allowed as Contractor Costs. Incentive payments made to the Subcontractor by the Contractor in connection with the cost reduction proposal will not be allowed in determining Net Savings. Sound Transit is subject to public disclosure of records in accordance with Washington State Law. Material and information, which may be submitted as part of any VECP, will be subject to such public disclosure pursuant to State law.

G. The compensation provisions of this Article shall constitute the Contractor's exclusive and complete compensation for Sound Transit's use of the VECP, and the Contractor shall have no right to additional compensation for future or additional uses of the VECP. Sound Transit shall have an absolute and unrestricted right to use the concepts, ideas, methods, materials, and any other salient feature of a VECP, for any purpose other than on the Contract or contracts for which it was submitted.

H. In the event Sound Transit and Contractor cannot agree on the Estimated Net Savings, Sound Transit may at its option (i) terminate the proposed VECP or (ii) unilaterally determine the

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Estimated Net Savings. If Contractor disagrees with such unilateral determination and seeks to assert a Claim, Contractor shall comply with the Claim requirements of the Contract Documents.

ARTICLE 5 MATERIALS AND EQUIPMENT

5.01 GENERAL

A. The Contractor shall furnish all materials, including without limitations, equipment and completely or partially assembled items, required to complete the Work, except materials that are designated in the Contract Documents to be furnished by Sound Transit.

B. Material and equipment furnished and installed for this Work shall be new and of a quality equal to or better than that specified.

C. Sound Transit's acceptance of materials on the basis of compliance documentation, inspection or testing shall not relieve the Contractor of its obligation for conformance with the Contract.

D. Manufacturers' warranties, instruction sheets, and parts lists, which are to be furnished with certain materials, shall be delivered to the Regional Program Manager before Substantial Completion.

E. The materials and equipment provided and work performed by the Contractor shall strictly conform to the requirements contained in the Contract Documents. The burden of proof that the completed Work conforms to the Contract Documents shall be on the Contractor.

F. The Contractor shall not use any permanently incorporated materials or equipment unless such use is approved in writing by Sound Transit. Where Contractor's request is granted for the use of certain materials, the Contractor shall properly use and maintain, and upon completion of its use, and at its own expense, recondition such materials or equipment to the satisfaction of Sound Transit.

5.02 MATERIALS CERTIFICATIONS

A. All materials except materials specified by brand name or mark or manufacturer, furnished for use or incorporation in the Work, shall be covered by quality certifications, test results or other documentation as required by the Contract to establish compliance of the products with Contract requirements. Unless specific tests are required by the specifications, the Contractor may provide certifications to establish acceptability of the products furnished. Materials or products which require certification or other documentation shall not be incorporated until certifications have been delivered and the product approved by Sound Transit for incorporation.

B. When the Contract requires documentation that materials comply with a given specification or Industry Standard, the Contractor shall provide documents that include a certification that the material conforms to all applicable Contract requirements. The documentation shall identify the material, list the applicable specifications and tests covered by the certification, describe the source of the material, and the quantity of material certified. The certifying document shall originate with manufacturer or producer of the material and shall bear the signature of a person qualified to perform the certification and authorized to sign on behalf of the manufacturer or producer. If applicable, the certificate shall list any marking or other identification of the certified material.

C. For fabricated or manufactured materials, in addition to the documentation required by this Article, the Supplier shall furnish documentation that the fabrication or manufacturing process

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complies with Contract requirements. The documentation shall be comparable to that required by this Article and shall list the name and address of the manufacturer or fabricator, the specific processes covered by the certification and procedures and equipment used, tests performed and testing frequency, and any other pertinent information required to demonstrate Contract compliance.

D. For materials specified or approved by brand name or mark, an identifying label or other marking affixed by the manufacturer, which contains sufficient information to verify that the material furnished is the material specified, will be accepted as documentation in lieu of additional certification. Other physical characteristics or packaging information may be accepted at Sound Transit's discretion to demonstrate compliance.

E. Sound Transit may require testing at the Contractor's expense of materials that are delivered without acceptable identification, certification or other required documentation. Work that incorporates materials for which the required documentation has not been provided will be considered nonconforming work.

F. Sound Transit reserves the right to sample and test any material provided for use or incorporation into the Work. The Contractor shall furnish, at no cost to Sound Transit, all samples requested for testing. If Sound Transit's tests indicate that the material tested does not comply with Contract requirements, all materials covered by the same certification as the test sample shall be considered as non-conforming.

G. If, at any time, Sound Transit deems the Contractor's testing is not adequate, the Contractor shall immediately take corrective action as directed by Sound Transit.

5.03 EQUIVALENT MATERIALS AND EQUIPMENT

When material or equipment is specified by one or more patents, brand names, or catalog numbers, it shall be understood that this is for the purpose of defining the performance or other salient requirements and shall be understood as if followed by the words "or equal," whether or not such words appear. Should the Contractor propose to furnish an "or equal" material or equipment then Contractor shall demonstrate conformance to the specified performance, testing, quality or dimensional requirements and suitability of the material or equipment for the use intended. The Regional Program Manager shall promptly review and approve or disapprove Contractor's proposed "or equal" material or equipment and any such approval shall not relieve Contractor of its obligations to achieve the specified performance, testing, quality or dimensional requirements and suitability of any approved "or equal" material or equipment for the use intended under this Contract.

5.04 SUBSTITUTIONS

A. If material or equipment is specified as a sole source, Sound Transit will not consider substitutions.

B. Materials or equipment of equal or better capacity, quality, or function may be allowed by Sound Transit, in its sole discretion, upon written request for substitution by the Contractor. Requests for substitution shall be made in accordance with these Contract Documents. Denial of a request for substitution is not grounds for any claim against Sound Transit.

C. Except for sole source materials or equipment, the Contractor may offer material or equipment of equal or better quality and performance in substitution for those specified in the Contract Documents. Substitutions may be considered when a product becomes unavailable through no

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fault of the Contractor. Sound Transit will consider offers for substitution only from the Contractor and not from Suppliers, distributors, manufacturers, or Subcontractors. If the offered substitution necessitates changes to or coordination with other portions of the Work, the Contractor, as a condition of Sound Transit's acceptance of the substitution, shall perform such changes or coordination at no additional cost to Sound Transit. Substitutions shall be submitted to Sound Transit in sufficient time to avoid delays to the Work. The Contractor shall be responsible for any delay or cost resulting from untimely submittal of substitution requests.

D. The Contractor has the burden of demonstrating that the proposed substitution's function, quality, and performance will be equal in all respects to that of the specified item.

E. A request for substitution constitutes a representation that the Contractor:

1. Has investigated the proposed product and determined that it meets or exceeds the quality level of the specified product;

2. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Sound Transit;

3. Waives claims for additional costs or time extension that may subsequently become apparent; and

4. Bears all Sound Transit costs of any redesign or modification to other systems, parts, equipment or components of the Contract Work resulting from the substitution.

F. Substitutions will not be considered when they are indicated or implied on Drawings or product data submittals without a separate written request. Substitutions will not be considered when they are due to the Contractor's failure to order the specified items in a timely manner.

G. Sound Transit shall be the sole judge of whether the offered substitution is in conformance with the Contract Documents for the Work and whether the changes to other portions of the Work necessitated by the incorporation of the offered substitution are acceptable. Any savings resulting from the use of a substituted item shall be passed on to Sound Transit in the form of a Value Engineering Cost Proposal.

H. Sound Transit may, at its option, supply hardware, software, licenses, warranties, infrastructure, or materials outside of this Contract in accordance with design specifications provided by the Contractor. In the event that ST supplies any such items, they shall be delivered in new condition and working order and in a timely fashion to the Contractor at a location and date to be determined in advance and agreed in writing.

5.05 MANUFACTURER'S DIRECTIONS

Manufactured articles, materials, solvents, and equipment or other goods shall be transported, stored, applied, installed, connected, erected, adjusted, tested, operated, and maintained as recommended by the manufacturer, unless otherwise specified herein. Items shall be installed by the manufacturer where recommended or directed; however, the Contractor shall not be relieved of responsibility for such installation and costs.

5.06 RESPONSIBILITY FOR PERFORMANCE

Designation of brand names, components, and/or equipment in the Specifications shall not relieve the Contractor from responsibility for performance in accordance with contractual requirements. The

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Contractor is responsible for notifying the Regional Program Manager of any inappropriate brand name, component, and/or equipment that may be called for in the Specifications, and for proposing a suitable alternate for consideration. Any substitution required by Sound Transit or the Regional Program Manager under this Article shall be implemented in accordance with the procedures set forth in Article 4, Changes and Change Order Process.

ARTICLE 6 PROSECUTION AND PROGRESS OF THE WORK

6.01 CONTRACT TIME

A. All time requirements set forth in the Contract Documents are of the essence in the performance of this Contract. Unless specifically authorized in writing by Sound Transit, the Contractor is not allowed to perform Work or incur costs under this Contract until the effective date of the Notice to Proceed. The Contractor shall proceed with performance of the Work under this Contract immediately after the effective date of Notice to Proceed and shall continuously and diligently prosecute the Work and specified portions thereof to completion on or before the time or times set forth in this Contract. Any work performed by the Contractor prior to the effective date of Notice to Proceed shall be at the Contractor's risk. The Contract Time shall not be extended or reduced except by Change Order. The Contractor shall not be entitled to receive delay damages or costs for non-realization of anticipated early completion of the Work before a Contract specified Milestone date.

B. The Contractor shall work such hours including overtime operations and/or extra shifts, within the parameters of permitted working days and hours, as may be necessary to meet its performance obligations under the Contract.

C. The Contractor shall comply with all local requirements and permit conditions relating to acceptable hours of operation for work locations, and to noise control and abatement. If the Contractor deems that a waiver of any local requirements is necessary to enable the Contractor to perform the Work in accordance with the Contract requirements, it is the Contractor's responsibility to obtain said waivers, at no additional cost to Sound Transit.

D. All time periods measured in days for Contract Milestones and Notices shall be based upon calendar days, unless specified otherwise. Time periods measured in days for each Contract milestone and notice shall be computed by excluding the day upon which the period begins to run and including the last day of the period unless the last day is Saturday, Sunday or a legal holiday as defined in RCW 1.16.050. If the last day of the period is a Saturday, Sunday or legal holiday, the period shall run until, and shall include, the next day that is not a Saturday, Sunday, or legal holiday.

E. When an extension of time for completion of a milestone is granted, the extended date for completion of that milestone shall be calculated using the sum of the number of days originally allowed plus the number of days extension of time, commencing on the effective date of the Notice to Proceed.

6.02 PROJECT SCHEDULES

A. Preparation and Submittal of Schedules

1. The Contractor shall develop and deliver, in accordance with the Contract Documents, the various schedules and progress reports to Sound Transit for review and acceptance. Sound Transit's review shall not constitute approval or acceptance of the schedules' sequencing

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or time of completion, nor of the Contractor's means and methods.

2. The Contractor shall not be entitled to payment, nor shall Sound Transit be required to make payment for any Contract Work, until the Project Schedule complies with the Contract requirements.

B. Float

1. Float is defined as the number of days by which a Work activity identified in the project schedules could be delayed from its "early start date" until the date upon which the Work activity would become a Critical Path Activity.

2. Any float (other than Sound Transit Controlled Float), slack time, or contingency within the Project Schedules (i.e., the difference in time between the Contract's early completion date and the Contract Milestone(s)) is not for the exclusive use of either Sound Transit or the Contractor, but is jointly owned by both and is a resource available to and shared by both parties as needed to meet Contract Milestones. Use of such jointly owned float shall be on a first come, first served basis and may be applied to delays caused (without limitation) by unmarked utility interferences or third parties.

3. The Contractor shall not sequester shared float through such strategies as extending activity duration estimates to consume available float, using preferential logic, or using extensive crew/resource sequencing, etc. Since float time, other than Sound Transit Controlled Float, within the schedule is jointly owned, no time extensions will be granted nor delay damages paid until a delay occurs which extends the work beyond the Contract Milestone(s). Since float time within the project schedule is jointly owned, it is acknowledged that Sound Transit-caused delays on the Contract may be offset by Sound Transit-caused time-savings. In such an event, the Contractor shall not be entitled to receive a time extension or delay damages until all Sound Transit-caused time-savings are exceeded.

6.03 FAILURE TO MAINTAIN PROGRESS

If, in the opinion of the Regional Program Manager, the Contractor is not maintaining its anticipated progress towards the completion of the Milestones and / or falls behind the approved project schedules, the Contractor shall take any and all steps necessary to improve its progress. If the Contractor fails to implement appropriate remedial actions, the Regional Program Manager may require the Contractor to increase the number of shifts, increase the number of crews and/or operations, initiate or increase overtime operations, increase days of work in the work week, increase the amount of facilities and equipment, or all of the foregoing. Sound Transit may also require the Contractor to submit for approval supplemental progress schedules that detail specific operation changes to be instituted to regain the approved schedule. The cost of the actions necessary to improve the Contractor's progress will be the responsibility of the Contractor and will not be reimbursed by Sound Transit.

6.04 PROTECTION OF PROPERTY

In addition to the requirements set forth elsewhere in the Contract documents, the Contractor shall comply with the following general requirements:

A. Protect all public and private property, insofar as it may be endangered by the Contractor's operations, and take every reasonable precaution to avoid damage to such property.

B. Restore and bear the cost of restoration of any public or private improvement, facility, structure

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or land and landscaping inside or outside of the right-of-way or easement, which is damaged or injured directly or indirectly by or on account of an act, omission, or neglect in the execution of the Work; restore to a condition substantially equivalent to that existing before such damage or injury occurred, by repairing, replacing, rebuilding, or otherwise affecting restoration thereof, or if this is not feasible, make a suitable settlement with the owner of the damaged property. All restoration shall be governed by the requirements of local authorities, including but not limited to local codes, standards, and permit conditions.

C. Give reasonable notice through the Regional Program Manager to occupants of buildings on property adjacent to the Work to permit the occupants to remove vehicles, trailers and other possessions as well as salvage or relocate facilities, trees, fences, sprinkler systems, or other improvements in the right-of-way which are designated for removal or which might be destroyed or damaged by work operations.

D. Protect all trees, lawns, and facilities areas within the Right-of-Way or Easements that are designated for preservation.

E. Not operate tracked equipment on the streets that are not scheduled for demolition and repaving under this Contract. In the event tracked equipment is used, the streets shall be fully protected.

6.05 PUBLIC SAFETY AND CONVENIENCE

The Contractor shall conduct its operations to ensure the least possible obstruction and inconvenience to the public, and the Contractor shall have no greater amount of work than the Contractor can prosecute properly with due regard to the rights of the public.

6.06 EMERGENCY WORK

A. In an emergency affecting the safety of persons, the Work, or adjoining property, the Contractor, without special instructions or authorization from the Regional Program Manager, shall act to prevent such threatened loss or injury. In such an emergency, the Contractor shall perform such additional work as required. Any compensation claimed by the Contractor on account of emergency work shall be governed by Article 4, Changes and Change Order Process, or as deemed appropriate by the Regional Program Manager.

B. If, during the Warranty period or during the progress of the Contract, the Contractor is absent from the locations of the Work at the time when a failure or faulty condition of the Contractor's work requires emergency action in the public interest, Sound Transit shall have the right to make repairs or corrections by itself or with other forces, as required, and Sound Transit may withhold from monies due the Contractor any costs which Sound Transit incurs from such emergency work.

6.07 PROTECTION OF UTILITIES

A. Facilities and installations of various utilities may be present in the area of Work. In general, the locations of existing major utilities, whether aboveground or underground, are indicated on the Contract Drawings. This information has been obtained from utility maps and field surveys. Sound Transit does not guarantee the accuracy or completeness of the information. It is understood that other facilities not shown on the Contract Drawings may be encountered during the course of the work. In any case, most minor lines such as water, gas, electric power and communication, sewer services, and sprinkler irrigation lines may not be indicated. The Contractor shall protect any utility property that is on or adjacent to the Site or affected by the Work. Existing utilities, whether shown on the Contract Drawings or not, shall be maintained, relocated, rerouted,

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removed, repaired, and restored as may be necessary by the Contractor in a manner satisfactory to owners and operators of the utilities and to Sound Transit. The Contractor shall contact the utility owners and arrange operations and schedules to minimize any interruption of utility services. The Contractor shall provide utility owners with notice as may be required by said utilities for location of utility services, scheduling of outages, or other utility activities needed to accommodate the Contractor's operations.

B. The Contractor shall comply with the requirements of RCW 19.122, Underground Utilities, and take steps to ascertain the exact location of all facilities prior to doing work which may damage such facilities or interfere with their service. Where the location of a facility is not indicated, or is, in the opinion of the Regional Program Manager, doubtful, the Contractor may be directed to make such excavations and explorations as are necessary to ascertain the correct location.

C. When performing work in streets and easements, the Contractor shall notify all affected utilities and local agencies of its proposed operations and properly coordinate and expedite the Work in such a manner as to cause the least amount of conflict and interference between the work and operations of other agencies. In the event of disruption or threat of disruption to utility services as a result of Work-related activities, regardless of cause, the Contractor shall notify Sound Transit immediately and shall notify and cooperate with the utility as well as any fire, police, or other public authority which may be affected by the disruption, as required by said utility, agency, or authority.

D. The Contractor shall document all incidents of damage or impacts to utilities that are the result of Work activity, and report all such incidents to Sound Transit immediately with the date, time, place and type of property damage.

E. The Contractor shall ensure that unauthorized personnel are strictly prohibited from the operation of utility or agency water valves and hydrants and shall obtain written permission from the applicable proper utility or agency prior to using any water hydrant or operating any water valve. No Work shall be undertaken around fire hydrants until provisions for continued access and service have been approved by the local fire authority.

6.08 TEMPORARY FACILITIES AND UTILITIES

A. Temporary facilities and utilities shall be installed in compliance with federal, state, and local codes and statutes, at the Contractor's expense. The installation and maintenance of all temporary facilities will be subject to the approval of Sound Transit, and unless otherwise authorized in writing by Sound Transit, all such facilities shall be removed before Acceptance of the Work.

B. Before proceeding with the erection of any facilities, including temporary structures, machinery, offices, and warehouses, the Contractor shall, at its expense, notify and furnish Sound Transit with such information and drawings as Sound Transit may request showing locations of such facilities, capacities and capabilities of the machinery and equipment, and projected utility requirements. Such facilities shall be fully adequate for the uses intended and fully comply with the requirements of the Contract.

6.09 TEMPORARY REARRANGEMENT OF UTILITIES

The Contractor may desire to rearrange utilities temporarily for Contractor's convenience. In this case, the Contractor shall make whatever arrangements are necessary with the owners of such utility or other facility for such rearrangement and bear all expenses in connection therewith. Further, the Contractor shall maintain all utility facilities placed by the Contractor in temporary locations, and all utilities within

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the work area not required to be permanently rearranged but which are required to be shored or supported during the Work period. Unless otherwise indicated, the cost of such temporary rearrangement and maintenance shall be borne by the Contractor and no other compensation shall be due the Contractor for this work.

6.10 REARRANGEMENT OF UTILITIES BY OTHERS

Some or all of the utilities and other facilities, both above ground and below ground, which are required to be rearranged to accommodate the specified work, may be rearranged by other forces. In the event that rearrangement will be performed prior to the start of the Contractor's operations, or where the rearrangement must be coordinated with the Contractor's Work operations, the existing facilities which are to be rearranged by others will be indicated in the Contract Documents. Where such a rearrangement by others is indicated in the Contract Documents, the Contractor will have no liability for the cost of performing the work; however, the Contractor shall cooperate with those involved in such rearrangement. Wherever necessary, the work of the Contractor shall be coordinated with the rearrangement of utility or other facilities, and the Contractor shall make arrangements with the owner of such facilities for the coordination of the work. The Contractor shall anticipate potential delays by the utility owners and such reasonable delays shall not be the basis for additional compensation or time extensions. Only in the event that the utility owners fail or refuse to relocate or do so in a manner causing unreasonable delays to the critical path of the Work, may the Contractor request a time extension as provided in Article 4, Changes and Change Order Process.

6.11 EXPLORATION FOR UTILITIES

Where excavations or explorations to determine the location of utilities are directed by the Regional Program Manager and where it is determined by the Regional Program Manager that the rearrangement of an underground facility, which is not shown in the Contract Documents, is essential in order to accommodate the Work, the Regional Program Manager will provide for the rearrangement of such facility by other forces or, when so ordered by a CN-WD or CO, such rearrangement shall be performed by the Contractor and will be paid for as provided in Article 4, Changes and Change Order Process. In the event of unscheduled or unanticipated disruption(s) or threat of disruption(s) to utility services as a result of work-related activities, regardless of cause, the Contractor shall promptly notify Sound Transit, the affected utility, and fire and/or police agencies as necessary, and shall cooperate with those authorities. If temporary disruption(s) of utility service(s) is (are) unavoidable pursuant to the Work, the Contractor shall immediately notify the Regional Program Manager and secure authorization from Sound Transit before disrupting the utility service(s). Operation of utility or agency water valves and hydrants by unauthorized personnel is strictly prohibited without obtaining written permission from the applicable authority prior to using any water hydrant or operating any water valve. No work shall be undertaken around fire hydrants until provisions for continued access and service have been approved by the local fire authority.

6.12 SAFETY, FIRST AID AND SECURITY

A. The Contractor shall be solely and completely responsible for conditions of the Site and the safety of all persons and property twenty-four (24) hours per day during the performance of the Work of this Contract. The Contractor shall:

1. Maintain the site and perform the work in a manner that meets statutory, regulatory and common law requirements for the provision of a safe place to work and that does not pose unreasonable safety risks to employees of Sound Transit or the public;

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2. Initiate, maintain, and supervise all safety precautions and programs in connection with the performance of the Work;

3. Protect the lives and health of employees performing the work and other persons who may be affected by the Work, and

4. Prevent damage to and theft of materials, supplies, and equipment whether on-Site or stored off-Site.

B. The Contractor shall comply with all applicable local, state and federal laws, ordinances, rules, regulations and orders of any public authority building and codes, and safety regulations bearing on the safety of people and property and their protection from damage, injury or loss. In the case of conflict, the more stringent requirement shall apply. Any review of the Contractor's performance conducted by Sound Transit or its consultants, does not and shall not be intended to include review of the adequacy of the Contractor's safety measures in, on, or near the Site.

C. The minimum safety requirements and procedures for accident prevention, safety and loss prevention, accident and incident reporting, and control for the Work are contained in other Contract Documents. Failure to comply with these minimum requirements may result in a material breach of contract. The minimum safety requirements contained in the Contract are intended to supplement, and not replace the Contractor's Safety and Security Program or Site Safety and Security Plan.

D. Prior to work, the Contractor shall have in place a Contractor's Safety and Security Program (CSSP). From this Program the Contractor shall prepare a Contractor's Site Safety and Security Plan (SSSP) identifying the methods by which all applicable safety and security requirements of this Contract and the applicable Federal, state and local requirements will be met. The Contractor shall ensure its Subcontractors have either a written safety program that conforms to the applicable requirements or formally adopt the Contractor's Safety and Security Program and Site Safety and Security Plan. The Contractor shall designate a Safety and Security Officer who shall be responsible for proper implementation of the CSSP and the SSSP. The Contractor shall submit a copy of its CSSP and SSSP to Sound Transit in accordance with the Contract Documents. Sound Transit's review of the CSSP or SSSP shall not be deemed to constitute approval or acceptance thereof and shall not transfer any responsibility for the safety of the Work site from the Contractor to Sound Transit.

E. The Contractor shall conduct a monthly safety meeting with all on-site Subcontractors and supervisors to discuss general and specific safety matters. The Contractor shall keep a log of such monthly safety meetings and provide it upon request by Sound Transit, including a sheet on which each attendee signed in and a description of the safety topics discussed at the meeting. The Contractor also shall conduct weekly safety or "tool box" meetings with employees of the Contractor and Subcontractors. The Contractor shall keep a log of such weekly safety meetings and provide it upon request by Sound Transit.

F. As the property owner, Sound Transit retains the right to grant consent to inspections pursuant to State and Federal law. This includes all accident and criminal investigations and general schedule, complaint, and follow-up safety and health inspections conducted by the State of Washington Department of Labor and Industries (WISHA) and the Federal Occupational and Health Administration (OSHA).

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6.13 ORDER OF WORK

When required by the Contract Documents, the Contractor shall follow the sequence of operations set forth therein. Full compensation for conforming to such requirements will be considered as included in the prices paid for the various Contract items of the Work and no additional compensation will be allowed therefore.

6.14 LIABILITY FOR EXPENSES

The Contractor shall be liable to Sound Transit for expenses incurred due to the Contractor's failure to perform tasks in accordance with the Contract requirements. Such expenses may include costs to Sound Transit for providing personnel to perform tasks on behalf of the Contractor and shall be subject to an advance notice to the Contractor that such expenses are expected to be incurred. These expenses may be deducted as unilateral credit Change Orders or as part of the Change Orders issued in accordance with Article 4, Changes and Change Order Process.

ARTICLE 7 LEGAL REQUIREMENTS

7.01 HEADINGS

The parties agree that Article and Section headings and other titles used in this Contract are for convenience only, and are not to be used to interpret this Contract.

7.02 WAIVER OF CONTRACT TERMS

No act or failure to act on the part of either party with respect to the exercise or enforcement of any provision of this Contract (including but not limited to rights or remedies conferred upon either party under this Contract, performance, or standards) shall be deemed to be a waiver on the part of that party of any provision of this Contract. No waiver of one provision by any party shall act as a waiver of any other provision or as a subsequent waiver of the same provision. No waiver shall be effective against either party except an express waiver in writing.

7.03 PROHIBITED INTEREST

The Contractor shall not offer or confer any interest, direct or indirect, in this Agreement or the proceeds thereof (or hire or retain in any way, directly or indirectly) to or on any member, officer, or employee of Sound Transit or its governing body, or of any of its component agencies during such person’s tenure or one year thereafter, unless such interest has been disclosed in writing to Sound Transit and Sound Transit has determined that no prohibited conflict of interest or ethical violation exists in the circumstances.

7.04 SUCCESSOR'S OBLIGATIONS

The grants, covenants, provisos and claims, rights, powers, privileges and liabilities contained in the Contract shall be read and held as made by and with, and granted to and imposed upon, the Contractor and Sound Transit and their respective heirs, executors, administrators, successors and assigns. A Surety under the Performance Bond allowed by Sound Transit to complete the Work in the event of a default, termination, or other failure of the Contractor to perform the Work, shall comply fully with all Contract requirements and shall not use the defaulted or terminated Contractor for continuation or completion of the Work unless Sound Transit consents.

7.05 ASSIGNMENT OF CONTRACT

The Contract shall not be assigned in whole or in part by the Contractor without the prior consent of Sound

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Transit. To the maximum extent permitted by law, involuntary assignment of the Contract caused by the Contractor being adjudged bankrupt, assignment of the Contract for the benefit of the Contractor's creditors, or appointment of a receiver on account of the Contractor's insolvency shall be considered as a failure to comply with the provisions of the Contract and subject to the termination provisions contained herein.

7.06 JOINT VENTURE CONTRACTOR

A. In the event the Contractor is a joint venture of two or more partners, the grants, covenants, provisos and claims, rights, power, privileges, and liabilities of the Contract shall be construed and held to be several as well as joint. Any notice, order, direction, request, or any communication given by Sound Transit to the Contractor under this Contract shall be well and sufficiently given to all persons being the Contractor if given to any one or more of such joint venture partners. Any notice, request or other communication given by any one of such joint venture partners to Sound Transit under this Contract shall be deemed to have been given by and shall bind all joint venture partners being the Contractor.

B. In the event of the dissolution of the joint venture Contractor, Sound Transit shall have the unqualified right to select which joint venture partner(s), if any, shall continue with the Work under this Contract. Such selected partner(s) shall assume all liabilities, obligations, rights, and benefits of the Contractor under this Contract. Dissolution of the joint venture shall not be effected without prior consultation with Sound Transit. In the event of failure or inability of any joint venture partner(s) to continue performance under this Contract, the remaining joint venture partner(s) shall perform all services and Work and assume all liabilities, obligations, rights, and benefits to the Contractor under this Contract. Nothing in this Article shall be construed or interpreted to limit Sound Transit's rights under this Contract or by law to determine whether the Contractor or any joint venture partner thereof has performed within the terms of this Contract.

7.07 CONFLICT OF INTEREST

By submission of its Proposal, the Contractor covenants that it has no direct or indirect pecuniary or proprietary interest, and that it shall not acquire any interest that conflicts in any manner or degree with the Work, materials to be provided or services required to be performed under this Contract. Furthermore, the Contractor shall not employ any person or agent having any such conflict of interest. In the event that the Contractor or its agents, employees or representatives hereafter acquires such a conflict of interest, it shall immediately disclose in writing such interest to Sound Transit and take action immediately to eliminate the conflict or to withdraw from this Contract, as Sound Transit requests. The Contractor shall not employ any consultant who is concurrently employed by Sound Transit or by Sound Transit's consultants (including, but not limited to, surveyors, engineers, architects, and testing laboratories), without first obtaining Sound Transit's approval in writing.

7.08 PERMITS, FEES, AND NOTICES

A. Except as otherwise indicated, the Contractor shall procure all necessary permits and licenses, pay all charges and fees, comply with all permit conditions and give all notices necessary and incident to the due and lawful prosecution of the Work. Failure of the Contractor to perform any of the requirements specified herein shall result in the Contractor's liability as set forth herein. Upon written request the Contractor shall furnish Sound Transit with satisfactory documentation evidencing compliance with the applicable requirements. Contractor shall sign as co-permitee on any stormwater permits issued for the Work regardless of whether Sound Transit obtains such permit(s) prior to or after execution of this Contract.

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B. The Contractor shall be fully liable to Sound Transit and any permit issuing authority for any costs and damages arising out of or relating to Contractor's failure to obtain a permit or for any failure to comply with the terms of any permit, including (1) costs associated with completing the Work authorized and/or required by any government permit within the time or times, if any, stipulated in such permit and any fees or penalties assessed by the permit issuing authority, (2) any damages or costs assessed under Article 7.14, and (3) delays to the Work caused by failure to timely complete Work, or any separate part thereof. As used herein, the term "permit issuing authority" includes any authority whose permit or license is necessary and incident to the due and lawful prosecution of the Work.

C. The Contractor shall be responsible for identifying, securing, and paying for all necessary licenses, fees, inspections, waivers, utility connection fees, building and other permits, and similar authorizations from governmental and utility authorities required to fulfill the Contract requirements and the Contractor's obligations except for those identified in the Contract as being furnished or paid for by Sound Transit.

D. The Contractor shall maintain at the Work Site copies of all permits, licenses, certificates, or other documentation demonstrating compliance with any applicable statute, regulation, ordinance, or rule or other requirements of this Contract. The Contractor shall provide copies of such documentation to Sound Transit promptly upon request.

E. The Contractor shall be liable for and shall pay all fines, assessments, and other costs resulting from the Contractor's violation of any applicable federal, state, or local statute, regulation, ordinance, or other restriction.

F. The Contractor shall not be entitled to any additional compensation or extension of time as a result of the Contractor's violation of applicable regulatory requirements. If a delay results from such a violation, the Contractor shall be responsible for all costs including, but not limited to, overtime premium associated with regaining the time lost as a result of such delay, and any damages, including liquidated damages, which may result from Contractor's failure to comply with the project schedule as a result of such delay.

7.09 PUBLICITY AND ADVERTISING

The Contractor, its Subcontractors, and Suppliers shall not publish nor cause to be published any advertisement or other material, including news releases and technical papers, regarding the subject matter of this Contract at any time without the prior written authorization of Sound Transit. The Contractor shall not display any signs, posters, or any other advertising matter in or on the Work or on or around the site other than those prescribed by the Contract or by law without the prior written authorization of Sound Transit. In addition, advertising or other copy mentioning Sound Transit or quoting the opinions of any of its employees shall not be released before such copy is approved in writing by Sound Transit. Any material proposed for publication shall be factual and shall not state or imply endorsement by Sound Transit of any firm, service or product.

7.10 LIABILITY AND INDEMNIFICATION

A. The Contractor shall comply, and require its subcontractors to comply, with all Sound Transit resolutions, motions and federal, state, and local laws, regulations, and ordinances applicable to the work and services to be performed under this Agreement.

B. Insurance Coverage, whether owner-provided, contractor-provided, or otherwise, shall not relieve the Contractor, Subcontractors or Suppliers of their responsibility for liability or damages

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to Sound Transit under the Contract Documents.

C. The Contractor shall be solely responsible for any claims for wages or compensation by the Contractor employees, agents, and representatives, including subcontractors, and save and hold Sound Transit harmless therefrom.

D. The Contractor shall indemnify, defend and hold Sound Transit harmless for any costs and pay any damages or judgments related to any claim brought by any person employed in any capacity by the Contractor, Subcontractors, or any agent of Contractor or Subcontractor on the Work, with respect to the payment of wages, salaries, or other compensation or benefits, including but not limited to benefits such as medical, health, retirement, vacation, sick leave, etc.

E. To the maximum extent permitted by law, the Contractor agrees to defend, release, indemnify and save harmless Sound Transit, its successors and assigns, and its and their shareholders, officers, officials, directors, contractors, and employees, and the ORCA partner agencies (collectively "the Indemnified Parties") from and against any liability including any and all suits, claims, actions, losses, costs, penalties, response costs, and damages of whatsoever kind or nature to the extent arising out of, in connection with, or incident to the Contractor's negligent or intentionally wrongful performance or negligent or intentionally wrongful failure to perform this Contract or the Work, or Contractor's failure to comply with requirements of the Contract Documents; provided, however, that if the provisions of RCW 4.24.115 apply to the Work and any injuries to persons or property arising out of performance of this Agreement are caused by or result from the concurrent negligence of the Contractor or its Subcontractors, agents or employees, and an Indemnified Party, the indemnification applies only to the extent of the negligence of the Contractor, its Subcontractors, agents or employees.

THE CONTRACTOR SPECIFICALLY ASSUMES POTENTIAL LIABILITY FOR ACTIONS BROUGHT BY THE CONTRACTOR'S OWN EMPLOYEES OR FORMER EMPLOYEES AGAINST ANY INDEMNIFIED PARTY, AND FOR THAT PURPOSE THE CONTRACTOR SPECIFICALLY WAIVES ALL IMMUNITY AND LIMITATIONS ON LIABILITY UNDER THE WORKERS COMPENSATION ACT, RCW TITLE 51, OR ANY INDUSTRIAL INSURANCE ACT, DISABILITY BENEFIT ACT OR OTHER EMPLOYEE BENEFIT ACT OF ANY JURISDICTION THAT WOULD OTHERWISE BE APPLICABLE IN THE CASE OF SUCH CLAIM. THIS INDEMNITY OBLIGATION SHALL NOT BE LIMITED BY ANY LIMITATION ON THE AMOUNT OR TYPE OF DAMAGES, COMPENSATION OR BENEFITS PAYABLE BY OR FOR CONTRACTOR OR A SUBCONTRACTOR UNDER WORKERS' COMPENSATION, DISABILITY BENEFIT OR OTHER EMPLOYEE BENEFITS LAWS. THE CONTRACTOR RECOGNIZES THAT THIS WAIVER WAS SPECIFICALLY ENTERED INTO AND WAS THE SUBJECT OF MUTUAL NEGOTIATION. PROVIDED, HOWEVER, THE CONTRACTOR'S WAIVER OF IMMUNITY BY THE PROVISIONS OF THIS PARAGRAPH EXTENDS ONLY TO CLAIMS AGAINST THE CONTRACTOR BY SOUND TRANSIT, AND DOES NOT INCLUDE, OR EXTEND TO, ANY CLAIMS BY THE CONTRACTOR'S EMPLOYEE DIRECTLY AGAINST THE CONTRACTOR.

F. The Contractor further agrees to assume the defense of the Indemnified Parties with legal counsel acceptable to Sound Transit, whose acceptance shall not be unreasonably withheld or delayed, in all legal or claim proceedings arising out of, in connection with, or incidental to the performance of this Agreement or the Work. The Contractor shall pay all defense expenses, including attorneys' fees, expert fees, and costs (collectively "defense costs") incurred directly or indirectly on account of such litigation or claims, and the Contractor shall satisfy any judgment rendered in connection therewith. In the event that any lien is placed upon the property of any of the Indemnified Parties as a result of such suits or legal proceedings, the Contractor agrees to immediately cause the same to be dissolved and discharged by giving bond or otherwise.

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G. The Contractor may settle any suit, claim, action, loss, cost, penalty, or damages, subject to the approval of Sound Transit, whose approval shall not be unreasonably withheld, if such settlement completely and forever extinguishes any and all liability of the Indemnified Parties. In the event of litigation between the parties to enforce the rights under this Article, reasonable attorney fees shall be allowed to the prevailing party.

H. The Contractor further agrees that any review and/or approval by Sound Transit and/or others hereunder shall not relieve the Contractor of any of its obligations to perform to generally accepted professional standards applicable to the types of services and work provided hereunder or in any way diminish its liability for the performance of such obligations or its obligations to provide the indemnities hereunder.

I. The foregoing indemnities and duties to defend shall survive the termination of this Agreement and final payment hereunder, and are in addition to any other rights or remedies which Sound Transit and/or any of the Indemnified Parties may have by law or under this Agreement. In the event of any claim or demand made against any Indemnified Party hereunder, Sound Transit may, in its sole discretion, reserve, retain or apply any monies due to the Contractor under the Agreement for the purpose of resolving such claims; provided, however, that Sound Transit may release such funds if the Contractor provides Sound Transit with adequate assurance of the protection of Sound Transit's and the other Indemnified Parties' interests.

J. The Contractor shall not assign any interest, obligation, or benefit in this Agreement or transfer any interest in the same, whether by assignment or novation, without prior written consent by Sound Transit; provided, however, that claims for money due or to become due to the Contractor from Sound Transit under this Agreement may be assigned to a bank, trust company, or other financial institution without such approval. Notice of any such claim assignment shall be furnished promptly to Sound Transit.

K. Sound Transit's rights and remedies in this Agreement are in addition to any other rights and remedies provided by law.

L. LIMITATION OF LIABILITY

ANYTHING IN THIS AGREEMENT TO THE CONTRARY NOTWITHSTANDING, THE LIABILITY OF CONTRACTOR, ITS AFFILIATES, EMPLOYEES, SUBCONTRACTORS OR AGENTS FOR ANY LOSS, DAMAGES (INCLUDING LIQUIDATED DAMAGES PURSUANT TO THIS CONTRACT), COSTS OR EXPENSES OF WHATSOEVER NATURE ARISING OUT OF OR RELATED TO THIS AGREEMENT SHALL BE LIMITED TO TWO TIMES THE TOTAL CONTRACT PRICE SET FORTH IN THIS AGREEMENT. UNDER NO CIRCUMSTANCES SHALL EITHER PARTY BE LIABLE TO THE OTHER PARTY FOR CONSEQUENTIAL, PUNITIVE OR INCIDENTAL DAMAGES, INCLUDING WITHOUT LIMITATION, PRODUCTION FAILURE, LOSS OF UTILIZATION, LOSS OF ORDERS, LOSS OF PROFIT, AND ALL OTHER SUCH INDIRECT DAMAGES.

7.11 OWNERSHIP OF WORK PRODUCT

Unless otherwise more specifically described in the Contract Documents, all information, including drawings, specifications and other data, prepared or developed by the Contractor specifically for Sound Transit in performance of the Work, whether or not required to be furnished to Sound Transit, shall be the property of Sound Transit and may be used by Sound Transit without restriction. The Contractor hereby assigns and transfers to Sound Transit any and all copyrights for such materials. Prior to the completion of the Work, the Contractor shall provide Sound Transit with a list of all such information which has not previously been furnished to Sound Transit. Sound Transit will then have thirty (30) days to advise

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the Contractor which information shall constitute Sound Transit property. Before requesting Acceptance, the Contractor shall deliver to Sound Transit the information that has been identified to constitute Sound Transit property.

7.12 INTELLECTUAL PROPERTY INDEMNIFICATION AND WARRANTY OF GOOD TITLE

A. Intellectual Property Indemnification

The Contractor shall assume all risks, including claims of infringement, arising from the use of patented or copyrighted materials, equipment, devices or processes not furnished by Sound Transit or any other ORCA partner agency, used on or incorporated in the Work by Contractor, and shall indemnify, defend and hold harmless Sound Transit and any other ORCA partner agency (and its/their officers, directors, agents or employees) to the maximum extent permitted by law from and against any and all claims, liabilities, losses, damages or expenses (including attorneys' fees and related costs, whether or not litigation has commenced), whether direct or indirect, arising out of, relating to or in connection with any claim or allegation that the ownership, possession or use of any software, materials, equipment, devices, processes or other materials provided by the Contractor under this Agreement infringe or violate the patent, copyright, trade-secret or other intellectual-property or proprietary rights of any third party. In case any such software, materials, equipment, devices, processes or other materials are held to constitute an infringement and their use enjoined, then the Contractor, at the Contractor's sole cost and expense, shall do one of the following:

1. Secure for Sound Transit the right to continue using the software, materials, equipment, devices or processes by suspension of the injunction or by procuring a royalty-free license, or licenses.
2. Replace such software, materials, equipment, devices or processes with non-infringing software, materials, equipment, devices or processes.
3. Modify them so that they become non-infringing.
4. Remove the enjoined software materials, equipment, devices or processes and refund the sums paid for them without prejudice to any other rights of Sound Transit.

If the amount of time necessary to proceed with one of these options is deemed unreasonably excessive by Sound Transit, then Sound Transit may direct the Contractor to select another option or risk default.

Sound Transit shall advise the Contractor of any pending or threatened patent suit, it knows or should have known, related to the Contract against Sound Transit and provide all information available. The Contractor's obligations under this section are discharged with respect to any patent or copyright infringement claim based upon: (a) any product that is manufactured to Sound Transit's or those for whom it is responsible, design in accordance with the details contained in the Contract Documents; or (b) any products that have been altered, modified, or revised by any party other than Contractor or Contractor's agent, and such alteration, modification or revision is the basis of the claim. As to any product or use described in the preceding sentence, Contractor assumes no liability whatsoever for patent infringement or the unauthorized use of Products, including, without limitation, a breach of the provisions of the Contract and the failure of Sound Transit to implement any update provided by Contractor that would have prevented the claim, except to the extent that the Contractor knew, or should have known of the infringement and failed to promptly notify Sound Transit thereof. Notwithstanding the foregoing, with respect to any products, or portions thereof, which are not manufactured or developed by Contractor and are not manufactured to Contractor's

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design specifications, only the indemnity of the manufacturer/developer, if any, shall apply.

B. Intellectual Property Warranty

The Contractor represents and warrants that any use of the Work, or any part thereof, by Sound Transit (or its officers, directors, agents, employees or transit users) will not infringe or violate the patent, copyright, trade-secret or other intellectual-property or proprietary rights of any third party.

The Contractor further represents and warrants that it has or will have all appropriate licenses, agreements or ownership rights pertaining to all patent, copyright, trade-secret or other intellectual-property or proprietary rights needed for the performance of its obligations under the Contract — including without limitation that it will have all necessary rights to use patentable or copyrightable materials, equipment, devices or processes not furnished by Sound Transit used on or incorporated in the Work under the Contract. The Contractor assumes all risks arising from the use of any such patented or copyrighted materials, equipment, devices or processes.

C. Right to Invention

If any invention, improvement, or discovery of the Contractor is conceived or first reduced to practice in the course of Work uniquely and specific to Sound Transit or under this Contract, and such invention, improvement, or discovery may be patented under the laws of the United States of America or any foreign country, the Contractor shall immediately notify Sound Transit and provide a detailed report. The rights and responsibilities of Sound Transit, the Contractor, and the federal government with respect to such invention, improvement, or discovery will be determined in accordance with applicable federal laws, regulations, policies and any grant agreements. Except for Contractor's use in conjunction with the Work required by this Contract, the Contractor may not publish or reproduce such data in whole or in part, or in any manner or form, nor may the Contractor authorize others to do so, without the written consent of Sound Transit.

This section shall survive any expiration or termination of this Contract.

7.13 SEVERABILITY

If a provision of this Contract is found by a court of competent jurisdiction to be unenforceable, the validity and enforceability of the remaining provisions shall remain unaffected, and the parties shall negotiate an equitable adjustment of this Contract so that the purposes of this Contract are effected.

7.14 COMPLIANCE WITH LAWS AND REGULATIONS

A. The Contractor shall keep fully informed concerning all governmental requirements, including but not limited to all State, federal, county and municipal laws, ordinances and regulations which in any manner affect the performance of the Work, or the materials and equipment used in the Work, or which in any way affect those engaged or employed to work in connection with the Work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same including the specific legal requirements referenced in the Contract Documents. The Contractor shall at all times comply with, and shall cause all the Contractor's agents, employees and Subcontractors to comply with all such governmental requirements, and shall indemnify, defend and hold harmless Sound Transit and all of its directors, officers, agents, and employees, and the ORCA partner agencies against all claims, liabilities, losses, damages and expenses (including attorney's fees and related costs) arising from or based on the violation of any such governmental requirement whether by the Contractor or contractor's agents, employees or Subcontractors. If any discrepancy or inconsistency is discovered in the Contract Documents for the work in relation to any such governmental requirements, the Contractor shall immediately

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report the same to the Regional Program Manager in writing.

B. The Contractor shall comply and, to the best of its ability, shall require its subcontractors to comply with all Sound Transit policies applicable to the Work to be performed under this Agreement (for example Sound Transit's policy on equal employment opportunity, harassment, and ADA compliance). Copies of Sound Transit policies shall be supplied to and acknowledged by Contractor. as a condition of the enforcement of this section.

C. The Contractor shall exercise reasonable efforts to stay apprised of changes to said governmental requirements. The Contractor shall bring any such changes to the attention of the Regional Program Manager and identify with particularity the effect of such changes on the Work. Impacts of time or cost from such change will be investigated and managed through the Change Order process. Any such changed law, ordinance, resolution, or regulation supersedes any conflicting provisions of this Contract.

D. Suspected Violation of Governmental Requirements - If the Contractor knows or has reason to know of any suspected violation of Governmental Requirement by itself or any Subcontractor under the Contract, the Contractor must promptly and fully investigate and immediately report the existence of such investigation to Sound Transit. The Contractor shall fully report, in writing, to Sound Transit the facts and information ascertained in the investigation and shall allow Sound Transit to examine all of Contractor's documentation related to the investigation. If Sound Transit reasonably believes access to any individual worker is necessary for a Sound Transit investigation, whether such worker is an employee of Contractor or a Subcontractor of any tier, Contractor must make available, within 2 days of a written request, such worker for interview by Sound Transit's representative who has been designated in the written request. Exceptions shall be made by Sound Transit should the Contractor demonstrate an acceptable attempt to contact and schedule the worker for interview in a timely manner. The Contractor may withhold communications properly considered attorney-client privileged.

E. The Contractor is liable for all actual costs reasonably incurred by Sound Transit directly related to Sound Transit's response to or necessary actions required for the violation of any Governmental Requirement or a settlement by Contractor associated with such alleged violation, including the total personnel costs of Sound Transit employees and other Sound Transit costs, outside attorneys' fees and costs, and outside consultants' fees and costs. Sound Transit may withhold such amounts from sums otherwise payable to Contractor under the Contract. For purposes of this Article 7.14:

1. Environmental Violation occurs when any federal, state, or local governmental entity or other applicable environmental permitting authority has found any portion of the Work or Contractor's performance thereof to be in violation of any environmental permit or other applicable federal, state, or local environmental law, regulation, or requirement.

2. Safety Violation occurs when any federal, state, or local governmental entity or other applicable authority has found any portion of the Work or Contractor's performance thereof to be in violation of any applicable federal, state, or local safety law, regulation, or requirement.

3. Violations of Title VI occur (a) when any federal, state, or local governmental entity or other applicable authority has found the Contractor or any subcontractor to have been in violation of Title VI or any other anti-discrimination or equal opportunity law, or (b) when Sound Transit has hired an independent investigator who determines that sufficient facts

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exist to support a *prima facie* violation of Title VI or any other anti- discrimination or equal opportunity law.

7.15 [INTENTIONALLY OMITTED]

7.16 [INTENTIONALLY OMITTED]

7.17 [INTENTIONALLY OMITTED]

7.18 ENVIRONMENTAL COMPLIANCE AND SUSTAINABILITY

Sound Transit has an established environmental policy, a sustainability initiative, and an environmental management system certified under the International Standards Organization (ISO) 14000. Sound Transit is committed to protecting the environment for present and future generations. The purposes of these policies are to:

A. Implement environmental stewardship and sustainable development

B. Reduce environmental risks and liabilities

C. Enhance image with public, regulators, agencies and stakeholders

D. Ensure regulatory compliance

E. Improve environmental performance

F. Simplify environmental communication

Sound Transit is committed to meeting or exceeding all environmental commitments during all phases of the project. The purpose is to prevent environmental degradation, reduce work delays and cost increases, minimize negative publicity, and reduce the number of upset citizens, landowners, and regulating agencies.

Within thirty (30) days of effective date of the Notice to Proceed, Sound Transit shall provide to the Contractor a copy of Sound Transit's environmental policy, its sustainability initiative, and its environmental management system.

7.19 TAXES

A. Washington State Taxes – Contractor shall comply with the laws of the state of Washington and the policies of the Washington State Department of Revenue.

B. Federal Excise Taxes - Sound Transit is exempt from Federal Excise Taxes and an exemption certification will be furnished upon request.

C. Other Taxes - The Contract Price includes all other taxes applicable to the Contractor's completion of the Work, including without limitation, B&O taxes applicable to all tiers performing the Work.

D. No increase will be made to the amount to be paid by Sound Transit under this Contract because of any misunderstanding by or lack of knowledge of the Contractor as to liability for, or the amount of, any taxes for which the Contractor is liable or responsible by law or under this Contract.

7.20 LIENS PROHIBITED

The Contractor shall not permit any lien or claim to be filed or prosecuted against Sound Transit, its

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property or its right-of-way on account of any labor or material furnished or any other reason for work arising out of this Contract. If any lien shall be filed, the Contractor shall satisfy, discharge and extinguish or cause such lien to be satisfied, discharged and extinguished immediately, including at Sound Transit's option obtaining a court order extinguishing the lien, as a condition precedent to release of retainage and/or final payment.

7.21 PUBLIC DISCLOSURE

Pursuant to Chapter 42.56 RCW, documents related to this Contract shall be considered public records and with limited exceptions will be available for inspection and copying by the public. Contractor must specifically designate and clearly label as "CONFIDENTIAL" any and all materials or portions thereof they deem to contain trade secrets or other proprietary information, which is exempt from public inspection and copying. Contractor must provide the legal basis for the exemption to Sound Transit upon request. If a document does not clearly identify the "CONFIDENTIAL" portions, Sound Transit will not notify the Contractor that the documents will be made available for inspection. If a request is made for disclosure of material or any portion marked "CONFIDENTIAL," Sound Transit will determine whether the material should be made available under the law. If Sound Transit determines that the material is not exempt and may be disclosed, Sound Transit will notify the Contractor of the request and allow the Contractor 10 working days to take appropriate action pursuant to RCW 42.56.540. If the Contractor fails or neglects to take such action within said period, Sound Transit may release the portions of the documents deemed subject to disclosure. To the extent that Sound Transit withholds from disclosure all or any portion of Contractor's documents at Contractor's request, Contractor shall indemnify, defend and hold harmless Sound Transit from all damages, penalties, attorneys' fees and costs Sound Transit incurs related to withholding information from public disclosure. By executing this Contract, the Contractor consents to the procedure outlined in this paragraph and shall have no claim against Sound Transit by reason of actions taken under this procedure.

7.22 [INTENTIONALLY OMITTED]

7.23 [INTENTIONALLY OMITTED]

7.24 [INTENTIONALLY OMITTED]

7.25 [INTENTIONALLY OMITTED]

7.26 [INTENTIONALLY OMITTED]

7.27 CONTRACTOR ACQUISITION AND / OR MERGER

If the Contractor executing this Agreement ceases to exist as an independent business entity by means of acquisition by and / or merger with a successor or otherwise, the Contractor shall notify Sound Transit in writing not less than thirty (30) days prior to the effective date of the circumstance causing the cessation of the independent business status. Sound Transit reserves the right to take steps to ensure it has contractual privity with the successor. The Contractor shall cooperate with this effort by agreeing to an assignment, a novation, or other document required to transfer the rights and responsibilities of the Contractor to the successor.

7.28 APPLICABLE LAWS AND JURISDICTION

This Agreement and all provisions hereof shall be interpreted in accordance with the laws of the State of Washington and, to the extent incorporated into (or made applicable to the Work by) the Contract Documents, the laws of the United States of America. Subject to the provisions herein regarding exhaustion of administrative remedies, the Superior Court of King County, Washington, shall have

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exclusive jurisdiction and venue over any legal action arising under this Agreement.

7.29 INTELLECTUAL PROPERTY PROVISIONS OF SOFTWARE SYSTEM

A. Contractor Software

Contractor grants to Sound Transit a perpetual, ORCA specific, royalty-free, non-exclusive and irrevocable license for Sound Transit (including without limitation its officers, directors, employees, and agents) to install, use, copy, modify, and maintain the Software system (and each and every part of the system) in accordance with the terms and conditions of its End User License incorporated by reference in Section 07 of this Agreement.

B. Materials such as Technical Data

Contractor further grants to Sound Transit a perpetual, unlimited, royalty-free, non-exclusive and irrevocable license for Sound Transit (including without limitation its officers, directors, employees and agents) to use, copy, distribute, and modify (and create derivative works from) all Materials such as Technical Data.

C. Third Party Software

In providing the Software System, Contractor will use only that Third Party Software that has been expressly approved in writing by Sound Transit. Contractor will procure, maintain, and otherwise be responsible for all licenses for Sound Transit, in Sound Transit's name, for any such Third Party Software reasonably necessary to operate or maintain the Software System. Sound Transit retains sole, ultimate authority on executing and entering into any such licenses. Contractor shall provide to Sound Transit copies of such licenses, along with any related software or license documentation. To the extent that any other licenses or permissions are reasonably desirable or necessary for Sound Transit to operate or maintain the Software System, Contractor hereby grants to Sound Transit to the maximum extent within its rights – or will procure for Sound Transit, in Sound Transit's name, to the maximum extent reasonably negotiable and at Sound Transit's expense – any such licenses and permissions.

D. Right to Sublicense

1. Sound Transit may, in its sole discretion and without incurring any further or additional charges, sublicense any of its rights under this Agreement as reasonably necessary to operate or maintain the ORCA specific Software System, including without limitation: to third-party vendors, contractors, or consultants whom Sound Transit may retain to assist in operation or maintenance of the Software System; and to other transportation entities as reasonably desirable or necessary to implement back-up systems or disaster planning.

2. Licenses Under Bankruptcy Code: All rights and licenses granted under or pursuant to this Agreement are and shall be deemed to be, for purposes of Section 365(n) of the U.S. Bankruptcy Code, licenses of rights to "intellectual property," as defined under Section 101 of the U.S. Bankruptcy Code. The parties agree that Sound Transit, as a licensee of such rights under this Agreement, shall retain and may fully exercise all of its rights and elections under the U.S. Bankruptcy Code; however, nothing herein shall be deemed to constitute a present exercise of such rights and elections.

E. Source Code Escrow

Contractor agrees that as a condition of Final System Acceptance it will deposit the source code

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for any Contractor Software into escrow (including all updates, versions, releases, and upgrades licensed under this Agreement, with a source code agent, nationally recognized, selected by Contractor capable of providing Level 2 certification/verification or its equivalent. Sound Transit shall become a party to and be governed by the terms of the escrow agreement. Deposit shall be at reasonable periodic intervals based generally on the pace at which the software is being developed or changed – and shall include any and all subsequent updates, versions, releases, and upgrades licensed under this Agreement. The source code escrow agreement shall remain in place, and source code deposits shall be updated and maintained, for as long as Sound Transit and Contractor have entered into a software maintenance or support agreement. The applicable source code will be released to Sound Transit (or any Contractor acting on its behalf), according to the terms of the escrow agreement, in the event of nonperformance or the inability of Contractor to execute or maintain the portion of the Intellectual Property of Contractor. Contractor agrees that Sound Transit (or any Contractor acting on its behalf) may use the source code to maintain, fix, or modify Contractor Software as reasonably necessary to operate or maintain any portions of the Software System. Contractor and Sound Transit will separately execute an escrow agreement concurrently with this Agreement, incorporated herein as Attachment F. Contractor shall be solely responsible for any costs related to the source code escrow.

ARTICLE 8 INSURANCE

See Section 03 for insurance requirements.

ARTICLE 9 PAYMENT

9.01 COMPLIANCE PREREQUISITE TO PAYMENT

A. Sound Transit shall pay the Contractor Partial Payments for completed Work in accordance with the Partial Payment Schedule as described in Section 9.02, Partial Payment Schedule. Payment to the Contractor shall be based upon Work performed in conformance with the Contract as approved by Sound Transit's review of the payment request. Sound Transit will not approve payments for portions of the Work not performed in full compliance with provisions of the Contract, and applicable laws, ordinances, resolutions, regulations, permits and/or easements, and may withhold such payments to the Contractor in accordance with Section 9.06, Withholding Payments.

B. The Contractor shall be responsible, and have no claim whatsoever against Sound Transit, for all costs and effects of delays resulting or arising from suspension and/or Stop Work orders issued by Sound Transit and/or any governmental authority as a result of incidents of non-compliance with the Contract or any laws, ordinances, or regulations by the Contractor and/or its Subcontractors and Suppliers. This paragraph shall be void and of no effect in the event that Sound Transit is found to have unreasonably and/or wrongfully issued a suspension or Stop Work order to Contractor.

9.02 MILESTONE OR PARTIAL PAYMENT SCHEDULE

The Milestone or Partial Payment Schedule for the Contract Price is set forth in Section 08 Contract Price Schedule. The Milestone or Partial Payment Schedule is prepared in accordance with the requirements of the Contract Documents. The Contractor warrants that such values are accurate representations and allocations of the value of the work in each delivery or performance increment on which Sound Transit may rely.

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9.03 MILESTONE OR PARTIAL PAYMENTS

A. The Contractor shall submit no more than one invoice a month, and each invoice may include any number and combination of delivery or performance increments that are completed that month. Invoices need not be based on sequential delivery or performance increments. Each invoice shall include the contract number and purchase order number, and shall be clearly itemized and trackable to the Contract Pricing.

If requested by Sound Transit, the Contractor shall provide such additional data as may be reasonably required to support the payment for materials and labor, including payments to Subcontractors and Suppliers. The term "materials", as used herein, shall be considered to include those items which are fabricated and manufactured material and equipment. Only those materials for which the Contractor can transfer clear title to Sound Transit will be qualified for Partial Payment, except as specifically provided below.

B. Partial Payment for Materials Purchased and Delivered but not Installed – To receive Partial Payment for materials purchased and delivered but not yet incorporated into the Work, the Contractor shall submit a list with certified invoices of such materials to Sound Transit for approval together with the Contractor's partial payment request. The required documents to support the Contractor's partial payment request for materials purchased and delivered but not installed will be determined by the storage location of the delivered materials: (1) materials delivered to and stored on the Site (aka Project Site) and (2) materials delivered to and stored in a location not on the Site.

1. For materials delivered to and stored on the site, the Contractor's claimed purchase price shall be supported by (i) certified invoices of Subcontractors or Suppliers (ii) together with proof of payment of such invoices (in the form of cancelled checks or acknowledgment by such Subcontractors or Suppliers of receipt of payment in full for such invoices).

2. For materials delivered to and stored in a location other than the site, For materials delivered to and stored in a location other than the Site, the Contractor's claimed purchase shall be supported by (i) certified invoices of Subcontractors or Suppliers (ii) together with proof of payment of such invoices (in the form of cancelled checks or acknowledgment by such Subcontractors or Suppliers of receipt of payment in full for such invoices), (iii) together with proof that the materials have been delivered to and accepted by the Contractor and are in its possession and control.

   As a condition precedent to making Partial Payment for materials delivered and stored in a location other than the site, Sound Transit shall require that the Contractor, at its expense:

   a. Furnish Sound Transit with an irrevocable letter of credit with terms acceptable to Sound Transit or other security acceptable to Sound Transit. The issuer of the Letter of Credit, if provided, shall be a national bank acceptable to Sound Transit. The amount of the Letter of Credit shall be equal to the amount of the Partial Payment requested for the materials delivered to and stored in a location other than the Site. Sound Transit shall be entitled to draw on the Letter of Credit in one or more draws in any of the following circumstances: (a) the Contractor fails to deliver the materials to the Project Site when required;
   (b) the Contractor, Subcontractor, Supplier or Fabricator, at whose location the material is stored, becomes insolvent, or becomes the subject of a voluntary petition for relief in bankruptcy or other insolvency proceeding (or an involuntary

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bankruptcy or insolvency proceeding is commenced against the Contractor and not dismissed within thirty (30) days; or (c) Sound Transit receives notice from the issuer that the Letter of Credit will not be automatically renewed or extended; or

b. Subject to Sound Transit's consent, provide Sound Transit with a first and only priority perfected security interest ("Security Interest") in the materials covered by the payment request, pursuant to a written security agreement in form and substance acceptable to Sound Transit. Such security agreement shall be supported by Uniform Commercial Code ("UCC") financing statements describing the subject materials, UCC searches and other terms and conditions acceptable to Sound Transit in its discretion. Sound Transit may require the Contractor to physically segregate materials from other inventory of the Contractor. The Contractor shall plainly, distinctly, and conspicuously place or cause to be placed upon such other places as may reasonably be designated by Sound Transit from time to time a mark, label, or other identification bearing words that indicate Sound Transit's interest in the material.

Contractor's progress of Work shall not include materials delivered and not installed. Progress shall be determined solely on an estimate of the Work completed. Payment for materials purchased and delivered but not installed shall be at the sole discretion of Sound Transit.

C. Partial Payment for Subcontracted Work - In its payment requests, the Contractor shall include payments for Subcontractors whose work was satisfactorily performed and part of the completed Work covered by the payment request. The Contractor shall not request payment from Sound Transit of amounts for Subcontractors until the Contractor has determined that the Subcontractors are entitled to the payment of such amounts for Work satisfactorily completed. Review of Payment Request - Within ten (10) days after receipt of the partial payment request and the required documentation, Sound Transit will review the request and either indicate approval in writing or indicate in writing to the Contractor specific reasons why part or all of the payment is being withheld and what remedial actions the Contractor must take to receive the withheld amount. Any amounts approved by Sound Transit for payment will, within thirty (30) days of acceptance of the Contractor's properly completed invoice or receipt of the goods or services, whichever is later, pay the Contractor a Partial Payment on the basis of the approved partial payment request. The payments will take into account the retention provisions provided for herein.

D. In the event Sound Transit does not concur with the request, the Contractor may make the changes necessary to obtain Sound Transit's concurrence and resubmit the partial payment request. Sound Transit will, within thirty (30) days of acceptance of the Contractor's properly completed payment request, or receipt of the goods or services, whichever is later, and after the Contractor satisfactorily completes the remedial actions identified in Sound Transit's rejection of the payment request, pay the Contractor a partial payment on the basis of the approved partial payment request.

E. The Contractor shall receive a payment from Sound Transit no more than once per calendar month unless otherwise approved by Sound Transit, at its sole discretion.

F. Notwithstanding the payment provisions of this Contract, Sound Transit may make partial payment against any delivery or performance increment when Sound Transit deems such payment to be appropriate and in the best interest of Sound Transit to the extent of work has been satisfactorily completed.

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G. No approval for payment, nor any payment by Sound Transit, shall constitute an acceptance of Contract deliverables that are not in accordance with the Contract.

9.04 RETAINAGE

A. Sound Transit will retain 5 percent of all Milestone or Partial Payments as a trust fund for the protection and payment of any person or persons, mechanic, Subcontractor, or material provider who performs labor upon the contract or Work hereunder, and all persons who shall supply such person or persons or Subcontractors with provisions and supplies for carrying on such Work. Such funds shall be deemed as public funds under RCW 39.58. In the event that during the performance of the Contract and prior to the expiration of the claim period the amount retained is reduced to an amount below 5 percent, then Sound Transit may retain additional sums from monies earned by the Contractor so as to maintain at all times a 5 percent retained trust fund, unless otherwise reduced or excused by Sound Transit.

B. Monies reserved shall, at the option of the Contractor, be:

1. Retained in a fund by Sound Transit with no interest paid thereon to the Contractor, not subject to withdrawal until after Final System Acceptance of all Work, or a portion thereof, as may be approved by Sound Transit; or

2. Deposited by Sound Transit in an interest-bearing account in a bank, mutual savings bank, or savings and loan association, not subject to withdrawal until after Final System Acceptance of all Work, or a portion thereof, as may be approved by Sound Transit; or

3. Placed in escrow in a bank or trust company by Sound Transit. When the monies reserved are to be placed in escrow, Sound Transit will issue a check representing the sum of the monies reserved payable to the bank or trust company and the Contractor jointly. Such check shall be converted into bonds and securities chosen by the Contractor and approved by Sound Transit, and the bonds and securities held in escrow, not subject to withdrawal until after Final System Acceptance of all Work, or a portion thereof, as may be approved by Sound Transit.

Under options 2 and 3 above, interest will be paid to the Contractor as the interest accrues.

C. The Contractor shall designate the option desired on a form as may be provided by Sound Transit. The Contractor in choosing option 2 or 3 agrees to assume full responsibility to pay all costs which may accrue from escrow services, brokerage charges, or both, and further agrees to assume all risks in connection with the investment of the retained monies.

D. The Contractor may withhold payment of not more than 5 percent from the monies earned by any Subcontractor or Supplier contracted with by the Contractor to provide labor, materials, or equipment to the Project. The Contractor shall pay interest to the Subcontractors, and Suppliers. The Contractor shall inform Subcontractors and Suppliers of their right to receive these interest payments.

E. Sound Transit makes no warranties as to the amount of interest to be paid on any investments. Upon final payment, the Contractor shall be entitled to all retention and accumulated interest, less monies due to Sound Transit.

9.05 RELEASE OF RETENTION

A. The retention will be held and applied by Sound Transit as a trust fund. Except as provided in

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Paragraph 9.05C below, payment or release of retention will be made in the ordinary course of business no earlier than forty-five (45) days following Final System Acceptance of the Work provided the following conditions are met:

1. If the Contract Price hereunder exceeds $35,000, Certificates approved by the Washington State Department of Revenue, the Washington State Department of Labor and Industries, Washington State Employment Security Department, and other departments and agencies having jurisdiction over the activities of the Contractor have been provided to Sound Transit.

2. "Affidavits of Wages Paid" for the Contractor and each Subcontractor approved by the Industrial Statistician of the Washington State Department of Labor and Industries have been provided to Sound Transit.

3. No claims or notices of lien, as provided by law, have been filed against the retention and/or that any such asserted liens have been satisfied, discharged and extinguished as required by the Contract.

4. Contractor signs and returns the Release of Retainage and Indemnity form for this Contract.

5. Sound Transit has no outstanding claims under this Contract.

B. If any taxes have not been discharged or any claims, expenses, and fees have not been paid, Sound Transit shall either retain in its fund, or in an interest bearing account, or retain in escrow, at the option of the Contractor, an amount equal to such unpaid taxes and unpaid claims together with a sum sufficient to defray the costs and attorney fees incurred in foreclosing the lien of such claims, and shall pay, or release from escrow, the remainder to the Contractor.

C. If, under Article 9.07, the Contractor released and paid withheld monies to a Subcontractor, the following provisions shall apply.

1. Sound Transit may in its discretion, in furtherance of 49 CFR § 26.29 or otherwise, decline to withhold retainage from the Contractor and prohibit Contractor from withholding retainage from Subcontractors and/or require a contract clause obligating the Contractor to make prompt and full payment of any retainage paid by Sound Transit to Contractor to the Subcontractor within 30 days after the Subcontractor's work is Accepted. The Contractor may request release of a portion of the retainage withheld by Sound Transit equal to the amount the Contractor released and paid to the Subcontractor under Article 9.07. Sound Transit will release a portion of such retainage following submittal to the Regional Program Manager of the Subcontractor’s Affidavit of Wages Paid approved by the Industrial Statistician of the Washington State Department of Labor and Industries, and submittal of a proper and complete Declaration of Completion of Subcontractor’s Work and Release of Withheld Amount (including the acknowledgement by the Subcontractor of the declaration form, to be provided by Sound Transit).

2. Upon receipt of a proper and complete Affidavit of Wages Paid and a Declaration of Completion of Subcontractor’s Work and Release of Withheld Amount (Declaration), if applicable, the Regional Program Manager will review the affidavit and any accompanying documentation and may review the work completed by the Subcontractor identified on the Declaration. Review of the Subcontractor’s work by Sound Transit shall not relieve the Contractor of its responsibility and liability to ensure all Work under the Contract is

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performed in accordance with the requirements set forth in the Contract and will not commence warranties of Article 3.12, Warranty of Work.

3. If the Regional Program Manager does not concur with the assurances contained in the Declaration, the Regional Program Manager shall notify the Contractor in writing of that conclusion, provide the reasons for that conclusion and identify the remedial actions that the Contractor must take to gain the concurrence of the Regional Program Manager. Sound Transit shall not release any portion of the retainage withheld until the Regional Program Manager gives his or her concurrence with the assurances contained in the Declaration.

4. If the Regional Program Manager concurs with the assurance contained in the Declaration, the Regional Program Manager shall notify the Contractor in writing of that conclusion and prepare and submit documentation for Sound Transit to release the applicable portion of the retainage withheld. Sound Transit will release such portion of the retainage within thirty (30) days from the date of the written notice from the Regional Program Manager to the Contractor.

5. Release to the Contractor of any portion of the retainage withheld by Sound Transit shall not relieve the Contractor of its responsibilities and liabilities for liens and claims duly filed and prosecuted under applicable Washington State law. In consideration of Sound Transit releasing any portion of the retainage withheld by Sound Transit on account of satisfactorily completion of work by one or more Subcontractors, the Contractor shall defend, indemnify and hold harmless Sound Transit from all responsibilities and liabilities related to such liens and claims. The Contractor acknowledges that failure to make timely payment to the Subcontractor may result in sanctions pursuant to Sound Transit's Diversity Program Provisions, and other legal consequences.

9.06 WITHHOLDING PAYMENTS

A. The Contractor shall only be paid monies earned by fulfilling its responsibilities under this Contract less the 5 percent retention. Monies shall not be considered earned if any of the following conditions applies:

1. The Work for which the Contractor is claiming payment was not performed in accordance with the Contract;

2. The Contractor's pay request does not contain all the required documentation or is otherwise not in conformance with the requirements of this Contract;

3. There is a good faith dispute over all or a portion of the amount due, as detailed in Article 9.07;

4. Failure of the Contractor to make payments owed to Subcontractors, or for labor, materials, or equipment;

5. Failure of Contractor to submit Project Schedule, or updated Project Schedules that are acceptable to Sound Transit and timely in accordance with the Contract;

6. Failure to maintain progress of the Work in accordance with the accepted Project Schedule unless such failure is caused by Sound Transit or by Unavoidable Delays, or failure to take necessary steps to regain time or deliver the Work in the prescribed Contract Time;

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7. Failure to comply with Contract safety requirements;

8. Imposition of any liquidated damages under the Contract;

9. Defective or Non-Conforming Work;

10. Failure to comply with Governmental Requirements; and/or

11. Third party claims filed or reasonable evidence that third party claims will be filed.

B. In the event Sound Transit withholds all or a part of a payment for deficiencies in either performance, or in a payment request, Sound Transit will notify the Contractor in accordance with RCW 39.76. The Contractor shall have the right to correct all deficiencies that are the basis for the withholding and resubmit the pay request at any time for reconsideration.

C. In the event Sound Transit withholds all or part of a payment because of a dispute, the Contractor may receive the payment by resolving the dispute, or by agreeing to accept the payment tendered by Sound Transit as full and final resolution as between Sound Transit and the Contractor to all claims arising from the dispute.

9.07 PROMPT PAYMENT TO SUPPLIERS AND RELEASE OF AMOUNTS WITHHELD FROM SUBCONTRACTORS

A. When the Contractor receives a payment under this Contract, the Contractor shall comply with the following provisions:

1. The Contractor shall pay to each Subcontractor not later than five (5) business days after the receipt of the payment, amounts paid to the Contractor on account of the work performed by the Subcontractor.

   a. In the event of a good faith dispute over all or any portion of the amount due on a payment from Sound Transit to the Contractor, or from the Contractor or subcontractor to a subcontractor, Sound Transit, or the Contractor or subcontractor, may withhold no more than one hundred fifty percent of the disputed amount. Those not a party to a dispute are entitled to full and prompt payment,

2. If the Contractor fails or neglects to make such payment within five (5) business days, the Contractor shall pay to the Subcontractor interest computed at one percent per month on amounts due for the period beginning on the day after the required payment date and ending on the day on which payment of the amount due is made.

3. The Contractor shall include in each of its Subcontracts a provision setting forth the payment and interest penalty clause set forth in this Article 9.07. In addition, the Contractor shall require its Subcontractors to include such a payment and interest clause in each of their Subcontracts and to require each of their Subcontractors to include such clauses in their Subcontracts with each lower tier Subcontractor or Supplier. The time limit for payment under all Subcontracts below the first tier shall be five (5) business days.

B. The payment and interest clauses in this Article 9.07 shall not be construed to impair the right of the Contractor or a Subcontractor at any tier to negotiate and include in their Subcontracts provisions related to retention of a specified percentage or withholding of part or all of Partial Payments without incurring any obligation to pay a late payment interest penalty thereon in accordance with the Subcontract agreement. If the Contractor withholds any portion of payments

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to a Subcontractor during performance of the Subcontractor's work, whether under Washington State law or otherwise, the Contractor shall comply with the provisions in this Paragraph 9.07B to release such withhold monies following satisfactory completion of the Subcontractor's work.

1. The Contractor shall monitor the work of each Subcontractor to ensure such work is consistent with the terms of the subcontract between the Contractor and Subcontractor.

2. The Contractor shall determine that a Subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required in the subcontract and the Contract between Sound Transit and the Contractor. Upon making such determination, the Contractor shall provide a written notice of such determination to the Subcontractor and submit a copy of the notice to the Regional Program Manager.

3. As required by 49 CFR § 26.29, Contractor shall implement regular and incremental acceptances of portions of the Work as completed by Subcontractors covered by said regulation and shall, within thirty (30) days from and after the date of its determination that a Subcontractor's work is satisfactorily completed in whole or part, the Contractor shall release and make full payment of all monies withheld from Partial Payments to the Subcontractor during performance of all or any incremental part of the Subcontractors work.

9.08 FINAL PAYMENT

A. Sound Transit will make Final Payment, excluding held retention, to the Contractor following Final System Acceptance of Work, and submittal of a final Affidavit of Amounts Paid to all businesses participating under the Contract. Final Payment shall include the entire sum found to be due hereunder after deducting therefrom such amounts as the terms of this Contract permit. Prior estimates and payments, including those relating to extra work or work omitted, shall be subject to correction by the Final Payment. Final Payment will be made only for materials actually incorporated in the Work; and, all materials remaining for which Partial Payments have been made shall revert to the Contractor, unless otherwise agreed, and Partial Payments made for these items shall be deducted from the Final Payment for the Work.

B. By accepting Final Payment, the Contractor shall be deemed thereby to have released Sound Transit from all claims of Contractor, except those pending under Article 11.06 hereunder, and all liability to the Contractor for things done or furnished in connection with the Work and for every act and neglect of Sound Transit and others relating to or arising out of the Work. Payment by Sound Transit shall not release the Contractor or its surety from any obligation under the Contract or under the Performance and Payment Bonds, which obligations shall continue through the Contract Warranty period.

9.09 PAYMENT ON TIME AND MATERIAL BASIS

A. Direct Labor

1. For all labor, foreman and below, engaged in the extra work subject to this Article, the Contractor shall receive:
   a. The applicable wage and fringe benefits on the Contract for each hour that labor is actually engaged in changed work.

   b. The cost of the payroll taxes and unemployment compensation premiums.

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c. The cost of any health, welfare, pension, or collective bargaining agreement benefits paid, including Worker's Compensation.

2. No overtime will be allowed, unless written authorization has been given by Sound Transit.

B. Materials

For all materials and prices approved by Sound Transit used in the extra work subject to this Article, the Contractor shall receive the cost of material, including freight charges and Washington State Sales Tax (if applicable), as shown by the receipted bills for materials and freight.

C. Equipment

1. For all work and automotive equipment required in the performance of the extra work subject to this Article, payment for the use and operation of equipment (owned, leased or rented on a monthly basis by the Contractor) shall be made by Sound Transit under the provisions of this Article. Such charge shall not include any item of equipment or tool with a new cost of less than $500.

2. For Work being performed pursuant to these time and material provisions, reimbursement shall fall into one of two types of equipment ownership (Owned or Rental) and two categories of usage: operated equipment, and standby equipment.

a. Owned Equipment is defined to include that equipment, owned by or under a lease/purchase or lease/option to purchase agreement with the Contractor, a constituent member of the Contractor, or an entity owned and/or controlled by the Contractor or one of its constituent members.

b. Rented Equipment is defined to include equipment that is on a short-term rental, long term rental, or lease. Equipment that is on a lease/purchase or lease/option to purchase agreement will be considered as Owned Equipment. If Owned Equipment is not available and Rented Equipment necessary to perform the changed Work is obtained from an outside source, payment for the "ownership" aspect of the cost will be made as stipulated below. In addition, if the rental rate does not include an "operation" component, the Contractor shall be reimbursed for the estimated hourly operating costs as provided below. The Contractor shall be responsible for monitoring the use of such rental equipment to obtain the overall best rates for its utilization. The Contractor shall use its best efforts to minimize the overall cost of such rentals to Sound Transit.

c. Tunnel Equipment is defined to include the Tunnel-Boring Machines and accessories; tunnel and shaft backup equipment; conveyors (horizontal, vertical, or inclined, either in the tunnel, in the shaft, or on the surface), hoppers or bins; locomotives; all rolling stock; air compressors; shotcrete and grouting equipment; concrete equipment; pumps: water, dewatering, etc.; batch facilities: shotcrete, concrete, grout, etc.; concrete form, travelers, work jumbos; hoists, man or equipment; discharge water treatment facilities and linear facilities; all track and necessary accessories; switches; car dumpers; pipes with valves, couplings, etc.; ventilation line (soft or hard) and fans; electrical (transformers, switch gear, substations, power cable, light lines, etc.); communications equipment and lines; and other fixed or mobile facilities and equipment associated with the tunneling operations.

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3. Cost Computations for Owned Equipment:

a. The basis for cost computations for operated Owned Equipment in the performance of the extra work subject to this Article, shall be as stated in the Cost Reference Guide for Construction Equipment (CRG) by Primedia Information, Inc. or its successor. The CRG version that shall be used will be that which is in effect at the time of performance of the Work. The equipment costs shall be calculated as follows:

1) Charges to Sound Transit for the "ownership" component of the equipment shall be computed and charged to yield the hourly rate based on the sum of depreciation, cost of facilities capital, and overhead components of the CRG for said equipment.

2) After eight (8) hours of equipment use in a twenty-four (24) hour period, and after forty (40) hours of equipment use in a week, the equipment "ownership" rate shall be 50 percent of the rate established in Sub-paragraph (1) above.

3) The costs of fuel, lubricants, tires and other expendables, repairs, parts, service, maintenance, and overhaul (the operating cost) shall be charged at the sum of the Total Operating Cost/Hour plus the Overhaul Costs/Hour (which shall collectively be referred to hereafter as the "Operating Cost/Hour") set forth in the CRG. This rate shall be paid only for hours that the equipment is operated in performance of the changed Work that is subject to these time-and-materials provisions. If the item of equipment is electrically powered with the electricity being supplied by a public utility and if the CRG does not have an electrical fuel cost per hour component in the Operating Cost/Hour, the cost of electricity to operate the equipment will be calculated and submitted to Sound Transit for approval. The approved rate shall be added to and become a part of the "Operating Cost/Hour."

4) The application of any adjustment factors is hereby excluded.

5) Normal working conditions will be assumed and used as the basis for the rate calculation.

6) Equipment Operators will be paid for as direct labor under Paragraph 9.09A, Direct Labor, above and are not part of the calculated rate for equipment. Compensation for equipment mechanics, oilers (not assigned to a specific item of equipment on a full time basis), and other indirect support (labor or equipment) for the equipment fleet is included within the equipment rates otherwise established herein.

7) Transportation costs to and from the work Site for equipment mobilized to the Site specifically to perform the changed Work, if approved in advance by Sound Transit, will be paid as an item to be billed to Sound Transit. This cost will be treated as a Service when performing the markup calculations. No separate payment for transportation costs will be made if the equipment is brought to the Site for other than changed Work.

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8) If a rate is not provided in the CRG, and the Contractor and Sound Transit cannot otherwise arrive at a mutually agreeable rate for its use, the Contractor shall furnish appropriate equipment and cost information to Sound Transit. Sound Transit will calculate an appropriate rate following the principles established in the CRG.

9) If practicable under the circumstances, all equipment rates shall be established in writing before commencing any changed Work. If it is necessary to employ such equipment in performance of the changed Work before it is practicable to provide rates to Sound Transit, the Contractor shall provide rates at the earliest opportunity available to it without hindering the prosecution of the Work.

b. For Owned Equipment on standby in the performance of the extra work subject to this Article, if approved by Sound Transit, the standby rate will be only the ownership portion of the applicable rate. The total standby cost per day will be based on the number of hours that the equipment is on standby in the performance of the changed Work. The standby hours will be calculated as follows:

1) The total standby hours per day will be a maximum of eight (8) hours less the operating hours paid as a result of the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

2) The total standby hours per week will be a maximum of forty (40) less the operating hours paid for the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

4. Cost Computation for Rental Equipment

1) For Rented Equipment that is operated in the performance of the extra work subject to this Article, the cost shall be calculated as follows: The ownership rate per hour shall be calculated by dividing the invoiced amount by the normal hours covered by the invoice. If the normal rental period would be by the month, then Sound Transit shall not approve rental invoices submitted on a weekly, daily or hourly rate basis or allow ownership rates to be calculated on any rate other than a monthly rate. The same logic shall apply for a normal rental period of a week or a day.

2) If the invoice is based on a single shift of operation, then after eight (8) hours of equipment use in a twenty four (24) hour period, and after forty (40) hours of equipment use in a week, the equipment "ownership" rate shall be 50 percent of the rate established in Sub- paragraph (1) above.

3) The costs of fuel, lubricants, tires and other expendables, repairs, parts, service, and maintenance (the "operating" cost) shall be charged at the Total Operating Cost/Hour set forth in the CRG unless the rental invoice

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is for equipment which is "operated and maintained", in which case there will be no additional payment for operating costs. This rate shall be paid only for hours that the equipment is operated in performance of the changed Work that is subject to these time-and-materials provisions. If the item of equipment is electrically powered with the electricity being supplied by a public utility, the cost of electricity to operate the equipment will be calculated and submitted to Sound Transit for approval. The approved electrical cost per hour shall be added to and become a part of the "Total Operating Cost/Hour.

4) The application of any adjustment factors is hereby excluded.

5) Normal working conditions will be assumed and used as the basis for the rate calculation.

6) Equipment Operators will be paid for as direct labor under Paragraph 9.09A, Direct Labor, and are not part of the rate calculated for rented equipment unless the rental invoice is for equipment which is "operated and maintained", in which case there will be no additional payment for equipment operators and/or oilers. Compensation for equipment mechanics, oilers (not assigned to a specific item of equipment on a full time basis), and other indirect support (labor or equipment) for the equipment fleet is included within the equipment rates otherwise established herein.

7) Transportation costs to and from the work Site for equipment mobilized to the Site specifically to perform the changed Work, if approved in advance by Sound Transit, will be paid as a discrete item to be billed to Sound Transit. This cost will be treated as a Service when performing the markup calculations. No separate payment for transportation costs will be made if the equipment is brought to the Site for changed Work and is also used on Contract Work items.

8) If a rate is not provided in the CRG and the Contractor and Sound Transit cannot otherwise arrive at a mutually agreeable rate for its use, the Contractor shall furnish appropriate cost information to Sound Transit. Sound Transit will calculate an appropriate rate following the principles established in the CRG.

9) If practicable under the circumstances, all equipment rates shall be established in writing before commencing any changed Work. If it is necessary to employ such equipment in performance of the changed Work before it is practicable to provide rates to Sound Transit, the Contractor shall provide rates at the earliest opportunity available to it without hindering the prosecution of the Work.

b. For Rented Equipment on standby in the performance of the extra work subject to this Article, if approved by Sound Transit, the rate per hour to be paid will be only the ownership portion of the applicable rental rate as calculated above. The total standby cost per day will be based on the number of hours that the equipment is on standby in the performance of the changed Work. The standby

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hours will be calculated as follows:

1) The total standby hours per day will be a maximum of eight (8) hours less the operating hours paid as a result of the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

2) The total standby hours per week will be a maximum of forty (40) hours less the operating hours paid for the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

D. Markups-Percentage Allowances

The Contractor will be permitted to apply overhead and profit markups, not exceeding the percentage stated herein, to its increased cost resulting from any change in the Work ordered by Sound Transit for which payment is to be made under the time-and-material provisions of this Contract. These overhead and profit markups are maximum allowable percentages subject to reduction by audit.

Markup allowable at the tier for the entity performing the extra work with its own forces, whether the Contractor or a Subcontractor at any tier, shall not exceed 15% of total direct costs of the changed Work. The Contractor's markup allowable to cover the overhead and profit for Work performed by a Subcontractor shall not exceed 6% of the Subcontractor's cost. In no event shall the combined overhead and profit markup paid to Contractor and first tier Subcontractors exceed 21%, unless the work is performed by Subcontractors at the second-tier or lower, in which case an additional 6% markup is allowed at each tier. The markup allowance made shall constitute compensation for all management and supervision above the foreman level, engineering and surveying, safety, administration; use of equipment and tools costing $500 or less; all administrative and overhead expense; insurance premiums not paid herein; profit; other indirect expense; losses of all kinds; home office overhead expense; and all other items of cost not specifically designated herein as items for which specific payment is to be made. No other reimbursement, compensation, or payment will be made for any such services, costs, or other items.

E. Time and Material Records and Invoices

1. All charges related to Time and Material Work authorized by the Regional Program Manager shall be tracked on a daily basis. The Contractor shall complete a comprehensive Time and Material work report form, furnished by Sound Transit or alternate approved by Sound Transit, which details all the labor, services, material and equipment utilized in the course of completing the Time and Material Work. The report shall itemize the materials used, and shall cover the direct cost of labor and materials, and the charges for equipment rental and operation, whether furnished by the Contractor, Subcontractor or other force. The daily report sheets shall provide names or identifications and classifications of workers, the hourly rate of pay and hours worked; quantity, type and cost of materials used; and also the size, type, and identification number of equipment; the hours

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operated, and the hours of Sound Transit authorized standby.

2. All charges related to Time and Material Work shall be verified in the field by Sound Transit at the end of each Work shift. The Contractor shall complete a field report at the end of each shift that itemizes and summarizes all the charges. The report shall be signed by the Contractor's Representative and, upon verification by Sound Transit, copies of the signed report shall be provided immediately to Sound Transit's representative. The signature of Sound Transit's Inspector shall not be construed as acceptance of the Work or approval of the value invoiced by the Contractor. The Regional Program Manager shall have the authority to review the charges related to Time and Material Work for reasonableness and efficiency, and to determine if the work for which the Time and Material reports have been submitted is in fact extra work. In the event that certain charges are deemed unreasonable or unnecessary for the Time and Material Work being performed by the Contractor, the Regional Program Manager shall direct the Contractor to delete such charges from the Time and Material Work Records. Evidence of Sound Transit's verification of all field reports shall be submitted by the Contractor with its draft invoice.

3. Invoices for Time and Material Work shall show, in payroll form, the dates, names, hours worked each day, rates of pay, and amounts paid for each individual employed on such Work and shall give in detail the nature of the Work performed by each employee.

4. Invoices for materials and services shall be fully itemized showing dates of delivery, quantities, unit prices, amounts, and discounts, and shall be accompanied by photocopies of vendor invoices covering each item. Such invoices shall be submitted with the daily report sheets. If invoices are not available, they shall be submitted with subsequent daily report sheets; however, except as provided by law, no payment shall be made for material charges until valid copies of vendor's invoices are submitted. Should said vendor's invoices not be submitted within sixty (60) days after the date of delivery of the material or fifteen (15) days after completion and acceptance of the Work, whichever comes first, the Regional Program Manager reserves the right to establish the cost of such materials at the lowest current wholesale prices at which such materials are available in the quantities concerned delivered to the location of the Work, less any discounts provided in these General Conditions.

5. Invoices for Owned or Rented Equipment charges shall be fully itemized showing a complete description including size and capacity of equipment, number of hours operated and/or number of hours at Sound Transit ordered standby for each day, the hourly rates being charged to Sound Transit for both ownership and operating elements, and the total amount charged, for each individual piece of equipment used. If rates were not pre-approved by Sound Transit as specified herein, the Contractor shall also include the rate computation and appropriate back-up materials as described herein.

6. Invoices for Time and Material Work shall be prepared and submitted in accordance with the payment procedures outlined in this Contract. All invoices, payrolls, and other documents which support the invoice for the Time and Material work shall be submitted with the partial payment request, shall state the Contract number, and Contract Item under which the Work was performed.

7. Failure to present complete Time and Material records and invoicing in proper form after the close of the month in which the time and materials Work was performed shall constitute a waiver by the Contractor of its right to present such a billing or invoice

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thereafter or to receive payment therefore, unless the Contractor promptly corrects and resubmits the Time and Material Records and Sound Transit approves the re-submittal.

F. The Regional Program Manager will compare the Regional Program Manager's records with the daily report sheets furnished by the Contractor, make any necessary adjustment, and adjust the costs of work paid for on a Time and Material basis on the Time and Material Work forms. When these daily reports are agreed upon and signed by both parties, they shall become the basis of payment for the work performed, but shall not preclude subsequent adjustment based on a later audit.

G. Payment as provided in this Article shall constitute full compensation to the Contractor for performance of work paid for on a Time and Material basis and no additional compensation will be allowed therefore.

H. The Contractor shall maintain its records in such a manner as to provide a clear distinction between the direct costs of Work paid for or required to be paid for on a Time and Material basis and the costs of other operations.

9.10 PROVISIONAL SUM WORK

A. No Provisional Sum Work will be performed, or paid for, without prior issuance of a Provisional Sum Authorization (PSA).

B. Sound Transit may, without request from the Contractor, issue a PSA for work to be performed under a Provisional Sum Contract Pay Item.

C. If the Contractor believes that a PSA is required, the Contractor shall notify Sound Transit. Sound Transit will:

1. Issue a PSA; or

2. Request additional information; or

3. Make a written determination that the event or condition does not justify a PSA.

D. The Contractor shall maintain records and invoices for all costs associated with the Provisional Sum Work in accordance with the requirements specified in Section 9.09 Payment on Time and Material Basis.

E. Any potential time impacts arising from Provisional Sum Work shall be resolved in accordance with Article 4, Changes and Change Order Process, and Article 10, Delays and Claims.

ARTICLE 10 DELAYS AND CLAIMS

10.01 CLAIMS

A. Notice of Intent to Claim

1. In order to receive any recovery or relief in connection with the Contract, the Contractor must submit a written Notice of Intent to Claim to Sound Transit through the Regional Program Manager in accordance with the provisions of this Article. Written Notice as provided herein shall be a condition precedent to the Contractor's right to recover on a claim, and failure to comply with these requirements shall constitute a waiver by the Contractor on any right, equitable or otherwise, to bring any such claim against Sound

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Transit.

2. The written Notice of Intent to Claim shall set forth:

   a. Detailed description of the facts and/or conditions giving rise to the Contractor's demand for additional compensation ;

   b. nature of the costs involved;

   c. the Contractor's plan for mitigating such costs; and

   d. the Contractor's best estimate of the amount of the potential claim, and

   e. the Contractor's best estimate of Critical Path(s) impacts.

3. The Notice shall be submitted within ten (10) days after Contractor discovers or should have discovered, whichever comes first, the event or occurrence giving rise to the potential claim, or the denial of a Request for Change or the issuance of a Unilateral Change Order by Sound Transit. However, if the event or occurrence is claimed to be an act or omission of Sound Transit, a Notice of Intent to Claim shall be given by the Contractor within ten (10) days after the Contractor discovers or should have discovered, whichever comes first, the act or omission and prior to the time for performance of that portion of the Work to which such alleged act or omission relates.

4. The notice requirements of this Article are in addition to any other notice requirements set forth in the Contract.

B. Claims

1. General

   a. The Contractor shall file all claims within sixty (60) days of the submission of the Notice of Intent to Claim, with a reasonably detailed factual statement of the Claim providing at minimum (i) all necessary details, locations and items of Work affected, (ii) the specific causes(s) of the Claim or alleged damages sustained, (iii) an explanation as to how Contractor attempted to mitigate its damages for the Claim, (iv) copies of documents Contractor believes support the Claim, (v) all cost records meeting the requirements of Article 3.03, and (vi) if the claim seeks an extension of the Contract Time, the specific days and dates sought and Contractor's analysis of the Contract Schedule demonstrating entitlement to the time extension. When requested by Sound Transit, the Contractor shall submit such further information and details as may be required to determine the facts and contentions involved in said claim. The Contractor shall give Sound Transit access to its books, records, and other materials relating to the claim, and shall cause its Subcontractors to do the same, so that Sound Transit can investigate said claim(s). The Contractor shall provide Sound Transit, on request, with electronic copies of any and all portions of such books, records, and other material determined to be pertinent to the claim.

   b. Failure to submit the detailed factual statement described above may result in rejection of the Claim.

   c. Each claim the Contractor submits for an adjustment that is related to a delay for any cause shall be accompanied by:

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1) a revised project schedule reflecting the effects of the delay; and

2) proposals to minimize these effects.

d. If the Contractor fails to submit any Claim in writing in the time and manner specified herein, it shall waive any relief that might otherwise be due with respect to such claim. Depending upon the grounds for the relief and the nature of the relief sought, additional information and/or conditions of submittal may be specified elsewhere in this Contract.

e. At all times during the course of claim evaluation or dispute resolution, the Contractor agrees to continue to perform the Work with due diligence and in accordance with the Contract, unless a Stop Work Order has been issued by Sound Transit. In the event the disputed matter impedes continuing performance, the Contractor shall inform Sound Transit in writing of the impediment and seek direction as to how to proceed. If the Contractor fails to provide such notice to Sound Transit, it shall be assumed that the Contractor is proceeding with performance of the Contract.

f. Compliance with the cost record requirements related to the Claim is a condition precedent to making of any Claim for recovery of any costs or damages related to or arising from performance of the Contract or the Work. In the event Contractor or any Subcontractor or Supplier seeks to make a Claim without complying with such requirements (inclusive of Article 3.03), such Claim is deemed waived and no adjustment shall be made to the Contract Price or Contract Time with respect to such Claim.

g. Both parties have a duty to take all reasonable steps necessary to mitigate losses resulting from the dispute whether those losses are their own or another party's losses.

h. All claims filed by Contractor shall be verified under penalty of perjury by an officer or principal authorized to act for Contractor or in the case of a counterclaim for Sound Transit (or, in the case of claims made by or for the benefit of any Subcontractors, by an authorized officer or principal of both Contractor and Subcontractor) containing a sworn certification that the Claim is made in good faith after the exercise of reasonable diligence and investigation, that the supporting cost and pricing data are true and accurate based upon reasonable investigation, that the Claim is fully supported by accompanying data and accurately reflects the adjustment in the Contract Price and/or Contract Time for which Contractor believes Sound Transit is liable, and that in the event the Claim proceeds to alternate dispute resolution or litigation that the Claim amount will not exceed the amount set forth in the Claim. Nothing in this paragraph shall preclude the award of costs, expenses, or attorneys' fees as a result of alternate dispute resolution and/or litigation.

2. Claims Processing

a. The Contractor shall submit its claim in writing to the Regional Program Manager for evaluation and resolution. Sound Transit shall respond within sixty (60) days after receipt of the claim. Either party may request in writing, within thirty (30) days of receipt of the claim, that the other party provide any additional

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documentation that may be required to support the Contractor's claim or documentation that may relate to defenses or claims Sound Transit may have against the Contractor. Sound Transit shall respond in writing to the Contractor's claim including any additional documentation as requested by Sound Transit, within either thirty (30) days of receipt of said additional documentation, if the Contractor responds during the initial sixty (60) day period, or within a period no longer than that taken by the Contractor in producing the additional documentation, whichever is greater. In no event shall the extension of the response time resulting from Sound Transit's request for additional documentation and the Contractor's response time be deemed to waive any statutory limits or rights to Sound Transit.

b. The Regional Program Manager shall issue a written decision, with reasons, regarding the claim and deliver such decision promptly to Contractor in accordance with subsection 2.a. above. If the claim is found to have merit by the Regional Program Manager, the settlement will be negotiated in compliance with Article 4, Changes and Change Order Process.

3. Claims Two Hundred Fifty-Thousand Dollars ($250,000) and Less.

If Sound Transit finds the claim not to have merit, the Contractor may, within ten (10) calendar days of receipt of the finding, submit written appeal to the ORCA Director or equivalent. The finding on the appeal will be provided in writing within sixty (60) calendar days unless a longer review period is deemed necessary, in which case the Contractor will be notified of the response period within the initial 60 days after the appeal.

If the ORCA Director or equivalent finds the appeal not to have merit the Contractor may, within ten (10) calendar days of receipt of the finding, submit the claim for dispute resolution in accordance with Article 11, Dispute Resolution.

4. Claims Over Two Hundred Fifty-Thousand Dollars ($250,000)

If Sound Transit finds the claim not to have merit the Contractor may, within ten (10) calendar days of receipt of the finding, submit the claim for dispute resolution in accordance with Article 11, Dispute Resolution.

5. If the Dispute Resolution process finds the claim to have merit and if both parties accept the finding, Sound Transit and the Contractor will negotiate the terms and value of a bilateral Change Order in accordance with Article 4, Changes and Change Order Process. In no event shall any claims be made, except for claims for Work conducted after Final System Acceptance, after Final System Acceptance is issued. Failure by the Contractor to submit claims in a timely manner shall result in a waiver by the Contractor as to such claims.

6. Failure to comply strictly with the notice and other procedures set forth in the Contract Documents shall bar the Contractor from asserting any claim or right to compensation, damages, schedule extension, or any other relief.

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10.02 DELAYS

A. Liquidated Damages

The provisions herein shall apply to all claims by Sound Transit for liquidated damages pursuant to this Contract:

1. For each and every day that Contractor fails to achieve a designated Contract Milestone, as specified in Section 04 Liquidated Damages, damage will be sustained by Sound Transit. These damages may include, but are not necessarily limited to the following:

    a. Delays in completion and operation of the system;

    b. Increased costs of Contract administration, inspection, and other ORCA agency functions related to the design and execution of the Project;

    c. Costs resulting from delays to interfacing Contractors;

2. Because of the difficulty in computing the actual material loss and damages to Sound Transit, it is determined in advance and agreed by the parties hereto that the Contractor will pay Sound Transit the amount(s) set forth in Section 04 Liquidated Damages Amounts for each day of delay as representing a reasonable amount of the actual damages that Sound Transit will suffer by the failure of the Contractor to complete such Work, or portion thereof, within said time(s). The execution of this Contract shall constitute acknowledgement by the Contractor that it has ascertained and agreed that Sound Transit will actually suffer damages in the amount herein fixed for each and every day during which the completion of the Work or portions thereof is avoidably delayed beyond the specified time(s).

3. Sound Transit may deduct assessed liquidated damages from any monies due or that may become due to the Contractor under the Contract. If such deducted monies are insufficient to recover the liquidated damages owing, the Contractor or the Contractor's surety or sureties shall pay to Sound Transit any deficiency within thirty (30) days after completion of the Work.

4. Where liquidated damages for contractor-caused delays are applicable, Sound Transit shall not seek additional damages for delay regardless of how denominated; however, to the extent liquidated damages are not applicable, Sound Transit reserves all other rights and remedies provided by law or under this Contract.

5. For the avoidance of doubt, if multiple liquidated damages apply throughout this Contract, then Sound Transit will be entitled to receive, up to the capped amount below, the sum of all liquidated damages that apply.

6. The sum of all liquidated damages in this Contract, wherever appearing, is capped at $11M.

B. Extension of Time for Certain Delays

1. Notice of Delay or Potential Delay. Immediately, but in any event no more than five (5) days, after the Contractor foresees or should foresee a delay or a potential delay in the prosecution of the Work or upon the occurrence of a delay or potential delay that the Contractor regards as Unavoidable or compensable, the Contractor shall provide notice to Sound Transit of such delay or potential delay. Within five (5) days of such notice the Contractor shall provide in writing the extent of the delay, the specific impacts and effects

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of the delay on critical path activities and the Project Schedule, and its cause. The notice requirement in this Paragraph 10.02B.1 is in addition to notice required by other parts of this Contract, inclusive of Article 4.02. At a minimum the written notice under this Paragraph shall include:

a. The facts underlying the potential delay;

b. The nature of any additional costs which may be caused by the potential delay;

c. The nature of any additional time which may be needed;

d. The Contractor's plan for mitigating such costs and delay; and

e. An estimate of the cost impacts due to the delay or the potential delay and an estimate of the time extension required for mitigation, along with all substantiating facts and supporting data.

2. The Contractor shall take immediate steps to prevent, if possible, the occurrence or continuance of the delay. If this cannot be done, the Contractor and Sound Transit will determine how long the delay will continue and to what extent the prosecution and completion of the Work are being or will be delayed thereby. Sound Transit will also determine whether the delay is to be considered Avoidable or Unavoidable and notify the Contractor of Sound Transit's determination.

3. Compliance with the notice requirements of this Article shall be a condition precedent to the Contractor's claim for delay. The Contractor agrees that no claim shall be made for delays for which timely written notice, as specified above, is not made to Sound Transit.

C. Avoidable Delays

1. Avoidable Delays in the prosecution of the Work shall include delays to the critical path of the Work that could have been avoided by the exercise of due care, prudence, coordination, foresight and diligence on the part of the Contractor, its Subcontractors, or its Suppliers at any tier. Examples of Avoidable Delays include, but are not limited to:

a. Delays that may in themselves be unavoidable but do not necessarily prevent or delay the prosecution of parts of the Work or the completion of the Work within the Contract Time (e.g., fit within the Float time shown on the Project Schedule(s).)

b. Time associated with the reasonable activities of Sound Transit, third party stakeholders or other contractors employed by Sound Transit that do not necessarily prevent the completion of the Contract within the Contract Time.

c. Individualized labor actions or strikes within Contractor's control, normal weather conditions, mechanical breakdown, equipment failure, and acts of negligence by the Contractor's forces, including Subcontractors and Suppliers.

d. Delays in the prosecution of the Work due to:

1) The Contractor's failure to provide sufficient resources, including, but not limited to: personnel, equipment, material, or facilities;

2) The Contractor's failure to submit required work products in a timely

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manner;

3) The Contractor's failure to procure and/or deliver materials and/or equipment in a timely manner.

2. Contractor shall not be entitled to any time extension or additional compensation for any Avoidable Delay. However, Sound Transit may in its sole discretion grant an extension of time for Avoidable Delay, if Sound Transit determines that an extension is in Sound Transit's best interest. Any such discretionary time extension shall be issued through a Change Order.

D. Unavoidable Delay

1. An Unavoidable Delay means a delay to the critical path of the prosecution of the Work that results from causes beyond the control of the Contractor and that could not have been avoided by the exercise of care, prudence, coordination, foresight, and diligence on the part of the Contractor, its Subcontractors or its Suppliers at any tier, and for which no provision is specifically provided in the Contract Documents for managing or mitigating such delay.

2. Examples of Unavoidable Delays include, but are not limited to:

a. Acts of God.

b. Fire or other casualty for which Contractor is not responsible.

c. War.

d. Riot.

e. Unusually Severe Weather. Unusually severe weather conditions shall not be deemed unusually severe if they fall within two (2) standard deviations from the mean of data recorded by the U.S. Weather bureau for the Seattle and Tacoma metropolitan area over the past twenty (20) years. Impacts of on-going weather conditions shall be updated weekly by the Contractor and provided to Sound Transit. To preclude the difficulties of actual measurement the parties hereto agree that weather data at the Site shall be expressly deemed to be the same as that measured at the Seattle-Tacoma International Airport by the Environmental Data and Information Service of the National Oceanic and Atmospheric Administration ("NOAA") of the U.S. Department of Commerce.

f. Epidemic.

g. Earthquake.

h. Terrorism.

i. General industry strikes or labor disputes beyond the reasonable control of the Contractor.

3. Extension of Time - For delays that the Contractor has given notice as required by the Contract, and considers to be Unavoidable Delay, the Contractor shall submit to Sound Transit complete written information demonstrating the effect of the delay on the critical path on the accepted Project Schedule. The submission shall be made within ten (10) days after the end of the occurrence that is claimed to be responsible for the

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Unavoidable Delay. Sound Transit will review the Contractor's submission and determine the number of days of Unavoidable Delay and the effect of such Unavoidable Delay on such critical path. Sound Transit may grant an extension of time to the extent that Unavoidable Delays necessarily affect the critical path(s) in the Project Schedule. During such extension of time, liquidated damages will not be charged to the Contractor. It is understood and agreed by the Contractor and Sound Transit that time extensions due to Unavoidable Delays necessarily involve critical path operations that would prevent completion of the Work, or portion thereof, within the Contract Time. Time extensions shall be issued via a Change Order. Contractor shall not be entitled to any additional compensation or Equitable Adjustment for any Unavoidable Delay.

E. Concurrent Delay

If Sound Transit determines that there are delays to the project as a result of concurrent delays, Sound Transit may grant a time extension. However, no compensation will be due to the Contractor for this time extension due to the concurrent nature of delays. Concurrent delay means a situation where both Contractor and Sound Transit are responsible for delays affecting the critical path where none of the delay events are utilizing available project float. If a delay for which Contractor seeks compensation under Article 10.02F is caused concurrently with either Avoidable Delay or Unavoidable Delay, then Sound Transit is only responsible for that portion of any compensable delay which it caused in excess of such Avoidable Delay or Unavoidable Delay, provided Contractor is able to prove such apportionment.

F. Compensation for Certain Delays

To the extent that the Contractor demonstrates (a) that the Contractor has been delayed in completion of the Work by reason of changes made by Sound Transit under these General Conditions, or a Stop Work Order, or a failure by Sound Transit to comply with its obligations under the Contract;
(b) that the Contractor was not concurrently responsible for the delay; (c) that the Contractor has suffered actual losses as a result of the delay; (d) that but for Sound Transit's, or those for whom it's responsible, actions the Contractor would not have suffered such losses; and (e) that the Contractor could not have mitigated such actual losses despite taking all precautionary and remedial actions; then Sound Transit shall pay to the Contractor as full compensation for any such delay, and for any actual and real disruption which may have been associated with any such delay which the Contractor can clearly quantify and calculate, the amount of the actual loss as computed in accordance with the Contract Documents, provided that the Contractor shall strictly comply with the notice and other claims procedures set forth in Article 10.01, Claims. Unless the Contractor satisfies the provisions of this Article, the Contractor's sole remedy for Sound Transit-caused delay shall be an extension of time under Paragraph 10.02B, Extension of Time for Certain Delays.

In no event may Contractor or any of its Subcontractors at any tier recover compensation for unabsorbed home office overhead unless (1) Sound Transit directs a suspension of indefinite duration due to Sound-Transit-caused circumstances and (2) Contractor and/or its Subcontractors were unable, in the exercise of reasonable care, to reallocate resources so as to mitigate losses or damages.

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ARTICLE 11 DISPUTE RESOLUTION

11.01 PURPOSE OF DISPUTE RESOLUTION

The purpose of this Dispute Resolution Article is to provide a structured approach for the parties to resolve disputes fairly at the lowest level possible without incurring significant administrative costs. It is agreed by the parties that the parties shall enter into the dispute resolution process in good faith and that use of the dispute resolution processes for purposes other than resolving a legitimate dispute (e.g. as a delay tactic) shall be evidence of bad faith in the performance of this Contract.

11.02 CONTINUATION OF WORK WHILE DISPUTE RESOLVED

At all times during the course of the Claim, conflict or dispute resolution, the Contractor agrees to continue to perform the Work with due diligence, unless a Stop Work Order under Article 12.01 has been issued by Sound Transit.

11.03 DUTY TO MITIGATE

Both parties have a duty to take all reasonable steps necessary to mitigate losses resulting from the Claim or dispute whether those losses are their own or another party's losses

11.04 PARTNERING

A. Preventing Conflict

1. The parties agree to use the principles of Project Partnering: collaboration and cooperation to identify and engage in measures to prevent and resolve potential sources of conflict before they escalate into disputes, claims, or legal actions. Such measures should extend to all levels of the Work, including lower-tiered Subcontractors, and may include the following:

    a. Conducting a one-day workshop to "kick-off" the performance of the Work by introducing the concepts of Project Partnering and holding follow-up workshops at least annually.

    b. Developing and implementing a Partnering Action Plan devoted to developing and maintaining a collaborative atmosphere on the project at all levels.

    c. Developing and implementing a Dispute Escalation Process.

    d. Conducting facilitated, Executive Partnering Sessions among the senior managers of each party to discuss issues related to potential conflicts and to engage in collaborative problem solving.

    e. Conducting training for all parties in teambuilding, collaborative problem solving and conflict resolution skills.

    f. Conducting evaluations of the Project's partnering efforts.

    g. Including language from this Article in contracts for Subcontractors who become involved in the performance of the Work.

2. Sound Transit will provide the partnering facilitator and facilities. All other costs associated with the Contractor's participation in the partnering program shall be included

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in the Contract Price.

B. Resolving Conflicts

1. Sound Transit and the Contractor agree to use their best efforts to resolve disputes arising out of or related to this Contract using good faith negotiations and the principles of Project Partnering by developing and implementing a Dispute Escalation Process that provides for the timely resolution of disputes as close to the their point of origin as possible. It is agreed that the foregoing will not negate any of the Contract requirements for providing timely notice and the timely submission of documents that are required elsewhere in the Contract Documents.

2. In the event the parties are unable to resolve their dispute using the Dispute Escalation Process, if a Dispute Review Board (DRB) has been established for this Contract and if the claim is over $250,000, the dispute shall be referred to a DRB as a condition precedent to mediation. If the claim is $250,000 or less or, if no DRB has been established for this Contract or, if the dispute remains unresolved after a hearing by and recommendation from the DRB, the dispute shall be referred to mediation as a condition precedent to the commencement of a civil action. For mediation, a mediator shall be chosen that is agreeable to all parties involved in the dispute and such agreement shall not be unreasonably withheld. All statements made by parties involved in the dispute to the mediator shall remain confidential and shall not be disclosed by the mediator in any litigation or other claim proceedings. All parties hereby agree to such terms and signature of the Contract provides written confirmation of these terms.

11.05 DISPUTES REVIEW BOARD

A. A Disputes Review Board (DRB) may be established to assist in resolving claims arising out of this Contract. Disputed claims may be heard by the DRB only after the claims process detailed in Article 10.01, Claims, has been exhausted.

B. The provisions for establishing a DRB, if a DRB is to be utilized in this Contract, are provided below. The form of the Three Party Agreement to be used in establishing a DRB will also be provided in that section.

C. In the event a dispute arises under this Contract, it may be handled by a DRB in the following manner. Each party to this Contract shall appoint one member to the DRB. These two appointed members shall jointly appoint an additional member. The DRB shall review the facts, Contract Documents and applicable statutes and rules and make a determination of the dispute as quickly as reasonably possible. The determination of the DRB shall be final and binding on the parties hereto only if the dispute resolution is documented in writing and bilaterally agreed to. Sound Transit and Contractor agree that, the existence of a dispute notwithstanding, they will continue without delay to carry out all their respective responsibilities under this Contract.

D. Where no approved DRB is currently established or currently operating, the parties will utilize their best efforts to negotiate resolution of claims in good faith.

11.06 EXHAUSTION OF ADMINISTRATIVE REMEDIES/TIME LIMITATION FOR SUIT

It is the intention of this Article that differences between the parties arising under and by virtue of the Contract shall be brought to the attention of Sound Transit at the earliest possible time in order that such matters may be settled without a claim being filed, if possible, or other appropriate action promptly taken.

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The Contractor agrees to defer, in the absence of special written notice given by Sound Transit, the commencement of any legal action against Sound Transit on a matter required to be covered by written Notice of Intent to Claim pursuant to Paragraph 10.01A, Notice of Intent to Claim, until all of the administrative and dispute resolution processes have been exhausted. Contractor may not sue, cross-claim or bring any action of any kind whatsoever against Sound Transit after the expiration of one hundred eighty (180) days from Final System Acceptance, provided, however, that the proper pendency of contract-required dispute resolution procedures shall toll this deadline until thirty (30) days after such contract-required dispute resolution procedure is concluded.

ARTICLE 12 SUSPENSION AND TERMINATION

12.01 STOP WORK ORDER

A. Sound Transit may at any time and for any reason within its sole discretion issue a written order to the Contractor thereby suspending, delaying, or interrupting all or any part of the Work for a specified period of time ("Stop Work Order"). A Stop Work Order must be in the form of an explicit written Notice and will not be inferred from any oral statement, course of conduct or informal field communication, except in the case of an emergency or exigent safety concern.

B. In the event that it becomes necessary for Sound Transit to suspend all, or a part, of the Work, Sound Transit will deliver a written Stop Work Order to the Contractor, which shall describe the following:

1. Identification of the work to be suspended;

2. The date and time upon which the Stop Work Order shall be effective;

3. The period of time during which Work will be suspended, if known;
4. Directions to be taken regarding subcontracts; and Other instructions required to safeguard the Work and to prevent property damage and personal injury.

C. The Contractor shall comply immediately with any written order it receives from Sound Transit suspending the Work and take all reasonable steps to minimize costs allocable to the Work covered by the suspension during the period of Work stoppage. The Contractor shall resume performance of the suspended Work upon expiration of the notice of suspension, or upon direction of Sound Transit.

D. Within the period specified by the Stop Work Order, or within any extension of that period, Sound Transit may:

1. Terminate the work covered by the Stop Work Order;

2. Cancel the Stop Work Order; or

3. Allow the period of the Stop Work Order to expire.

E. Costs Associated with a Stop Work Order

1. If a Stop Work Order is canceled or the period of the Stop Work Order expires, the Contractor shall resume work.

2. The Contractor may be allowed an increase in the Total Contract Price or an extension of time, or both, directly attributable to any suspension, provided that:

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a. The Contractor submits a Request for Change in accordance with the requirements of the Contract Documents;

b. The Stop Work Order results in an increase in the time required for, or in Contractor's cost properly allocable to, the performance of any part of this Contract; and

c. The Stop Work Order was not caused by Contractor's default or other act or omission within the control or responsibility of Contractor.

3. No adjustment shall be made under this Paragraph for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an equitable adjustment or extension of time is provided or excluded under any other term or condition of this Contract.

4. The provisions of this Paragraph shall only apply if a written Stop Work Order is issued by Sound Transit.

F. During a suspension of work, Contractor shall take appropriate action to prevent damage to or deterioration of the Work. Contractor shall repair or replace, at no additional cost to Sound Transit Work that is damaged or deteriorated during a Work stoppage due to Contractor's failure to comply with this Paragraph. If Sound Transit finds that the Contractor is not taking appropriate action and the Contractor fails to take the appropriate action within the time frame specified by Sound Transit in written notice to the Contractor, Sound Transit may take appropriate action and recover from the Contractor the reasonable costs of such action.

G. In the event that a suspension of the work is ordered, the Contractor shall do all the work necessary to provide any safe, smooth, and unobstructed passageway through the work as deemed necessary by the Regional Program Manager for use by Sound Transit, other Sound Transit contractors, public agencies or their contractors, and/or public traffic during the period of such suspension as specified in the Contract Documents. In the event that the Contractor fails to perform the work above specified, Sound Transit will perform such work and the cost thereof shall be deducted from payments due the Contractor. If the suspension is due to some failure on the part of the Contractor, all costs and delays shall be at no additional expense to Sound Transit.

H. In the event of a suspension of the Work, the Contractor shall not be relieved of the Contractor's responsibilities as set forth in Article 7, Legal Requirements.

12.02 TERMINATION FOR DEFAULT

A. Sound Transit will have the right to terminate the Contract in whole or in part, for default, under any of the following circumstances:

1. If the Contractor refuses or fails to prosecute the Work with such diligence as will ensure its completion within the Contract Time and any extension thereof;

2. Material failure of the Contractor to perform any obligation required under the Contract or violation of any duty required of the Contractor, including but not limited to the following:

a. Violation of a legal authorized order or requirement of Sound Transit by the Contractor;

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b. Abandonment of the Contract;

c. Failure of the Contractor to pay its undisputed debts owing to any parties performing Work on the Contract, provided that such failure continues for a period of fourteen (14) days after written notice to the Contractor by Sound Transit;

d. Failure to comply with any law, ordinance, rule, regulation, or order of a legal authority applicable to the Contractor, the Work, the Contract, or the Project;

e. Failure to indemnify any party that the Contractor is obligated to indemnify under the General Conditions and other provisions of the Contract;

f. Failure to replace rejected Work or correct rejected workmanship when directed by Sound Transit;

g. Failure to provide required insurance and/or bonds, or proceeds thereof;

h. Submittal of false or misleading information or Claims to Sound Transit; or

i. Disregard of applicable laws, ordinances, rules, codes, regulations, orders, or similar requirements of any public entity having jurisdiction.

B. If the Contractor is adjudged bankrupt or insolvent, or makes a general assignment for the benefit of creditors, or if the Contractor or a third party files a petition to take advantage of any debtor's act or to reorganize under the bankruptcy or similar laws concerning the Contractor, or if a trustee or receiver is appointed for the Contractor or for any of the Contractor's property on account of the Contractor's insolvency, and the Contractor or its successor in interest does not provide adequate assurance of future performance in accordance with the Contract within fifteen (15) days of receipt of a request for assurance from Sound Transit.

C. If, in the opinion of Sound Transit, the Contractor is in default of the Contract, Sound Transit will issue a written Notice of Default to the Contractor and its Surety. If the Contractor, within fourteen (14) days after receipt of such notice, fails to remedy or provide assurance acceptable to Sound Transit of its specific plan and timetable to remedy the default, Sound Transit may terminate the Contractor's right to proceed under all or such part of the Contract as Sound Transit deems to be in its best interest. Sound Transit shall furnish written Notice of Termination for Default to the Contractor, upon which date the Termination for Default shall be effective. The Contractor and its Surety shall be liable for any damage to Sound Transit resulting from the Contractor's refusal or failure to complete the Work in the specified time.

D. Upon receipt of a Notice of Termination for Default from Sound Transit, the Contractor shall, except as otherwise directed by Sound Transit:

1. Stop all Work under the Contract on the date and to the extent specified in the Notice of Termination for Default.

2. Place no further orders or Subcontracts for materials, equipment, or services except as may be necessary for completion of such portions of the Work expressly excluded from the Notice of Termination.

3. Communicate any Notice of Termination to the affected Subcontractors and Suppliers,

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and any other parties at any tier, and take reasonable steps to minimize cancellation charges and other costs arising from termination.

4. Terminate all orders and Subcontracts to the extent that they relate to the performance of Work covered by the Notice of Termination or, at the option of Sound Transit, assign to the Surety or any replacement contractor all such Subcontracts and purchase orders.

5. Comply with all other reasonable and legal requirements of Sound Transit as may be specified in the Notice of Termination.

E. Upon Sound Transit's termination of the Contractor's right to proceed with the Work because of the Contractor's default under the Contract, Sound Transit shall have the right to complete the Work by whatever means and methods it deems advisable, including transfer of performance of the work from the Contractor to the Surety. Sound Transit shall have the right to take possession of and use any or all the Contractor's design, goods, facilities, tools, equipment, and property of any kind, at the Project, or related thereto, provided by or on behalf of the Contractor to complete the Work or any portion thereof, without being responsible to the Contractor for fair wear and tear. The Contractor shall have no rights in such property during its use by Sound Transit. Sound Transit may complete the Work by obtaining the services of another Contractor, or by any other reasonable and legal means that Sound Transit deems in its best interest. Sound Transit shall have the right to exercise its sole discretion as to the manner, method and reasonableness of the costs of completing the work subject to a reasonable duty to mitigate costs. Materials and equipment for which Sound Transit has paid any amount to the Contractor may be incorporated in the Work regardless of whether they are stored at the site or elsewhere.

F. The expense of completing the Work together with a reasonable charge for engineering, managerial, and administrative services arising from the default shall be charged to the Contractor. Sound Transit shall deduct said amount out of any monies that may be due or may at any time thereafter become due the Contractor. In case such expense is in excess of the sum that would otherwise have been payable to the Contractor under the Contract, the Contractor or its Surety shall promptly pay the amount of said excess to Sound Transit upon notice thereof. Sound Transit may, at its sole discretion, withhold all or any part of any Partial Payments or other monies otherwise due the Contractor until completion and final settlement of the Work covered by the Notice of Termination for Default.

G. If Sound Transit terminates the Contractor for default, the resulting damage shall include, but not be limited to, actual and liquidated damages, any increased costs incurred by Sound Transit in completing the Work, and amounts paid to third parties by Sound Transit on account of any claims made against Sound Transit relating to the Work.

H. If the Contract is terminated for default, Sound Transit may require that the Contractor transfer title to and deliver the following items to Sound Transit as directed: any goods, work in progress, tools, dies, jigs, fixtures, plans, drawings, information, contract rights, and other items that the Contractor has specifically produced or acquired for the terminated portion of the Contract and that would have been required to be furnished to Sound Transit if the Contract had been completed. The Contractor shall also protect and preserve property in its possession at its sole expense in which Sound Transit has an interest.

I. If, after Notice of Termination for Default, it is determined for any reason that the Contractor was not in default under the provisions of the Contract, or that the Contractor was properly entitled to an extension of time under the provisions of the Contract, the rights, obligations, and remedies

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of the parties shall be the same as if the Notice of Termination for Default had been issued pursuant to the Article entitled Termination for Convenience.

12.03 TERMINATION FOR CONVENIENCE

A. Upon written notice to Contractor Sound Transit may terminate the Work under this Contract, in whole or in part, at any time, for the convenience of Sound Transit.

B. After receipt of a Notice of Termination for Convenience, and unless directed otherwise by Sound Transit, the Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due under this clause:

1. Stop performance of Work and meet with Sound Transit to develop a Termination Work Plan, including a scope, schedule and budget to safely terminate the Contractor's progress of Work.

2. Place no further subcontracts or orders (referred to as subcontracts in this clause) for materials, services, or facilities, except as necessary to complete the continued portion of the Contract.

3. Terminate all Subcontracts or orders to the extent they relate to the work terminated or, at the option of Sound Transit, assign to the Surety or any replacement contractor all such Subcontracts and purchase orders. Assign to Sound Transit, as directed by Sound Transit, all right, title, and interest of the Contractor under the Subcontract(s) terminated, in which case Sound Transit shall have the right to settle or to pay any termination settlements proposal arising out of those terminations.

4. With approval or ratification to the extent required by Sound Transit, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontract; the approval or ratification will be final for purposes of this clause.

5. As directed by Sound Transit, transfer title and deliver to Sound Transit (1) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced or acquired for the work terminated, and (2) the completed or partially completed plans, drawings, information and other property that, if the Contract had been completed, would be required to be furnished to Sound Transit.

6. Complete performance of any Work not terminated.

7. Take any action that may be necessary, or that Sound Transit may direct, for the protection and preservation of the property related to this Contract that is in possession of the Contractor and in which Sound Transit has or may acquire an interest.

8. Use its best efforts to sell, as directed or authorized by Sound Transit, any property of the types referred to in Sub-paragraph 12.03B.5 above; provided, however, that the Contractor (1) is not required to extend credit to any purchaser and (2) may acquire the property under the conditions prescribed by, and at prices approved by, Sound Transit. The proceeds of any transfer or disposition will be applied to reduce any payments to be made by Sound Transit under this Contract, credited to the price or cost of the work, or paid in any other manner directed by Sound Transit.

C. Payment

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In the event of a Termination for Convenience, if such termination occurs after the effective date of the Notice to Proceed, Sound Transit will pay the reasonable, verifiable direct costs incurred by the Contractor toward any incomplete item on the Partial Payment Schedule before the termination. Reimbursable costs incurred by the Contractor will be determined by taking into consideration the following facts, circumstances and limitations:

1. The budget established for the Termination Work Plan, which may include fees charged to Contractor by suppliers for cancellation of hardware and /or software custom designed and to be produced specifically for the Project.

2. The physical progress of the Work satisfactorily completed to the effective date of the termination, evaluated against the approved Partial Payment Schedule,

3. Costs of removing equipment and materials and otherwise demobilizing,

4. Costs reasonably incurred in anticipation of performing the Work; provided, said amounts are reasonable, verifiable and directly attributed to the Contractor's performance of the Work, Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of the termination inventory,

5. Termination for Convenience notwithstanding anything to the contrary set forth herein, the Contractor shall not be entitled to, and Sound Transit shall not be liable for, any consequential losses or damages incurred by the Contractor including, but not limited to: loss of profits, business opportunity, reputation or financing. Amounts retained and accumulated under RCW 60.28.011 will be held as provided therein for a period of not less than forty-five (45) days following termination.

12.04 SOUND TRANSIT'S RIGHTS AND OBLIGATIONS UPON TERMINATION

A. Upon any termination contemplated herein, Sound Transit may take over the Work and prosecute the same to completion by agreement with another party or otherwise complete the Work.

B. Upon any termination contemplated herein, amounts retained and accumulated under RCW 60.28.011 will be held as provided therein for a period of not less than sixty (60) days following termination and consistent with state law.

12.05 CONTRACTOR'S OBLIGATIONS UPON TERMINATION

Upon receipt of Notice of Termination, the Contractor shall immediately discontinue Work, but shall do such Extra Work as may be ordered by Sound Transit to safeguard the Work then completed, to safeguard the materials and equipment then delivered to the site and to leave the Work in a safe and useful condition. The Contractor shall promptly deliver, or otherwise make available to Sound Transit, all Contract Records reasonably necessary for Sound Transit to complete the Work with its own forces, including but not limited to software, data, drawings, specifications, as-built drawings, calculations, reports, estimates, summaries, and other such information as the Contractor or Subcontractors may have accumulated in performing this Contract, whether completed or in progress, and all materials and equipment purchased specifically for the Contract where Sound Transit has reimbursed the Contractor for such costs. The Contractor shall also take all reasonable steps with its Suppliers and Subcontractors to minimize cancellation charges and other costs.

12.06 OWNERSHIP OF EQUIPMENT, MATERIALS AND SUPPLIES UPON TERMINATION

As of the date of termination, all the Contractor's right, title and interest in and to equipment, materials,

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and supplies ordered by the Contractor prior to the termination (including placement or priority in production runs of materials, equipment, or supplies), whether or not they have been delivered to the site, shall be vested in Sound Transit and the Contractor shall, upon demand of Sound Transit, execute and deliver to Sound Transit all requisite bills of sale, assignments, and other documents of transfer that may be necessary to give effect to the intention of the termination procedures set forth in this Article.

END OF SYSTEMS GENERAL CONDITIONS

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SECTION 02 – FEDERAL PROVISIONS

ARTICLE 1 INCORPORATION OF FTA PROVISIONS

1.01 APPLICABILITY OF FEDERAL GRANT CONTRACT

A. This procurement may be subject to one or more financial assistance contracts between Sound Transit and the U.S. Department of Transportation (DOT), which incorporate the current FTA Master Agreement and Circular 4220.1 as amended.

B. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1, as amended, and the Master Grant Agreement, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Contract. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any Sound Transit request that would cause Sound Transit to be in violation of the FTA terms and conditions.

C. The FTA Master Agreement obligates Sound Transit to incorporate certain provisions into this Contract and any lower tier subcontracts at any level and to take appropriate measures to ensure that Contractor and its lower tier Subcontractors at any level comply with certain applicable requirements set forth in the Master Agreement. The following provisions of the FTA Master Agreement are hereby incorporated by reference into this Contract, and the Contractor shall comply with all such requirements.

D. Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement between Sound Transit and FTA, as they may be amended or promulgated from time to time during the term of this contract. Contractor's failure to so comply shall constitute a material breach of this contract.

E. Copies of the FTA Circular 4220.1, as amended, and the Master Grant Agreement are available from Sound Transit.

1.02 FEDERAL FUNDING LIMITATION

The Contractor understands that a portion of the funds to pay for the Contractor's performance under this Contract are anticipated to be made available from the United States Department of Transportation through the Federal Transit Administration (FTA). All such funds must be approved and administered by FTA. Sound Transit's obligation hereunder is, in part, payable from funds that are appropriated and allocated by FTA for the performance of this Contract. If such funds are not allocated, or ultimately are disapproved by FTA, Sound Transit may be required to terminate or suspend the Contractor's services. In such event, the Contract may at Sound Transit's option be terminated for convenience in accordance with these General Conditions.

1.03 NO OBLIGATION BY THE FEDERAL GOVERNMENT

A. Notwithstanding that the Federal Government may have concurred in or approved the solicitation for this Contract, the Federal Government is not a party to this Contract and has no obligations or liabilities to any entity other than Sound Transit, including the Contractor and its Subcontractors and Suppliers at any tier.

B. The Contractor agrees to include the above clause in each Subcontract financed in whole or in

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part with Federal assistance provided by FTA. It is further agreed that the clause shall not be modified, except to identify the Subcontractor who will be subject to its provision.

1.04 CERTIFICATION REGARDING DEBARMENT, SUSPENSION AND OTHER RESPONSIBILITY MATTERS

A. This contract is a covered transaction for purposes of 49 CFR Part 29. As such, the Contractor is required to verify that the Contractor, its principals, as defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945.

B. The Contractor is required to comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CFR 29, Subpart C in any lower tier covered transaction it enters into.

C. By signing and submitting its Bid, the Bidder certifies as follows:

The certification in this clause is a material representation of fact relied upon by Sound Transit. If it is later determined that the Bidder knowingly rendered an erroneous certification, in addition to remedies available to Sound Transit, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The Bidder agrees to comply with the requirements of 49 CFR 29, Subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The Bidder further agrees to include a provision requiring such compliance in its lower tier covered transactions.

1.05 FEDERAL LOBBYING RESTRICTIONS

A. This Contract is subject to Section 319, Public Law 101-121 (31 U.S.C. §1352) and U.S. DOT regulations "New Restrictions on Lobbying," 49 CFR Part 20, which prohibits Federal funds from being expended to influence or to attempt to influence an officer or employee of any agency, members of Congress, an office or employee of Congress or an employee of a Member of Congress in connection with the awarding of any federally funded contract, the making of any Federal grant or loan, or entering into any cooperative agreement and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

B. Contractors and Subcontractors at any time who apply or bid for an award of $100,000 or more shall file the certification required by 49 CFR Part 20, "New Restrictions on Lobbying." Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or any employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier shall also disclose the name of any registrant under the Lobbying Disclosure Act of 1995 who has made lobbying contacts on its behalf with non-Federal funds with respect to that Federal contract, grant or award covered by 31 U.S.C. 1352. Such disclosures are forwarded from tier to tier up to the recipient.

C. The Contractor shall submit the "Certification Regarding Lobbying," included in the Bid documents. The Contractor's signature on this certification shall certify that: a) it has not engaged in the prohibited activity and b) the language of the certification shall be included in all lower tier subcontracts, which exceed $100,000, and that all such Subcontractors shall certify and disclose accordingly. Sound Transit is responsible for keeping the certification form of the Contractor, who is in turn responsible for keeping the certification forms of Subcontractors. Further, by executing the Contract, the Contractor agrees to comply with these laws and regulations.

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D. If the Contractor has engaged in any lobbying activities to influence or attempt to influence the awarding of this Contract, the Contractor must disclose these activities. In such a case, the Contractor shall complete Standard Form SF-LLL, "Disclosure of Lobbying Activities." Sound Transit must also receive all disclosure forms.

E. The Contractor and any Subcontractors shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of a previously filed disclosure form. An event that materially affects the accuracy of the information reported includes:

1. A cumulative increase of $25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence this federally funded Contract; or
2. A change in the person(s) influencing or attempting to influence this federally funded Contract; or
3. A change in the officer(s), employee(s) or member contracted to influence or attempt to influence this federally funded Contract.

1.06 PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS

A. The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § § 3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to this Contract. Upon execution of the underlying contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract or the FTA-assisted project for which this contract work is being performed. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.

B. The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. § 5307, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Contractor, to the extent the Federal Government deems appropriate.

C. The Contractor agrees to include the above two clauses in each Subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the Subcontractor who will be subject to the provisions.

1.07 ANTI-KICKBACK

A. Sound Transit and contractors are required to comply with the Copeland "Anti-Kickback" Act, 18 USC § 874 and 40 USC § 276(c), as supplemented in U.S. Department of Labor regulations, 29 CFR Part 3. Under state and federal law, it is a violation for Sound Transit employees, proposers, bidders, contractors or subcontractors to accept or offer any money or benefit as a reward for favorable treatment in connection with the award of a contract or the purchase of goods or services.

B. "Kick-Back" as defined by Federal Acquisition Regulations (FAR), means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind that is provided

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directly or indirectly to any prime contractor, prime contractor employee, subcontractor or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contractor in connection with a subcontract relating to a prime contract.

1.08 CIVIL RIGHTS

In addition to the provisions in Section 00 73 39 00, Diversity Program Provisions, the following requirements pertaining to nondiscrimination and civil rights apply to the underlying contract:

A. Nondiscrimination

In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, Executive Order 11246 as amended, and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, gender identity, status as a parent, marital status, age, or disability. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

B. Equal Employment Opportunity

The following equal employment opportunity requirements apply to the underlying contract:

1. Race, Color, Creed, National Origin, Sex

In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulation, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 et seq., (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Project. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

As required by 41 CFR 60-1.4, during the performance of this Contract, the Contractor agrees as follows:

a. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, marital status, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, gender identity, status as a parent, marital status, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

b. The Contractor will, in all solicitations or advertisements for employees placed by

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or on behalf of the Contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, marital status or national origin.

c. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this Section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

d. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, as amended, and of the rules, regulations, and relevant orders of the Secretary of Labor.

e. The Contractor will furnish all information and reports required by Executive Order 11246, as amended, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his or her books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

f. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246, as amended, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246, amended, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

2. The Contractor will include the portion of the sentence immediately preceding paragraph 1.a and the provisions of paragraphs 1.a through 1.f in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246, as amended, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance, provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

3. Age

   a. The Contractor and its Subcontractors shall include the equal employment opportunity clause set forth in paragraph 1.a above in each of their non-exempt Subcontracts. In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. §§ 623 and federal transit law at 49 U.S.C. § 5332, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

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4. Disabilities

   In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the "Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

5. Federal Equal Employment Opportunity Requirements

   As required by 41 CFR 60-4.2, the Contractor shall take into account the following provisions in performing the Work:

   a. The Contractor shall comply with the Federal Equal Employment Opportunity (EEO) Requirements.

   b. The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows (unless modified by the federal government):

      - Minority participation in each trade (King County) – 7.2%
      - Minority participation in each trade (Snohomish County) – 7.2%
      - Minority participation in each trade (Pierce County) – 6.2%
      - Female participation in each trade (Nationwide) – 6.9%

      These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

      The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the Contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

   c. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) Business Days of award of any construction Subcontract in excess of $10,000 at any tier for construction work under this Contract. The notification shall list the name, address and telephone number of the Subcontractor; employer identification number of the

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Subcontractor; estimated dollar amount of the Subcontract; estimated starting and completion dates of the Subcontract; and the geographical area in which the Subcontract is to be performed.

d. As used in this Notice, and in this Contract, the "covered area" is Snohomish, King and Pierce Counties of the State of Washington.

6. EEO Construction Contract Specifications

As required by 41 CFR 60-4.3, the Contractor shall comply with the following:

Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246)

a. As used in these specifications:

(1) "Covered area" is Snohomish, King and Pierce Counties of the State of Washington.

(2) "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

(3) "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

(4) "Minorities" includes:

(a) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(b) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(c) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification.

b. Whenever the Contractor, or any Subcontractor at any tier subcontracts a portion of the Work involving any construction trade, it shall physically include in each Subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which are set forth in this Contract.

c. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of

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any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

d. The Contractor shall implement the specific affirmative action standards provided in paragraphs g(1) through g(16) below. The goals set forth in this Contract are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

e. Neither the provisions of any collective bargaining agreement, nor the failure by a union with which the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

f. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

g. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

(1) Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

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(2) Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

(3) Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

(4) Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor minority persons or women sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

(5) Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and training programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under g(2) above.

(6) Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

(7) Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

(8) Disseminate the Contractor's EEO policy externally by including it in any

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advertising in the new media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipate doing business.

(9) Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

(10) Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

(11) Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

(12) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

(13) Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

(14) Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

(15) Document and maintain a record of all solicitations of offers for subcontract from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

(16) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

h. The Contractor is encouraged to participate in voluntary associations which assist in fulfilling one or more of its affirmative action obligations (paragraphs g(1) through g(16) above). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under g(1) through g(16) of these specifications provided that the

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Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

i. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

j. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.

k. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

l. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

m. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph g of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

n. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of

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pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

o. Nothing herein provided shall be construed as limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

7. The Contractor also agrees to include these requirements in each Subcontract financed in whole or in part with Federal assistance provided by FTA, modified only if necessary to identify the affected parties.

C. Flow Down

The Civil Rights requirements flow down to the Contractor and its subcontractors at every tier.

1.09 BUY AMERICA REQUIREMENTS

A. The Contractor agrees to comply with the requirements of section 165(a) of the Surface Transportation Assistance Act of 1982, as amended, and the applicable regulations in 49 CFR Part 661, which provide that federal funds may not be obligated unless steel, iron and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by the FTA or the product is subject to a general waiver. General Waivers are listed in 49 CFR 661.7. Separate requirements for rolling stock are set out in section 165(b)(3), of the Surface Transportation Assistance Act of 1982 and 49 CFR 661.11. Rolling stock must be assembled in the United States and have a 60 percent domestic content.

B. A bidder or offeror must submit to Sound Transit the appropriate Buy America certification, attached herein, with all bids or offers on FTA-funded contracts, except those subject to a general waiver. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive. This requirement does not apply to lower tier subcontractors

C. Whether or not a Bidder certifies that it will comply with the applicable requirement, Bidder will be bound by its original certification and is not permitted to change its certification after the time that the Bid is submitted, except for clerical error. A Bidder that certifies that it will comply with the applicable Buy America requirements may not change its certification at any point, and is not eligible for waiver of those requirements. (Buy America Regulations, 49 CFR Part 661.13(c))

D. If the Bidder is unable to certify compliance, but believes that it may qualify for an exception to the requirement consistent with section 165(a) of the Surface Transportation Assistance Act of 1982, as amended, Sound Transit, on behalf of the Bidder, will tender the request for exception(s) to FTA for review and approval. Sound Transit does not warrant that any such request will be acted upon in accordance with the Bidder's time frame. Failure to achieve an exception will not relieve the Bidder of its responsibilities under this Section.

1.10 CARGO PREFERENCE

Pursuant to 46 CFR Part 381, the Contractor agrees:

A. To utilize privately owned United States flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved,

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whenever shipping any equipment, materials, or commodities pursuant to this Contract, to the extent such vessels are available at fair and reasonable rates for United States flag commercial vessels.

B. To furnish within twenty (20) Days following the date of loading for shipments originating within the United States, or within thirty (30) Business Days following the date of loading for shipment originating outside the United States, a legible copy of a rated, commercial ocean bill of lading in English for each shipment of cargo described in paragraph A above to Sound Transit (through the prime Contractor in the case of Subcontractor bills of lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, 400 Seventh Street, SW, Washington, D.C., 20590, marked with appropriate identification of the Project.

C. To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this Contract.

1.11 FLY AMERICA REQUIREMENTS

The Contractor agrees to comply with 49 U.S.C. § 40018 (the "Fly America" Act) in accordance with the General Services Administration's regulations at 41 CFR Part 301-10, which provide that recipients and subrecipients of Federal funds and their contractors are required to use U.S. Flag air carriers for U.S. Government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. The Contractor shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a U.S. flag carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance with the Fly America requirements. The Contractor agrees to include the requirements of this Section in all subcontracts that may involve international air transportation.

1.12 RECOVERED MATERIALS

A. The Contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in subpart B of 40 CFR Part 247.

B. These requirements flow down to all Contractor and Subcontractor tiers.

1.13 ENERGY CONSERVATION

A. The Contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

B. These requirements extend to all third party contractors and their contracts at every tier and subrecipients and their subagreements at every tier.

1.14 CLEAN WATER

A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. The Contractor agrees to report each violation to Sound Transit and understands and agrees that Sound Transit will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

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B. The Contractor also agrees to include these requirements in each Subcontract exceeding $100,000 financed in whole or in part with Federal assistance provided by FTA.

1.15 CLEAN AIR

A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §.§ 7401 et seq. The Contractor agrees to report each violation to Sound Transit and understands and agrees that Sound Transit will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

B. The Contractor also agrees to include these requirements in each Subcontract exceeding $100,000 financed in whole or in part with Federal assistance provided by FTA.

1.16 MIGRATORY BIRD TREATY ACT

The Contractor shall comply with the Migratory Bird Treaty Act (MBTA), 16 U.S.C. Sections 703-712, 50 C.F.R. Section 10.13 and all amendments, which makes it illegal for anyone to take, possess, import, export, transport, sell, or offer for sale, purchase, or barter, any migratory bird, or other parts, nests, or eggs of such a bird except unless and except as permitted by regulations or under the terms of a valid permit issued by the Secretary of the Interior.

1.17 SEISMIC SAFETY

The Contractor agrees that any new building or addition to an existing building will be constructed in accordance with the standards for Seismic Safety required in Department of Transportation Seismic Safety Regulations 49 CFR Part 41 and will certify to compliance to the extent required by the regulation. The contractor also agrees to ensure that all work performed under this contract including work performed by a Subcontractor is in compliance with the standards required by the Seismic Safety Regulations and the certification of compliance issued on the project.

1.18 ELECTRONIC AND INFORMATION TECHNOLOGY

When providing reports or other information to Sound Transit, or to the Federal Transit Administration (FTA), among others, on behalf of Sound Transit, the Contractor agrees to prepare such reports or information using electronic or information technology capable of assuring that the reports or information delivered will meet the applicable accessibility standards of Section 508 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794d, and U.S. ATBCB regulations, "Electronic and Information Technology Accessibility Standards," 36 C.F.R. Part 1194.

1.19 DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

In addition to the Disadvantaged Business Enterprise Program provisions set forth in Section 00 733 39, the Contractor shall comply with the following requirements:

A. As a recipient of financial assistance from the federal Department of Transportation (DOT), through the Federal Transit Administration (FTA), Sound Transit developed and administers a Disadvantaged Business Enterprise (DBE) Program in accordance with 49 Code of Federal Regulations (CFR) Part 26. The Contractor shall review and comply with applicable provisions in 49 CFR Part 26 and Section 00 73 39 of this Contract.

B. The Contractor shall comply with the following assurance:

The Contractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. The Contractor shall carry out applicable requirements of 49 CFR

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Part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or such other remedy as Sound Transit deems appropriate.

C. The Contractor shall include in each Subcontract it awards pursuant to this Contract the following assurance:

"The subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this subcontract. The subcontractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the subcontractor to carry out these requirements is a material breach of this subcontract, which may result in the termination of this subcontract or such other remedy as the Contractor or Sound Transit deems appropriate."

1.20 NO TEXTING WHILE DRIVING

A. Contractor shall comply with Executive Order No. 13513, Federal Leadership on Reducing Text Messaging While Driving, October 1, 2009, 23 U.S.C.A. § 402 note, and DOT Order 3902.10, Text Messaging While December 30, 2009. Contractor shall:

1. Adopt and enforce workplace safety policies to decrease crashes caused by distracted drivers including policies to ban text messaging while driving;
2. Contractor-owned or Contractor-rented vehicles or Government-owned, leased or rented vehicles;
3. Privately-owned vehicles when on official Project related business or when performing any work for or on behalf of the Project; or
4. Any vehicle, on or off duty, and using an employer supplied electronic device.
5. Conduct workplace safety initiatives in a manner commensurate with the Contractor's size, such as:
    a. Establishment of new rules and programs or re-evaluation of existing programs to prohibit text messaging while driving; and
    b. Education, awareness, and other outreach to employees about the safety risks associated with texting while driving.

B. "Driving" is defined as operating a motor vehicle on a roadway, including while temporarily stationary because of traffic, a traffic light, stop sign, or otherwise. "Driving" does not include being in your vehicle (with or without the motor running) in a location off the roadway where it is safe and legal to remain stationary.

C. "Text Messaging" is defined as reading from or entering data into any handheld or other electronic device, including for the purpose of short message service texting, e-mailing, instant messaging, obtaining navigational information, or engaging in any other form of electronic data retrieval or electronic data communication. The term does not include the use of a cell phone or other electronic device for the limited purpose of entering a telephone number to make an outgoing call or answer an incoming call, unless the practice is prohibited by State or local law.

D. Contractor shall include this provision in all subcontracts at all tiers.

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SECTION 03 – INSURANCE REQUIREMENTS

1.01 Description

A. Except as otherwise specified, the Consultant, shall at its sole cost and expense, obtain and maintain during the entire term of this Agreement the minimum insurance set below.

B. In the event the Consultant is a Joint Venture, these insurance requirements shall apply to each Joint Venture member separately.

C. By requiring such minimum insurance, Sound Transit shall not be deemed or construed to have assessed the risks that may be applicable to the Consultant under this Agreement. The Consultant shall assess its own risks and, if it deems appropriate and/or prudent, maintain greater limits and/or broader coverage.

D. The fact that insurance is obtained by Consultant shall not be deemed to release or diminish the liability of the Consultant, including without limitation, liability under the indemnity provisions of this Agreement. Damages recoverable by Sound Transit shall not be limited to the amount of the required insurance coverage.

1.02 Insurance Coverages

E. **Commercial General Liability**: Commercial General Liability for bodily injury including death, personal injury, and property damage, with contractual and completed operations liability endorsements, and Employer's Liability coverage, utilizing insurers and coverage forms acceptable to Sound Transit, with limits of at least $5,000,000 per occurrence and $5,000,000 general aggregate, with $5,000,000 products and completed operations coverage.

F. **Commercial Automobile Liability:** Commercial Auto Liability coverage for bodily injury and property damage utilizing insurers and coverage forms acceptable to Sound Transit, with a limit of at least $1,000,000 combined single limit.

Such liability insurance, identified in 2.a and 2.b above, shall name Sound Transit, its officers, directors, agents, and employees and Community Transit, King County, Kitsap Transit, Pierce Transit, Everett Transit and Washington State Ferries as additional insured with respect to the work, including completed operations, under this Agreement.

G. **Workers Compensation:** The Consultant will secure its liability for industrial injury to its employees in accordance with the provisions of Title 51 of the Revised Code of Washington. The Consultant will be responsible for Workers Compensation insurance for any subconsultant who provides work under subcontract.

If the Consultant is qualified as a self-insurer under Chapter 51.14 of the Revised Code of Washington, it will so certify to Sound Transit by submitting a letter

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signed by a corporate officer, indicating that it is a qualified self-insurer, and setting forth the limits of any policy of excess insurance covering its employees.

The protection provided by the Workers Compensation Policy Part 2 (Employers Liability), or in states with monopolistic state funds, the protection provided by the Stop Gap endorsement to the General Liability must have a minimum required limit of $1,000,000.

H. **Professional Liability:** This Agreement includes "professional services". The Consultant shall maintain the appropriate Professional Liability insurance, with limits of liability of at least $5,000,000 per claim, for damages sustained by reason of or in the course of operations under this Agreement, whether occurring by reason of acts failing to meet the standard of care required by this Agreement, negligent acts, errors, or omissions of the Consultant.

I. **Commercial Crime and Employee Dishonesty:** A policy with minimum required limits of $2,500,000 per occurrence for losses of money and property as a result of theft, burglary, forgery, alteration, disappearance and destruction and for losses due to the dishonest acts of employees.

J. **Railroad Protective Liability**: During any construction or demolition work within 50 feet on either side of railroad or light rail tracks, Contractor shall provide Railroad Protective Liability coverage either by (1) endorsing the General Liability policy with an ISO form CG 24 27 10 01 – Contractual Liability – Railroads endorsement, or equivalent, or (2) obtaining a separate Railroad Protective Liability policy. This insurance shall name Central Puget Sound Regional Transit Authority, dba Sound Transit, its officers, directors, agents and employees as additional insured with coverage of at least $2,000,000 per occurrence and $6,000,000 in the aggregate. The coverage shall be effective for the entire duration of the work to be performed. The policy shall be issued on a standard ISO form CG 00 35 10 93, or equivalent.

K. **Network Privacy & Security Insurance / Cyber Liability:** Contractor agrees to purchase and maintain throughout the term of this Agreement, Privacy & Security liability insurance (or its equivalent "cyber/network security" insurance) covering liabilities resulting or arising from acts, errors, or omissions, in connection with the services provided under this Agreement, which are associated with any breach or loss of any personally identifiable information. Such insurance shall provide coverage for up to $5,000,000.00 per claim. Costs and damages to be covered by this insurance policy shall include without limitation: (a) costs to notify individuals whose personally identifiable information was lost or compromised; (b) costs to provide credit monitoring and credit restoration services to individuals whose personally identifiable information was lost or compromised; (c) costs and damages associated with third-party claims arising from the breach or loss of personally identifiable information, including litigation costs and settlement costs; and (d) any investigation and enforcement costs. The policy must be kept in force during the life of the Agreement and for three (3) years (either as a policy in force or extended reporting period) after Agreement termination. Contractor shall also ensure that any Subcontractors that create,

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receive, maintain, or transmit protected health information or personally identifiable information on behalf of the Contractor agree to the same insurance requirements that apply to the Contractor.

L. **Other Insurance:** Other insurance as may be deemed appropriate to cover the specified risk and exposure of the scope of work or changes to the scope of work evaluated by Sound Transit. The costs of which shall be borne by contracting parties as mutually agreed.

1.03 General Provisions

A. **Certificates and Policies**: Prior to commencement of Work for this Agreement, the Consultant shall provide Sound Transit with certificates of insurance showing insurance coverage in compliance with the foregoing paragraphs. All insurance coverage outlined above shall be written by insurance companies meeting Sound Transit's financial security requirements, (A.M. Best's Key Rating A-; VII or higher). **Such certificates shall reference Sound Transit's contract number, RTA/RP 0119-17 and title, next generation ORCA Systems Integrator.** The Consultant will provide 30 calendar days' advance written notice to Sound Transit in the event the Consultant's insurance policies are cancelled, not renewed, or materially reduced in coverage. Should the Consultant neglect to obtain and maintain in force any of the insurance required in this Section, Sound Transit may suspend or terminate this Agreement. Suspension or termination of this Agreement shall not relieve the Consultant from insurance obligations hereunder.

B. Taking into account the scope of work and services to be performed by a subcontractor and/or subconsultant, the Consultant shall prudently determine whether, and in what amounts, each subcontractor and/or subconsultant shall obtain and maintain commercial general liability and any other insurance coverage. Any insurance required of subcontractors and/or subconsultants shall, where appropriate and/or applicable, name Sound Transit as an additional insured.

C. Consultant's insurance for General Liability, Automobile Liability and Railroad Protective Liability (if applicable) shall be primary as respects Sound Transit, and any other insurance maintained by Sound Transit shall be excess and not contributing insurance with the Consultant's insurance.

D. The Consultant and its insurers shall require that the applicable insurance policy(ies) be endorsed to waive their right of subrogation against Sound Transit. The Consultant and its insurers also waive their right of subrogation against Sound Transit for loss of their owned or leased property or property under their care, custody and control.

E. The Consultant shall provide Sound Transit with complete copies of all insurance policies to comply with the insurance requirements in this Agreement, including, but not limited to, the Additional Insured Endorsement(s) required in 2.a and 2.b above, the Waiver of Subrogation Endorsements, Primary and Non-Contributory Endorsements, Products and Completed Operations Endorsement and any other endorsements.

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F. No provision in this Section shall be construed to limit the liability of the Consultant for work not done in accordance with the Agreement, or express or implied warranties. The Consultant's liability for the work shall extend as far as the appropriate periods of limitation provided by law and up to any legal limits.

G. The Consultant may obtain any combination of coverage or limits that effectively provides the same or better amounts and types of coverage as stipulated above, subject to review and approval by Sound Transit.

H. The Consultant warrants that this Agreement has been thoroughly reviewed by the Consultant's insurance agent/broker, who have been instructed by the Consultant to procure the insurance coverage required by this Agreement.

1.04 Claims Management

The Contractor agrees to the following claims management terms and conditions. The Contractor further agrees to include the following terms and conditions in its contract with its Subcontractors and require its Contractor to comply with the following provisions.

I. The Contractor, after award of a Sound Transit contract, shall provide the names, titles, addresses, telephone numbers, and email addresses of the individual(s) employed by Contractor who handles insurance matters and notifies insurance companies of claims. This individual(s) will be the primary contact for communications between Sound Transit Risk Management Division and the Contractor and its Subcontractors. If the individual(s) change, Contractor shall notify Sound Transit Risk Management Division of the replacement.

J. Contractor shall provide written notice of any incident involving bodily injury and/or property damage to Sound Transit. An "incident" is defined as any event or occurrence involving bodily injury or property damage that may give rise to an insurance claim. Incidents include those involving serious bodily injury, hospitalization, death, or property damage.

K. Contractor's written notice to Sound Transit of any incident or claim shall include the following information:

1) A description of the incident, including any bodily injuries or property damage,

2) The names of anyone injured and/or whose property was damaged,

3) The names and contact information of any insurance company(ies) who may provide insurance coverage related to any aspect of the incident,

4) Policy number(s), claim numbers(s), and policy(ies) effective dates, and

5) A copy of any written Acknowledgement of Claim Receipt issued by any applicable insurance company(ies).

If some information requested above is not available at the time of the initial report, the Contractor shall provide the missing information to Sound Transit as soon as it is available.

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L. If Sound Transit receives a claim from a Third Party related to the project, Sound Transit will tender such claim to the Contractor through the established claim management process for handling and resolution. Upon receipt of a Third Party claim from Sound Transit, the Contractor shall acknowledge in writing to Sound Transit that:

1) The Contractor received and accepts Sound Transit's claim tender,

2) The Contractor shall notify its Commercial General Liability insurance company and any other applicable insurance company (ies) of the claim as per Sound Transit insurance requirements that Sound Transit is named as Additional Insured, under the Commercial General Liability policy and as stipulated in the contract between Sound Transit and the contractor.

3) The Contractor shall provide Sound Transit with copies of any/all Acknowledgements of Claim Receipts issued by its Commercial General Liability or other applicable insurance company(ies),The Contractor and its insurance company(ies) shall indemnify and defend Sound Transit, as an Additional Insured, against any/all claims related to the project.

4) The Contractor's General Liability and other applicable insurance company(ies) will investigate and process the claim, provide a coverage determination, an objective disposition and claim resolution for either denial or settlement.

5) The Contractor shall provide copies of any/all documentation related to a claim's disposition and resolution, such as, but not limited to, acknowledgements, settlement agreements, releases, claim denial letters, judgments, payments, and satisfaction of judgments.

M. Contractor shall provide to Sound Transit quarterly status reports on all open and closed claims related to the project that implicates Sound Transit. The report shall include the assigned adjusters, policy numbers, claim numbers and at least the following:

1) A description of the claim handling activities during the quarter,

2) Any changes to the assigned and/or investigating adjuster, and, if so, the name and contact information of the newly assigned adjuster(s),

3) A description of the next steps in the claims adjusting process,

4) A description of the disposition and resolution of any claim, and

5) Copies of any pertinent documents, including, but not limited to, expert reports, reports on investigations, photographs, settlement agreements, releases, claim denial letters, judgments, payments, and satisfaction of judgments.

Contractor shall notify Sound Transit of their final resolution, or the applicable insurance company's(ies') final resolution, any/all claims related to the project, which Sound Transit Risk Management can review and document as a formal

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notification from the contractor, or its insurance company(ies) that the claims has been fully dispositioned and closed.

END INSURANCE REQUIREMENTS

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SECTION 04 – LIQUIDATED DAMAGES AMOUNTS

All references to damages hereunder shall mean Liquidated Damages:

A. **Factory Acceptance Testing (FAT)** – Contractor's failure to achieve Acceptance for all Factory Acceptance Testing (FAT) in the scope of work: $2,000 in damages will be accessed per day for each day beyond the agreed upon deadline until Acceptance is achieved.

B. Liquidated Damages associated with stations and fleet expansions:

   1. **BRT Stations II and Fleet Expansion I –** Contractor's failure to achieve approval (per Scope of Work Section 2.3.2) of all equipment installation and commissioning for the second 40 BRT Stations and the first 75 buses in the multi-agency bus fleet expansion, $7,000 in damages will be assessed per day for each day beyond the agreed upon deadline until approval is achieved.

   2. **East Link Extension –** Contractor's failure to achieve approval (per Scope of Work Section 2.3.2) of all equipment installation and commissioning for East Link Extension: $150,000 in damages will be assessed per day for each day beyond the agreed upon deadline until approval is achieved.

   3. **BRT Stations III and Fleet Expansion II** – Contractor's achieve approval (per Scope of Work Section 2.3.2) of all equipment installation and commissioning for the next 100 BRT Stations and the next 15 buses in the multi-agency bus fleet expansion: $8,500 in damages will be assessed per day for each day beyond the agreed upon deadline the next 100 BRT Stations and the next 15 buses in the multi-agency bus fleet expansion.

   4. **Lynnwood Link Extension** – Contractor's achieve approval (per Scope of Work Section 2.3.2) of all equipment installation and commissioning for the Lynnwood Link Extension: $62,500 in damages will be assessed per day for each day beyond the agreed upon deadline until approval is achieved.

   5. **Federal Way Link Extension and Redmond Link Extension** – Contractor's achieve approval (per Scope of Work Section 2.3.2) of all equipment installation and commissioning for the Federal Way Link Extension and Redmond Link Extension: $87,500 in damages will be assessed per day for each day beyond the agreed upon deadline until approval is achieved.

   6. **BRT Stations IV and Fleet Expansion III** – Contractor's failure to achieve approval (per Scope of Work Section 2.3.2) of all equipment installation and commissioning for the next 90 BRT stations and next 65 buses in the multi-agency bus fleet expansion: $8,000 in damages will be assessed per day for each day beyond the agreed upon deadline until approval is achieved.

C. **Decommissioning of Legacy ORCA** – Contractor's failure to provision the next gen ORCA back end system, software, and equipment installed and commissioned, and available for revenue service by the agreed upon deadline:

   1. Year 1: $800,000 in damages will be accessed on the first day of each quarter year (January 1st, April 1st, July 1st, and October 1st) after the agreed upon FSA deadline, followed by;

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2. Year 2: $963,000 in damages will be accessed on the first day of each quarter year (January 1st, April 1st, July 1st, and October 1st) that is one year after the agreed upon FSA deadline, until provisioning is complete.

D. **Final System Acceptance (FSA)** – Contractor's failure to achieve Final System Acceptance by the agreed upon deadline: $5,725 in damages per day for each day beyond the agreed upon deadline, until Final System Acceptance is achieved.

END LIQUIDATED DAMAGES AMOUNT

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SECTION 05 – LABOR COMPLIANCE MANUAL

ARTICLE 1 GENERAL

1.01 INSERTION OF PROVISIONS INTO SUBCONTRACTS

Contractor shall insert the provisions set forth in this Labor Compliance Manual ("Manual") in all construction subcontracts of any tier.

1.02 DRUG FREE WORKPLACE

Contractor shall comply with applicable Drug Free Workplace requirements as set forth in 49 CFR Part 29, Subpart F, as modified by 41 U.S.C. 702, 49 U.S.C. 5331 and other applicable requirements.

In addition to other remedies available to Sound Transit, the Contractor's failure to comply with the requirements of this Section may render the Contractor subject to suspension of contract payment or termination for default pursuant to the General Conditions.

1.03 DISPUTES CONCERNING LABOR STANDARDS

Disputes arising out of terms and provisions of this Manual shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7, the Washington State Department of Labor and Industries, or other applicable procedures. Disputes within the meaning of this clause include disputes between the Contractor (or any of its Subcontractors) and Sound Transit, the U.S. Department of Labor, the Washington State Department of Labor and Industries, or the employees or their representatives.

ARTICLE 2 WAGES OF EMPLOYEES.

2.01 GENERAL

This Contract is subject to Washington Department of Labor & Industries ("L&I") prevailing wage requirements and may be subject to the federal Department of Labor ("DOL") prevailing wage requirements. In the event that both state and federal prevailing wages apply, the higher of the two prevailing wage rates will prevail. If a state prevailing rate for a particular classification is available but a federal rate is not available, the procedure outlined below for determination of a federal rate shall be followed. In the event that a federal prevailing rate for a particular classification is available but a state prevailing rate is not available, the procedure outlined below for determination of a state prevailing rate shall be followed. The Contractor shall comply with the requirements of both the state L&I and the federal DOL, for posting notices of applicable wages, submission of certified payrolls, record keeping and other applicable administrative requirements.

Overtime shall be paid in accordance with the highest wage amount determined under the Washington Department of Labor & Industries ("L&I") prevailing wage requirements or the federal Department of Labor ("DOL") prevailing wage requirements.

2.02.STATE PREVAILING WAGES.

All determinations of the state prevailing rate of wage shall be made by the Industrial Statistician of the Department of Labor and Industries of the State of Washington. The state schedule of prevailing wage rates applicable to this Contract are set forth in Section 06. If employing labor in a class not listed in such

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schedule, the Contractor shall require the industrial statistician to determine the correct wage rate for that class and locality.

A. Disputes. In case any dispute arises as to what are the state prevailing rates of wages for work of a similar nature and such dispute cannot be adjusted by the parties in interest, including labor and management representatives, the matter shall be referred for arbitration to the Director of the Department of Labor and Industries of the state of Washington and said Director's decision therein shall be final and conclusive and binding on all parties involved in the dispute. In the event of a dispute as to what the federal rates of wages are, the dispute shall be referred to the Administrator of the Wage and Hour Division, Employment Standards Administration whose decision shall be final and conclusive and binding on all parties involved in the dispute.

B. Posting Notices. Except as provided otherwise in Chapter 39.12 RCW, the Contractor, each Subcontractor and other persons required to pay the prevailing rate of wage shall post in a location(s) readily visible to workers at the site: (1) a copy of the Statement Of Intent To Pay Prevailing Wages approved by the industrial statistician of the Department of Labor and Industries under RCW 39.12.040; and (2) the address and telephone number of the industrial statistician of the Department of Labor and Industries where a complaint or inquiry concerning prevailing wages may be made.

C. Apprentices. Apprentice workers employed hereunder for whom an apprenticeship agreement has been registered and approved with the state apprenticeship council pursuant to Chapter 49.04 RCW shall be paid at least the prevailing hourly rate for an apprentice for that trade. Any worker for whom an apprenticeship agreement has not been registered and approved by the state apprenticeship council shall be considered to be a fully qualified journey worker, and, therefore, shall be paid at the prevailing hourly rate for journey workers.

D. Required Documents. Pursuant to Chapter 39.12 RCW, the Contractor and each Subcontractor shall submit the following documents to Sound Transit:

1. Before payment is made by Sound Transit, the Contractor and each Subcontractor shall submit a "Statement of Intent to Pay Prevailing Wages" that has been approved by the industrial statistician of the Department of Labor and Industries.

2. With each request for payment, the Contractor shall submit a statement that prevailing wages have been paid in accordance with the "Statement of Intent to Pay Prevailing Wages" filed with Sound Transit.

3. Following Final System Acceptance of the Work and before funds retained according to RCW 60.28.010 are released to the Contractor, the Contractor and each Subcontractor shall submit an "Affidavit of Wages Paid" that has been approved by the industrial statistician of the Department of Labor and Industries.

4. Any fees charged by the Department of Labor and Industries for filing the "Statement of Intent to Pay Prevailing Wages" and the "Affidavit of Wages Paid" shall be paid by the Contractor and each Subcontractor, as applicable; if Sound Transit pays such fees for any

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reason, then the Contractor shall be charged the amounts thereof, and shall remit the same to Sound Transit.

E. Worker's Benefits. Contractor shall make all payments required for unemployment compensation under Title 50 RCW and for industrial insurance and medical aid required under Title 51 RCW. The Contractor shall also obey all federal, state and local laws, ordinances, and regulations that establish safety standards for the protection of employees. If any payment required by Title 50 or 51 is not made when due, Sound Transit may retain such payments from any money due the Contractor and apply the same into the appropriate fund. The Department of Labor and Industries will provide the Contractor with applicable industrial insurance and medical aid classification and premium rates. Sound Transit may withhold payment of any amounts needed to pay Industrial Insurance premiums until the Contractor has satisfied to Sound Transit that the Contractor has paid all applicable premiums it owes on the work performed.

2.03 FEDERAL PREVAILING WAGES

If this Contract is also subject to federal prevailing wages, Section 06 contains the wage determination decision of the Secretary of Labor.

A. Minimum wages -- All laborers and mechanics employed or working upon the Site will be paid unconditionally and not less than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor, Section 06, and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis- Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of this Section. Also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its Subcontractors at the Site of the Work in a prominent and accessible place where it can be easily seen by the workers.

B. The Resident Engineer will require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the Contract shall be classified in conformance with a wage determination. The Resident Engineer shall approve an additional classification and wage rate and fringe benefits only when the following criteria have

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been met:

1. Except with respect to helpers as defined as 29 CFR 5.2(n)(4), the work to be performed by the classification requested is not performed by a classification in the wage determination; and

2. The classification is utilized in the area by the construction industry; and

3. The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

4. With respect to helpers as defined in 29 CFR 5.2(n)(4), such a classification prevails in the area in which the work is performed.

C. If Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and Sound Transit agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by Sound Transit to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within thirty (30) Days of receipt and so advise Sound Transit or will notify Sound Transit within the thirty (30) Day period that additional time is necessary.

D. In the event Contractor, the laborers or mechanics to be employed in the classification or their representatives, and Sound Transit do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), Sound Transit shall refer the questions, including the views of all interested parties and the recommendation of Sound Transit, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within thirty (30) Days of receipt and so advise Sound Transit or will notify Sound Transit within the thirty (30) Day period that additional time is necessary.

E. The wage rate (including fringe benefits where appropriate) determined pursuant to these provisions, shall be paid to all workers performing work in the classification under this Contract from the first day on which work is performed in the classification.

1. Whenever the minimum wage rate prescribed in the Contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

2. If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

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2.04 WITHHOLDING

Sound Transit shall, upon its own action or upon written request of an authorized representative of the federal Department of Labor or state Department of Labor and Industries, withhold or cause to be withheld from Contractor under this Contract or any other federal contract with the same prime Contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any Subcontractor the full amount of wages required by the Contract. In the event of failure to pay any laborer or mechanic, including any apprentice trainee, or helper, employed or working on the site of the work all or part of the wages required by the Contract, Sound Transit may, after written notice to Contractor, sponsor, applicant, or owner take such action as may be necessary to cause the suspension of any further payment, advance or guarantee of funds until such violations have ceased.

2.05 PAYROLLS AND BASIC RECORDS

A. Payrolls and basic records relating thereto shall be maintained by Contractor during the course of the Work and preserved for a period of three (3) years thereafter for all laborers and mechanics working at the Site of the Work.

1. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits, daily and weekly number of hours worked, deductions made, and actual wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid.

2. For Contracts that include federal prevailing wage requirements, whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

3. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

B. Certified Payrolls.

1. If this Contract includes federal prevailing wage requirements, Contractor shall submit weekly, for each week in which any Contract Work is performed a copy of all certified payrolls to the Resident Engineer or his designee. In addition, Contractor shall submit

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monthly reports in electronic format (MS Excel software) summarizing wages and bona fide fringe benefits paid to all laborers and mechanics employed or working upon the Site. Report data, report format and due date to be determined by Sound Transit. The certified payrolls submitted shall set out accurately and completely all of the information required to be maintained under Section 5.5(a)(3)(i) of Regulations, 29 CFR Part 5. This information may be submitted in any form to be approved by Sound Transit. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, DC 20402. Contractor is responsible for the submission of copies of payrolls by all subcontractors.

a. Each certified payroll shall be accompanied by a "Statement of Compliance", signed by Contractor or Subcontractor, or his or her agent, who pays or supervises the payment of the persons employed under the Contract and shall certify the following:

   (1) That the payroll for the payroll period contains the information required to be maintained under Section 5.5(a)(3)(i) of Regulations, 29 CFR Part 5 and that such information is correct and complete;

   (2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the Contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR Part 3; and

   (3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the Contract.

b. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the “Statement of Compliance”.

c. The falsification of any of the above certifications may subject Contractor or Subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

d. Contractor or Subcontractor shall make the records required under this Paragraph available for inspection, copying, or transcription by authorized representatives of Sound Transit, the U.S. Department of Transportation, the U.S. Department of Labor, or the Washington State Department of Labor and Industries and shall permit such representatives to interview employees during working hours on the job. If the Contractor or Subcontractor fails to submit the required records upon request or to make such records available, the FTA may,

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after written notice to the Contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

2.06 APPRENTICE AND TRAINEES

A. Apprentices

Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to an individually registered in a bona fide apprenticeship program registered with a State Apprenticeship Agency recognized by the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or if a person is employed in his or her first ninety (90) days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by a State Apprenticeship Agency to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or Subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division of the U.S. Department of Labor determines that a different practice prevails for the applicable apprentice classification, fringe benefits shall be paid in accordance with the determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

B. Trainees

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate

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specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

C. Equal Employment Opportunity

The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

D. Compliance with Copeland Act Requirements

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this Contract.

E. Subcontracts

The Contractor or Subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the Federal Transit Administration (FTA) may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The Contractor shall be responsible for the compliance by any Subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

F. Contract Termination: Debarment

A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the Contract, and for debarment as a Contractor and a Subcontractor as provided in 29 CFR 5.12.

G. Compliance with Davis-Bacon and Related Act Requirements

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CRF parts 1, 3, and 5 are herein incorporated by reference in this Contract.

H. Certification of Eligibility

5. By entering into this Contract, Contractor certifies that neither it (nor he or she) nor any

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person or firm who has an interest in Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis Bacon Act or 29 CFR 5.12(a)(1).

6. No part of this Contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

7. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 USC 1001.

I. Contract Work Hours and Safety Standards Act

1. Overtime Requirements. Neither the Contractor nor any Subcontractor shall require or permit any laborer or mechanic in any workweek in which he or she is employed on such Work to work in excess of forty (40) hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half (1 ½) times the basic rate of pay for all hours worked in excess of forty (40) hours in such workweek.

2. Violation; Liability For Unpaid Wages; Liquidated Damages. In the event of any violation of the clause set forth above, the Contractor and Subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth above, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard work week of forty (40) hours without payment of the overtime wages required by the clause set forth above.

3. Withholding For Unpaid Wages And Liquidated Damages. Sound Transit shall upon its own action, or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from any moneys payable on account of work performed by the Contractor or Subcontractor under any such contract or any other federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or Subcontractor for unpaid wages and liquidated damages as provided in the clause set forth above.

4. Subcontracts. The Contractor shall insert in any subcontracts the clauses set forth in this section and also a clause requiring the Subcontractors to include these clauses in any lower tier subcontracts. The Contractor shall be responsible for compliance by any Subcontractor or lower tier subcontractor with the clauses set forth in this section.

J. Material Suppliers

The requirements of this section do not apply to contracts or subcontracts for the purchase of supplies or materials or articles normally available on the open market.

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ARTICLE 3 APPRENTICE UTILIZATION GOALS

For Contracts where the Engineer's estimate or the Bidder's Total Bid Price is $1,000,000 or more, the Apprentice Utilization Goal applies and is set forth in Section 00 73 39 Diversity Program in this IFB. The Bidder, by submitting a Bid is thereby certifying that, if awarded the Contract, it shall make good faith efforts to locate, qualify and increase the skills of the region's labor force by using apprentices on the Contract and to comply with the apprenticeship provisions contained in Section 05 Labor Compliance Manual. During Bid evaluation, the apparent low Bidder shall verify its intent to utilize good faith efforts to comply with these provisions by executing the Certification of Intent Regarding Apprentice Utilization, contained in Section 00 45 00 Representations and Certifications in this IFB.

A. Contractor Shall Develop and Implement Apprentice Utilization Plan Subject to Sound Transit Approval

The Contractor shall use good faith efforts to utilize apprentices registered with the Washington State Apprenticeship and Training Council ("SAC") for a portion of the total Contract labor hours utilized on the Project. Prior to Notice of Award, the apparent low Bidder shall submit for Sound Transit approval an Apprentice Utilization Plan, if the Engineer's Estimate or if the Bidder's Total Bid Price is $1,000,000 or more. The Plan shall outline how the apprenticeship goals will be met on the total contract labor hours. The Plan, on a form provided by Sound Transit in Section 00 45 00 Representations and Certifications, shall include the following information:

1. Total Contract labor hours include additional hours worked as a result of change orders.
2. Total Contract labor hours exclude hours worked by foremen, superintendents, supervisors, owners, and workers who are not subject to prevailing wage requirements. However, total Contract labor hours shall include the hours worked by supervisors, foremen, and superintendents if it is determined that they are subject to prevailing wage requirements pursuant to WAC 296-127-015.
3. The Contractor shall include the apprentice utilization requirements of this Section in all subcontracts executed for the Project, and ensure that all subcontractors working on the Project are notified of the apprentice utilization requirements. The Contractor is responsible for using good faith efforts to meet the apprentice utilization requirements of the Contract, including overall compliance on all Contract labor hours worked by subcontractors.

B. The Contractor shall make good faith efforts to:

1. Equally distribute the apprentice hours worked among each trade/craft and consistent with the apprentice utilization percentage requirement set forth herein.
2. Use reasonable and practicable means to recruit and hire apprentices to achieve the apprentice utilization goal accepted by Sound Transit.
3. Use reasonable and practicable means to recruit and hire minority and women apprentices for the Project so that of the apprentice utilization requirement percentage in this Section, the Contractor shall use women and people of color to

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perform at least fifty percent (50%) of all first-year apprentice hours in all trades and to perform at least thirty-three percent (33%) of all apprentice hours worked.

4. Comply with the apprenticeship training standards for each trade/craft classification used on the Project, as set forth by the Washington State Department of Labor and Industries.

5. It is expected that an apprentice will normally begin training on the Project as soon as feasible after start of work, utilizing the skill involved and remain on the Project as long as training opportunities exist in the work classification or until the completion of the training program. It is not required that all apprentices be retained for the entire length of the Contract.

C. Changes to the Apprentice Utilization Requirement

1. If, during the term of the Contract, the Contractor determines that it will be unable to meet the apprentice utilization identified in the Apprentice Utilization Plan as accepted by Sound Transit, the Contractor may make a written request to Sound Transit, to modify the Plan. The request shall include documentation of the Contractor's affirmative efforts to use apprentices registered with the Washington State Apprenticeship and Training Council ("SAC"), including copies of correspondence between the Contractor and the SAC-approved apprentice programs, union locals, community stakeholders, and others. The documents must demonstrate that an adequate number of apprentices are not available to meet the apprentice utilization percentage.

2. Sound Transit shall evaluate the request, and if appropriate, shall authorize modification of the Apprentice Utilization Plan. If Sound Transit determines that a modification is not justified, Sound Transit shall communicate the decision in writing to the Contractor.

D. Apprentice Utilization Monitoring and Enforcement

1. Sound Transit or its designee shall verify the registration of each apprentice used on the Contract with the Washington State Apprenticeship and Training Council.

2. Sound Transit or its designee shall monitor the apprentice utilization data provided by the Contractor. In the event that the Contractor is deficient in the use of apprentices, Sound Transit or its designee will meet with the Contractor to discuss the reasons for the deficiency and help the Contractor develop a written plan for meeting the goals.

3. Sound Transit may make routine visits to the Site for the purpose of confirming the use of apprentices. The Contractor acknowledges that parties designated by Sound Transit may make visits to the Site for the purpose of confirming the use of apprentices. Said third party visitors will be required to abide by the Contractor's and Sound Transit's work rules and safety plan.

ARTICLE 4 NON-DISCRIMINATION, EEO, APPRENTICE AND CURRENT EMPLOYEE REPORTING REQUIREMENTS

A. With each Request for Progress Payment, the Contractor shall submit to Sound Transit a Monthly EEO in electronic format to be provided by Sound Transit, for the Contractor and all Subcontractors. The monthly reports shall be completed by the Contractor and all Subcontractors

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performing work on the Contract during the reporting period. The reports shall accompany the Contractor's Request for Progress Payment. A Request for Progress Payment that is not accompanied by the monthly reports will not be processed for payment until said monthly reports are received and approved by Sound Transit.

B. With each Request for Progress Payment, the Contractor will also submit to Sound Transit a certification, in the form provided by Sound Transit, stating that they have no knowledge of allegations (whether as a written or oral statement from a worker or in the form of formal EEOC complaints, union grievances, or other complaints in any other administrative or legal form) regarding the violation of applicable Civil Rights and non-discrimination laws or policies against the Contractor or subcontractors performing work on the contract. If the Contractor has such knowledge, the Contractor shall provide a brief explanation of the alleged violation(s), and a description of any actions that have been or will be taken to address or remedy the alleged violation(s). The Contractor will provide Sound Transit access to all records pertaining to the alleged violation (s) and reasonable access to interview employees or workers that may have information related thereto.

C. Within five (5) working days of receiving notice of any complaint that has been filed against the Contractor regarding allegations of discrimination on this contract by any federal, state or local civil rights enforcement agency, the Contractor shall provide a copy of the complaint to Sound Transit. The Contractor will provide to Sound Transit access to all records pertaining to the complaint.

D. The Contractor shall be responsible for reporting EEO data required by Sound Transit beginning with the first day of work for each apprentice. The Contractor's first submittals are due at the end of the first month after the Contract start date specified in the Notice to Proceed, and at monthly intervals thereafter as specified above. Subcontractor submittals are due at the end of the month after commencement of their work and monthly thereafter, as specified above.

E. The Contractor shall report the following information on journey level employees:

- Labor hours for reporting period by ethnicity/gender, for each trade/craft.
- Total journey level labor hours by ethnicity/gender, for each trade/craft.
- Total labor hours and number of journey level employees for reporting period by ethnicity/gender.
- Total journey level labor hours and number of employees to-date.
- Summary information as noted on the reporting form.

F. On a weekly basis, the Contractor shall submit to Sound Transit a Current Employee Report which shall be completed by the Contractor and all Subcontractors of all employees performing work on the Contract for the previous week. In addition, the Contractor will be required to maintain and provide on the report racial and gender data regarding the hiring and termination of craft workers, including the number of hours worked before termination, and upon request, provide to Sound Transit the documentation supporting the reason the worker was terminated. If the work is

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performed in shifts, the Contractor will also report racial and gender data regarding the staffing of each shift. A sample of this form is included in Section 00500 of this IFB and may be provided in an electronic format by Sound Transit.

G. The Contractor shall submit such other information as may be requested by Sound Transit to verify compliance with the EEO requirements of the Contract. Sound Transit reserves the right to add, delete, or change as necessary the information required by the Contractor on the Monthly EEO and Apprentice Utilization Report form.

ARTICLE 5 SUBSTANCE ABUSE PREVENTION PROGRAM

A. Unauthorized use, possession or sale of controlled substances or alcohol on the Project is prohibited. Persons who violate this rule or who are convicted for selling, using, or possessing controlled substances off the job will not be permitted to work on the Project.

B. Applicants for Project employment will be subject to pre-employment controlled substance, alcohol and adulterant testing. Thereafter, employees will be subject to reasonable cause, post-accident, random and return-to-work testing for the presence of controlled substances, alcohol or adulterants in their systems.

C. Employees who report for work with alcohol, adulterants or unauthorized controlled substances in their system will not be permitted to remain on the Project. Employees who violate the substance abuse policy and applicants who fail the pre-employment testing, will be denied employment and will not be eligible for reassignment to any Contractor on the Project until a period of not less than ninety (90) calendar days has passed. Such employees/applicants shall be subject to pre-employment, random and periodic controlled substance, adulterant or alcohol testing thereafter at the request of Sound Transit for up to one year. The program will apply to all Contractor craft personnel, union and non-union, at all construction sites.

D. The Contractor shall assure a drug-free workplace by implementation of a substance abuse program that complies with all applicable federal and state laws. Documentation of the Contractor's program and evidence of testing shall be maintained by the Contractor and provided o Sound Transit for review and inspection upon request.

END LABOR COMPLIANCE MANUAL

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SECTION 06 – PREVAILING WAGE RATES

Washington State prevailing wage rates can be found at: http://www.lni.wa.gov/TradesLicensing/PrevWage/WageRates/.

Davis-Bacon Act Wage determinations are available at http://www.wdol.gov/dba.aspx, and the current rates are included in the following pages.

Questions may be directed to the local Seattle office:

Seattle District Office
US Dept. of Labor Wage & Hour Division
300 Fifth Avenue, Suite 1130
Seattle, WA 98104

Phone:
(206) 398-8039
1-866-4-USWAGE (1-866-487-9243)

General Decision Number: WA170036 07/21/2017 WA36

Superseded General Decision Number: WA20160036

State: Washington

Construction Type: Building

County: King County in Washington.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.20 for calendar year 2017 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.20 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2017. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/06/2017
1	01/13/2017
2	02/03/2017
3	02/17/2017
4	03/03/2017
5	03/10/2017
6	05/19/2017
7	06/02/2017
8	06/16/2017
9	07/07/2017
10	07/21/2017

ASBE0007-002 06/01/2017

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR	$ 32.86	15.37

BRWA0001-011 06/01/2016

	Rates	Fringes
Bricklayers, Caulkers	$ 38.24	15.57

CARP0770-020 06/01/2016

	Rates	Fringes
CARPENTER (Acoustical Installation)	$ 40.92	14.59
CARPENTER (Including Formwork, Drywall Hanging, Cabinet Installation; Insulator-Batt and Metal Stud Installation)	$ 40.92	14.59

MILLWRIGHT.....$ 42.42 14.59
PILEDRIVERMAN.....$ 41.17 14.59

(HOURLY ZONE PAY: WESTERN AND CENTRAL WASHINGTON - ALL CLASSIFICATIONS EXCEPT MILLWRIGHTS AND PILEDRIVERS

Hourly Zone Pay shall be paid on jobs located outside of the free zone computed from the city center of the following listed cities:

Seattle	Olympia	Bellingham
Auburn	Bremerton	Anacortes
Renton	Shelton	Yakima
Aberdeen-Hoquiam	Tacoma	Wenatchee
Ellensburg	Everett	Port Angeles
Centralia	Mount Vernon	Sunnyside
Chelan	Pt. Townsend	

Zone Pay:

0 -25 radius miles	Free
26-35 radius miles	$1.00/hour
36-45 radius miles	$1.15/hour
46-55 radius miles	$1.35/hour
Over 55 radius miles	$1.55/hour

(HOURLY ZONE PAY: WESTERN AND CENTRAL WASHINGTON - MILLWRIGHT AND PILEDRIVER ONLY)

Hourly Zone Pay shall be computed from Seattle Union Hall, Tacoma City center, and Everett City center

Zone Pay:

0 -25 radius miles	Free
26-45 radius miles	$ .70/hour
Over 45 radius miles	$1.50/hour

ELEC0046-006 02/06/2017

	Rates	Fringes
ELECTRICIAN	$ 47.56	3%+19.31

ELEC0046-007 02/06/2017

	Rates	Fringes
ELECTRICIAN (Alarm Installation Only)	$ 31.67	3%+12.45
ELECTRICIAN (Low Voltage Wiring Only)	$ 31.67	3%+12.45

ELEV0019-005 01/01/2017

	Rates	Fringes
ELEVATOR MECHANIC	$ 50.82	31.585

FOOTNOTE:

a. Employer contributes 8% of the basic hourly rate for over 5 year's service and 6% of the basic hourly rate for 6 months to 5 years' of service as vacation paid credit.

b. Eight paid holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Veteran's Day; Thanksgiving

Day; Friday after Thanksgiving and Christmas Day

ENGI0302-019 06/01/2017

	Rates	Fringes
Power equipment operators:		
Group 1A	$ 41.90	19.20
Group 1AA	$ 42.52	19.20
Group 1AAA	$ 43.13	19.20
Group 1	$ 41.29	19.20
Group 2	$ 40.76	19.20
Group 3	$ 40.29	19.20
Group 4	$ 37.70	19.20

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1AAA - Cranes-over 300 tons, or 300 ft of boom (including jib with attachments)

GROUP 1AA - Cranes 200 to 300 tons, or 250 ft of boom (including jib with attachments); Excavator/Trackhoe: Over 90 metric tons

GROUP 1A - Cranes, 100 tons thru 199 tons, or 150 ft of boom (including jib with attachments); Loaders-overhead, 8 yards and over; excavator/Trackhoe: over 50 metric tons to 90 metric tons

GROUP 1 - Cranes 45 tons thru 99 tons, under 150 ft of boom (including jib with attachments); Excavator/Trackhoe: over 30 metric tons to 50 metric tons; Loader- overhead 6 yards to, but not including 8 yards; Dozer D-10; Screedman; Scrapers: 45 yards and over; Grader/Blade

GROUP 2 - Cranes, 20 tons thru 44 tons with attachments; Drilling machine; Excavator/Trackhoe: 15 to 30 metric tons; Horizontal/directional drill operator; Loaders-overhead under 6 yards; Crane Oiler-100 Tons and Over; Compactor; Scraper: under 45 tons

GROUP 3 - Cranes-thru 19 tons with attachments; Dozers-D-9 and under; Motor patrol grader-nonfinishing; Roller-Plant Mix; Crane Oiler under 100 tons; Excavator/Trackhoe: under 15 metric tons; Forklift: 3000 lbs and over with attachments; Service Oiler; Concrete Pump; Outside Hoist (Elevators and Manlifts); Pump Grout

GROUP 4 - Roller-other than plant mix; Forklift: under 3000 lbs with attachments; Bobcat; Rigger/Bellman

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IRON0086-010 07/01/2016

	Rates	Fringes
IRONWORKER (Reinforcing, Structural and Ornamental)	$ 40.52	24.71

LABO0242-002 06/01/2017

ZONE 1:

	Rates	Fringes

LABORER
GROUP 2.....$ 28.45 10.99
GROUP 3.....$ 35.54 10.99
GROUP 4.....$ 36.41 10.99
GROUP 5.....$ 36.99 10.99

ZONE DIFFERENTIAL (ADD TO ZONE 1 RATES):
ZONE 2 - $1.00
ZONE 3 - $1.30

BASE POINTS: BELLINGHAM, MT. VERNON, EVERETT, SEATTLE, KENT, TACOMA, OLYMPIA, CENTRALIA, ABERDEEN, SHELTON, PT. TOWNSEND, PT. ANGELES, AND BREMERTON

ZONE 1 - Projects within 25 radius miles of the respective city hall
ZONE 2 - More than 25 but less than 45 radius miles from the respective city hall
ZONE 3 - More than 45 radius miles from the respective city hall

LABORERS CLASSIFICATIONS

GROUP 2: Flagman

GROUP 3: General Laborer; Mason Tender-Cement/Concrete; Chipping Gun (under 30 lbs.); Form Stripping; Roof Tearoff

GROUP 4: Chipping Gun (over 30 lbs.); Concrete Saw Operator; Grade Checker; Gunite; Pipe Layer; Vibrating Plate

GROUP 5: Mason Tender-Brick

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* PAIN0005-029 07/01/2017

	Rates	Fringes
DRYWALL FINISHER/TAPER	$ 39.50	17.43

PAIN0005-030 07/01/2013

	Rates	Fringes
Painters:		
Parking Lot and Highway Striping Only	$ 28.00	14.33

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* PAIN0005-031 07/01/2017

	Rates	Fringes
PAINTER (Including Brush, Roller, Spray and Prep Work)	$ 29.75	11.58

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* PAIN0188-005 07/01/2017

	Rates	Fringes
GLAZIER	$ 43.24	17.16

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* PAIN1238-002 07/01/2017

	Rates	Fringes

SOFT FLOOR LAYER (Including
Vinyl and Carpet).....$ 30.82 16.56

PLAS0528-002 06/01/2017

	Rates	Fringes
PLASTERER	$ 38.10	16.34

PLAS0528-004 06/01/2017

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 40.52	16.54

PLUM0032-009 01/01/2017

	Rates	Fringes
PIPEFITTER	$ 53.06	23.03
PLUMBER (Including HVAC Pipe Installation)	$ 52.81	22.28
REFRIGERATION MECHANIC	$ 52.22	22.79

ROOF0054-008 01/01/2017

	Rates	Fringes
ROOFER (Includes Roof Tear Off, Waterproofing, and Installation of Metal Roofs)	$ 33.32	14.17

SFWA0699-006 07/01/2017

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers)	$ 48.47	25.52

SHEE0066-023 06/01/2016

	Rates	Fringes
Sheet Metal Worker (Including HVAC Duct Work and Installation of HVAC Systems)	$ 48.17	25.52

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* TEAM0174-005 01/01/2017

	Rates	Fringes
Truck drivers:		
ZONE A:		
GROUP 2:	$ 34.13	18.57

ZONE B (25-45 miles from center of listed cities*): Add $.70 per hour to Zone A rates.
ZONE C (over 45 miles from centr of listed cities*): Add $1.00 per hour to Zone A rates.

*Zone pay will be calculated from the city center of the following listed cities:

BELLINGHAM CENTRALIA RAYMOND OLYMPIA

EVERETT	SHELTON	ANACORTES	BELLEVUE
SEATTLE	PORT ANGELES	MT. VERNON	KENT
TACOMA	PORT TOWNSEND	ABERDEEN	BREMERTON

TRUCK DRIVERS CLASSIFICATIONS

GROUP 2 - Semi-Trailer Truck

HAZMAT PROJECTS

Anyone working on a HAZMAT job, where HAZMAT certification is required, shall be compensated as a premium, in addition to the classification working in as follows:
LEVEL C: +$.25 per hour - This level uses an air purifying respirator or additional protective clothing.
LEVEL B: +$.50 per hour - Uses same respirator protection as Level A. Supplied air line is provided in conjunction with a chemical "splash suit."
LEVEL A: +$.75 per hour - This level utilizes a fully-encapsulated suit with a self-contained breathing apparatus or a supplied air line.

SUWA2009-024 05/22/2009

	Rates	Fringes
LABORER: Driller	$ 17.17	5.36
LABORER: Irrigation	$ 11.58	0.00
LABORER: Landscape	$ 9.73	0.00
LABORER: Overhead Door Installation	$ 22.31	3.44
OPERATOR: Backhoe	$ 29.95	7.20
OPERATOR: Mechanic	$ 24.33	4.33
ROOFER: Metal Roof	$ 24.30	4.05
TILE SETTER	$ 18.72	3.35
TRUCK DRIVER: Dump Truck	$ 27.43	0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is

like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative

Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

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SECTION 07 – SOFTWARE LICENSE AND MAINTENANCE AGREEMENTS

The Software License and Maintenance Agreements listed below are hereby attached to this Agreement and hereby incorporated by reference:

- Attachment A – INIT Software End-User License Agreement
- Attachment B – INIT Software Maintenance Agreement
- Attachment C – Oracle Enterprise Edition with Advanced Security & Maintenance Agreement
- Attachment D – Shareplex Subscription Agreement including Professional Setup Services
- Attachment E – IBM Maas 360 Mobile Device Management License Agreement

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Attachment A – INIT Software End-User License Agreement

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ATTACHMENT A END-USER LICENSE AGREEMENT

This End-User License Agreement ("EULA" or “License Agreement”) is effective as of the ____day of _____, 2018 (“Effective Date”) by and between INIT Innovations in Transportation, Inc., a Virginia corporation located at 424 Network Station, Chesapeake, Virginia 23320 (“INIT” or “Licensor”), and Central Puget Sound Regional Transit Authority dba Sound Transit.

RECITALS

A. INIT represents that it possesses the right to license certain computer software programs that support the access, delivery and management of the Software System (a term used for the ORCA system software, written programs or procedures, or rules, and associated documentation designed to perform an intended purpose and identified in the contract documents and requirements. This system may be made up of multiple software programs that are developed by INIT and licensed to Sound Transit, and/or third party software applications) across multiple platforms.

B. Licensee desires to license the INIT Software as set forth and including any other INIT software on Exhibit A hereto (collectively, the “INIT Software”), from INIT and INIT desires to license the INIT Software to Licensee, subject to the terms and conditions set forth below.

C. This License Agreement is granted in connection with the Purchase Contract. This License Agreement survives any termination or expiration of the Purchase Contract.

TERMS AND CONDITIONS

NOW, THEREFORE, in consideration of the premises and the mutual covenants and agreements set forth below and other good and valuable considerations, the receipt and sufficiency of which are hereby acknowledged, the parties hereto do hereby covenant and agree as follows:

1. **DEFINITIONS.** The following definitions apply in this EULA:

   1.1. “Licensee” means Sound Transit and all of the ORCA Partner Agencies as defined in the Purchase Contract.

   1.2. “Documentation” means any written documentation that is supplied by INIT.

   1.3. “INIT Software” shall have the meaning ascribed to that term in Exhibit A. The term INIT Software shall also include, without limitation, any and all corrections, bug fixes, enhancements, upgrades and updates or other modifications that INIT may hereafter provide to Licensee.

   1.4. “Licensed Products” means the Documentation and the INIT Software described in Exhibit A, collectively.

   1.5. “Price Sheet” means Section 08 of the Purchase Contract.

   1.6. “Purchase Contract” means that Sound Transit Goods and Professional Services Contract No. RTA/RP 0119-17 dated the ____day of _____, 2018.

   1.7. “Final System Acceptance” shall mean written notice from Licensee acknowledging that the Licensor has fulfilled all of its obligations under the Purchase Contract and that Licensee has accepted the Work.

2. **OWNERSHIP AND RIGHTS IN SOFTWARE.** Nothing in this License Agreement shall transfer ownership of any intellectual property or other rights in the INIT Software to Licensee. Licensee acquires only the limited license rights expressly stated herein.

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3. LICENSE GRANTS.

3.1 **INIT Software.** INIT hereby grants to Licensee an unlimited, non-transferable, non-exclusive, perpetual, royalty-free, ORCA-specific, irrevocable (except as stated in Section 4.7 hereof), license to, use the INIT Software, including the use of associated application programming interfaces (APIs). The license described herein is not limited to any number of seats, users, or hardware/equipment installations, or any other limitation on the use of the Licensed Products other than what is specifically contemplated by this License Agreement.

3.2 **Documentation.** INIT hereby grants to Licensee an unlimited, non-transferable, non-exclusive, perpetual, royalty-free, ORCA-specific license to use, copy, adapt, modify, enhance and create derivative works from the Documentation solely in order to support Licensee's use of INIT Software, including the right to: (a) reproduce, at no additional cost, as many copies of the Documentation as Licensee requires to support such use, (b) translate the Documentation into other languages as required for Licensee's use provided that INIT shall have no responsibility in respect of any such translation not affected by it, (c) reproduce, at no additional cost, any worn or damaged copies of the Documentation, (d) reproduce in hard copy form from the electronic format any excerpts that Licensee requires to prepare internal manuals for staff and personnel use, and (e) reproduce and maintain additional copies of the Documentation as Licensee may require to comply with applicable laws and its data retention policies.

3.3 **Other Licensed Uses.** In any event, at no additional cost, Licensee is entitled to make and keep additional archival copies of the INIT Software as Licensee may require to comply with applicable laws and its data retention policies.

3.4 **Other Interfaces.** Licensee is entitled to develop interfaces between the INIT Software and any of Licensee's other software, including licensed software; provided that INIT shall have no responsibility of any nature in respect of any such interfaces not developed by it, including but not limited to failure or substandard performance of the INIT Software subject to interface. INIT shall not be required to provide Licensee with any assistance in the development of such interfaces, other than professional services required as part of the Purchase Agreement.

3.5 **Clarifications.** For further clarity, (a) the licenses granted in Section 3.1 through 3.4 above include, without limitation, the right for Licensee to install, view, and operate the INIT Software, and (b) the parties acknowledge and agree that Licensee's rights in the Licensed Products may be exercised by any personnel (whether an employee or intern) or an independent contractor of Licensee who has agreed to the same Confidentiality restrictions as Licensee. Other than as set forth herein Licensee shall make no attempt to reverse compile, disassemble, or otherwise reverse engineer all or any part of the INIT Software. Except as provided herein or in the terms of the Purchase Contract, Licensee shall not copy, reproduce, modify, adapt or translate the Licensed Products, without the advance express written consent of INIT. Unless permitted by law or a court order, Licensee, its staff, contractors and subcontractors and consultants shall not permit disclosure of, access to, or use of the INIT Software by any third party unless authorized in writing in advance by INIT.

4. RESTRICTIONS AND LIMITATIONS ON USE.

4.1 **Archival and Backup Copies.** Licensee is authorized to make no more than two additional copies of the INIT Software for archival or backup purposes.

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4.2 **Modification of Software.** Modifications to the INIT Software are prohibited and such modifications will void any warranty or maintenance agreement covering the INIT Software.

4.3 **Reverse Engineering Prohibited.** Reverse engineering, decompilation, disassembly, or other similar techniques are prohibited by this EULA. This EULA does not authorize use nor grant any rights in the source code for the INIT Software.

4.4 **Rental of Software Prohibited.** Licensee may not rent, lease, distribute, transfer, or time share the Licensed Products.

4.5 **Assignment and Transfer of License Rights.** Licensee may not assign or transfer the Licensed Products or this EULA to any third person or organization except with the prior written permission of INIT, which shall not be unreasonably withheld or delayed. Upon thirty (30) days prior notice, and with Licensee's consent, INIT may assign this Agreement and rights for benefit of Licensee.

4.6 **No Other Rights in Copyrights, Trademarks, or Patents Granted.** Except as expressly granted herein, Licensee acquires no other rights in any copyright, patent, trademark, or trade secret incorporated in or applicable to the Licensed Products.

4.7 **Term and Termination.** The term of this EULA shall commence on the Effective Date and continue perpetually thereafter unless terminated as provided below.

4.8 **Dispute Resolution**

4.8.1 Licensee and the Licensor agree to use their best efforts to resolve disputes arising out of or related to this License Agreement using good faith negotiations and the principles of Project Partnering by developing and implementing a Dispute Escalation Process that provides for the timely resolution of disputes as close to their point of origin as possible. It is agreed that the foregoing will not negate any of the License Agreement requirements for providing timely notice and the timely submission of documents that are required elsewhere in the License Agreement.

4.8.2 In the event the parties are unable to resolve their dispute, if a Dispute Review Board (DRB) has been established for this License Agreement and if the claim is over $250,000, the dispute shall be referred to a DRB as a condition precedent to mediation. If the claim is $250,000 or less or, if no DRB has been established for this License Agreement or, if the dispute remains unresolved after a hearing by and recommendation from the DRB, the dispute shall be referred to mediation as a condition precedent to the commencement of a civil action. Anything to the contrary herein notwithstanding, either party shall be entitled to commence an action for equitable relief in any court of competent jurisdiction in order to prevent irreparable harm to the applicant.

4.8.3 For mediation, a mediator shall be chosen that is agreeable to all parties involved in the dispute and such agreement shall not be unreasonably withheld. All statements made by parties involved in the dispute to the mediator shall remain confidential and shall not be disclosed by the mediator in any litigation or other claim proceedings. All parties hereby agree to such terms and signature of the License Agreement provides written confirmation of these terms.

4.8.4 UPON THE END OF THE PURCHASE CONTRACT, THE FOLLOWING SHALL APPLY TO THE EXCLUSION OF THE FOREGOING:

In the event Licensee breaches a material term of this EULA and fails to cure such breach within ninety (90) days after the receipt of written notice thereof from INIT specifying such breach (such ninety (90) day period shall be referred to herein as the "Cure Period"), then INIT may terminate this EULA by giving Licensee written

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notice thereof within thirty (30) days after the end of the Cure Period, and, in such event, this EULA shall terminate ninety (90) days after Licensee's receipt of such notice. Licensee may terminate this EULA at any time by giving written notice thereof to INIT and, in such event, this EULA shall terminate on the date specified in such notice. Upon termination of this EULA, Licensee agrees to, as directed by INIT, destroy or return to INIT all copies of the Licensed Products, except that Licensee may keep one copy for archival purposes. Licensee shall certify to INIT in writing its compliance with the return or destruction provisions.

4.9 **Media.** Subject only to Licensees' complying with any request for information according to any statutory requirements that apply to Licensee, neither party shall communicate with representatives of the general or technical press, radio, television, or other communication media regarding the work under this License Agreement without the prior written consent of the other party. Neither party nor any of its personnel shall publish or reproduce or arrange press releases regarding the other party without the prior written consent of the other party upon such terms as may be agreed.

4.10 **Public Disclosure.** The Licensor acknowledges that the Licensee is subject to Chapter 42.56 RCW. Licensee acknowledges that the INIT Software, the Documentation are owned by INIT or INIT has the rights of use in them. Licensee is obliged to maintain the Trade Secrets in confidence and not to disclose the Trade Secrets to any third party, without INIT's prior written consent, which shall not be unreasonably withheld, or as required by law. The Licensor and the Licensee agree that the following process shall control any request received by the Licensee for access to or a copy of the INIT Software or Documentation. These obligations of confidentiality shall survive termination of the EULA.

Pursuant to Chapter 42.56 RCW, documents related to this EULA shall be considered public records and with limited exceptions will be available for inspection and copying by the public. INIT must specifically designate and clearly label as "CONFIDENTIAL" any and all materials or portions thereof they deem to contain trade secrets or other proprietary information, which is exempt from public inspection and copying. INIT must provide the legal basis for the exemption to Licensee upon request. If a document does not clearly identify the "CONFIDENTIAL" portions, Licensee will not notify the Contractor that the documents will be made available for inspection. If a request is made for disclosure of material or any portion marked "CONFIDENTIAL," Licensee will determine whether the material should be made available under the law. If Licensee determines that the material is not exempt and may be disclosed, Licensee will notify INIT of the request and allow the INIT 10 working days to take appropriate action pursuant to RCW 42.56.540. If INIT fails or neglects to take such action within said period, Licensee may release the portions of the documents deemed subject to disclosure. To the extent that Licesee withholds from disclosure all or any portion of INIT's documents at INIT's request, Licensee shall indemnify, defend and hold harmless Licensee from all damages, penalties, attorneys' fees and costs Licensee incurs related to withholding information from public disclosure. By executing this EULA, INIT consents to the procedure outlined in this paragraph and shall have no claim against Licensee by reason of actions taken under this procedure.

5 **LICENSOR'S RIGHT TO AUDIT LICENSE RESTRICTIONS.** Upon Licensor's reasonable belief that Licensee may not be in compliance with the provisions of this EULA, Licensee agrees to allow INIT access to the Licensed Products, upon reasonable notice and during normal business hours, to verify compliance with the provisions of the EULA so long as INIT does not unreasonably interfere with Licensee's daily operations. Licensee shall make

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available the necessary operational records, database equipment, employees and facilities required by INIT to perform its audit.

6 PROTECTION OF SOFTWARE AND DOCUMENTATION. Licensee agrees to use commercially reasonable measures to protect the Licensed Products, including documentation, from unauthorized use, copying, or distribution.

7 MAINTENANCE. INIT provides no maintenance as part of this EULA. Maintenance is provided under the terms of the Purchase Contract or by separate agreements with INIT.

8 EXPORT COMPLIANCE. The export of INIT Software may controlled by federal law. You agree that you will not: (a) export or re-export, directly or indirectly, any software and/or technical data (as defined by the U.S. Export Administration Regulations) provided by INIT or (b) disclose such software/technical data for use in, or export or re-export directly or indirectly, any direct product of such technical data, including Software, to any destination to which such export or re-export is restricted or prohibited by United States, without obtaining prior authorization from the U.S. Department of Commerce and other competent government entities to the extent required by applicable laws and/or regulations.

9 US GOVERNMENT RESTRICTED RIGHTS. This EULA provides only RESTRICTED RIGHTS in the Licensed Products. Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subparagraph FAR section 52.227-19 (48 CFR 52.227-19) (December 2007) and the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013, as applicable.

10 LIMITED WARRANTIES.

10.1 Authority. INIT represents and warrants that (a) INIT is a corporation duly organized, validly existing and in good standing under and in accordance with the laws of the Commonwealth of Virginia, (b) INIT has full legal power and authority to enter into this Agreement, and (c) the person who executes and delivers this Agreement for INIT and on its behalf is duly authorized and has all requisite authority to do the same.

10.2 No Infringement. INIT represents and warrants that (a) Licensee shall have quiet enjoyment of the Licensed Products and other materials delivered hereunder and that Licensee's use of, and/or other authorized exercise of its rights in, the Licensed Products and/or such other materials shall not infringe or otherwise violate any patent, copyright, trademark, trade secret, nondisclosure, and/or any other intellectual property right of any third party, (b) no third party has made any claim of infringement of intellectual property rights with respect to the Licensed Products, (c) INIT has not previously and will not hereafter grant any rights to any third party that are in conflict with any of the rights granted herein, (d) any services performed pursuant to this EULA (or otherwise in respect of the Licensed Products) by INIT will not infringe or otherwise violate any patent, copyright, trademark, trade secret, nondisclosure, right of publicity, right of privacy and/or any other intellectual property right of any third party.

10.3 No Viruses. INIT represents and warrants that the INIT Software does not contain, and will not contain, any feature which could in any way impair the operation of such software (and/or any of Licensee's other software and/or hardware) including, without limitation, (a) software locks, license keys, drop dead devices, back doors, time bombs, or other software routines which may disable a computer program automatically with the passage of time or under the positive control of a person other than Licensee, or (b) any form of virus, a Trojan horse, worm or other software routines or hardware components which may (i) permit unauthorized access, (ii) disable, erase, or otherwise harm software, hardware, or data, or (iii) remove, provide access to or disclose any

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data or other personal information, health information or financial information of any person.

10.4 **No Security Interests.** INIT represents and warrants that the INIT Software has not been pledged, in whole or in part, as security for any loans or other obligations and there are otherwise no security interests, liens or other types of encumbrances on the INIT Software.

11 **LIMITATION AND EXCLUSION OF WARRANTIES.** EXCEPT AS EXPRESSLY SET FORTH IN THIS LICENSE AGREEMENT AND DURING THE TERM OF THE PURCHASE CONTRACT AS EXPRESSLY SET FORTH THEREIN, INIT MAKES NO WARRANTIES, REPRESENTATIONS, OR PROMISES. EXCEPT AS EXPRESSLY SET FORTH IN THIS LICENSE AGREEMENT AND DURING THE TERM OF THE PURCHASE CONTRACT AS EXPRESSLY SET FORTH THEREIN, INIT EXPRESSLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY, TITLE, AND SUITABILITY FOR ANY SPECIFIC PURPOSE, OR SYSTEM. INIT DOES NOT WARRANT THAT THE LICENSED PRODUCTS WILL PERFORM WITHOUT INTERRUPTION OR ERROR, AND DOES NOT WARRANT THAT THEY WILL SATISFY ANY PARTICULAR REQUIREMENTS NOT SET OUT IN THE PURCHASE CONTRACT REQUIREMENTS.

12 **APPLICABLE LAW/VENUE/JURISDICTION.** This License Agreement shall be governed by, and construed in accordance with, the laws of the State of Washington, without regard to any applicable conflict of laws rules. The exclusive venue and jurisdiction shall lie in the federal and state courts of King County, Washington.

13 **LIMITATION OF LIABILITY.**

13.1 DURING THE TERM OF THE PURCHASE CONTRACT, THE FOLLOWING LIMITATION OF LIABILITY SHALL APPLY:

ANYTHING IN THE PURCHASE AGREEMENT OR THIS EULA TO THE CONTRARY NOTWITHSTANDING, THE LIABILITY OF EITHER PARTY SHALL BE LIMITED TO TWO TIMES THE CONTRACT PRICE SET FORTH IN THE PURCHASE AGREEMENT. UNDER NO CIRCUMSTANCES SHALL EITHER PARTY BE LIABLE TO THE OTHER PARTY FOR CONSEQUENTIAL, PUNITIVE OR INCIDENTAL DAMAGES, INCLUDING WITHOUT LIMITATION, PRODUCTION FAILURE, LOSS OF UTILIZATION, LOSS OF ORDERS, LOSS OF PROFIT, AND ALL OTHER SUCH INDIRECT DAMAGES.

13.2 UPON EXPIRATION OF THE TERM OF THE PURCHASE CONTRACT, THE FOLLOWING LIMITATION OF LIABILITY SHALL APPLY:

EXCEPT FOR (A) DAMAGES RESULTING FROM A BREACH BY EITHER PARTY OF THEIR RESPECTIVE OBLIGATIONS UNDER SECTION 15 BELOW, (B) INIT'S OBLIGATIONS UNDER SECTION 14 BELOW, AND/OR (C) A PARTY'S WILLFUL MISCONDUCT, OR GROSS NEGLIGENCE NEITHER PARTY SHALL BE LIABLE TO THE OTHER PARTY FOR ANY INCIDENTAL, CONSEQUENTIAL, OR INDIRECT DAMAGES OR LOSS OF PROFITS OR PUNITIVE DAMAGES ARISING OUT OF THIS LICENSE AGREEMENT. TO THE MAXIMUM EXTENT ALLOWABLE BY LAW AND EXCEPT FOR (A) DAMAGES RESULTING FROM A BREACH BY INIT OF ITS OBLIGATIONS UNDER SECTION 15 BELOW, (B) INIT'S OBLIGATIONS UNDER SECTION 14 BELOW, AND/OR (C) INIT'S WILLFUL MISCONDUCT, OR GROSS NEGLIGENCE, INIT'S TOTAL LIABILITY ARISING FROM OR RELATING TO THIS LICENSE AGREEMENT OR THE SALE OR DISTRIBUTION OF THE LICENSED

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PRODUCTS, WHETHER IN CONTRACT, TORT OR ANY OTHER GROUNDS, IS LIMITED TO $5M USD.

14 INDEMNIFICATION. Notwithstanding anything herein to the contrary, INIT shall, at its sole cost and expense, indemnify, defend and hold harmless Licensee and its respective or collective directors, officers, employees, contractors and agents (collectively, the “Indemnified Parties”), and each of them, from and against any and all loss or liability, claims, demands, damages, costs and expenses including, without limitation, reasonable attorneys’, accountants’ and expert witness fees, costs and expenses, that the Indemnified Parties, or any one or more of them, may sustain or incur, directly or indirectly (collectively, “Claims”), from, or as a result of the infringement (or claim thereof) by an Indemnified Party of any patent, copyright, trademark, trade secret, nondisclosure, and/or other intellectual property right through such Indemnified Party’s use, or other exercise of its rights in, the Licensed Products, and/or any other materials delivered hereunder. This indemnification clause shall be null and void to the extent that Licensee has directed INIT to incorporate the infringing object, Licensee modifies the use of the INIT Software without INIT approval or Licensee combines, operates or uses the INIT Software with anything INIT did not approve in writing, develop, or provide and any of the foregoing Licensee actions cause or contribute to the infringement.

15 CONFIDENTIALITY.

15.1 Definition of Confidential Information. As used in this EULA, the term "Confidential Information" means, subject to Section 15.2 below, any and all nonpublic information that a party to this EULA (each a “Disclosing Party”) designates in writing as being confidential to the party that receives such information (each a “Receiving Party”). Subject to Section 15.2 below, "Confidential Information" includes the INIT Software and may also include, without limitation, information in tangible or intangible form relating to and/or including (a) the marketing or promotion of any Disclosing Party product or service (b) the Disclosing Party's business policies or practices, (c) the Disclosing Party’s customers, and the disclosing party notifies the other party in writing that it should be treated as confidential.

15.2 Exceptions to Confidential Information. The term “Confidential Information” does not include information, however designated, that (a) is or subsequently becomes publicly available without the Receiving Party's breach of any obligation owed to the Disclosing Party; (b) is known to the Receiving Party prior to the Disclosing Party’s disclosure of such information to the Receiving Party, (c) becomes known to the Receiving Party from a source other than the Disclosing Party other than by the breach of an obligation of confidentiality owed to the Disclosing Party, (d) is independently developed by the Receiving Party; and or (e) is determined by a court of competent jurisdiction not to be entitled to protection under the laws of the State of Washington.

15.3 Obligations Regarding Confidential Information. The Receiving Party agrees that during the term of this EULA and forever thereafter it will (a) refrain from disclosing any Confidential Information of the Disclosing Party to third parties, (b) take reasonable security precautions, at least as great as the precautions it takes to protect its own confidential information but no less than reasonable care, to keep confidential the Confidential Information of the Disclosing Party, and (c) refrain from using, disclosing, reproducing, summarizing and/or distributing the Confidential Information of the Disclosing Party, in each instance except as expressly provided in this EULA. Furthermore, the Receiving Party agrees, to the extent it is able to, to promptly upon the termination of this License Agreement, deliver to the Disclosing Party all originals, copies, reproductions and summaries of the Confidential Information of the Disclosing Party, or at the Disclosing Party's option, certify the destruction of the same; provided, however, that the Receiving Party may keep one copy for archival purposes.

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15.4 **Required Disclosures.** Notwithstanding anything contained herein to the contrary, a Receiving Party may disclose the Confidential Information of a Disclosing Party in accordance with a law, regulation, rule or judicial or other governmental order, provided that the Receiving Party either (a) gives the Disclosing Party reasonable notice prior to such disclosure to allow the Disclosing Party a reasonable opportunity to seek a protective order or equivalent, or (b) obtains written assurance from the applicable judicial or governmental entity that it will afford the Confidential Information the highest level of protection afforded under applicable law, regulation or rule.

15.5 **No License.** All Confidential Information is and shall remain the property of Disclosing Party. By disclosing Confidential Information to the Receiving Party, the Disclosing Party does not grant any express or implied rights to the Receiving Party to or under any patents, copyrights, trademarks, or trade secret information except as otherwise provided herein. Disclosing Party reserves, without prejudice, the ability to protect its rights under any such patents, copyrights, trademarks, or trade secrets.

15.6 **Injunctive Relief.** INIT and Licensee each acknowledge and agree that there can be no adequate remedy at law for any breach (or threatened breach) of either party's obligations under Section 15.3 above, that any such breach (or threatened breach) may allow the breaching party (or the party threatening breach) or third parties to unfairly compete with the other party resulting in irreparable harm to the other party, and, therefore, that upon any breach (or threatened breach) of any provision of Section 15.3 above, the non-breaching party will be entitled to obtain from a court extraordinary relief including but, not limited to, temporary restraining orders, preliminary injunctions, permanent injunctions, and/or decrees of specific performance, in each instance without the necessity of posting a bond.

16 MISCELLANEOUS PROVISIONS.

16.1 **Modifications.** This License Agreement may not be modified, amended, rescinded, canceled or waived, in whole or in part, except pursuant to a written agreement signed by both parties. Without limiting the foregoing, in the event of any conflict between the terms and conditions of this Agreement and the terms and conditions of the Purchase Contract and appendices, and attachments thereunder, the terms of the Purchase Contract shall prevail.

16.2 **Severability.** If any provision of this License Agreement is declared or found to be illegal, unenforceable or void, then both parties shall be relieved of all obligations arising under such provision, but only to the extent that such provision is illegal, unenforceable or void, it being the intent and agreement of the parties that this License Agreement shall be deemed amended by modifying such provision to the extent necessary to make it legal and enforceable while preserving its intent or, if that is not possible, by substituting therefore another provision that is legal and enforceable and achieves the same objective. If the remainder of this License Agreement shall not be affected by such declaration or finding and is capable of substantial performance, then, each provision not so affected shall be enforced to the extent permitted by law.

16.3 **Relationship of Parties.** Each of the parties to this License Agreement is acting only as an independent contractor and assumes full responsibility for each of its employees and shall be solely responsible for the payment of compensation to its personnel. This License Agreement does not constitute either party hereto as the agent or legal representative of the other party and does not create a partnership or joint venture between them.

16.4 **Headings, Defined Terms, Use of Terms.** Headings of articles and sections in this License Agreement are for the convenience of the parties only. Accordingly, they shall

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not constitute a part of this License Agreement when interpreting or enforcing this License Agreement. All defined terms used in this License Agreement shall be deemed to refer to the masculine, feminine, neuter, singular and/or plural, in each instance as the context and/or particular facts may require. Use of the terms "hereunder", "herein", "hereby", and similar terms refer to this License Agreement.

16.5 **Survival.** All of INIT's obligations under this License Agreement which are not, by the express terms of this License Agreement, fully to be performed during the term of this License Agreement shall indefinitely survive the termination of this License Agreement for any reason. Such obligations include, without limitation, obligations under Sections 14 and 15 above. Similarly, Licensee's obligations under Section 15 above shall indefinitely survive the termination of this License Agreement for any reason.

16.6 **Cumulative Remedies.** No right or remedy conferred by this License Agreement is exclusive of any other right or remedy conferred herein or by law or in equity; rather, all of such rights and remedies are cumulative of every other such right or remedy and may be exercised concurrently or separately from time-to-time.

16.7 **Recitals.** The recitals to this License Agreement are hereby incorporated herein as an integral part hereof.

16.8 **Notices.** All notices required by this License Agreement shall be in writing. To be effective, notices from INIT to Licensee shall be delivered or mailed to Licensee at Licensee's address set forth above, Attn: Brittany Esdaile, Next Generation ORCA Regional Program Manager, and Ashley Bowman, Agency Agreements Analyst. Any such notice to Licensee shall be deemed given or served and received hereunder when delivered personally or three (3) days after being mailed certified mail, postage prepaid, in each instance in accordance with this Section 16.8. Notices from Licensee to INIT shall be delivered or mailed to INIT Chief Financial Officer at INIT's address designated above. Any such notice to INIT shall be deemed given or served and received hereunder when delivered personally or three (3) days after being mailed certified mail, postage prepaid, in each instance in accordance with this Section 16.8.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized representatives as of the Effective Date.

INIT Innovations in Transportation, Inc.

By: [redacted]
FCF3134B7AA14F5...

Printed Name: Roland Staib

Title: Pres & CEO

By: [redacted]
18F332AF3C86467...

Printed Name: Linda Keith

Title: Vice President & CFO

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ATTACHMENT A END-USER LICENSE AGREEMENT

Central Puget Sound Regional Transit Authority
dba Sound Transit

By: [redacted]
B5B35420F800429...

Printed Name: Mike Harbour

Title: Deputy CEO

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Exhibit A

As of the execution of this EULA, the INIT Software is listed here. The INIT Software listed provides the functionality and capabilities described in the Purchase Contract. Any additional software produced and provided by INIT, and its corrections, bug fixes, enhancements, upgrade, updates or other modifications, throughout the term of the Purchase Contract shall be incorporated below as if fully set forth herein.

INIT Server Software

- MOBILEvario
- MOBILEguard
- MOBILEsymon

INIT Workstation Software

- MOBILEvario Customer Service workstation license

INIT Device Software

- Basic Driver Display Unit, Onboard and Wayside Validator, and Vending Machine Software for Fare Collection

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Attachment B – INIT Software Maintenance Agreement

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END-USER MAINTENANCE AGREEMENT

This End-User Maintenance Agreement ("EUMA" or “Maintenance Agreement”) is made and entered into as of this _____ (“Effective Date”) by and between INIT Innovations in Transportation, Inc., a Virginia corporation located at 424 Network Station, Chesapeake, Virginia 23320 (“INIT”), and _____ (“<<<Cust. Name>>>”) with an address of _____.

RECITALS

A. INIT represents that it possesses the right to provide Software Maintenance services to support the access, delivery and management of a Fare Collection System.

B. <<<Cust. Name>>> desires Software Maintenance Services for the INIT Client Software, the INIT Server Software, the INIT Vehicle Software and INIT Device Software (collectively, the “INIT Software”) licensed to <<<Cust. Name>>> under a separate agreement NIT desires to provide Software Maintenance Services to <<<Cust. Name>>>, in each instance subject to the terms and conditions set forth below.

TERMS AND CONDITIONS

NOW, THEREFORE, in consideration of the premises and the mutual covenants and agreements set forth below and other good and valuable considerations, the receipt and sufficiency of which are hereby acknowledged, the parties hereto do hereby covenant and agree as follows:

1. Definitions

The following definitions apply in this EUMA:

1.1. “Documentation” means any written documentation that is supplied by INIT in connection with the INIT Software.

1.2. “INIT Software” shall have the meaning ascribed to that term in Recital B above. The term INIT Software shall also include, without limitation, any and all corrections, bug fixes, enhancements, updates or other modifications that INIT may hereafter provide to <<<Cust. Name>>>. Such corrections, bug fixes, enhancements, updates or other modifications must be communicated to <<<Cust. Name>>> prior to activation in the live system. This notification or communication can be made via email, phone or SharePoint to key <<<Cust. Name>>> personnel.

1.3. “INIT Supplied Hardware” shall have the meaning ascribed to that term in Recital B above. The term INIT Supplied Hardware shall also include, without limitation, any and all corrections, bug fixes, enhancements, updates or other modifications that INIT may hereafter provide to <<<Cust. Name>>>.

1.4. “ “Price Sheet” means the price proposal of INIT dated 06/08/2018, which is hereby incorporated herein as Attachment B.

1.5. “Service Level Agreement” means the Service Level Agreement dated xx/xx/xx, which is hereby incorporated herein as Attachment A.

1.6. “.

2. Period of Maintenance

The period of Maintenance is from xx/xx/xx through xx/xx/xx and may be renewed in accordance with Section 3.

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3. Renewal Option

This agreement includes xxxxxxx 1-year renewal options to cover the expected useful life of the software and can be exercised at the sole discretion of <<<Cust. Name>>>.

4. Notification

<<<Cust. Name>>> will notify INIT of its intent to renew 90 days prior to the expiration of the then current maintenance agreement year and request pricing for the subsequent maintenance year. However, in no case shall the increase in pricing, if any, exceed ten percent (10%) per year of the existing contract. See Attachment A for description of extended maintenance procedures for new equipment purchases. INIT shall be required to furnish pricing at least 60 days prior to the end date of the then current maintenance agreement with an explanation for any increases. <<<Cust. Name>>> shall issue a PO within 30 days of receipt of INIT invoice.

5. Limited Warranties

5.1. **Limitations**. The maintenance agreement does not include services for repair of defects or failures resulting from events outside INIT's responsibility, such as external influences, inappropriate treatment or faulty operation.

5.2. **Authority**. INIT represents and warrants that (a) INIT is a corporation duly organized, validly existing and in good standing under and in accordance with the laws of the Commonwealth of Virginia, (b) INIT has full legal power and authority to enter into this Agreement, and (c) the person who executes and delivers this Agreement for INIT and on its behalf is duly authorized and has all requisite authority to do the same.

5.3. **No Security Interests**. INIT represents and warrants that the INIT Software has not been pledged, in whole or in part, as security for any loans or other obligations and the there are otherwise no security interests, liens or other types of encumbrances on the INIT Software.

5.4. **Services**. INIT represents and warrants that INIT will perform all services hereunder in accordance with generally accepted industry standards and use its own knowledge and skill in the performance of such services.

5.5. **LIMITATION AND EXCLUSION OF WARRANTIES.** EXCEPT AS EXPRESSLY SET FORTH IN THIS MAINTENANCE AGREEMENT, INIT MAKES NO WARRANTIES, REPRESENTATIONS, OR PROMISES. INIT EXPRESSLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY, TITLE, SUITABILITY FOR ANY SPECIFIC PURPOSE, OR SYSTEM. INIT DOES NOT WARRANT THAT THE LICENSED PRODUCTS WILL PERFORM WITHOUT INTERRUPTION OR ERROR, AND DOES NOT WARRANT THAT THEY WILL SATISFY ANY PARTICULAR REQUIREMENTS.

5.6. **LIMITATION OF LIABILITY.** EXCEPT FOR A PARTY'S WILLFUL MISCONDUCT OR GROSS NEGLIGENCE, NEITHER PARTY SHALL BE LIABLE TO THE OTHER PARTY FOR ANY INCIDENTAL, CONSEQUENTIAL, OR INDIRECT DAMAGES ARISING OUT OF THIS MAINTENANCE AGREEMENT. TO THE MAXIMUM EXTENT ALLOWABLE BY LAW AND EXCEPT FOR INIT'S WILLFUL MISCONDUCT OR GROSS NEGLIGENCE, INIT'S TOTAL LIABILITY ARISING FROM OR RELATING TO THIS MAINTENANCE AGREEMENT, WHETHER IN CONTRACT, TORT OR ANY OTHER GROUNDS, IS LIMITED TO THE GREATER OF (Y) $121,000.00 OR (Z) THREE (3)

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TIMES THE TOTAL AMOUNT OF MAINTENANCE FEES, WHICHEVER IS LOWER THAT <<<CUST. NAME>>> HAS ACTUALLY PAID FOR THE SERVICES AT THE TIME THE CLAIM IS MADE.

6. Miscellaneous Provisions

6.1. **Complete Agreement**. This Maintenance Agreement represents the complete agreement between <<<Cust. Name>>> and INIT with regard to Software Maintenance Services, and all prior oral or written agreements, representations or understandings are superseded and void.

6.2. **Modifications**. This EUMA may not be modified, amended, rescinded, canceled or waived, in whole or in part, except pursuant to a written agreement signed by both parties. Without limiting the foregoing, in the event of any conflict between the terms and conditions of this Maintenance Agreement and the terms and conditions of any purchase order, invoice, shrink-wrap agreement, click through agreement or other document of one of the parties purporting to override the terms of this Maintenance Agreement, the terms and conditions of this Maintenance Agreement shall prevail.

6.3. **Severability**. If any provision of this Maintenance Agreement is declared or found to be illegal, unenforceable or void, then both parties shall be relieved of all obligations arising under such provision, but only to the extent that such provision is illegal, unenforceable or void, it being the intent and agreement of the parties that this Maintenance Agreement shall be deemed amended by modifying such provision to the extent necessary to make it legal and enforceable while preserving its intent or, if that is not possible, by substituting therefore another provision that is legal and enforceable and achieves the same objective. If the remainder of this Maintenance Agreement shall not be affected by such declaration or finding and is capable of substantial performance, then, each provision not so affected shall be enforced to the extent permitted by law.

6.4. **Relationship of Parties**. Each of the parties to this Maintenance Agreement is acting only as an independent contractor and assumes full responsibility for each of its employees and shall be solely responsible for the payment of compensation to its personnel. This Maintenance Agreement does not constitute either party hereto as the agent or legal representative of the other party and does not create a partnership or joint venture between them.

6.5. **Assignment**. Neither this Maintenance Agreement nor any of the rights, interests or obligations hereunder may be assigned by INIT (whether by operation of law or otherwise) without the prior written consent of <<<Cust. Name>>>. Subject to the foregoing, this Maintenance Agreement shall be binding upon, inure to the benefit of and be enforceable by the parties and their respective successors and permitted assigns.

6.6. **Headings, Defined Terms, Use of Terms**. Headings of articles and sections in this Maintenance Agreement are for the convenience of the parties only. Accordingly, they shall not constitute a part of this Maintenance Agreement when interpreting or enforcing this Maintenance Agreement. All defined terms used in this Maintenance Agreement shall be deemed to refer to the masculine, feminine, neuter, singular and/or plural, in each instance as the context and/or particular facts may require. Use of the terms "hereunder", "herein", "hereby", and similar terms refer to this Maintenance Agreement.

6.7. **Cumulative Remedies**. No right or remedy conferred by this Maintenance Agreement is exclusive of any other right or remedy conferred herein or by law or in equity; rather, all of such rights and remedies are cumulative of every other such right or remedy and may be exercised concurrently or separately from time-to-time

6.8. **Recitals**. The recitals to this Maintenance Agreement are hereby incorporated herein as an integral part hereof.

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Notices. All notices required by this Maintenance Agreement shall be in writing. To be effective, notices from INIT to <<<Cust. Name>>> shall be delivered or mailed to _____ at_____. Any such notice to INIT shall be deemed given or served and received hereunder when delivered personally or three (3) days after being mailed certified mail, postage prepaid, in each instance in accordance with this Section. Notices from <<<Cust. Name>>> to INIT shall be delivered or mailed to INIT at INIT's address designated above marked to the attention of Office of General Counsel. Any such notice to INIT shall be deemed given or served and received hereunder when delivered personally or three (3) days after being mailed certified mail, postage prepaid, in each instance in accordance with this Section.

7. Protection Rights

All intellectual property rights and commercialization rights of the software and other intellectual property remain with INIT. Upon payment, customer purchases user rights for the delivered software. The right of use allows the use of the software only by customer. The customer does not have the right to allow others to use the software. The customer purchases a number of workplace licenses and has the right to install the software on the same number of computers. Backup-copies of the software may be made only for customer's own use to secure data. Statements concerning protection rights remain on the copies. Specific manufacturer's terms of licenses apply for third party hardware and software.

8. Applicable Law

In the event of a conflict between customer and INIT regarding the purchase of services hereunder, customer and INIT agree that (a) any actions or claims brought shall be governed by the laws of the Commonwealth of Virginia, without regard to its choice of law rules, and (b) such action or claim shall be brought exclusively in the Commonwealth of Virginia before the courts in the City of Chesapeake or the United States District Court for the Eastern District of Virginia, Norfolk Division.

9. Compliance with Laws

INIT bears no responsibility or liability for the services' compliance with any laws, statutes, ordinances or regulations that may be applicable to customer or customer's use of the services. The customer is responsible for ensuring that the services and their use comply with any and all applicable regulations in the country or state concerned.

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IN WITNESS WHEREOF, the parties have caused this Maintenance Agreement to be executed by their duly authorized representatives as of the Effective Date.

INIT Innovations in Transportation, Inc.

By: _____

Printed Name: _____

Title: _____

<<<Cust. Name>>>

By: _____

Printed Name: _____

Title: _____

DRAFT

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Attachment A - Service Description and Service Levels

Described in proposal document ***Tab 2 - Methodology and Approach to Implementation and Operation and Maintenance Services_03.docx****, sections 1.14.2.2 and 1.14.2.5. The final content and format of Attachment A will be mutually agreed upon between Sound Transit and INIT.*

Attachment B – Price Sheet

Please refer to the RFP proposal response price sheet.

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Attachment C – Oracle Enterprise Edition with Advanced Security & Maintenance Agreement

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Attachment D – Shareplex Subscription Agreement including Professional Setup Services

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Attachment E – IBM Maas 360 Mobile Device Management License Agreement

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Attachment F – Source Code Escrow Agreement

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SECTION 08 – CONTRACT PRICE SCHEDULE

CONTRACT PRICING

The Contractor will be compensated upon Acceptance of the deliverable(s) for each specific item, as described in the Contract Documents. Lump Sums and Hourly Rates are fully-burdened which is inclusive of direct hourly rates, direct costs including travel, parking, overhead, and profit. Total compensation for each item will not exceed the amount identified for that item as follows. Contract Pricing will remain constant throughout the term of the agreement – no price escalation will apply regardless of market conditions.

The ORCA Agencies may, in their discretion, pay for extraordinary, unanticipated costs, subject to prior written approval.

In the "Unit" column: "LS" means lump sum; "EA" means each; "YR" means per year; "MO" means per month; and "HR" means per hour.

Some of the Lump Sum prices are divided into Milestone or Partial payments as described in the Milestone/Partial Payment Schedule below.

Item numbers in the "Item No." column are for reference only. They are not intended to be in order and some numbers may be missing as they were removed during the contract negotiation process.

PRICE SECTION 1 – IMPLEMENTATION SERVICES

Item No.	SOW Ref.	Description	Unit	Unit Price
	Program and Contract Management			
1.01	2	Program & Contract Management (NTP to System Acceptance)	LS	
	UI/UX Consulting			
1.01a	2	Project Management, Project Initiation and Onboarding	LS	
1.01b	2	Corporate Design and Style Guide	LS	
1.01c	2	Website Design Guide	LS	
1.01d	2	Validator	LS	
1.01e	2	Driver Display Unit	LS	
1.01f	2	Front Office Ticket Sales	LS	
1.01g	2	Vending Machines	LS	
	Software Escrow			
1.01h	2	Initial Deposit – Level 1 Escrow (or equivalent)	LS	
	Installation and Transition Services			
1.02	2	Transition Strategy and Planning	LS	
1.03	2	Back-Office Installation and Configuration, Including Documentation	LS	
1.04	2	Field Device Site Surveys and Prototyping	LS	
1.05a	2	Onboard Equipment (validator and DDU) Installation (Excluding KCM)	EA	
1.05b	2	Onboard Equipment (validator and DDU) Commissioning (Excluding KCM)	EA	
1.05c	2	Onboard Equipment (validator and DDU) Documentation	EA	

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1.06	2	Onboard Validator Equipment Installation, Commissioning, and Documentation (KCM Only)	EA	Not applicable
1.07a	2	Wayside Validator Installation	EA	[redacted]
1.07b	2	Wayside Validator Commissioning	EA	
1.07c	2	Wayside Validator Documentation	EA	
1.08a	2	VM Installation	EA	
1.08b	2	VM Commissioning	EA	
1.08c	2	VM Documentation	EA	
1.09a	2	CST Installation	EA	
1.09b	2	CST Commissioning	EA	
1.09c	2	CST Documentation	EA	
	Testing			
1.10	2	Agency Test Facility Implementation, Housing, and Documentation	LS	
1.11	2	Factory Testing and Documentation	LS	
1.12	2	Integration Testing and Documentation	LS	
1.13	2	Pilot Testing and Documentation	LS	
1.14	2	System Acceptance Testing and Documentation	LS	
	Training			
1.15	2	Training Course Development Services	LS	
1.16	2	Training Course Delivery and Materials	EA	
	Manuals			
1.17	2	System Manuals	LS	

PRICE SECTION 2 – SYSTEM SOFTWARE DESIGN

Item No.	SOW Ref.	Description and Model/Part Number or Product Name	Unit	Unit Price
	Back Office Applications			
2.01	6	Account-based Transaction Processor	LS	[redacted]
2.02	6	Customer Relationship Management	LS	
2.02a	6	Salesforce User – Tier 1 (1-99 users)	EA	
2.02b	6	Salesforce User – Tier 2 (100+ users)	EA	
2.03	6	Asset Incident Management	LS	
2.04	6	System Manager	LS	
2.05	6	Fare Media Management	LS	
2.06	6	Financial Management	LS	
2.06a	6	Sage 300c User – Tier 1 (1-14 users)	EA	
2.06b	6	Sage 300c User – Tier 2 (15-25 users)	EA	
2.06c	6	Sage 300c User – Tier 3 (26+ users)	EA	
2.07	6	Central Payment	LS	
2.08	6	Configuration and Change Management	LS	
2.09	6	Tariff Management	LS	

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Item No.	SOW Ref.	Description and Model/Part Number or Product Name	Unit	Unit Price
2.10	6	API Management	LS	[redacted]
	Externally Sourced Applications			
2.11	5	Customer Mobile App	LS	
2.12	5	Agency Mobile Apps (Fare Inspection & Fare Payment)	LS	
2.13	5	Customer Website	LS	
	Field Device and Equipment Software			
2.14	4	Onboard and Wayside Validator Software	LS	
2.15	4	Driver Display Unit Software	LS	
2.16	4	Customer Service Terminal Software	LS	
2.17	4	Full Feature Vending Machine Software	LS	
	API Development			
2.18	3	Application Programming Interface (API) Development	LS	
	System Integration Services			
2.19	3	Onboard Integration (PT, CT, KT, ET)	LS	
2.20	3	Onboard Integration (KCM)	LS	
2.21	3	Washington State Ferries Integration	LS	
2.22	3	Data Access and Reporting Platform (DARe) Integration	LS	
2.23	3	Retail Network Integration	LS	
2.24	3	Integration with Legacy ORCA Back Office	LS	
2.25	3	ADA Paratransit Integration	LS	
2.26	6	Integration of Agency Provided CRM Application ($0 if SI-provided CRM application is proposed)	LS	
2.27	6	Integration of Agency Provided Financial Application ($0 if SI-provided financial application is proposed)	LS	
2.27a	6	Vanpool Integration	LS	
	Transit Payment Application			
2.28	7	Transit Payment Application	LS	

PRICE SECTION 3 – EQUIPMENT AND SPARES

Item No.	SOW Ref.	Description and Product Identity	Unit	Quantity for tiered price	Unit Price
	Production Equipment				
3.02 Tier 1	4	Onboard Validator (including spares) PROXmobil3	EA	[redacted]	
3.02 Tier 2	4	Onboard Validator (including spares) PROXmobil3	EA		
3.02 Tier 3	4	Onboard Validator (including spares) PROXmobil3	EA		
3.02 Tier 4	4	Onboard Validator (including spares) PROXmobil3	EA		
3.02 Tier 5	4	Onboard Validator (including spares) PROXmobil3	EA		

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Item No.	SOW Ref.	Description and Product Identity	Unit	Quantity for tiered price	Unit Price
3.03	4	Onboard Validator Mounting System and Installation Kit (including spares)	EA		
3.04 Tier 1	4	Driver Display Unit (including spares) TOUCHit3	EA		
3.04 Tier 2	4	Driver Display Unit (including spares) TOUCHit3	EA		
3.04 Tier 3	4	Driver Display Unit (including spares) TOUCHit3	EA		
3.04 Tier 4	4	Driver Display Unit (including spares) TOUCHit3	EA		
3.04 Tier 5	4	Driver Display Unit (including spares) TOUCHit3	EA		
3.05	4	Driver Display Unit Mounting System and Installation Kit (including spares)	EA		
3.06 Tier 1	4	Wayside Validators (including spares) PROXmobil3	EA		
3.06 Tier 2	4	Wayside Validators (including spares) PROXmobil3	EA		
3.06 Tier 3	4	Wayside Validators (including spares) PROXmobil3	EA		
3.06 Tier 4	4	Wayside Validators (including spares) PROXmobil3	EA		
3.06 Tier 5	4	Wayside Validators (including spares) PROXmobil3	EA		
3.07	4	Wayside Validator System and Installation Kit (including spares)	EA		
3.08 Tier 1	4	Customer Service Terminal (including spares, not including printer)	EA		
3.08 Tier 2	4	Customer Service Terminal (including spares, not including printer)	EA		
3.08 Tier 3	4	Customer Service Terminal (including spares, not including printer)	EA		
3.09	4	Customer Service Terminal Portable Printer	EA		
3.10	4	Customer Service Terminal Mail Center Printer	EA		
3.11 Tier 1	4	Full Feature Vending Machines (including spares) VENDstation	EA		
3.11 Tier 2	4	Full Feature Vending Machines (including spares) VENDstation	EA		
3.11 Tier 3	4	Full Feature Vending Machines (including spares) VENDstation	EA		
3.11 Tier 4	4	Full Feature Vending Machines (including spares) VENDstation	EA		
3.11 Tier 5	4	Full Feature Vending Machines (including spares) VENDstation	EA		
3.11 Tier 6	4	Full Feature Vending Machines (including spares) VENDstation	EA		

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Item No.	SOW Ref.	Description and Product Identity	Unit	Quantity for tiered price	Unit Price
3.11a	4	Credit for omission of bill and coin acceptance	EA		
3.11b	4	Credit for omission of coin change issuance	EA		
3.11c	4	Credit for omission of change issuance	EA		
3.11d	4	Credit for omission of media issuance	EA		
3.11e Tier 1	4	Light Feature Vending Machines VENDstation*	EA		
3.11e Tier 2	4	Light Feature Vending Machines VENDstation	EA		
3.11e Tier 3	4	Light Feature Vending Machines VENDstation	EA		
3.11e Tier 4	4	Light Feature Vending Machines VENDstation	EA		
3.11e Tier 5	4	Light Feature Vending Machines VENDstation	EA		
3.11e Tier 5	4	Light Feature Vending Machines VENDstation	EA		
	Test Equipment				
3.12a	2	Test System with online applications of the INIT Software listed in the EULA	LS		
3.12b	2	Vehicle BIB (including PROXmobile3, TOUCHit3, and mounting hardware)	EA		
3.12c	2	Onboard and Wayside Validator PROXmobile3 (including mounting hardware)	EA		
3.12d	2	Full Feature Vending Machine VENDstation	EA		
3.12e	2	Light Feature Vending Machine VENDstation	EA		
3.12f	2	Customer Service Terminal Test Unit	EA		
	Training Equipment				
3.13 Tier 1	2	On-board Validator Training Unit (BIB) – including PROXmobile3, TOUCHit3, mounting hardware and other SI equipment	EA		
3.13 Tier 2	2	On-board Validator Training Unit (BIB) – including PROXmobile3, TOUCHit3, mounting hardware and other SI equipment	EA		
3.13 Tier 3	2	On-board Validator Training Unit (BIB) – including PROXmobile3, TOUCHit3, mounting hardware and other SI equipment	EA		
3.14 Tier 1	2	Wayside Validator Training Unit (BIB) – including PROXmobile3, and mounting hardware	EA		
3.14 Tier 2	2	Wayside Validator Training Unit (BIB) – including PROXmobile3, and mounting hardware	EA		

* The Contactor's proposal erroneously named the Light Feature Vending Machine as VENDmobile, but the correct name is VENDstation. The functionality of the Light Feature Vending Machine described in the Contractor's proposal is correct and is what is priced here.

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Item No.	SOW Ref.	Description and Product Identity	Unit	Quantity for tiered price	Unit Price
3.14 Tier 3	2	Wayside Validator Training Unit (BIB) – including PROXmobile3, and mounting hardware	EA		
3.15 Tier 1	2	Customer Service Terminal Unit (BIB)	EA		
3.15 Tier 2	2	Customer Service Terminal Unit (BIB)	EA		
3.15 Tier 3	2	Customer Service Terminal Unit (BIB)	EA		
	Spare Part Modules				
3.16 Tier 1	2	customer display size 15", TOUCH 15" + controller, cables	EA		
3.16 Tier 2	2	customer display size 15", TOUCH 15" + controller, cables	EA		
3.16 Tier 3	2	customer display size 15", TOUCH 15" + controller, cables	EA		
3.17 Tier 1	2	FEIG card reader for vending machine	EA		
3.17 Tier 2	2	FEIG card reader for vending machine	EA		
3.17 Tier 3	2	FEIG card reader for vending machine	EA		
3.18 Tier 1	2	coin handling unit with change (6x carousel without hoppers)	EA		
3.18 Tier 2	2	coin handling unit with change (6x carousel without hoppers)	EA		
3.18 Tier 3	2	coin handling unit with change (6x carousel without hoppers)	EA		
3.19 Tier 1	2	bill handling unit (MEI SCR)	EA		
3.19 Tier 2	2	bill handling unit (MEI SCR)	EA		
3.19 Tier 3	2	bill handling unit (MEI SCR)	EA		
3.20 Tier 1	2	banknote vault (for 1400 notes)	EA		
3.20 Tier 2	2	banknote vault (for 1400 notes)	EA		
3.20 Tier 3	2	banknote vault (for 1400 notes)	EA		
3.21 Tier 1	2	bank card processing unit	EA		
3.21 Tier 2	2	bank card processing unit	EA		
3.21 Tier 3	2	bank card processing unit	EA		

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Item No.	SOW Ref.	Description and Product Identity	Unit	Quantity for tiered price	Unit Price
3.22 Tier 1	2	1 x double printers (2 paper rolls in total)	EA		
3.22 Tier 2	2	1 x double printers (2 paper rolls in total)	EA		
3.22 Tier 3	2	1 x double printers (2 paper rolls in total)	EA		
3.23 Tier 1	2	Smartcard dispenser	EA		
3.23 Tier 2	2	Smartcard dispenser	EA		
3.23 Tier 3	2	Smartcard dispenser	EA		
3.24 Tier 1	2	VENDstation board	EA		
3.24 Tier 2	2	VENDstation board	EA		
3.24 Tier 3	2	VENDstation board	EA		
3.25 Tier 1	2	VENDstation extension board	EA		
3.25 Tier 2	2	VENDstation extension board	EA		
3.25 Tier 3	2	VENDstation extension board	EA		
3.26 Tier 1	2	VENDstation power supply	EA		
3.26 Tier 2	2	VENDstation power supply	EA		
3.26 Tier 3	2	VENDstation power supply	EA		
3.27 Tier 1	2	VENDstation Uninterruptible power supply (UPS)	EA		
3.27 Tier 2	2	VENDstation Uninterruptible power supply (UPS)	EA		
3.27 Tier 3	2	VENDstation Uninterruptible power supply (UPS)	EA		
3.28	2	HP Elite USB-C Dock	EA		
3.29	2	EP EliteDisplay E220t 21.5-inch touch monitor	EA		
3.30	2	Logitech 4K MK520 Wireless Keyboard and Mouse Combo	EA		
3.31	2	INIT USB Card Reader	EA		
3.32	2	Logitech 4K Pro Web	EA		
3.33	2	Epson DS-1630 Flatbed Color Document Scanner	EA		
3.34	2	Epson DS-40 color portable scanner	EA		

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Item No.	SOW Ref.	Description and Product Identity	Unit	Quantity for tiered price	Unit Price
3.35	2	MS-Cash Drawer (J-423-USB-M-B)	EA		
3.36	2	Igenico IPP350-11P1914A Payment Terminal	EA		
3.37	2	Epson C31CB25A8791 receipt printer with power supply	EA		
3.38	2	Brother Ruggedized RJ-4030	EA		
3.39	2	Hewlett-Packard LV3000 Pole Display 7" Video with USB Connector, Dark Grey	EA		
3.40	2	TrippLite USB Hub	EA		
3.41	2	TrippLite UPS 500VA 280W UPS	EA		
3.42	2	Fargo HDP5600 ID Card Printer & Encoder	EA		
3.43	2	Fargo DTC1250e	EA		
3.44	2	Fargo HDP8500 ID Card Printer & Encoder	EA		
3.45 Tier 1	2	coin vault	EA		
3.45 Tier 2	2	coin vault	EA		
3.45 Tier 3	2	coin vault	EA		
3.46 Tier 1	2	coin hopper	EA		
3.46 Tier 2	2	coin hopper	EA		
3.46 Tier 2	2	coin hopper	EA		
3.47 Tier 3	2	VENDstation Door Alarm	EA		
3.47 Tier 3	2	VENDstation Door Alarm	EA		
3.47 Tier 3	2	VENDstation Door Alarm	EA		
3.48 Tier 4	2	MEI SCR Rebuild	EA		
3.48 Tier 4	2	MEI SCR Rebuild	EA		
3.48 Tier 4	2	MEI SCR Rebuild	EA		

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PRICE SECTION 4 – FARE MEDIA

Item No.	SOW Ref.	Description	Unit	Unit Price
	Fare Media			
4.01	7	Contactless Extended-use Smart Cards (including training and test cards)	EA	[redacted]

PRICE SECTION 5 – OPERATIONS AND MAINTENANCE SUPPORT SERVICES (O&M)

Item No.	SOW Ref.	Description	Unit	Unit Price
Year 1 O&M – Recurring Software License Renewals and Maintenance Fees				
	Annual Software License Renewal & Maintenance Fee – Invoiced annually at the beginning of the license term			
5.01a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Renewal to Agreement in Attachment C)	YR	[redacted]
	Annual Subscription Renewal – Invoiced annually at the beginning of the su			
5.01b	8	Shareplex Subscription Agreement (Renewal to Agreement in Attachment D)	YR	
	Monthly Software Maintenance – Invoiced monthly at the end of the maint			
5.01c	8	INIT Software Maintenance Agreement (Renewal to Agreement in Attachment B)	MO	
	Monthly Software License Renewal – Invoiced monthly at the end of the lic			
5.01d	8	IBM Maas 360 Mobile Device Management License Agreement (Renewal to Agreement in Attachment E)	MO	
Year 2 O&M – Recurring Software Licenses and Maintenance				
	Annual Software License & Maintenance – Invoiced annually at the beginni			
5.02a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Attachment C)	YR	
	Annual Subscription – Invoiced annually at the beginning of the subscriptio			
5.02b	8	Shareplex Subscription Agreement (Attachment D)	YR	
	Monthly Software Maintenance – Invoiced monthly at the end of the maint			
5.02c	8	INIT Software Maintenance Agreement (Attachment B)	MO	
	Monthly Software License – Invoiced monthly at the end of the license term			
5.02d	8	IBM Maas 360 Mobile Device Management License Agreement (Attachment E)	MO	
Year 3 O&M – Recurring Software Licenses and Maintenance				
	Annual Software License & Maintenance – Invoiced annually at the beginni			

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Item No.	SOW Ref.	Description	Unit	Unit Price
5.03a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Attachment C)	YR	
	Annual Subscription – Invoiced annually at the beginning of the subscriptio			
5.03b	8	Shareplex Subscription Agreement (Attachment D)	YR	
	Monthly Software Maintenance – Invoiced monthly at the end of the maint			
5.03c	8	INIT Software Maintenance Agreement (Attachment B)	MO	
	Monthly Software License – Invoiced monthly at the end of the license term			
5.03d	8	IBM Maas 360 Mobile Device Management License Agreement (Attachment E)	MO	
Year 4 O&M – Recurring Software Licenses and Maintenance				
	Annual Software License & Maintenance – Invoiced annually at the beginni			
5.04a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Attachment C)	YR	
	Annual Subscription – Invoiced annually at the beginning of the subscriptio			
5.04b	8	Shareplex Subscription Agreement (Attachment D)	YR	
	Monthly Software Maintenance – Invoiced monthly at the end of the maint			
5.04c	8	INIT Software Maintenance Agreement (Attachment B)	MO	
	Monthly Software License – Invoiced monthly at the end of the license term			
5.04d	8	IBM Maas 360 Mobile Device Management License Agreement (Attachment E)	MO	
Year 5 O&M – Recurring Software Licenses and Maintenance				
	Annual Software License & Maintenance – Invoiced annually at the beginni			
5.05a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Attachment C)	YR	
	Annual Subscription – Invoiced annually at the beginning of the subscriptio			
5.05b	8	Shareplex Subscription Agreement (Attachment D)	YR	
	Monthly Software Maintenance – Invoiced monthly at the end of the maint			
5.05c	8	INIT Software Maintenance Agreement (Attachment B)	MO	
	Monthly Software License – Invoiced monthly at the end of the license term			
5.05d	8	IBM Maas 360 Mobile Device Management License Agreement (Attachment E)	MO	

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Item No.	SOW Ref.	Description	Unit	Unit Price
Year 6 O&M – Recurring Software Licenses and Maintenance				
	Annual Software License & Maintenance – Invoiced annually at the beginning of the license term			
5.06a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Attachment C)	YR	$ [redacted]
	Annual Subscription – Invoiced annually at the beginning of the subscription term			
5.06b	8	Shareplex Subscription Agreement (Attachment D)	YR	[redacted]
	Monthly Software Maintenance – Invoiced monthly at the end of the maintenance term			
5.06c	8	INIT Software Maintenance Agreement (Attachment B)	MO	$ [redacted]
	Monthly Software License – Invoiced monthly at the end of the license term			
5.06d	8	IBM Maas 360 Mobile Device Management License Agreement (Attachment E)	MO	$ [redacted]
Year 7 O&M – Recurring Software Licenses and Maintenance				
	Annual Software License & Maintenance – Invoiced annually at the beginning of the license term			
5.07a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Attachment C)	YR	[redacted]
	Annual Subscription – Invoiced annually at the beginning of the subscription term			
5.07b	8	Shareplex Subscription Agreement (Attachment D)	YR	[redacted]
	Monthly Software Maintenance – Invoiced monthly at the end of the maintenance term			
5.07c	8	INIT Software Maintenance Agreement (Attachment B)	MO	$ [redacted]
	Monthly Software License – Invoiced monthly at the end of the license term			
5.07d	8	IBM Maas 360 Mobile Device Management License Agreement (Attachment E)	MO	$ [redacted]
Year 8 O&M – Recurring Software Licenses and Maintenance				
	Annual Software License & Maintenance – Invoiced annually at the beginning of the license term			
5.08a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Attachment C)	YR	[redacted]
	Annual Subscription – Invoiced annually at the beginning of the subscription term			
5.08b	8	Shareplex Subscription Agreement (Attachment D)	YR	$ [redacted]
	Monthly Software Maintenance – Invoiced monthly at the end of the maintenance term			
5.08c	8	INIT Software Maintenance Agreement (Attachment B)	MO	[redacted]
	Monthly Software License – Invoiced monthly at the end of the license term			
5.08d	8	IBM Maas 360 Mobile Device Management License	MO	$ [redacted]

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Item No.	SOW Ref.	Description	Unit	Unit Price
		Agreement (Attachment E)		
Year 9 O&M – Recurring Software Licenses and Maintenance				
	Annual Software License & Maintenance – Invoiced annually at the beginning of the license term			
5.09a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Attachment C)	YR	[redacted]
	Annual Subscription – Invoiced annually at the beginning of the subscription term			
5.09b	8	Shareplex Subscription Agreement (Attachment D)	YR	$[redacted]
	Monthly Software Maintenance – Invoiced monthly at the end of the maintenance term			
5.09c	8	INIT Software Maintenance Agreement (Attachment B)	MO	$[redacted]
	Monthly Software License – Invoiced monthly at the end of the license term			
5.09d	8	IBM Maas 360 Mobile Device Management License Agreement (Attachment E)	MO	$[redacted]
Year 10 O&M – Recurring Software Licenses and Maintenance				
	Annual Software License & Maintenance – Invoiced annually at the beginning of the license term			
5.10a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Attachment C)	YR	$[redacted]
	Annual Subscription – Invoiced annually at the beginning of the subscription term			
5.10b	8	Shareplex Subscription Agreement (Attachment D)	YR	$[redacted]
	Monthly Software Maintenance – Invoiced monthly at the end of the maintenance term			
5.10c	8	INIT Software Maintenance Agreement (Attachment B)	MO	$[redacted]
	Monthly Software License – Invoiced monthly at the end of the license term			
5.10d	8	IBM Maas 360 Mobile Device Management License Agreement (Attachment E)	MO	$[redacted]
System Operations and Maintenance – Invoiced at the end of the service month				
5.12	8	Year 1 – System Operations and Maintenance	MO	[redacted]
5.13	8	Year 2 – System Operations and Maintenance	MO	
5.14	8	Year 3 – System Operations and Maintenance	MO	
5.15	8	Year 4 – System Operations and Maintenance	MO	
5.16	8	Year 5 – System Operations and Maintenance	MO	
5.17	8	Year 6 – System Operations and Maintenance	MO	
5.18	8	Year 7 – System Operations and Maintenance	MO	
5.19	8	Year 8 – System Operations and Maintenance	MO	
5.20	8	Year 9 – System Operations and Maintenance	MO	
5.21	8	Year 10 – System Operations and Maintenance	MO	

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Item No.	SOW Ref.	Description	Unit	Unit Price
5.22	8	Year 11 – System Operations and Maintenance	MO	[redacted]
Year 1 - System Hosting				
5.24a	3&8	Mobile Payment System hosting	MO	[redacted]
5.24b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	[redacted]
Year 2 - System Hosting				
5.25a	3&8	Mobile Payment System hosting	MO	[redacted]
5.25b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	$[redacted]
Year 3 - System Hosting				
5.26a	3&8	Mobile Payment System hosting	MO	$[redacted]
5.26b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	$[redacted]
Year 4 - System Hosting				
5.27a	3&8	Mobile Payment System hosting	MO	$[redacted]
5.27b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	$[redacted]0
Year 5 - System Hosting				
5.28a	3&8	Mobile Payment System hosting	MO	$[redacted]
5.28b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	$[redacted]
Year 6 - System Hosting				
5.29a	3&8	Mobile Payment System hosting	MO	[redacted]
5.29b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	$[redacted]
Year 7 - System Hosting				
5.30a	3&8	Mobile Payment System hosting	MO	$[redacted]
5.30b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	$[redacted]
Year 8 - System Hosting				
5.31a	3&8	Mobile Payment System hosting	MO	$[redacted]
5.31b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	$[redacted]
Year 9 - System Hosting				
5.32a	3&8	Mobile Payment System hosting	MO	$[redacted]
5.32b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	$[redacted]
Year 10 - System Hosting				
5.33a	3&8	Mobile Payment System hosting	MO	$[redacted]
5.33b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	$[redacted]
Year 11 - System Hosting				
5.34a	3&8	Mobile Payment System hosting	MO	$[redacted]
5.34b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	$[redacted]
Year 12 - System Hosting				
5.35a	3&8	Mobile Payment System hosting	MO	$[redacted]
5.35b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	$[redacted]
Year 13 - System Hosting				
5.36a	3&8	Mobile Payment System hosting	MO	$[redacted]
5.36b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	$[redacted]

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Item No.	SOW Ref.	Description	Unit	Unit Price
		Software Escrow Services including cost for escrow company		
5.39		Year 1 – Level 1 Software Escrow	YR	
5.40		Year 2 – Level 1 Software Escrow	YR	
5.41		Year 3 – Level 1 Software Escrow	YR	
5.42		Year 4 – Level 1 Software Escrow	YR	
5.43		Year 5 – Level 1 Software Escrow	YR	
5.44		Year 6 – Level 1 Software Escrow	YR	
5.45		Year 7 – Level 1 Software Escrow	YR	
5.46		Year 8 – Level 1 Software Escrow	YR	
5.47		Year 9 – Level 1 Software Escrow	YR	
5.48		Year 10 – Level 1 Software Escrow	YR	

PRICE SECTION 6 – SOFTWARE LICENSES

Item No.	SOW Ref.	Description	Unit	Unit Price
	Software Licenses and Subscriptions – Initial software license/subscription purchase – Invoiced in full at the time of purchase			
6.01	3	Oracle Enterprise Edition with Advanced Security & Maintenance	LS	
6.02	3	Shareplex Subscription & Professional Setup Services	LS	
6.03	3	IBM Maas 360 Mobile Device Management	LS	

HOURLY† RATES FOR CHANGES PER SECTION 1 ARTICLE 4

Item No.	Description	Unit	Unit Price
AS.01a	Senior Project Manager	HR	
AS.01b	Project Manager	HR	
AS.02	Systems Engineer (Sr)	HR	
AS.03	Systems Engineer (Mid)	HR	
AS.04	Systems Engineer (Jr)	HR	
AS.05	Software Engineer (Sr)	HR	
AS.06	Software Engineer (Mid)	HR	
AS.07	Software Engineer (Jr)	HR	
AS.08	Technician	HR	

END CONTRACT PRICING

†*Agreed upon hourly rates (applicable to CY 2017) shall automatically adjust on an annual basis according to the BLS Consumer price index (CPI) from the end of the prior year.*

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MILESTONE PAYMENT SCHEDULE

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RTA/RP 0119-17
Milestone and Partial Payment Schedule

		DESIGN					DEPLOYMENT/ DELIVERY OF PRODUCT				TRANSITION	TESTING			FINAL TESTING AND CLOSEOUT		**TOTAL**
Item No.	Contract Price	**PMP**	**CDR**	**PDR**	**FDR**	**PAT**	**1st 25%**	**2nd 25%**	**3rd 25%**	**Final 25%**	**ngORCA SoR**	**SIT**	**FIT**	**Pilot**	**SAT**	**FSA**	**TOTAL**
IMPLEMENTATION SERVICES																	
Program and Contract Mgmt																	
M-1.01	$3,735,467.80	$186,773.39	$186,773.39	$373,546.78	$373,546.78	$373,546.78					$373,546.78	$373,546.78	$373,546.78	$373,546.78	$560,320.17	$186,773.39	**$3,735,467.80**
UI/UX Consulting																	
M-1.01a	$694,212.00	$34,710.60	$173,553.00	$173,553.00	$173,553.00							$34,710.60	$34,710.60	$34,710.60	$34,710.60		**$694,212.00**
M-1.01b	$271,743.00	$13,587.15	$67,935.75	$67,935.75	$67,935.75							$13,587.15	$13,587.15	$13,587.15	$13,587.15		**$271,743.00**
M-1.01c	$113,818.00	$5,690.90	$28,454.50	$28,454.50	$28,454.50							$5,690.90	$5,690.90	$5,690.90	$5,690.90		**$113,818.00**
M-1.01d	$149,042.00	$7,452.10	$37,260.50	$37,260.50	$37,260.50							$7,452.10	$7,452.10	$7,452.10	$7,452.10		**$149,042.00**
M-1.01e	$98,504.00	$4,925.20	$24,626.00	$24,626.00	$24,626.00							$4,925.20	$4,925.20	$4,925.20	$4,925.20		**$98,504.00**
M-1.01f	$103,404.00	$5,170.20	$25,851.00	$25,851.00	$25,851.00							$5,170.20	$5,170.20	$5,170.20	$5,170.20		**$103,404.00**
M-1.01g	$134,340.00	$6,717.00	$33,585.00	$33,585.00	$33,585.00							$6,717.00	$6,717.00	$6,717.00	$6,717.00		**$134,340.00**
Installation and Transition Services																	
M-1.02	$546,189.70		$54,618.97	$218,475.88	$273,094.85												**$546,189.70**
M-1.03	$732,701.36		$36,635.07	$73,270.14	$73,270.14							$366,350.68			$146,540.27	$36,635.07	**$732,701.36**
M-1.04	$63,307.96			$6,330.80	$6,330.80	$12,661.59	$9,496.19	$9,496.19	$9,496.19	$9,496.19							**$63,307.96**
P-1.05a				10%	10%	20%	15%	15%	15%	15%							**100%**
P-1.05b				10%	10%	20%	15%	15%	15%	15%							**100%**
P-1.05c				10%	10%							80%					**100%**
P-1.07a				10%	10%	20%	15%	15%	15%	15%							**100%**
P-1.07b				10%	10%	20%	15%	15%	15%	15%							**100%**
P-1.07c				10%	10%							80%					**100%**
P-1.08a				10%	10%	20%	15%	15%	15%	15%							**100%**
P-1.08b				10%	10%	20%	15%	15%	15%	15%							**100%**
P-1.08c				10%	10%							80%					**100%**
P-1.09a				10%	10%	20%	15%	15%	15%	15%							**100%**
P-1.09b				10%	10%	20%	15%	15%	15%	15%							**100%**
P-1.09c				10%	10%							80%					
Testing																	
M-1.10	$404,197.56											$202,098.78			$141,469.15	$60,629.63	**$404,197.56**
SYSTEM HARDWARE DESIGN																	
Back Office Applications																	
M-2.01	$905,117.89		$45,255.89	$90,511.79	$90,511.79							$633,582.52				$45,255.89	**$905,117.89**
M-2.02	$1,292,571.72		$64,628.59	$129,257.17	$129,257.17							$904,800.20				$64,628.59	**$1,292,571.72**
M-2.03	$100,702.64		$5,035.13	$10,070.26	$10,070.26							$70,491.85				$5,035.13	**$100,702.64**
M-2.04	$197,763.05		$9,888.15	$19,776.31	$19,776.31							$138,434.14				$9,888.15	**$197,763.05**
M-2.05	$61,247.94		$3,062.40	$6,124.79	$6,124.79							$42,873.56				$3,062.40	**$61,247.94**
M-2.06	$774,417.30		$38,720.87	$77,441.73	$77,441.73							$542,092.11				$38,720.87	**$774,417.30**
M-2.07	$180,955.06		$9,047.75	$18,095.51	$18,095.51							$126,668.54				$9,047.75	**$180,955.06**
M-2.08	$104,630.00		$5,231.50	$10,463.00	$10,463.00							$73,241.00				$5,231.50	**$104,630.00**
M-2.09	$37,119.32		$1,855.97	$3,711.93	$3,711.93							$25,983.52				$1,855.97	**$37,119.32**
M-2.10	$275,539.44		$13,776.97	$27,553.94	$27,553.94							$192,877.61				$13,776.97	**$275,539.44**
Externally Sourced Applications																	
M-2.11	$717,815.96		$35,890.80	$71,781.60	$71,781.60							$143,563.19	$179,453.99		$143,563.19	$71,781.60	**$717,815.96**
M-2.12	$231,901.62		$11,595.08	$23,190.16	$23,190.16							$46,380.32	$57,975.41		$46,380.32	$23,190.16	**$231,901.62**
M-2.13	$367,257.90		$18,362.90	$36,725.79	$36,725.79							$73,451.58	$91,814.48		$73,451.58	$36,725.79	**$367,257.90**
Field Device and Equipment Software																	
M-2.14	$100,063.17		$5,003.16	$10,006.32	$10,006.32							$37,523.69	$37,523.69				**$100,063.17**
M-2.15	$49,182.12		$2,459.11	$4,918.21	$4,918.21							$18,443.30	$18,443.30				**$49,182.12**
M-2.16	$136,953.24		$6,847.66	$13,695.32	$13,695.32							$51,357.47	$51,357.47				**$136,953.24**
M-2.17	$287,396.52		$14,369.83	$28,739.65	$28,739.65							$107,773.70	$107,773.70				**$287,396.52**
API Development																	

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RTA/RP 0119-17

Milestone and Partial Payment Schedule

M-2.18	$37,119.32		$1,855.97	$3,711.93	$3,711.93							$13,919.75	$13,919.75				**$37,119.32**
System Integration Services																	
M-2.19	$117,258.84		$5,862.94	$11,725.88	$11,725.88							$23,451.77	$41,040.59		$17,588.83	$5,862.94	**$117,258.84**
M-2.21	$63,607.28		$3,180.36	$6,360.73	$6,360.73							$12,721.46	$22,262.55		$9,541.09	$3,180.36	**$63,607.28**
M-2.22	$146,449.36		$7,322.47	$14,644.94	$14,644.94							$29,289.87	$51,257.28		$21,967.40	$7,322.47	**$146,449.36**
M-2.23	$107,978.76		$5,398.94	$10,797.88	$10,797.88							$21,595.75	$37,792.57		$16,196.81	$5,398.94	**$107,978.76**
M-2.24	$46,398.40		$2,319.92	$4,639.84	$4,639.84							$9,279.68	$16,239.44		$6,959.76	$2,319.92	**$46,398.40**
M-2.25	$90,770.88		$4,538.54	$9,077.09	$9,077.09							$18,154.18	$31,769.81		$13,615.63	$4,538.54	**$90,770.88**
M-2.27a	$128,564.84		$6,428.24	$12,856.48	$12,856.48							$25,712.97	$44,997.69		$19,284.73	$6,428.24	**$128,564.84**
Transit Payment Application																	
M-2.28	$61,492.40		$3,074.62	$6,149.24	$6,149.24							$12,298.48	$21,522.34		$9,223.86	$3,074.62	**$61,492.40**

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SECTION 09 – CONTRACT PROJECT SCHEDULE

Milestone	Date	Liquidated Damages Amount Reference
Project Management Plan (PMP)	Milestone delivery date agreed to at the project level	n/a
Conceptual Design Review (CDR)	Milestone delivery date agreed to at the project level	n/a
Preliminary Design Review (PDR)	Milestone delivery date agreed to at the project level	n/a
Final Design Review (FDR)	Milestone delivery date agreed to at the project level	n/a
PAT	Milestone delivery date agreed to at the project level	n/a
Deployment/Delivery of Product First 25%	Milestone delivery date agreed to at the project level	n/a
Deployment/Delivery of Product Second 25%	Milestone delivery date agreed to at the project level	n/a
Deployment/Delivery of Product Third 25%	Milestone delivery date agreed to at the project level	n/a
Deployment/Delivery of Product Final 25%	Milestone delivery date agreed to at the project level	n/a
System of Record	Milestone delivery date agreed to at the project level	n/a
SIT	Milestone delivery date agreed to at the project level	n/a
FIT	Milestone delivery date agreed to at the project level	n/a
Factory Acceptance Testing	November 30, 2020	Section 04 A
Pilot	Milestone delivery date agreed to at the project level	n/a
SAT	Milestone delivery date agreed to at the project level	n/a
BRT Stations II and Fleet Expansion I	January 1, 2022	Section 04 B 1
East Link Extension	January 1, 2022	Section 04 B 2
Decommissioning of Legacy ORCA system	December 31, 2022	Section 04 C
Final System Acceptance	December 31, 2022	Section 04 D
BRT Stations III and Fleet Expansion II	January 1, 2023	Section 04 B 3
Lynwood Link Extension	June 1, 2023	Section 04 B 4
Federal Way Link Extension and Redmond Link Extension	December 1, 2023	Section 04 B 5
BRT Stations IV and Fleet Expansion III	January 1, 2024	Section 04 B 6

Contract No. RTA/RP 0119-17 Systems Integrator for next generation ORCA

INIT Innovations in Technology, Inc.

VOLUME 2 OF 2

SECTION 10 – CONTRACTOR'S NEGOTIATED PROPOSAL SUBMITTAL

The following documents are included and incorporated into this Agreement:

- Final negotiated price sheet dated August 29,2018
- Proposal Addendum No. 2 dated August 17, 2018
- Proposal Addendum No. 1 dated July 23, 2018
- Revised Proposal dated June 8, 2018

Final negotiated price sheet dated August 29,2018

Next Generation ORCA System Integrator RFP
Proposal Pricing Form

Pricing Summary

Item No.	Description	Total Price
1	Implementation Services	[redacted]
2	System Software and Design	
3	Equipment and Spares	
4	Fare Media	
5	Operations and Maintenance Support Services	
6	Software Licenses	
7	Value-added Features and Capabilities	
	GRAND TOTAL	**$ 91,601,456.46**

Signed:

8/29/2018

Date

Roland Staib, President & CEO

Name & Title

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Next Generation ORCA System Integrator RFP
Pricing Form

Item No.	SOW Ref.*	Description	Unit	Est. Quantity	Unit Price	Amount
1. IMPLEMENTATION SERVICES						
	Program and Contract Management					
1.01	2	Program & Contract Management (NTP to System Acceptance)	LS	1		
		UI/UX Consulting				
1.01a		Project Management, Project Initiation and Onboarding	LS	1		
1.01b		Corporate Desgin Style Guide	LS	1		
1.01c		Website Design Guide	LS	1		
1.01d		Validator	LS	1		
1.01e		Driver Display Unit	LS	1		
1.01f		Front Office Ticket Sales	LS	1		
1.01g		TVMs	LS	1		
		Software Escrow				
1.01h		Initial Desposit - Level 1 Escrow	LS	1		
					Subtotal - Program and Contract Management	**$**

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	Installation and Transition Services			
1.02	2	Transition Strategy and Planning	LS	1
1.03	2	Back-Office Installation and Configuration, Including Documentation	LS	1
1.04	2	Field Device Site Surveys and Prototyping	LS	1
1.05a	2	Onboard Equipment (validator and DDU) Installation (Excluding KCM)	EA	650
1.05b	2	Onboard Equipment (validator and DDU) Commissioning (Excluding KCM)	EA	650
1.05c	2	Onboard Equipment Documentation	LS	1
1.06	2	Onboard Validator Equipment Installation, Commissioning, and Documentation (KCM Only)	EA	0
1.07a	2	Wayside Validator Installation	EA	1095
1.07b	2	Wayside Validator Commissioning	EA	1095
1.07c	2	Wayside Validator Documentation	LS	1
1.08a	2	VM Installation	EA	291
1.08b	2	VM Commissioning	EA	291
1.08c	2	VM Documentation	LS	1
1.09a	2	CST Installation	EA	41
1.09b	2	CST Commissioning	EA	41
1.09c	2	CST Documentation	LS	1
				Subtotal - Installation and Tr
	Testing			
1.10	2	Agency Test Facility Implementation, Housing, and Documentation	LS	1
1.11	2	Factory Testing and Documentation	LS	1
1.12	2	Integration Testing and Documentation	LS	1
1.13	2	Pilot Testing and Documentation	LS	1
1.14	2	System Acceptance Testing and Documentation	LS	1

[redacted]

	Training			
1.15	2	Training Course Development Services	LS	1
1.16	2	Training Course Delivery and Materials	EA	1
				S
	Manuals			
1.17	2	System Manuals	LS	1
				S
				TOTAL PRICE - 1. IMPLEMENTA
Item No.	**SOW Ref.***	**Description**	**Unit**	**Est. Quantity**
2. SYSTEM SOFTWARE DESIGN				
	Back Office Applications			
2.01	6	Account-based Transaction Processor	LS	1
2.02	6	Customer Relationship Management	LS	1
2.02a	6	Salesforce User - qty 100+	EA	1
2.02b	6	Salesforce User - qty 1-99	EA	1
2.03	6	Asset Incident Management	LS	1
2.04	6	System Manager	LS	1
2.05	6	Fare Media Management	LS	1
2.06	6	Financial Management	LS	1
2.06a	6	Sage 300c User - qty 26+	EA	1
2.06b	6	Sage 300c User - qty 15-25	EA	1
2.06c	6	Sage 300c - qty 1-14	EA	1
2.07	6	Central Payment	LS	1
2.08	6	Configuration and Change Management	LS	1
2.09	6	Tariff Management	LS	1
2.10	6	API Management	LS	1
				Subtotal - Back Of

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				[redacted]
	Externally Sourced Applications			
2.11	5	Customer Mobile App	LS	
2.12	5	Agency Mobile Apps (Fare Inspection & Fare Payment)	LS	
2.13	5	Customer Website	LS	
			Subtotal - Ex	
	Field Device and Equipment Software			
2.14	4	Onboard and Wayside Validator Software	LS	
2.15	4	Driver Display Unit Software	LS	
2.16	4	Customer Service Terminal Software	LS	
2.17	4	Full Feature Vending Machine Software	LS	
			Subtotal - Field De	
	API Development			
2.18	3	Application Programming Interface (API) Development	LS	
	System Integration Services			
2.19	3	Onboard Integration (PT, CT, KT, ET)	LS	
2.20	3	Onboard Integration (KCM)	LS	
2.21	3	Washington State Ferries Integration	LS	
2.22	3	Data Access and Reporting Platform (DARe) Integration	LS	
2.23	3	Retail Network Integration	LS	
2.24	3	Integration with Legacy ORCA Back Office	LS	
2.25	3	ADA Paratransit Integration	LS	
2.26	6	Integration of Agency Provided CRM Application ($0 if SI-provided CRM application is proposed)	LS	
2.27	6	Integration of Agency Provided Financial Application ($0 if SI-provided financial application is proposed)	LS	
		Vanpool Integration	LS	
			Subtotal -	

	Transit Payment Application				
2.28	7	Transit Payment Application	LS	1	[redacted]
				Subtotal - Transit Pay	
				TOTAL PRICE - 2. SYSTEM SOF	

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Item No.	SOW Ref.*	Description	Unit	Est. Quantity	Unit Price	Amount
3. EQUIPMENT AND SPARES						
	Producion Equipment and Spares					
3.01	4	Back Office Hardware - Four Environments ($0.00 if cloud is proposed)	LS	1		
3.02	4	Onboard Validator (including spares)	EA	2,926		
3.03	4	Onboard Validator Mounting System and Installation Kit (including spares)	EA	2,926		
3.04	4	Driver Display Unit (including spares)	EA	1,086		
3.05	4	Driver Display Unit Mounting System and Installation Kit (including spares)	EA	1,086		
3.06	4	Wayside Validator (including spares)	EA	1,160		
3.07	4	Wayside Validator Mounting System and Installation Kit (including spares)	EA	1,160		
3.08	4	Customer Service Terminal (including spares)	EA	41		
3.08a	4	CST Standard Printer	EA	15		
3.09	4	CST Portable Printer	EA	12		
3.10	4	CST Mail Center Printer	EA	2		
3.11	4	Full Feature Vending Machine (including spares)	EA	146		
3.11a	4	Credit for omission of bill and coin acceptance	EA			
3.11b	4	Credit for omission of coin acceptance	EA			
3.11c	4	Credit for omission of change issuance	EA			
3.11d	4	Credit for omission of media issuance	EA			
		Light Vending Machine	EA	146		
				Subtotal - Production Equip		

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	Test Equipment				
3.12a	2	Test System with online applications of the Main System License	LS	1	
3.12b	2	1 Vehicle BiB Per Agency (excluding WSF)	EA	6	
3.12c	2	Platform Validator	EA	1	
3.12d	2	Large Full Service TVM	EA	1	
3.12e	2	Small Profile Full Service TVM	EA	1	
3.12f	2	CST Test Unit	EA	1	
				Subtotal	
	Training Equipment				
3.13	2	On-board Training Unit (BIB) - including validator, DDU and other SI equipment)	EA	12	
3.14	2	Wayside Training Unit - including wayside validator	EA	3	
3.15	2	CST Training Unit	EA	7	
				Subtotal - Tra	
				TOTAL PRICE - 3. EQUIPMEN	
Item No.	**SOW Ref.***	**Description**	**Unit**	**Est. Quantity**	
4. FARE MEDIA					
	Fare Media				
4.01	7	Contactless Extended-use Smart Cards (including training and test cards)	EA	1,000,000	
				TOTAL PRICE -	

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Item No.	SOW Ref.*	Description	Unit	Est. Quantity	Unit Price	Amount
5. OPERATIONS AND MAINTENANCE SUPPORT SERVICES						
	Software Maintenance Agreement					
5.01	**8**	**Year 1 – Software Maintenance Agreement**				
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)				
5.01a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1		
5.01b		Shareplex Subscription	LS	1		
		Monthly Recurring SW Maintenance (Billed Monthly)				
5.01c		INIT Software	MO	12		
		Monthly Recurring Licenses (Billed Monthly)				
5.01d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12		
5.02	**8**	**Year 2 – Software Maintenance Agreement**				
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)				
5.02a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1		
5.02b		Shareplex Subscription	LS	1		
		Monthly Recurring SW Maintenance (Billed Monthly)				
5.02c		INIT Software	MO	12		
		Monthly Recurring Licenses (Billed Monthly)				
5.02d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12		

5.03	**8**	**Year 3 – Software Maintenance Agreement**				
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)				
5.03a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1		
5.03b		Shareplex Subscription	LS	1		
		Monthly Recurring SW Maintenance (Billed Monthly)				
5.03c		INIT Software	MO	12		
		Monthly Recurring Licenses (Billed Monthly)				
5.03d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12		
5.04	**8**	**Year 4 – Software Maintenance Agreement**				
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)				
5.04a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1		
5.04b		Shareplex Subscription	LS	1		
		Monthly Recurring SW Maintenance (Billed Monthly)				
5.04c		INIT Software	MO	12		
		Monthly Recurring Licenses (Billed Monthly)				
5.04d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12		
5.05	**8**	**Year 5 – Software Maintenance Agreement**				
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)				
5.05a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1		
5.05b		Shareplex Subscription	LS	1		
		Monthly Recurring SW Maintenance (Billed Monthly)				
5.05c		INIT Software	MO	12		
		Monthly Recurring Licenses (Billed Monthly)				
5.05d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12		
5.06	**8**	**Year 6 – Software Maintenance Agreement**				

		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)				
5.06a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1		
5.06b		Shareplex Subscription	LS	1		
		Monthly Recurring SW Maintenance (Billed Monthly)				
5.06c		INIT Software	MO	12		
		Monthly Recurring Licenses (Billed Monthly)				
5.06d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12		
5.07	**8**	**Year 7 – Software Maintenance Agreement**				
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)				
5.07a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1		
5.07b		Shareplex Subscription	LS	1		
		Monthly Recurring SW Maintenance (Billed Monthly)				
5.07c		INIT Software	MO	12		
		Monthly Recurring Licenses (Billed Monthly)				
5.07d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12		
5.08	**8**	**Year 8 – Software Maintenance Agreement**				
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)				
5.08a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1		
5.08b		Shareplex Subscription	LS	1		
		Monthly Recurring SW Maintenance (Billed Monthly)				
5.08c		INIT Software	MO	12		
		Monthly Recurring Licenses (Billed Monthly)				
5.08d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12		
5.09	**8**	**Year 9 – Software Maintenance Agreement**				

		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)		
5.09a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1
5.09b		Shareplex Subscription	LS	1
		Monthly Recurring SW Maintenance (Billed Monthly)		
5.09c		INIT Software	MO	12
		Monthly Recurring Licenses (Billed Monthly)		
5.09d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12
5.10	**8**	**Year 10 – Software Maintenance Agreement**		
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)		
5.10a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1
5.10b		Shareplex Subscription	LS	1
		Monthly Recurring SW Maintenance (Billed Monthly)		
5.10c		INIT Software	MO	12
		Monthly Recurring Licenses (Billed Monthly)		
5.10d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12
5.11	**8**	**~~Year 11 – Software Maintenance Agreement~~**		
				Subtotal - Software Mainte

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	System Operations and Maintenance			
5.12	8	Year 1 – System Operations & Maintenance	MO	12
5.13	8	Year 2 – System Operations & Maintenance	MO	12
5.14	8	Year 3 – System Operations & Maintenance	MO	12
5.15	8	Year 4 – System Operations & Maintenance	MO	12
5.16	8	Year 5 – System Operations & Maintenance	MO	12
5.17	8	Year 6 – System Operations & Maintenance	MO	12
5.18	8	Year 7 – System Operations & Maintenance	MO	12
5.19	8	Year 8 – System Operations & Maintenance	MO	12
5.20	8	Year 9 – System Operations & Maintenance	MO	12
5.21	8	Year 10 – System Operations & Maintenance	MO	12
5.22	8	Year 11 – System Operations & Maintenance	MO	12
5.23	8	~~Year 12 – System Operations & Maintenance~~		
				Subtotal - System Operations
	System Hosting			
		Monthly Recurring		
5.24	**3 & 8**	**Year 1 - Back Office, Test Facility, and Website Hosting**		
5.24a		Mobile Payment System Hosting	MO	12
5.24b		INIT Back Office, Test Facility and Website Hosting	MO	12
5.25	**3 & 8**	**Year 2 - Back Office, Test Facility, and Website Hosting**		
5.25a		Mobile Payment System Hosting	MO	12
5.25b		INIT Back Office, Test Facility and Website Hosting	MO	12
5.26	**3 & 8**	**Year 3 - Back Office, Test Facility, and Website Hosting**		
5.26a		Mobile Payment System Hosting	MO	12
5.26b		INIT Back Office, Test Facility and Website Hosting	MO	12
5.27	**3 & 8**	**Year 4 - Back Office, Test Facility, and Website Hosting**		
5.27a		Mobile Payment System Hosting	MO	12
5.27b		INIT Back Office, Test Facility and Website Hosting	MO	12

5.28	**3 & 8**	**Year 5 - Back Office, Test Facility, and Website Hosting**		
5.28a		Mobile Payment System Hosting	MO	12
5.28b		INIT Back Office, Test Facility and Website Hosting	MO	12
5.29	**3 & 8**	**Year 6 - Back Office, Test Facility, and Website Hosting**		
5.29a		Mobile Payment System Hosting	MO	12
5.29b		INIT Back Office, Test Facility and Website Hosting	MO	12
5.30	**3 & 8**	**Year 7 - Back Office, Test Facility, and Website Hosting**		
5.30a		Mobile Payment System Hosting	MO	12
5.30b		INIT Back Office, Test Facility and Website Hosting	MO	12
5.31	**3 & 8**	**Year 8 - Back Office, Test Facility, and Website Hosting**		
5.31a		Mobile Payment System Hosting	MO	12
5.31b		INIT Back Office, Test Facility and Website Hosting	MO	12
5.32	**3 & 8**	**Year 9 - Back Office, Test Facility, and Website Hosting**		
5.32a		Mobile Payment System Hosting	MO	12
5.32b		INIT Back Office, Test Facility and Website Hosting	MO	12
5.33	**3 & 8**	**Year 10 - Back Office, Test Facility, and Website Hosting**		
5.33a		Mobile Payment System Hosting	MO	12
5.33b		INIT Back Office, Test Facility and Website Hosting	MO	12
5.34	**3 & 8**	**Year 11 - Back Office, Test Facility, and Website Hosting**		
5.34a		Mobile Payment System Hosting	MO	12
5.34b		INIT Back Office, Test Facility and Website Hosting	MO	12
5.35	**3 & 8**	**Year 12 - Back Office, Test Facility, and Website Hosting**		
5.35a		Mobile Payment System Hosting	MO	12
5.35b		INIT Back Office, Test Facility and Website Hosting	MO	12

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5.36	**3 & 8**	**Year 13 - Back Office, Test Facility, and Website Hosting**			
5.36a		Mobile Payment System Hosting	MO	12	$ 4,034.67
5.36b		INIT Back Office, Test Facility and Website Hosting	MO	12	$ 85,114.10
5.37	**3 & 8**	~~Year 14 - Back Office, Test Facility, and Website Hosting~~			$ -
					Subtotal - System Hosting
	Warranty				
5.38	8	System Warranty (1 Year System Warranty Included)	LS	1	Included
					Subtotal - Warranty
	Software Escrow				
5.39		Year 1 - Level 1 Software Escrow	LS	1	$ 25,968.00
5.40		Year 2 - Level 1 Software Escrow	LS	1	$ 25,968.00
5.41		Year 3 - Level 1 Software Escrow	LS	1	$ 25,968.00
5.42		Year 4 - Level 1 Software Escrow	LS	1	$ 25,968.00
5.43		Year 5 - Level 1 Software Escrow	LS	1	$ 25,968.00
5.44		Year 6 - Level 1 Software Escrow	LS	1	$ 25,968.00
5.45		Year 7 - Level 1 Software Escrow	LS	1	$ 25,968.00
5.46		Year 8 - Level 1 Software Escrow	LS	1	$ 25,968.00
5.47		Year 9 - Level 1 Software Escrow	LS	1	$ 25,968.00
5.48		Year 10 - Level 1 Software Escrow	LS	1	$ 25,968.00
					Subtotal - Software Escrow
					TOTAL PRICE - 5. OPERATIONS AND MAINTENANCE SUPPORT SERVICES

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[redacted]

Item No.	SOW Ref.*	Description	Unit	Est. Quantity
6. SOFTWARE LICENSES				
		Software Licenses - All Environments		
6.01	3	Oracle Enterprise Edition with Advanced Security & Maintenance	LS	1
6.02	3	Shareplex Subscription & Professional Setup Services	LS	1
6.03	3	IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	LS	1
				TOTAL PRICE - 6. SOFTW

Item No.	SOW Ref.*	Description	Unit	Est. Quantity
7. Value-added Features and Capabilities				
		Open Payments		
		Open APIs		
		Fare Capping/Loyalty Programs		
				TOTAL PRICE - 7. Value-added Features a

*Refers to sections in the RFP SOW where capabilities associated with the pricing item are listed. Capabilities for any given pricing item may also be included in other sections of the SOW not listed on the pricing form.

System Integrator -- As-Needed Services

Item No.	Description	Unit	[redacted]
AS-NEEDED SUPPORT SERVICES			
AS.01	Senior Project Manager	HR	
AS.01	Project Manager	HR	
AS.02	Systems Engineer (Sr)	HR	
AS.03	Systems Engineer (Mid)	HR	
AS.04	Systems Engineer (Jr)	HR	
AS.05	Software Engineer (Sr)	HR	
AS.06	Software Engineer (Mid)	HR	
AS.07	Software Engineer (Jr)	HR	
AS.08	Technician	HR	

* Agreed upon rates (applicable to CY 2017) may be subject to modification on an annual basis only, and may not exceed a percentage equivalent to the change in the BLS Consumer price index (CPI), from end of prior year, to the most recent available 6 month data period. Requests for rate adjustments must be submitted to the Contract Manager 45 days prior to the beginning of a new calendar year.

Signed:

8/29/2018

Date

Roland Staib, President & CEO

Name and Title

System Integrator - Tiered Equipment Pricing

Item No.	Description		
TIERED EQUIPMENT PRICING		Unit	Unit Price
	On Board Validators, 1-10 quantity	EA	[redacted]
	On Board Validators, 11-20 quantity	EA	
	On Board Validators, 21-50 quantity	EA	
	On Board Validators, 51-100 quantity	EA	
	On Board Validators, 100+ quantity	EA	
	Driver Display Unit, 1-10 quantity	EA	
	Driver Display Unit, 11-20 quantity	EA	
	Driver Display Unit, 21-50 quantity	EA	
	Driver Display Unit, 51-100 quantity	EA	
	Driver Display Unit, 100+ quantity	EA	
	Wayside Validators, 1-10 quantity	EA	
	Wayside Validators, 11-20 quantity	EA	
	Wayside Validators, 21-50 quantity	EA	
	Wayside Validators, 51-100 quantity	EA	
	Wayside Validators, 100+ quantity	EA	
	Customer Service Terminal, 1-10 quantity	EA	
	Customer Service Terminal, 11-20 quantity	EA	
	Customer Service Terminal, 21-50 quantity	EA	
	Full Featured Vending Machines, 1-2 quantity	EA	
	Full Featured Vending Machines, 3-10 quantity	EA	
	Full Featured Vending Machines, 11-20 quantity	EA	
	Full Featured Vending Machines, 21-50 quantity	EA	
	Full Featured Vending Machines, 51-100 quantity	EA	
	Full Featured Vending Machines, 100+ quantity	EA	
	Light Vending Devices, 1-2 quantity	EA	
	Light Vending Devices, 3-10 quantity	EA	
	Light Vending Devices, 11-20 quantity	EA	
	Light Vending Devices, 21-50 quantity	EA	
	Light Vending Devices, 51-100 quantity	EA	
	Light Vending Devices, 100+ quantity	EA	
	Training BIB - On Board Validator, DDU, 1-10 quantity	EA	
	Training BIB - On Board Validator, DDU, 11-20 quantity	EA	
	Training BIB - On Board Validator, DDU, 21-50 quantity	EA	
	Training BIB - Wayside Validator, 1-10 quantity	EA	
	Training BIB - Wayside Validator, 11-20 quantity	EA	
	Training BIB - Wayside Validator, 21-50 quantity	EA	
	Training BIB - CST Unit, 1-10 quantity	EA	

			[redacted]
	Training BIB - CST Unit, 11-20 quantity	EA	
	Training BIB - CST Unit, 21-50 quantity	EA	

Item No.	Description		
Spare Part Modules		**Unit**	**Unit Price**
	customer display size 15", TOUCH 15" + controller, cables, 1-10 quantity	EA	[redacted]
	customer display size 15", TOUCH 15" + controller, cables, 11-20 quantity	EA	
	customer display size 15", TOUCH 15" + controller, cables, 21+ quantity	EA	
	FEIG Card Reader for TVM, 1-10 quantity	EA	
	FEIG Card Reader for TVM, 11-20 quantity	EA	
	FEIG Card Reader for TVM, 21+ quantity	EA	
	Coin handling Unit with change (6x carousel without hoppers), 1-10 quantity	EA	
	Coin handling Unit with change (6x carousel without hoppers), 11-20 quantity	EA	
	Coin handling Unit with change (6x carousel without hoppers), 21+ quantity	EA	
	Bill Handling Unit (MEI SCR), 1-10 quantity	EA	
	Bill Handling Unit (MEI SCR), 11-20 quantity	EA	
	Bill Handling Unit (MEI SCR), 21+ quantity	EA	
	Banknote Vault (for 1400 notes), 1-10 quantity	EA	
	Banknote Vault (for 1400 notes), 11-20 quantity	EA	
	Banknote Vault (for 1400 notes), 21+ quantity	EA	
	Bank Card Processing Unit, 1-10 quantity	EA	
	Bank Card Processing Unit, 11-20 quantity	EA	
	Bank Card Processing Unit, 21+ quantity	EA	
	1 x Double printers (2 paper rolls in total), 1-10 quantity	EA	
	1 x Double printers (2 paper rolls in total), 11-20 quantity	EA	
	1 x Double printers (2 paper rolls in total), 21+ quantity	EA	
	Smartcard Dispenser, 1-10 quantity	EA	
	Smartcard Dispenser, 11-20 quantity	EA	
	Smartcard Dispenser, 21+ quantity	EA	
	VENDstation board, 1-10 quantity	EA	
	VENDstation board, 11-20 quantity	EA	
	VENDstation board, 21+ quantity	EA	
	VENDstation extension board, 1-10 quantity	EA	
	VENDstation extension board, 11-20 quantity	EA	
	VENDstation extension board, 21+ quantity	EA	

	Power Supply, 1-10 quantity	EA	[redacted]
	Power Supply, 11-20 quantity	EA	
	Power Supply, 21+ quantity	EA	
	UPS, 1-10 quantity	EA	
	UPS, 11-20 quantity	EA	
	UPS, 21+ quantity	EA	
	HP Elite USB-C Dock	EA	
	HP EliteDisplay E220t 21.5-inch Touch Monitor	EA	
	Logitech MK520 Wireless Keyboard and Mouse Combo	EA	
	INIT USB Card Reader	EA	
	Logitech 4K Pro Web	EA	
	Epson DS-1630 Flatbed Color Document Scanner	EA	
	Epson DS-40 Color Portable Scanner	EA	
	MS-Cash Drawer (J-423-USB-M-B)	EA	
	Ingenico IPP350-11P1914A Payment Terminal	EA	
	Epson C31CB25A8791 Receipt Printer w/Power Supply	EA	
	Brother Ruggedized RJ-4030	EA	
	Hewlett-Packard LV3000 Pole Display 7" Video with USB Connector, Dark Grey	EA	
	TrippLite USB Hub	EA	
	TrippLite UPS 500VA 280W UPS	EA	
	Fargo HDP5600 ID Card Printer & Encoder	EA	
	Fargo DTC1250e	EA	
	Fargo HDP8500 ID Card Printer & Encoder	EA	
	Coin Vault, 1-10 quantity	EA	
	Coin Vault, 11-20 quantity	EA	
	Coin Vault, 21+ quantity	EA	
	Coin Hopper, 1-10 quantity	EA	
	Coin Hopper, 11-20 quantity	EA	
	Coin Hopper, 21+ quantity	EA	
	VENDstation Door Alarm, 1-10 quantity	EA	
	VENDstation Door Alarm, 11-20 quantity	EA	
	VENDstation Door Alarm, 21+ quantity	EA	
	MEI SCR Rebuild, 1-10 quantity	EA	
	MEI SCR Rebuild, 11-20 quantity	EA	
	MEI SCR Rebuild, 21+ quantity	EA	

Proposal Addendum No. 2 dated August 17, 2018

Revised Proposal Addendum

Addressing Specific Clarifications

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

August 17, 2018

The Future of Mobility

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Confidentially Statement

The sections in this document contain trade secret information that provides a business advantage to INIT over competitors. All sections in this document are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating this RFP response and third parties retained by the agency who have been retained to assist in evaluation of this RFP response and then only to the extent they agree to abide by this limitation.

1 General Clarifications

1.1 Subcontractor Oversight

Sound Transit Clarification Request:

Further to the question in the third request for revised proposals, how will INIT manage the oversight and coordination of subcontractors, including expected areas of involvement such as: managing relationships; ensuring appropriate coordination for multi-sub efforts (such as the UI/UX with each of the mobile app and website developers); and driving the subcontractors to meet the project's overall objectives and schedule goals.

INIT Response

INIT has tremendous experience managing subcontractors as required to meet the needs of a given project. We understand the failure to manage subcontractors appropriately can lead to poor performance, delays, and disputes which can lead to loss both in terms of budget and schedule which could potentially negatively impact the overall program and its goals and objectives. Our extensive experience has led us to find the most optimal ways to develop partnerships with our subcontractors to ultimately meet the needs of our customers.

To ensure proper fit to the project itself we select our subcontractors by several key characteristics: technical solution, ability to meet schedule requirements, capacity and experience of project staff, previous project performance and reputation, and a balance between costs and cost-benefit.

Once we have selected an appropriate subcontractor for a given project, we begin a series of steps to define the work that needs done and the nature of how we are going to work together.

1. **Subcontractor Agreement**
   This Agreement ensures that INIT's chosen vendor is under Contract for the services specified in INIT's proposal, providing grounds for the services to be provided (including the scope of work to be performed), the project team performing the work and process for mitigation in the event a resource is not performing to the standards required, term of the agreement, the process for contract penalty or termination, and payment processing and invoicing. Additionally, this Agreement covers the commercial terms and conditions of INIT which is inclusive of any and all flow-down clauses from the prime contract between INIT and Sound Transit.

2. **Statement of Services**
   The scope of work to be performed by the Subcontractor is built into a detailed Statement of Services document which is then made part of the Agreement.

3. **Project Team Charter**
   The Project Team will be outlined in the Statement of Services. In addition to that, INIT will also maintain with the Subcontractor's Project Manager, an up to date registry of Project Team members, their contact information, role on the project and percentage of allocation.

4. **Communications Plan**
   Utilizing the information gained from the Project Team Charter, INIT's Project Manager and the Subcontractor's Project Manager will define and agree on the days and times for team meetings, technical meetings, project progress meetings, and Agency-specific meetings such as SME, design reviews, testing, and so forth.

5. **Schedule**
   The SI Project Schedule, developed in conjunction with Sound Transit, will be broken down into separate Subcontractor specific schedules such that the relevant activities and milestones for each phase are reflected.

6. **Budget**
   Establishing a clear and fixed budget ensures clear expectations are set from the start.

Subcontractor Project Kick-Off Meeting

Once the above documentation is developed and agreed, INIT will schedule a Project Kick-off Meeting with each Subcontractor individually and then also by functional area such as client-side application interfaces (e.g. mobile app, website, and UI/UX vendor).

In bringing the parties together and establishing clear points in which we will be expected to coordinate and interact in order to work together, agree, handover, etc. the body of work in total to be delivered, we can then move forward with the work itself.

During this/these meeting(s), the project teams will get a chance to introduce themselves to each other, understand roles and responsibilities, address gaps or other questions and concerns, and begin the first steps towards initiating the work, preparing needed deliverables, and so forth.

As part of and during the kick-off we will establish the dates and times for meetings, project plans and schedules for near-term deliverables, and any dependencies between the parties that exist. It is essential that at the start there is clear understanding of expectations by both parties.

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Subcontractor Performance Oversight

The oversight and general progress will be managed by the Project Manager while the technical integration and technical performance will be managed by the System Engineer and Lead Software Developer.

During the design review portion of the project there will be a high level of engagement and documentation sharing. Because of this, INIT will regularly keep and post meeting minutes, decisions matrices and requirements traceability; this includes oversight from the Project Manager and Lead System Engineer. Each subcontractor will be required to develop their needed test scripts, test strategies, regression test needs, and integration for each phase thereafter. Additionally, during transition of the back-office and for any system changes, remote support or other monitoring activities may also be required. As with the design phase, the test and integration phases will include a two-pronged approach in oversight between the Project Manager and lead technical staff.

During the course of the project INIT utilizes a series of tools and techniques to manage and oversee the Project Deliverables and Scope. In part, this includes the regular meetings with the Subcontractor and evaluation of schedule and budget performance as noted above; it also includes evaluation of risk and risk mitigation of the deliverable(s) as well as projections for work forthcoming, including change management and future change orders.

We require our subcontractors to regularly evaluate the work that is being undertaken and whether any flags need to be raised prior to missing or causing issues. To help facilitate the project management oversight and risk mitigation INIT will have or produce some or more of the following throughout the duration of the project and Agreement with all subcontractors:

- Subcontractor files from procurement and contract award
- Project management files and documents
- Compliance matrices against the contract
- Decision matrix for required deliverables
- Monthly or quarterly performance reports based on the metrics as noted above
- Evaluation of Subcontractor performance against scope and project delivery performance

The essential element in our approach to Subcontractor management is that a Subcontractor is not simply hired and then left alone to deal with the deliverable independently. They are an integral part of the Project Team and need to be part of regular communications and status briefings and their work or deliverables evaluated and monitored closely.

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UI/UX Subcontractor Management

Unique to the ngORCA SI project is the role of the UI/UX Subcontractor as they will be responsible for realizing the common user interface elements which are to be used / undertaken by the front-end interface elements. Similar to the other Subcontractors, INIT will have a series of meetings, including the initial kick-offs. We will exchange the materials as stated above, have a technical kick-off with the INIT team to ensure clarity of the INIT proposed solution, and then kick-off discussions between the UI/UX vendor and the dependent vendors and teams (INIT hardware, websites through Marathon, and the apps with Bytemark and Ebros). While we will create a plan and strategy as with the others, the UI/UX plan will utilize the other vendor's schedules and plans so that there are clear timelines for when work needs to be approved and agreed, to when usability testing needs to occur, and so forth.

The INIT Project Manager will manage the oversight of the overall performance against schedule, budget, and risk management while the System Engineer and Lead Software Developer will oversee the technical feasibility and appropriateness of the solutions or designs proposed to ensure they are fit for purpose and achieve the capabilities as specified in the SI ngORCA Scope of Work.

The UI/UX Subcontractor is unique in that they are providing direction and design for the other Subcontractor's which are in turn providing the output of the functional elements of the systems. Because of this, it is critical that INIT manage this relationship and the inter-relationships closely and raise any risks or concerns early and often.

Problems Requiring Escalation or Termination

Despite strong efforts to mitigate against it, Subcontractors can and do encounter problems. To both help the Subcontractor get back on track and create a path for termination should one become required, INIT will follow the terms of the Agreement to ensure proper and timely notifications are given, fair and reasonable means are undertaken to support the Subcontractor's ability to cure the item of default in question; references to the Agreement will also be noted as required.

When a risk item arises, INIT will follow the Risk Management Plan for the Project which seeks to mitigate the risk where possible. From there, should a risk be deemed to have high impact, INIT will meet and discuss with the Subcontractor's Project Manager and team members to discuss in detail the management of the risk. If mitigation cannot be achieved, INIT will discuss with the Region the possible impact and efforts undertaken for mitigation. Depending on the scope of services to be performed, change out of a Subcontractor may be simple or complex. Regardless, at all times the Region will be notified of the risk, urgency, and impact. If it is deemed that a new

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Subcontractor needs to be brought forward, INIT will do the necessary evaluation of scope and services remaining and make a proposal for replacement of the Subcontractor to the Region.

In the unlikely event that termination of the Subcontractor should become necessary, INIT will make clear to the firm in writing the reasons for termination and the evidence around such, including any history around efforts to mitigate the issues. INIT will negotiate with the Subcontractor the terms for the termination, including acquisition of any source code, materials, data, etc., and resolve any payments, if any, to be made due for work performed to date.

INIT's Experience with Subcontractor Termination

INIT has experienced circumstances in past projects where we have needed to terminate an Agreement with a Subcontractor in order to prevent risk to the project; this termination has taken two forms. The first is to minimize the scope of the incumbent Subcontractor while another could be brought alongside them whereas the other is when a change out of the Subcontractor for the exact same scope is required. In both recent instances, the projects continued and were delivered on schedule.

1.2 Bytemark

Sound Transit Clarification Request:

Describe INIT's commercial relationship with proposed subcontractor Bytemark.

INIT Response

INIT Inc. made a commercial investment in Bytemark in August of 2016, buying approximately 26% of the firm. [redacted]

1.3 Price Clarification

Sound Transit Clarification Request:

Clarify what is included in each O&M; System and Software.

INIT Response

Software Maintenance Agreement

Software included in this section consists of the software we assume Sound Transit to be the licensee of (Found in Section 6).

The itemized list of software can be found in the Price Form Line 5.01.

System Operations & Maintenance

The ongoing costs included in this section are assumed to be (Found in Section 2 or Section 1 of the Back Office):

- Agency Test Facility O&M
- Hardware Maintenance and 24x7 System Support
- External Application Maintenance (Customer and Agency Apps, Websites)
- API maintenance and updates
- INIT provided License renewals and updates
- Software updates and/or patches
- All software testing and deployment
- Support Staff (System Engineer, Network and Database Engineers, Program Management)

2 Pricing Clarifications

2.1 Price Sheet Errors

Sound Transit Clarification Request:

Correct the identified errors on the price sheet.

i. Correct the price extension error in Year 1 of the software maintenance. (This may be moot if it is determined that those prices should have been included in the project delivery services and O&M services. If it is, please make that clear.)

ii. The only software that should be included in the Software Licenses amount should be for software where Sound Transit is the licensee. Clarify when the software licenses would be paid for, and identify if any of them are pre-paid or paid at the start of a subscription.

iii. The price for some hardware on the price sheet, with regard to estimated quantities, does not appear to commensurate with the provided tiered price for the same equipment.

INIT Response

See corrected price sheets.

Of note regarding item (ii), INIT has modified this list to reflect only those items we believe Sound Transit will be the likely licensee, with software license agreements naming Sound Transit as the licensee.

The items that INIT will utilize to deliver a service or the hosting provider will use to deliver a service are now captured in Sections 1 and 2 of the pricing sheet, with no additional costs provided.

2.2 Source Code Escrow

Sound Transit Clarification Request:

Correct the identified errors on the price sheet.

i. Create a new section on the price sheet for Software Escrow Services.

ii. Provide a fully burdened price for Level 1 software escrow services, inclusive of software escrow agency fees and INIT labor and materials.

INIT Response

See corrected price sheets. Note that the initial escrow deposit will occur prior to FSA. (Section 1) and the ongoing escrow deposits can be found in Section 5.

2.3 Training Costs

Sound Transit Clarification Request:

Separate the training price as follows:

i. Training course development services

ii. Training course delivery and materials

INIT Response

See corrected price sheets.

2.4 Milestone Payments

Sound Transit Clarification Request:

Milestone payment schedule:

i. Remove fare media because that is paid upon delivery and acceptance.

ii. Remove training course delivery and materials.

INIT Response

See corrected price sheets, including revised milestone payment schedule.

2.5 Risk Mitigation Cost Changes

Sound Transit Clarification Request:

Provide a detailed justification of the net increase in price. A generic response of a risk multiplier is not acceptable. Provide information such as the resources that will be provided in exchange for the increase in price.

INIT Response

Corrected for Errors, the total delta between the June 8th and July 23rd submissions [redacted]2. These reflect the following changes:

Reductions:

- UI/UX: -[redacted] Reduction with new vendor
- Warranty: -[redacted] Distributed into parts of Sections: 3. Equipment & Spares [redacted] and 6. Software Licenses ([redacted]. The price was further decreased by [redacted]

Increases:

- $150,000 Revised Price for External Applications [redacted])
- $424,000 Hardware Maintenance (In Section 5. O&M Support Services)
- Financing: $[redacted] increase spread across all capital costs from the June to July submissions calculated on the delay of cash inflow. Due to the fact there is no retainage on equipment and shifting payment milestones, this has further been reduced by [redacted]. It is now [redacted] or the entire capital project.
- Risk Mitigation, which includes
    - [redacted] Contract Manager for project phase (In Section 1.01 Program and Contract Management)
    - [redacted] Increase of Install Budget (In Section 1.02-1.09 Installation and Transition Services)
    - [redacted] Development Resources (In Section 2. System Software Design)

The rationale for these risk mitigation strategies are based on conversations with Sound Transit about how to further ensure project schedules are adhered to. By adding a Contract Manager to Project Management Office, we feel we can better ensure contract adherence and compliance; INIT will have much better forward views into any potential risks that might arise. By increasing the installation budget, we can add resources to adhere and mitigate risk to the installation timelines. And by adding software development resources, we can further invest in Puget Sound

based resources to bolster dedicated and focused development efforts specific to next gen ORCA. We believe these strategies combine to more holistically ensure a quality project delivered on the required schedule.

3 Warranty Clarifications

3.1 SOW Capability Clarification

Sound Transit Clarification Request:

Confirm that for SOW Capability 8.2-11, INIT conforms to letters, c, d, and e of the Capability. If not, explain and modify the Capability Conformance Matrix accordingly.

INIT Response

INIT solely takes exception to responsibility for personnel and labor in desired capability 8.2-11. We will be responsible for tools, materials, shipping charges, and other costs associated with the repair or replacement of components and/or subsystems throughout the warranty term.

Next Generation ORCA System Integrator RFP
Proposal Pricing Form

Pricing Summary

Item No.	Description	Total Price
1	Implementation Services	[redacted]
2	System Software and Design	
3	Equipment and Spares	
4	Fare Media	
5	Operations and Maintenance Support Services	
6	Software Licenses	
7	Value-added Features and Capabilities	
	GRAND TOTAL	**$ 91,682,326.99**

[redacted]

8/17/2018
Date

Roland Staib, President & CEO
Name & Title

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Next Generation ORCA System Integrator RFP
Pricing Form

Item No.	SOW Ref.*	Description	Unit	Est. Quantity	Unit Price	Amount
1. IMPLEMENTATION SERVICES						
	Program and Contract Management					
1.01	2	Program & Contract Management (NTP to System Acceptance)	LS	1		
		UI/UX Consulting				
1.01a		Project Management, Project Initiation and Onboarding	LS	1		
1.01b		Corporate Desgin Style Guide	LS	1		
1.01c		Website Design Guide	LS	1		
1.01d		Validator	LS	1		
1.01e		Driver Display Unit	LS	1		
1.01f		Front Office Ticket Sales	LS	1		
1.01g		TVMs	LS	1		
		Software Escrow				
1.01h		Initial Desposit - Level 1 Escrow	LS	1		
				Subtotal - Program and Co		
	Installation and Transition Services					
1.02	2	Transition Strategy and Planning	LS	1		
1.03	2	Back-Office Installation and Configuration, Including Documentation	LS	1		
1.04	2	Field Device Site Surveys and Prototyping	LS	1		
1.05a	2	Onboard Equipment (validator and DDU) Installation (Excluding KCM)	EA	650		
1.05b	2	Onboard Equipment (validator and DDU) Commissioning (Excluding KCM)	EA	650		
1.05c	2	Onboard Equipment Documentation	LS	1		
1.06	2	Onboard Validator Equipment Installation, Commissioning, and Documentation (KCM Only)	EA	0		

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1.07a	2	Wayside Validator Installation	EA	1095
1.07b	2	Wayside Validator Commissioning	EA	1095
1.07c	2	Wayside Validator Documentation	LS	1
1.08a	2	VM Installation	EA	291
1.08b	2	VM Commissioning	EA	291
1.08c	2	VM Documentation	LS	1
1.09a	2	CST Installation	EA	41
1.09b	2	CST Commissioning	EA	41
1.09c	2	CST Documentation	LS	1
		Subtotal - Installation and		
	Testing			
1.10	2	Agency Test Facility Implementation, Housing, and Documentation	LS	1
1.11	2	Factory Testing and Documentation	LS	1
1.12	2	Integration Testing and Documentation	LS	1
1.13	2	Pilot Testing and Documentation	LS	1
1.14	2	System Acceptance Testing and Documentation	LS	1
	Training			
1.15	2	Training Course Development Services	LS	1
1.16	2	Training Course Delivery and Materials	EA	1
	Manuals			
1.17	2	System Manuals	LS	1
		TOTAL PRICE - 1. IMPLEMEN		

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Item No.	SOW Ref.*	Description	Unit	Est. Quantity	Unit Price	Amount
2. SYSTEM SOFTWARE DESIGN						
	Back Office Applications					
2.01	6	Account-based Transaction Processor	LS	1		
2.02	6	Customer Relationship Management	LS	1		
2.03	6	Asset Incident Management	LS	1		
2.04	6	System Manager	LS	1		
2.05	6	Fare Media Management	LS	1		
2.06	6	Financial Management	LS	1		
2.07	6	Central Payment	LS	1		
2.08	6	Configuration and Change Management	LS	1		
2.09	6	Tariff Management	LS	1		
2.10	6	API Management	LS	1		
				Subtotal - Back		
	Externally Sourced Applications					
2.11	5	Customer Mobile App	LS	1		
2.12	5	Agency Mobile Apps (Fare Inspection & Fare Payment)	LS	1		
2.13	5	Customer Website	LS	1		
				Subtotal - Externally So		
	Field Device and Equipment Software					
2.14	4	Onboard and Wayside Validator Software	LS	1		
2.15	4	Driver Display Unit Software	LS	1		
2.16	4	Customer Service Terminal Software	LS	1		
2.17	4	Full Feature Vending Machine Software	LS	1		
				Subtotal - Field Device and E		
	API Development					
2.18	3	Application Programming Interface (API) Development	LS	1		
				Subtotal		
	System Integration Services					

[redacted]

2.19	3	Onboard Integration (PT, CT, KT, ET)	LS	3
2.20	3	Onboard Integration (KCM)	LS	1
2.21	3	Washington State Ferries Integration	LS	1
2.22	3	Data Access and Reporting Platform (DARe) Integration	LS	1
2.23	3	Retail Network Integration	LS	1
2.24	3	Integration with Legacy ORCA Back Office	LS	1
2.25	3	ADA Paratransit Integration	LS	1
2.26	6	Integration of Agency Provided CRM Application ($0 if SI-provided CRM application is proposed)	LS	1
2.27	6	Integration of Agency Provided Financial Application ($0 if SI-provided financial application is proposed)	LS	1
		Vanpool Integration	LS	1
			Subtotal - System I	

	Transit Payment Application			
2.28	7	Transit Payment Application	LS	1
				Subtotal - Transit Pa
				TOTAL PRICE - 2. SYSTEM SO

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Item No.	SOW Ref.*	Description	Unit	Est. Quantity	Unit Price	Amount
3. EQUIPMENT AND SPARES						
	Producion Equipment and Spares					
3.01	4	Back Office Hardware - Four Environments ($0.00 if cloud is proposed)	LS	1		
3.02	4	Onboard Validator (including spares)	EA	2,926		
3.03	4	Onboard Validator Mounting System and Installation Kit (including spares)	EA	2,926		
3.04	4	Driver Display Unit (including spares)	EA	1,086		
3.05	4	Driver Display Unit Mounting System and Installation Kit (including spares)	EA	1,086		
3.06	4	Wayside Validator (including spares)	EA	1,160		
3.07	4	Wayside Validator Mounting System and Installation Kit (including spares)	EA	1,160		
3.08	4	Customer Service Terminal (including spares)	EA	41		
3.09	4	CST Portable Printer	EA	12		
3.10	4	CST Mail Center Printer	EA	2		
3.11	4	Full Feature Vending Machine (including spares)	EA	146		
3.11a	4	Credit for omission of bill and coin acceptance	EA			
3.11b	4	Credit for omission of coin acceptance	EA			
3.11c	4	Credit for omission of change issuance	EA			
3.11d	4	Credit for omission of media issuance	EA			
		Light Vending Machine	EA	146		
				Subtotal - Production Equip		
	Test Equipment					
3.12a	2	Test System with online applications of the Main System License	LS	1		
3.12b	2	1 Vehicle BiB Per Agency (excluding WSF)	EA	6		
3.12c	2	Platform Validator	EA	1		
3.12d	2	Large Full Service TVM	EA	1		
3.12e	2	Small Profile Full Service TVM	EA	1		
3.12f	2	CST Test Unit	EA	1		

				[redacted]
	Training Equipment			
3.13	2	On-board Training Unit (BIB) - including validator, DDU and other SI equipment)	EA	
3.14	2	Wayside Training Unit - including wayside validator	EA	
3.15	2	CST Training Unit	EA	
			TOTAL PRICE -	

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Item No.	SOW Ref.*	Description	Unit	Est. Quantity	Unit Price	Amount
4. FARE MEDIA						
	Fare Media					
4.01	7	Contactless Extended-use Smart Cards (including training and test cards)	EA	1,000,000		
					TOTAL PRICE -	

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Item No.	SOW Ref.*	Description	Unit	Est. Quantity	Unit Price	Amount
5. OPERATIONS AND MAINTENANCE SUPPORT SERVICES						
	Software Maintenance Agreement					
5.01	**8**	**Year 1 – Software Maintenance Agreement**				
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)				
5.01a		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1		
5.01b		Shareplex Subscription	LS	1		
		Monthly Recurring Licenses (Billed Monthly)				
5.01c		INIT Software	MO	12		
5.01d		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12		
5.02	8	Year 2 – Software Maintenance Agreement	MO	12		
5.03	8	Year 3 – Software Maintenance Agreement	MO	12		
5.04	8	Year 4 – Software Maintenance Agreement	MO	12		
5.05	8	Year 5 – Software Maintenance Agreement	MO	12		
5.06	8	Year 6 – Software Maintenance Agreement	MO	12		
5.07	8	Year 7 – Software Maintenance Agreement	MO	12		
5.08	8	Year 8 – Software Maintenance Agreement	MO	12		
5.09	8	Year 9 – Software Maintenance Agreement	MO	12		
5.10	8	Year 10 – Software Maintenance Agreement	MO	12		
5.11	8	~~Year 11 – Software Maintenance Agreement~~				
					Subtotal - Software Mainte	
	System Operations and Maintenance					
5.12	8	Year 1 – System Operations & Maintenance	MO	12		
5.13	8	Year 2 – System Operations & Maintenance	MO	12		
5.14	8	Year 3 – System Operations & Maintenance	MO	12		
5.15	8	Year 4 – System Operations & Maintenance	MO	12		
5.16	8	Year 5 – System Operations & Maintenance	MO	12		

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5.17	8	Year 6 – System Operations & Maintenance	MO	12
5.18	8	Year 7 – System Operations & Maintenance	MO	12
5.19	8	Year 8 – System Operations & Maintenance	MO	12
5.20	8	Year 9 – System Operations & Maintenance	MO	12
5.21	8	Year 10 – System Operations & Maintenance	MO	12
5.22	8	Year 11 – System Operations & Maintenance	MO	12
5.23	8	~~Year 12 – System Operations & Maintenance~~		
				Subtotal - System Operations
	System Hosting			
		Monthly Recurring		
5.24	**3 & 8**	Year 1 - Back Office, Test Facility, and Website Hosting		
		Mobile Payment System Hosting	MO	12
		INIT Back Office, Test Facility and Website Hosting	MO	12
5.25	**3 & 8**	Year 2 - Back Office, Test Facility, and Website Hosting	MO	12
5.26	**3 & 8**	Year 3 - Back Office, Test Facility, and Website Hosting	MO	12
5.27	**3 & 8**	Year 4 - Back Office, Test Facility, and Website Hosting	MO	12
5.28	**3 & 8**	Year 5 - Back Office, Test Facility, and Website Hosting	MO	12
5.29	**3 & 8**	Year 6 - Back Office, Test Facility, and Website Hosting	MO	12
5.30	**3 & 8**	Year 7 - Back Office, Test Facility, and Website Hosting	MO	12
5.31	**3 & 8**	Year 8 - Back Office, Test Facility, and Website Hosting	MO	12
5.32	**3 & 8**	Year 9 - Back Office, Test Facility, and Website Hosting	MO	12
5.33	**3 & 8**	Year 10 - Back Office, Test Facility, and Website Hosting	MO	12
5.34	**3 & 8**	Year 11 - Back Office, Test Facility, and Website Hosting	MO	12
5.35	**3 & 8**	Year 12 - Back Office, Test Facility, and Website Hosting	MO	12
5.36	**3 & 8**	Year 13 - Back Office, Test Facility, and Website Hosting	MO	12
5.37	**3 & 8**	~~Year 14 - Back Office, Test Facility, and Website Hosting~~		
				Subtotal
	Warranty			
5.38	8	System Warranty (1 Year System Warranty Included)	LS	1
				S

[redacted]

	Software Escrow				
5.39		Year 1 - Level 1 Software Escrow	LS	1	
5.40		Year 2 - Level 1 Software Escrow	LS	1	
5.41		Year 3 - Level 1 Software Escrow	LS	1	
5.42		Year 4 - Level 1 Software Escrow	LS	1	
5.43		Year 5 - Level 1 Software Escrow	LS	1	
5.44		Year 6 - Level 1 Software Escrow	LS	1	
5.45		Year 7 - Level 1 Software Escrow	LS	1	
5.46		Year 8 - Level 1 Software Escrow	LS	1	
5.47		Year 9 - Level 1 Software Escrow	LS	1	
5.48		Year 10 - Level 1 Software Escrow	LS	1	
				Subtotal - S	
				TOTAL PRICE - 5. OPERATIONS AND MAINTENANCE SUPPO	

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Item No.	SOW Ref.*	Description	Unit	Est. Quantity	[redacted]
6. SOFTWARE LICENSES					
6.01	3	Software Licenses - All Environments			
		Oracle Enterprise Edition with Advanced Security & Maintenance	LS	1	
		Shareplex Subscription & Professional Setup Services	LS	1	
		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	LS	1	
				TOTAL PRICE - 6. SOFTW	

Item No.	SOW Ref.*	Description	Unit	Est. Quantity	[redacted]
7. Value-added Features and Capabilities					
		Open Payments			
		Open APIs			
		Fare Capping/Loyalty Programs			
				TOTAL PRICE - 7. Value-added Features a	

*Refers to sections in the RFP SOW where capabilities associated with the pricing item are listed. Capabilities for any given pricing item may also be included in other sections of the SOW not listed on the pricing form.

System Integrator -- As-Needed Service

[redacted]

Item No.	Description	Unit
AS-NEEDED SUPPORT SERVICES		
AS.01	Senior Project Manager	HR
AS.01	Project Manager	HR
AS.02	Systems Engineer (Sr)	HR
AS.03	Systems Engineer (Mid)	HR
AS.04	Systems Engineer (Jr)	HR
AS.05	Software Engineer (Sr)	HR
AS.06	Software Engineer (Mid)	HR
AS.07	Software Engineer (Jr)	HR
AS.08	Technician	HR

* Agreed upon rates (applicable to CY 2017) may be subject to modification on an annual basis only, and may not exceed a percentage equivalent to the change in the BLS Consumer price index (CPI), from end of prior year, to the most recent available 6 month data period. Requests for rate adjustments must be submitted to the Contract Manager 45 days prior to the beginning of a new calendar year.

[redacted]

8/17/2018

Date

Roland Staib, President & CEO

Name and Title

System Integrator - Tiered Equipment Pricing

Item No.	Description	
TIERED EQUIPMENT PRICING		Unit
	On Board Validators, 1-10 quantity	EA
	On Board Validators, 11-20 quantity	EA
	On Board Validators, 21-50 quantity	EA
	On Board Validators, 51-100 quantity	EA
	On Board Validators, 100+ quantity	EA
	Driver Display Unit, 1-10 quantity	EA
	Driver Display Unit, 11-20 quantity	EA
	Driver Display Unit, 21-50 quantity	EA
	Driver Display Unit, 51-100 quantity	EA
	Driver Display Unit, 100+ quantity	EA
	Wayside Validators, 1-10 quantity	EA
	Wayside Validators, 11-20 quantity	EA
	Wayside Validators, 21-50 quantity	EA
	Wayside Validators, 51-100 quantity	EA
	Wayside Validators, 100+ quantity	EA
	Customer Service Terminal, 1-10 quantity	EA
	Customer Service Terminal, 11-20 quantity	EA
	Customer Service Terminal, 21-50 quantity	EA
	Full Featured Vending Machines, 1-2 quantity	EA
	Full Featured Vending Machines, 3-10 quantity	EA
	Full Featured Vending Machines, 11-20 quantity	EA
	Full Featured Vending Machines, 21-50 quantity	EA
	Full Featured Vending Machines, 51-100 quantity	EA
	Full Featured Vending Machines, 100+ quantity	EA
	Light Vending Devices, 1-2 quantity	EA
	Light Vending Devices, 3-10 quantity	EA
	Light Vending Devices, 11-20 quantity	EA
	Light Vending Devices, 21-50 quantity	EA
	Light Vending Devices, 51-100 quantity	EA
	Light Vending Devices, 100+ quantity	EA
	Training BIB - On Board Validator, DDU, 1-10 quantity	EA
	Training BIB - On Board Validator, DDU, 11-20 quantity	EA
	Training BIB - On Board Validator, DDU, 21-50 quantity	EA
	Training BIB - Wayside Validator, 1-10 quantity	EA
	Training BIB - Wayside Validator, 11-20 quantity	EA
	Training BIB - Wayside Validator, 21-50 quantity	EA
	Training BIB - CST Unit, 1-10 quantity	EA
	Training BIB - CST Unit, 11-20 quantity	EA
	Training BIB - CST Unit, 21-50 quantity	EA

[redacted]

Item No.	Description		
Spare Part Modules		**Unit**	**Unit Price**
	customer display size 15", TOUCH 15" + controller, cables, 1-10 quantity	EA	[redacted]
	customer display size 15", TOUCH 15" + controller, cables, 11-20 quantity	EA	
	customer display size 15", TOUCH 15" + controller, cables, 21+ quantity	EA	
	FEIG Card Reader for TVM, 1-10 quantity	EA	
	FEIG Card Reader for TVM, 11-20 quantity	EA	
	FEIG Card Reader for TVM, 21+ quantity	EA	
	Coin handling Unit with change (6x carousel without hoppers), 1-10 quantity	EA	
	Coin handling Unit with change (6x carousel without hoppers), 11-20 quantity	EA	
	Coin handling Unit with change (6x carousel without hoppers), 21+ quantity	EA	
	Bill Handling Unit (MEI SCR), 1-10 quantity	EA	
	Bill Handling Unit (MEI SCR), 11-20 quantity	EA	
	Bill Handling Unit (MEI SCR), 21+ quantity	EA	
	Banknote Vault (for 1400 notes), 1-10 quantity	EA	
	Banknote Vault (for 1400 notes), 11-20 quantity	EA	
	Banknote Vault (for 1400 notes), 21+ quantity	EA	
	Bank Card Processing Unit, 1-10 quantity	EA	
	Bank Card Processing Unit, 11-20 quantity	EA	
	Bank Card Processing Unit, 21+ quantity	EA	
	1 x Double printers (2 paper rolls in total), 1-10 quantity	EA	
	1 x Double printers (2 paper rolls in total), 11-20 quantity	EA	
	1 x Double printers (2 paper rolls in total), 21+ quantity	EA	
	Smartcard Dispenser, 1-10 quantity	EA	
	Smartcard Dispenser, 11-20 quantity	EA	
	Smartcard Dispenser, 21+ quantity	EA	
	VENDstation board, 1-10 quantity	EA	
	VENDstation board, 11-20 quantity	EA	
	VENDstation board, 21+ quantity	EA	
	VENDstation extension board, 1-10 quantity	EA	
	VENDstation extension board, 11-20 quantity	EA	
	VENDstation extension board, 21+ quantity	EA	
	Power Supply, 1-10 quantity	EA	
	Power Supply, 11-20 quantity	EA	

	Power Supply, 21+ quantity	EA
	UPS, 1-10 quantity	EA
	UPS, 11-20 quantity	EA
	UPS, 21+ quantity	EA
	HP Elite USB-C Dock	EA
	HP EliteDisplay E220t 21.5-inch Touch Monitor	EA
	Logitech MK520 Wireless Keyboard and Mouse Combo	EA
	INIT USB Card Reader	EA
	Logitech 4K Pro Web	EA
	Epson DS-1630 Flatbed Color Document Scanner	EA
	Epson DS-40 Color Portable Scanner	EA
	MS-Cash Drawer (J-423-USB-M-B)	EA
	Ingenico IPP350-11P1914A Payment Terminal	EA
	Epson C31CB25A8791 Receipt Printer w/Power Supply	EA
	Brother Ruggedized RJ-4030	EA
	Hewlett-Packard LV3000 Pole Display 7" Video with USB Connector, Dark Grey	EA
	TrippLite USB Hub	EA
	TrippLite UPS 500VA 280W UPS	EA
	Coin Vault, 1-10 quantity	EA
	Coin Vault, 11-20 quantity	EA
	Coin Vault, 21+ quantity	EA
	Coin Hopper, 1-10 quantity	EA
	Coin Hopper, 11-20 quantity	EA
	Coin Hopper, 21+ quantity	EA
	VENDstation Door Alarm, 1-10 quantity	EA
	VENDstation Door Alarm, 11-20 quantity	EA
	VENDstation Door Alarm, 21+ quantity	EA
	MEI SCR Rebuild, 1-10 quantity	EA
	MEI SCR Rebuild, 11-20 quantity	EA
	MEI SCR Rebuild, 21+ quantity	EA

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Next Generation ORCA System Integrator RFP																		
Proposed Payment Milestone Schedule			Project Phases															
Item No.	SOW Ref.*	Description	Design				Deployment / Delivery of Product					Transition	Testing			Final Testing and Closeout		Total
1. IMPLEMENTATION SERVICES			PMP	CDR	PDR	FDR	PAT	1st 25%	2nd 25%	3rd 25%	Final	ngORCA SoR	SIT	FIT	Pilot	SAT	FSA	Total
	Program and Contract Management		Sep-18	Oct-18	May-19	Aug-19	Jan-20				Dec-21	Jul-21	Oct-20	Aug-21	Aug-21	Aug-22	Sep-22	Total
1.01	2	Program & Contract Management (NTP to System Acceptance)	**5.0%**	**5.0%**	**10.0%**	**10.0%**	**10.0%**					**10.0%**	**10.0%**	**10.0%**	**10.0%**	**15.0%**	**5.0%**	100.0%
		UI/UX Consulting																
1.01a		Project Management, Project Initiation and Onboarding	**5.0%**	**25.0%**	**25.0%**	**25.0%**							5%	5%	5%	5%		100.0%
1.01b		Corporate Desgin Style Guide	5.0%	25.0%	25.0%	25.0%							5%	5%	5%	5%		100.0%
1.01c		Website Design Guide	5.0%	25.0%	25.0%	25.0%							5%	5%	5%	5%		100.0%
1.01d		Validator	5.0%	25.0%	25.0%	25.0%							5%	5%	5%	5%		100.0%
1.01e		Driver Display Unit	5.0%	25.0%	25.0%	25.0%							5%	5%	5%	5%		100.0%
1.01f		Front Office Ticket Sales	5.0%	25.0%	25.0%	25.0%							5%	5%	5%	5%		100.0%
1.01g		TVMs	5.0%	25.0%	25.0%	25.0%							5%	5%	5%	5%		100.0%
		Software Escrow																
1.01h		Initial Desposit - Level 1 Escrow														100%		100.0%
	Installation and Transition Services																	
1.02	2	Transition Strategy and Planning		**10.0%**	**40.0%**	**50.0%**												100.0%
1.03	2	Back-Office Installation and Configuration, Including Documentation		**5.0%**	**10.0%**	**10.0%**							50.0%			20.0%	5.0%	100.0%
1.04	2	Field Device Site Surveys and Prototyping			10.0%	10.0%	20.0%	15.0%	15.0%	15.0%	15.0%							100.0%
1.05a	2	Onboard Equipment (validator and DDU) Installation (Excluding KCM)			10.0%	10.0%	20.0%	15.0%	15.0%	15.0%	15.0%							100.0%
1.05b	2	Onboard Equipment (validator and DDU) Commissioning (Excluding KCM)			10.0%	10.0%	20.0%	15.0%	15.0%	15.0%	15.0%							100.0%
1.05c	2	Onboard Equipment Documentation (Excluding KCM)			10.0%	10.0%							80.0%					100.0%
1.06	2	Onboard Validator Equipment Installation, Commissioning, and Documentation (KCM Only)																
1.07a	2	Wayside Validator Installation			10.0%	10.0%	20.0%	15.0%	15.0%	15.0%	15.0%							100.0%
1.07b	2	Wayside Validator Commissioning			10.0%	10.0%	20.0%	15.0%	15.0%	15.0%	15.0%							100.0%
1.07c	2	Wayside Validator Documentation			10.0%	10.0%							80.0%					100.0%
1.08a	2	VM Installation			10.0%	10.0%	20.0%	15.0%	15.0%	15.0%	15.0%							100.0%
1.08b	2	VM Commissioning			10.0%	10.0%	20.0%	15.0%	15.0%	15.0%	15.0%							100.0%
1.08c	2	VM Documentation			10.0%	10.0%							80.0%					100.0%
1.09a	2	CST Installation			10.0%	10.0%	20.0%	15.0%	15.0%	15.0%	15.0%							100.0%
1.09b	2	CST Commissioning			10.0%	10.0%	20.0%	15.0%	15.0%	15.0%	15.0%							100.0%
1.09c	2	CST Documentation			10.0%	10.0%							80.0%					100.0%
	Testing																	
1.10	2	Agency Test Facility Implementation, Housing, and Documentation											50.0%			35.0%	15.0%	100.0%
1.11	2	Factory Testing and Documentation											100.0%					100.0%
1.12	2	Integration Testing and Documentation												100.0%				100.0%
1.13	2	Pilot Testing and Documentation													100.0%			100.0%
1.14	2	System Acceptance Testing and Documentation														100.0%		100.0%
	Training																	
1.15	2	Training Course Development Services											100.0%					100.0%
1.16	2	Training Course Delivery and Materials											100.0%					100.0%
	Manuals																	
1.17	2	System Manuals											100.0%					100.0%
2. SYSTEM SOFTWARE DESIGN																		
	Back Office Applications																	
2.01	6	Account-based Transaction Processor		**5.0%**	**10.0%**	**10.0%**							70.0%				5.0%	100.0%
2.02	6	Customer Relationship Management		5.0%	10.0%	10.0%							70.0%				5.0%	100.0%
2.03	6	Asset Incident Management		5.0%	10.0%	10.0%							70.0%				5.0%	100.0%
2.04	6	System Manager		5.0%	10.0%	10.0%							70.0%				5.0%	100.0%

Proposal Addendum No. 1 dated July 23, 2018

INIT Innovations in Transportation, Inc.
424 Network Station
Chesapeake, Virginia 23320
Phone (757) 413-9100
Fax (757) 413-5019
http://www.initusa.com

rstaib@initusa.com
direct: (757) 615-8500

July 23, 2018
Attn. Ashley Bowman, Agency Agreements Analyst
Sound Transit Procurement and Contracts Division
401 S. Jackson Street
Seattle WA 98104-2826

RE: RFP No. RTA/RP 0119-17 – Cover Sheet and Declaration of Revision

Dear Ms. Bowman:

INIT is pleased to provide you with the latest version of our Revised Proposal, dated July 23rd 2018, in the form of an Addendum. The information contained in the Addendum supersedes the information contained in the Revised Proposal that was submitted on June 8th 2018.

We appreciate the valuable feedback that the ngORCA agencies have provided to INIT which has allowed us to improve our offer and to respond to the weaknesses/deficiencies, and clarifications that Sound Transit provided to INIT on June 28th.

Additionally, we have provided a revised Price Proposal document which reflects modifications to our system design and scope of work and INIT has also provided comments and/or counter-language in response to the redlined Agreements previously provided by INIT and it is attached the Addendum as Attachment C.

We remain excited about the prospect of working with the ORCA agencies to deliver the ngORCA project on time and on budget. We are convinced that the agencies will be amazed at the functionality and flexibility of our best-in-class fare collection solutions and the capabilities of our company.

As a complete ITS solutions provider to Public Transit Agencies worldwide, INIT is uniquely qualified to provide Sound Transit and the ORCA member agencies with a comprehensive electronic fare collection system with unmatched flexibility, reliability, and speed. The combined capabilities of INIT's technology and the strength, experience, and local support that our Seattle based Project Team will bring to the Puget Sound Region is truly unique and we look forward to demonstrating this to Sound Transit and the ORCA member agencies in the coming months .

Yours Sincerely,

Roland Staib
President and CEO

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1. Body of Revised Proposal

2. Revised Sections 2.7.2.4.5-6 - Integration and System Acceptance Testing

3. Revised TAB 10 - ORCA Commercial Legal Items - rev 23-JUL-2018

4. Revised Section 07 INIT Standard Software License (EULA)

5. Revised Price

6. Revised Form 3B

Systems Integrator for Next Generation ORCA
Request for Proposal (RFP)
No. RTA/RP 0119-17
Addendum Submitted 07/23/2018

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Revised Proposal Addendum

addressing

Weaknesses/Deficiencies, and Clarifications

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

July 23, 2018

The Future of Mobility

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Confidentially Statement

The sections in this document contain trade secret information that provides a business advantage to INIT over competitors. All sections in this document are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating this RFP response and third parties retained by the agency who have been retained to assist in evaluation of this RFP response and then only to the extent they agree to abide by this limitation.

1 Concerns

1.1 Evaluation Criteria 1 – Technical Proposal

1.1.1 Tracking number 4 – Federated Identity Services

Federated Identity Services are certainly a possibility; however are not called out for in the RFP and not included in our pricing. INIT is happy to discuss adding to the SOW at this time or sometime in the future.

1.1.2 Tracking number 75 – Bytemark NFC experience

Please refer to the diagram below to illustrate the virtual card solution that is proposed for this project. This solution is based on an existing Google Pay Virtual Card solution currently in operation.

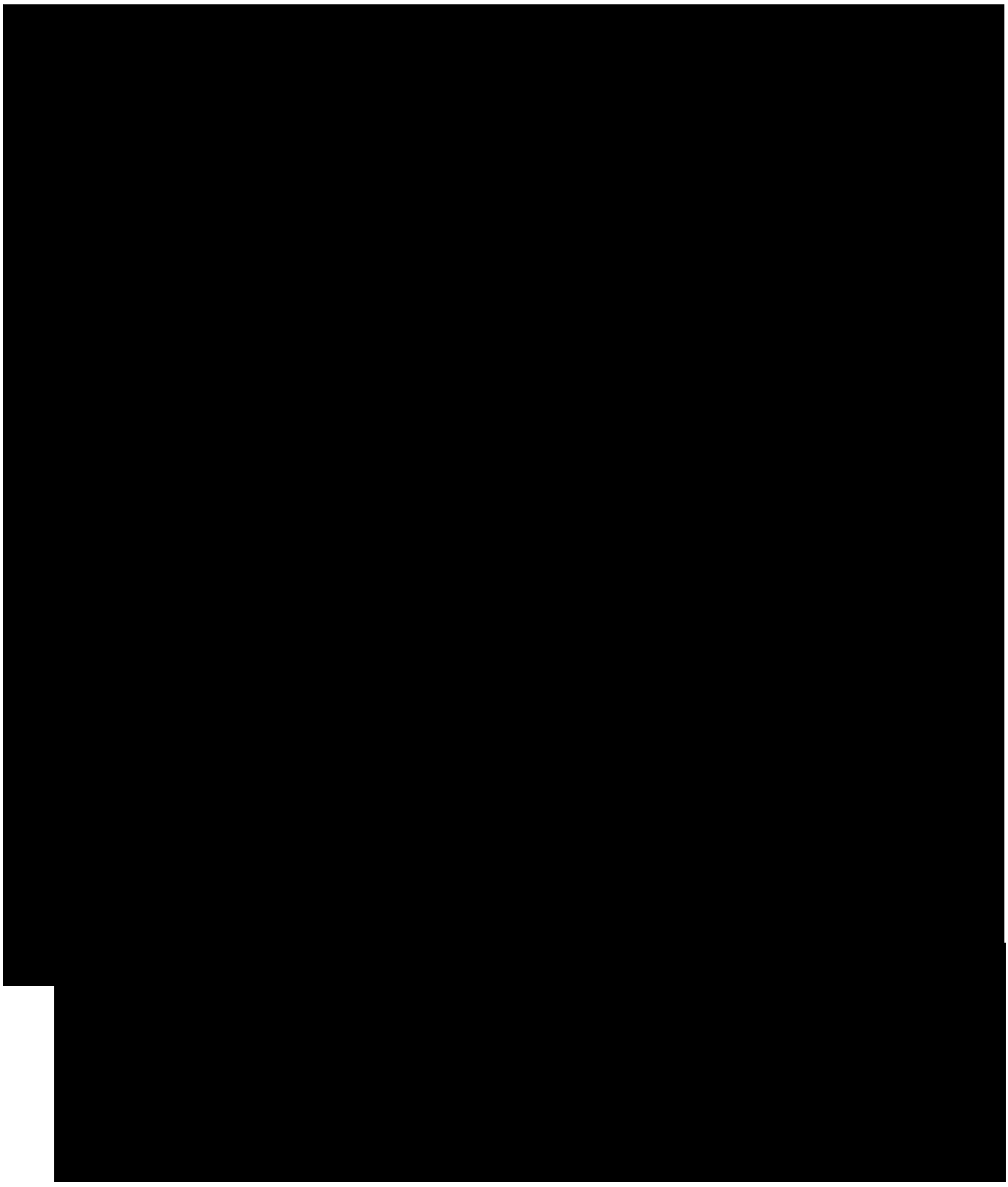
A similar solution is envisioned for the iOS platform as soon as technically available. Both solutions, a solution for the Google Pay Virtual Card realization and the solution for an Apple Virtual Card are in full scope for this project and are included in the price.

[redacted]

1.1.3 Tracking number 90 – Apportionment

THIS CHAPTER SUPERSEDES CHAPTER 1.8.2.10.2 OF THE PROPOSAL

[redacted]

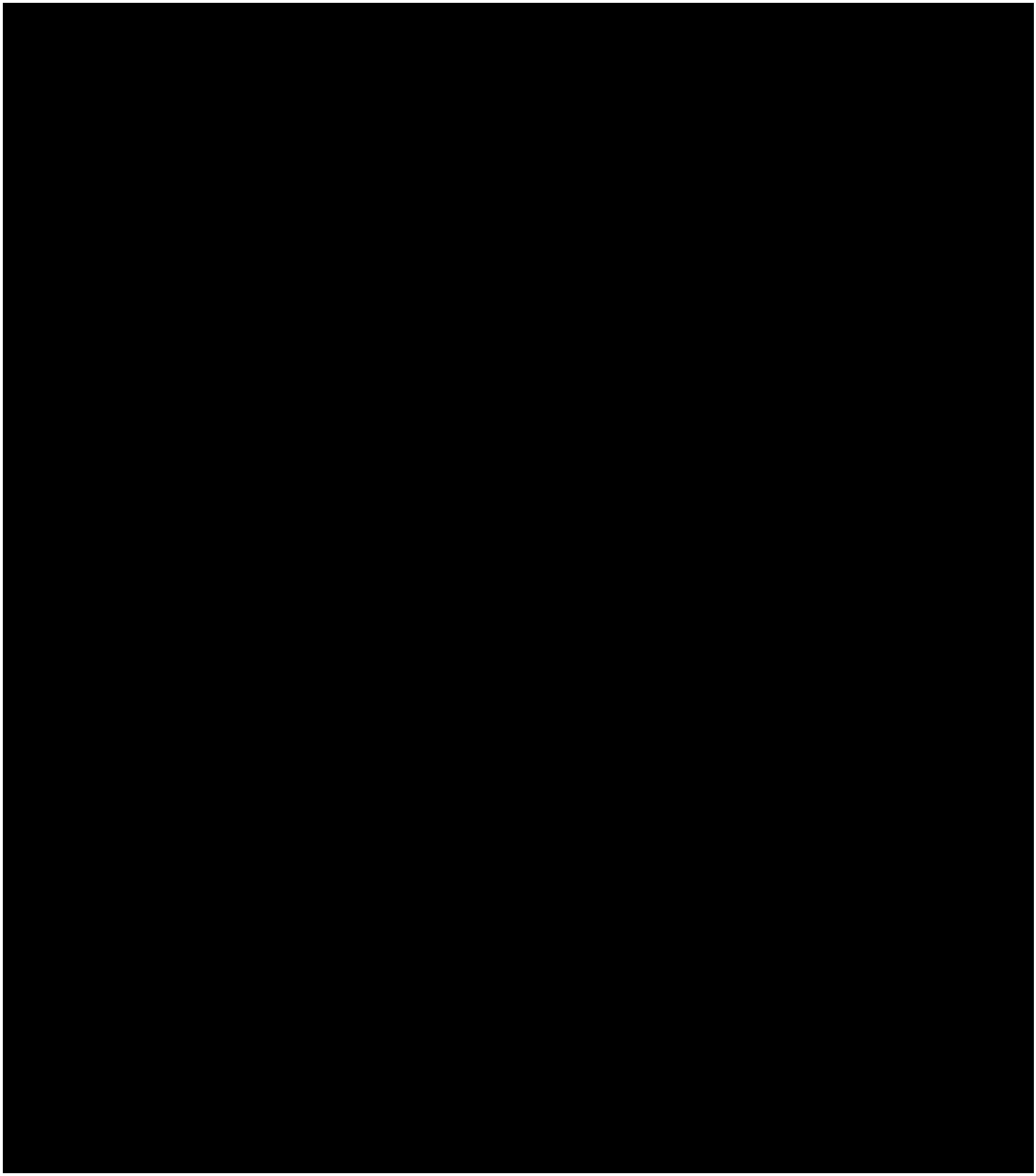


[redacted]

1.1.4 Tracking number 106 – [redacted]

CLARIFICATION ADDED TO CHAPTER 1.8.3.1.8:

[redacted]



1.2 Evaluation Criteria 2 – Methodology and Approach to Project Management and Operations and Maintenance

1.2.1 Tracking number 144 – SAT prior to fleet installation

Sections 2.7.2.4.5 and 2.7.2.4.6 have been modified to make clear SAT starts after fleet installation is complete. Please see revised text in the file named "Revised Sections 2.7.2.4.5-6 Integration and System Acceptance Testing.pdf" provided with this submittal. Changes are clearly indicated using Microsoft's track changes feature.

1.2.2 Tracking number 154 – Transition and Installation

INIT has taken the following steps in order to reduce project risk.

1. Added a Contract Manager to the project team. This person will report directly to the INIT board.
   The Contract Manager will monitor compliance by INIT employees with established procedures. Additionally, the Contract Manager will identify areas of recurrent pressure, handle on-going issues and change management and monitor transaction compliance (milestones, deliverables, invoicing etc.). Contract Manager will also constantly monitor work progress and oversee all resource allocations, and in case of any early indications of possible delays raise this immediately to board level. Finally, this person will ensure contract close-out.

2. Increase in the amount of development planned:
   a) Add additional back-office development resources to "overstaff"
   b) More engineering/development resources will be working with David Steigleiter in the region more focused and better positioned to react to the ngORCA agencies' needs.

3. Added additional budget for installation quality control, supervision and/or overtime. Vehicle and platform installations were a significant schedule risk.

Additionally, INIT has proposed Liquidated Damage. The level of the damages provides appropriate motivation for INIT without creating a toxic atmosphere in the project or unnecessary financial distress for INIT. It is understood that Sound Transit's primary goal is to maintain the ability to collect revenue during the transition from the existing ORCA fare collection system to the Next Generation ORCA system. INIT may employ alternatives temporary measures, at its expense, in order to maintain the ability to collect revenue.

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Both parties understand that project progress can't be hindered by non-essential issues, the project has to be totally schedule driven, agile, not waterfall. In that context we also want to point out that progress depends of course on INIT performance, but then also on the ngORCA agencies appointing sufficient qualified staff resources and ensuring timely responses, e.g. to design submittals, production releases, RFIs, etc.

As part of the LDs, we have proposed a modified Final System Acceptance. INIT is committed to ensuring the ngORCA agencies' ability to utilize the system without hinderances and Sound Transit's ability to decommission the existing ORCA system. The first year is reserved without FSA penalties in order to close out punch list items. Without this year, FSA will become a push to make compromise.

1.2.2.1 B. Letter of Credit Clarification

A Letter of Credit was originally proposed as security for performance of Operations and Maintenance. Considering that O&M is going to be invoiced at the end of the month, there is no need for security on performance because INIT will have already performed the services before invoicing occurs.

1.2.2.2 C. Milestone Payment Schedule

Please see revised Milestone Payment Schedule in document titled "5) Tab 5 – Price".

1.2.2.3 D. Liquidated Damages

Please find revised Section 04 Liquidated Damages in the document titled "3) TAB 10 - ORCA Commercial Legal Items - rev 23-JUL-2018".

1.2.3 Tracking number 169 – Warranty Period misunderstanding

Based on previous project experiences, we don't expect this to be an issue during warranty periods. The equipment proposed in this project is field proven and doesn't have many field failures. However, in the unlikely event that failures reach a significant level (greater than 10% of devices or specific similar subcomponent) INIT will provide the labor resources to replace and repair them during the warranty period.

1.2.4 Tracking number 174 – Response/Resolution Times

1.14.2.2.3.1 Response Times

INIT will react and respond within the timeframes defined in the RFP. As requested in the RFP, INIT will submit a customized software maintenance plan for ngORCA/ROOT to review and

approve. The plan will include response times for each Problem Classification as described in section 2.14.2.2.2 titled "Problem Classifications" as well as the workflow for the assignments of classification and priorities as well as escalation procedures.

INIT will provide phone support to the Agencies via telephone throughout the warranty and Software Maintenance Agreement (SMA) terms during normal business hours (PST) Monday through Friday, excluding holidays. Provided will be our Customer Service hotline phone number, email address and access to JIRA, our Issue Tracking system for the reporting of software defects or malfunctions, and system outages, 24 hours a day, seven (7) days a week.

During the warranty and SMA terms INIT will respond to reports of system outages within [redacted] of notification, 24 hours a day, seven (7) days a week. A fully-qualified INIT service representative will be onsite as soon as possible, and no more than 24 hours after being contacted by Agency staff, if it is determined that a physical presence is needed to resolve the identified issue.

During the warranty and SMA terms, INIT will respond to a report of any software defect or malfunction within [redacted] of notification during Agency business hours. A fully-qualified service representative will be onsite as soon as possible, and no more than 24 hours after being contacted by Agency staff, if it is determined that a physical presence is needed to resolve the identified issue.

A report will be provided every two weeks setting forth planned modifications and updates to the software, upgrade schedules, and a calendar of key dates for system changes for the coming three months and beyond. The bulletin will conform to the change management policies defined in the change management plan. All changes in the system will be logged and documented as part of change management.

If a software problem impacts revenue collection, but repair will take longer than three (3) hours, INIT will report the cause of the problem as soon as it becomes evident, and provide status reports at least every [redacted] hours thereafter, until the problem is corrected or a workaround is established

For maintenance incidents requiring INIT onsite support, the average time to be onsite for vending machine issues or back office issues is [redacted]

In order to accomplish the response times the agencies can rely on INITs well established and experienced Customer Service Team. The INIT Customer Service team in Chesapeake will address any issues that can be fixed remotely. The INIT team in Seattle will address any issues that require onsite presence within 24 hours. Both teams will collaborate closely to ensure highest efficiency in solving problems.

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1.2.5 Tracking number 317 – O&M Staffing

INIT expects to leverage several groups in support of our O&M responsibilities. Namely, our support team in Chesapeake, VA, and our advanced support team in Karlsruhe, Germany. These deep pools of resources typically dig into issues that can't be easily resolved in the field.

Onsite, we expect to have a lead engineer / operations manager responsible for overseeing all O&M activities. Additionally, a senior IT resource to ensure all technology services are being delivered successfully. We will leverage additional technical resources in our Seattle office as needs evolve, but at this point in time we believe this is enough onsite presence to efficiently and economically meet INIT's obligations under this contract. If additional staff is required, INIT is prepared to add them to meet contractual requirements.

1.3 Evaluation Criterion 3 – Firm History and Experience

1.3.1 Tracking number 305 – UI/UX Subcontractor

INIT has listened to the valuable feedback that the ngORCA agencies have provided to INIT. We have revisited our choice for a firm to work with to help guide our efforts to improve the customer and ngORCA agencies user experience. INIT approached three Seattle based UI/UX firms: Substantial, Blink and Smashing Ideas. We sent each company a written request for proposal and held meetings with each firm to discuss the requirements, establish a working relationship and evaluate each companies approach. After evaluating each firm's response to our request for proposal INIT has chosen Smashing Ideas ("Smashing") for a variety of reasons but most importantly because they invested their staff's time heavily into understanding our goals. We were impressed with how their team of designers looked at all the user interfaces, researched the existing ORCA systems interfaces and understood best that a consistent customer experience with a seamless transition for riders and ngORCA staff is critical to stakeholder's perception and enthusiastic adoption of your ngORCA system. Smashing will not be throwing the baby out with the bath water.

Achieving this consistent and positive customer experience across all next generation system interfaces doesn't happen by accident. It requires a repeatable, proven and holistic approach for engineering human experiences that involves the users of the system at all stages of the design and development process.

In partnering with the Agencies for the next gen ORCA project, INIT will provide this focus on user experience throughout the design and development phases. Smashing, our UI/UX consultant, will lead the customer-facing interface efforts while collaborating with INIT GmbH's UI/UX partner in Germany, who will be responsible to focus on the agency-facing INIT back

office applications as well as working closely with INIT's project team, the ngORCA agencies and of course the riding public.

1.3.1.1 Smashing Ideas

Smashing Ideas is a Seattle-based digital experience and product design specializing in lean strategy, product realization, market launch and post-launch evolution with deep expertise in UX and UI design.

Smashing has helped drive success for clients in Aviation, Health & Wellness, Entertainment & Media, and Consumer Products with experience in Transportation & New Mobility. Most recently, this has involved helping a category leader in Automotive redesign the digital experience for its major New Mobility initiative in the United States.

Smashing enjoys one office on the Seattle waterfront, which houses ~65 employees. Some of the world's most trusted brands trust Smashing to create their customers' digital journeys, including a number of market giants that also call Seattle home.

1.3.1.1.1 References

1.3.1.1.1.1 Phillips Oral Health Care

[redacted]

1.3.1.1.1.2 ReachNow (BMW) Bradley P. James Head of Technology

Due to constraints imposed by the confidentiality provisions of our agreement with them, we are unable to describe our work in detail. What we can share, in directional terms, is that Smashing Ideas is playing a significant UX design role in the client's approach to rolling out its New Mobility initiative in the United States.

Please contact [redacted]

1.3.1.1.1.3 Sony Pictures Television

[redacted]

[redacted]

1.3.1.1.2 Key Personnel

1.3.1.1.2.1 [redacted] Executive Creative Director

LinkedIn Profile: [redacted]
Years in Industry: [redacted]

[redacted]

1.3.1.1.2.2 [redacted] Executive Director, Program Management

[redacted]

[redacted]

1.3.1.1.2.3 [redacted] Associate Principal Designer

[redacted]

1.3.1.1.3 Availability and Location of Project Staff

The Smashing team primary work location will be onsite, downtown Seattle at Smashing Ideas offices, 2211 Elliott Avenue, Suite 110. Team members by role are committed to the project by the following percentages:

Role	% Overall
Program Manager	[redacted]
Associate Project Manager	
Creative Director	
Senior Designer	
Visual Designer	
User Experience Designer	
Associate Designer	

1.3.1.1.4 Project Approach

1.3.1.1.4.1 Project Management Plan and Strategy

Smashing Ideas' framework for project delivery relies on collaboration, transparency and consistent practices across project teams to ensure full and accurate visibility into project health. Smashing adapts their project approach to fit within the context of each project and client methodologies. Experienced program and project managers guide our project teams through each phase, ensuring project objectives and commitments are well-understood.

Smashing teams use Atlassian's Confluence to track documents and provide visibility into progress, and work together in shared open spaces. Smashing believes in clear and daily communication - our teams participate in daily standup meetings, 2-3 week sprints with built in planning and review cycles, and regular retrospectives to capture what is going well and what could be improved upon. Weekly status reports will be delivered to INIT stakeholders and reviewed together to ensure progress is understood and concerns are addressed. The ngORCA project team is welcome to participate in any or all project activities and we encourage you to participate.

The detailed project management plan will be created to detail agreements regarding:

- Change Management
- Communications
- Cost Management
- Risks
- Schedule
- Scope
- Stakeholders

Other deliverable for the Project Management Plan include:

- Meeting cadence: time for daily standup, weekly planning, weekly reporting
- Set up shared space for communication, review and delivery
- Stakeholders roles and responsibilities identified: RASCI chart created
- Schedule alignment with INIT's other vendors

A detailed schedule will be created during the Preliminary Phase (pre-design activities).

1.3.1.1.4.2 Project kick-off Workshop

Formal introduction of project to teams, level setting of project goals, establishing team communication methods and next steps for collaboration.

Outcomes: Shared understanding of project goals and KPIs and stakeholders' vision, established lines of communication, identified next steps across team efforts.

1.3.1.1.4.3 Design reviews

Throughout the design process, design reviews will be held regularly with all necessary stakeholders and development teams to ensure validity of design direction, adjust design directions as necessary, and inform efforts across design sprints.

1.3.1.1.4.3.1 Conceptual Design Review

During the Build & QA phase, creative direction will ensure that the expression of brand throughout the targeted systems and interfaces is in alignment with the ngORCA corporate design guidelines once they are approved.

1.3.1.1.4.3.2 Preliminary Design Review

Documentation of design specifications will be developed to ensure that teams deploying the ngORCA corporate design guidelines have appropriate specs to integrate against.

1.3.1.1.4.3.3 Final Design Review

Once final design of an element is approved, it will be put into a production cycle where it can be produced for the appropriate interfaces.

1.3.1.1.4.3.4 UX/UI QA and verification

Smashing will work with INIT and its subcontractors to ensure the ngORCA corporate guidelines are meeting system requirements. Smashing has allocated one full-time Senior Designer for six weeks to perform this work. Additional efforts beyond the six weeks will be on an hourly basis.

1.3.1.1.4.4 Documentation

File delivery – Dates and requirements for file deliveries will be scheduled during the Preliminary Design Phase, during which a deployment strategy will be agreed upon between all appropriate stakeholders.

Using the Corporate Design Guide as a foundation, the design team will design and deliver the remaining guides. Each guide will follow an abbreviated version of the process used for the ngORCA Corporate Design Style Guide (as described in section 1.1.5.1), determined by the degree to which the additional guide is different from the Corporate guide.

The following order was determined based on expected complexity, but will need to be validated against the overarching ngORCA project plan.

- Website Design Guide
- TVM UX/UI Design Guide
- Front Office Sales Screen Design Guide
- Inspection App extensions to Corporate Style Guide, possible additional user flows
- Driver Display Unit GUI extensions to Corporate Style Guide
- Validator extensions to Corporate Style Guide

Smashing Ideas uses Agile methods for project management and delivery. Any features or changes that are determined to be out-of-scope will be captured and documented in a living project backlog that can be delivered to the client at any point during the engagement.

1.3.1.1.4.5 Deliverables

- ngORCA Corporate Style Guide
- Website Design Guide
- TVM UX/UI Design Guide
- Front Office Sales Screen Design Guide

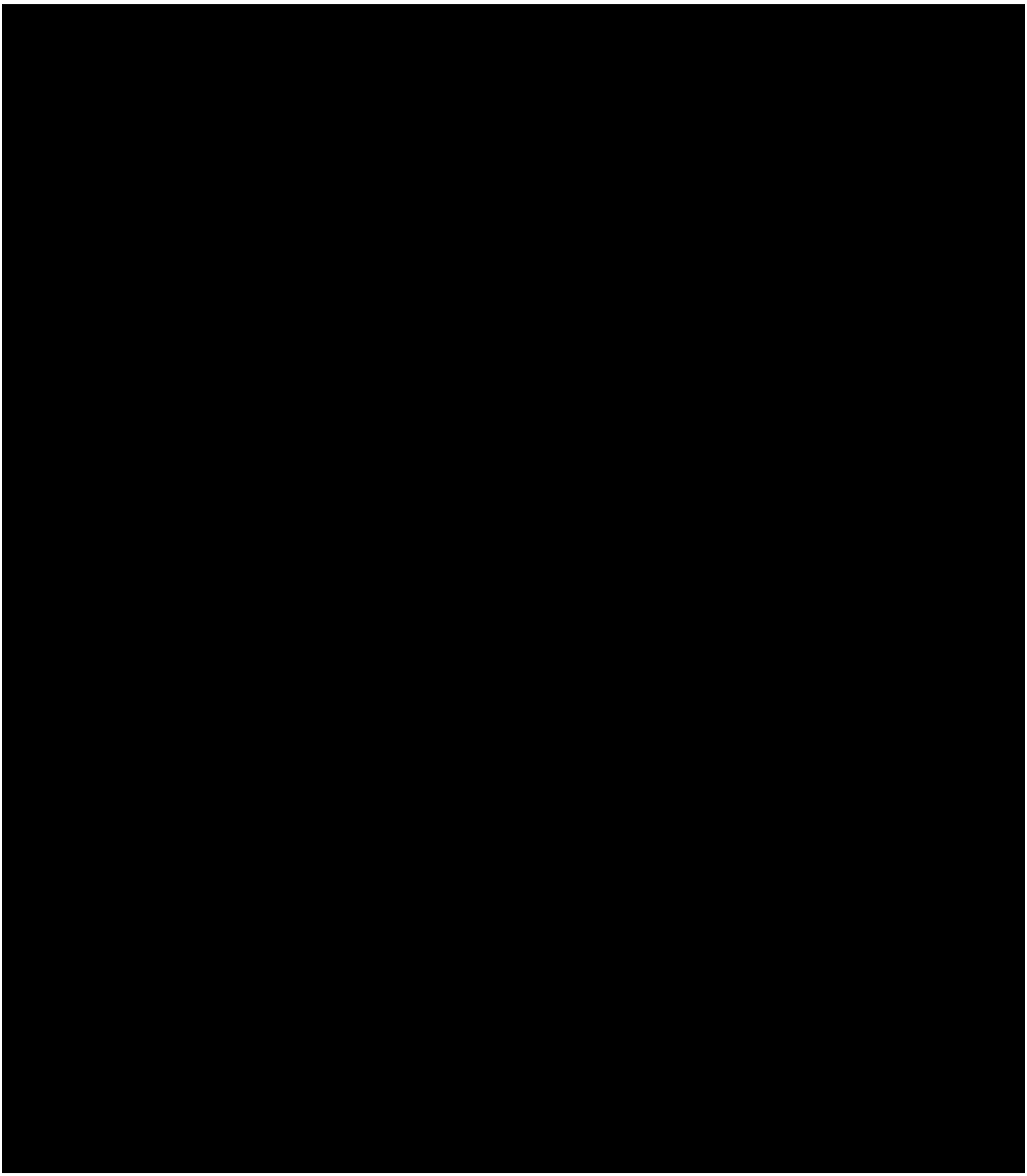
1.3.1.1.5 UI/UX Integration Strategy

1.3.1.1.5.1 ngORCA Corporate Design Style Guide

Ensuring the whole team speaks the same visual language will be essential to the success of the design for the ngORCA ecosystem over time and location. For this reason, Smashing recommends focusing on the development of the ngORCA Corporate Style Guide upfront, as it will inform the full suite of products within the ngORCA ecosystem.

Smashings path to creating a solid, flexible ngORCA Corporate Styleguide will follow the vision of the ideal, ngORCA ecosystem, with a strong understanding of the ORCA brand and its users' needs.

Smashing will start by determining critical, existing components and defining working rules, patterns, and guidelines. Designers will define, build and refine these core components, based on ORCA specific users' needs, through an iterative working process. Likewise, Smashing will collaborate closely with INIT and the ngORCA agencies so that business and strategic input informs design decisions on a regular basis.



[redacted]

1.3.1.1.5.2 Preliminary Review Processes

1.3.1.1.5.2.1 Existing Research Review

Gain a deep understanding of what is most critical to every stakeholder/user, in order to create a cohesive product vision. Additionally, it will help inform Smashing's understanding of the current ecosystem, industry benchmarking.

1.3.1.1.5.2.2 Research Gap Review

Identify any gaps in research/insights that will be necessary to empathize fully with stakeholders/users.

1.3.1.1.5.2.3 UX/UI Audit and Gap Review - All Products

Understand the current ORCA products in order to identify any feature/functionality gaps (especially in relation to our understanding of key stakeholders/user groups/transit and product ecosystem).

1.3.1.1.5.2.4 Accessibility Audit and Gap Review - All Products

This analysis and audit will paint a clear picture of where the ngORCA product meets accessibility guidelines and surface the areas that need focus in order to meet set standards.

1.3.1.1.5.2.5 Information Architecture Review

Review the current ORCA information architecture to ensure that there is alignment.

1.3.1.1.5.2.6 Mobile Feature Backlog Review

Understand the features that have been identified as missing from the system in order to more accurately scope of UX/UI work needed to supplement the baseline Design Language System (DLS)

1.3.1.1.5.2.7 Usability Testing Recommendations

For identified gaps and prioritized content/interactions, Smashing will determine the right series of research methods to use, create a plan, conduct the research, analyze findings, and present insights and recommendations to all stakeholders and team members.

In the first phase, Smashing will develop testing protocol for ensuring all design elements meet usability standards and WCAG compliance.

Smashing will present and recommend font, size, weight and color choices for INIT stakeholders review that will pass WCAG 2.0 AA and AAA standards for legibility and contrast.

To maximize efficiencies, achieve consistent testing results and mimic the end user experience, Smashing will dedicate a physical space for testing with approved monitor configurations and end user lighting conditions.

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1.3.1.1.5.3 Schedule

PHASES OF WORK	[redacted]
Notice to Proceed	
Preliminary Phase: project initiation and onboarding	
Kickoff Workshop	
ngCorporate Design Style Guide (including Mobile)	
Conceptual Design	
Preliminary Design	
Final Design	
Production	
Website	
Conceptual Design	
Preliminary Design	
Final Design	
Production	
Inspection App	
Conceptual Design	
Preliminary Design	
Final Design	
Production	
Driver Display Unit	
Conceptual Design	
Preliminary Design	
Final Design	
Production	
Front Office Ticket Sales	
Conceptual Design	
Preliminary Design	
Final Design	
Production	
Ticket Vending Machine	
Conceptual Design	
Preliminary Design	
Final Design	
Production	
Consultative Support During Final Implementation	Final System Acceptance

1.4 Evaluation Criterion 4 - Knowledge & Experience of Key Individuals

1.4.1 Tracking number 253 – Key Resources

Key resources for this project will NOT be impacted should new projects be awarded to INIT. Per Tab 2, section 2.3, we have been planning this for over two years. INIT has been adding both Project Management and System Engineering talent dedicated to fare collection projects. Currently, these Project Managers and Engineers are being mentored by experienced staff on real projects. [redacted]

Presently, INIT is hiring multiple new system engineers to handle anticipated new projects beyond ngORCA. This is a combination of new and experienced resources, allowing the seasoned team supporting ngORCA to continue unimpeded. We do not plan on pulling resources from one project and putting them on another unless it can be done without negative schedule or quality impacts. Of course, this wouldn't happen without first consulting with Sound Transit's team and ensuring agreement on any such changes.

INIT is planning on more project management, system engineering and development resources for this project than any other project in our firm's history. We know we need to have multiple resources at each level to handle the scope and scale of this project, but also provide backups for those temporary times when people are unavailable.

Likewise, in an emergency situation, the above plan, as well as German resources, will allow us to have the additional bench strength to flex towards projects that need additional assistance to maintain schedule and quality.

1.4.2 Tracking number 307 – Transition Plan for Key Individuals

We don't expect overtime to be a primary factor in delivering projects on time. We do recognize that projects have various needs at various phases, with varying needs and loads on given resources.

[redacted]

[redacted]

[redacted]

[redacted]

1.5 Evaluation Criterion 5 - Price

1.5.1 Tracking number 254 – KCM documentation

We have remove the verbiage “Excluding KCM” from the pricing note concerning Line 1.05b as KCM will receive all necessary documentation.

1.5.2 Tracking number 260 – Pricing for externally sourced applications

Please see revised pricing in document titled “5) Tab 5 – Price”.

1.5.3 Tracking number 273 – “Beneficial Use”

The term “Beneficial Use” has been deleted. INIT fully complies with SOW 8.2-2 "The SI shall provide a one (1) year warranty that begins upon Final System Acceptance.".

1.5.4 Tracking number 308 - UI/UX work is not fair and reasonable

Please see revised pricing in document titled “5) Tab 5 – Price”.

1.5.5 Tracking number 318 - Detailed Itemized Pricing

Please refer to revised pricing in document titled “5) Tab 5 – Price”.

1.5.5.1 Test Facility Hardware

Line 3.12, the agency test facility hardware includes these items listed below. "5) Tab 5 – Price" is itemized to reflect this hardware. Quantities can be updated based on agency feedback.

Agency Test Facility Hardware		
License - Test System with online applications of the Main System	LS	1
1 Vehicle BIB Per Agency (excluding WSF)	EA	6
Wayside Validator	EA	1
Large Full Service TVM	EA	1
Small Profile Full Service TVM	EA	1
CST Test Unit	EA	1

1.5.5.2 Software Maintenance Agreements

Detailed information on the terms of each software license can be found in the Software Licensing Information spreadsheet. "5) Tab 5 – Price" is itemized to show the licenses separated by the proposed billing arrangements. This includes annual billing at the beginning of the license term, monthly billing based on usage and monthly billing after services are rendered.

1.5.5.3 Value Added Features

There are no additional license costs associated with open payments. All transaction costs connected to the Open Payment transactions are not part of this proposal. If the payment terminal provided by INIT is not supported by the Agency's payment gateway, this may result in additional certification and software integration costs. INIT expects the chosen payment gateway provider and acquirer/processor to support VISA MTT and Mastercard Global Transit requirements.

1.5.6 Tracking number 319 – Milestone Payment Schedule

Please refer to revised Milestone Payment Schedule in pricing document titled "5) Tab 5 – Price".

1.6 Clarification – Maintenance Contract Term

The chart below describes INIT's assumptions for the number of years associated with each project phase. Proposed pricing includes 10 years for software maintenance, 11 years for Operations & Maintenance and 13 years for Hosting.

	2018 Year 0	2019 Year 1	2020 Year 2	2021 Year 3	2022 Year 4	2023 Year 5	2024 Year 6	2025 Year 7	2026 Year 8	2027 Year 9	2028 Year 10	2029 Year 11	2030 Year 12	2031 Year 13	2032 Year 14	~~2033 Year 15~~
Project Awarded	x															
Project Design		x														
Implemen-tation			x	x												
System Warranty					x											
Hosting			x	x	x	x	x	x	x	x	x	x	x	x	x	~~x~~
Software Maintenance						x	x	x	x	x	x	x	x	x	x	~~x~~
System Operations & Maintenance					x	x	x	x	x	x	x	x	x	x	x	~~x~~

1.7 Clarification – INIT's cooperation and assistance in transition from end-of-life contract

Fortunately, INIT does not have much experience in this regard. However, as we see it, there are four options once this contract is completed.

1. Sound Transit continues evolving the ngORCA system, using INIT as the System Integrator
2. Sound Transit transitions the ngORCA system to another vendor
3. Sound Transit selects another vendor to implement a new version of the ORCA system
4. Sound Transit decides to terminate ngORCA in favor of an alternative solution.

In any event, INIT will support any transition in the future to an alternative vendor or work with whomever future vendor Sound Transit selects. As a systems integrator, we are used to integrating with other systems and would treat a transition to a new vendor as another integration effort. INIT maintains detailed system documentation, uses standard interfaces whenever possible and keep our software up to date. All these best practices will facilitate a transition. However, it is impossible to know what the new system will look like a decade or

more from now so INIT will support ngORCA in the development of new interfaces if needed and provide consulting services to ngORCA and the new vendor as required.

ngORCA should not anticipate any issues if and when the time comes to migrate to a new vendor. We will have the best interest of ngORCA and the riding public in mind as we support a smooth transition.

1.8 Clarification - How hardware ordering is handled

INIT does not have a standard order form. Typically, the INIT customers send orders based on their own order format, referencing the contractual agreements (shipping, conditions, cancellation) with INIT.

Part prices are provided in the RFP pricing response. During the project, when the final configuration is completed and part numbers are final, INIT will provide an updated price list including part numbers so that ngORCA can clearly reference the desired part in their order.

Of course an order form template can be created during system design if desired by the ngORCA agencies.

Shipping is included in the pricing.

1.9 [redacted] Ticketing Inspection/Validation app developer

INIT has compiled additional information in support of [redacted] our ticketing inspection/validation app developer.

[redacted]

[redacted]

The screenshots below come from the Honolulu solution. INIT will approach the design of the apps in partnership with the ngORCA agencies and our UI/UX subcontractor efforts undertaken to define and establish a common UI/UX interface for ngORCA. Of course, the app will be

tailored to match the UI/UX and customer branding of ngORCA. The screenshots below are just representative of work done in the past.

1.9.1 General Capabilities

The fare inspection application will interface to INIT's MOBILEvario via the securely connected INIT Inspection API.

Features

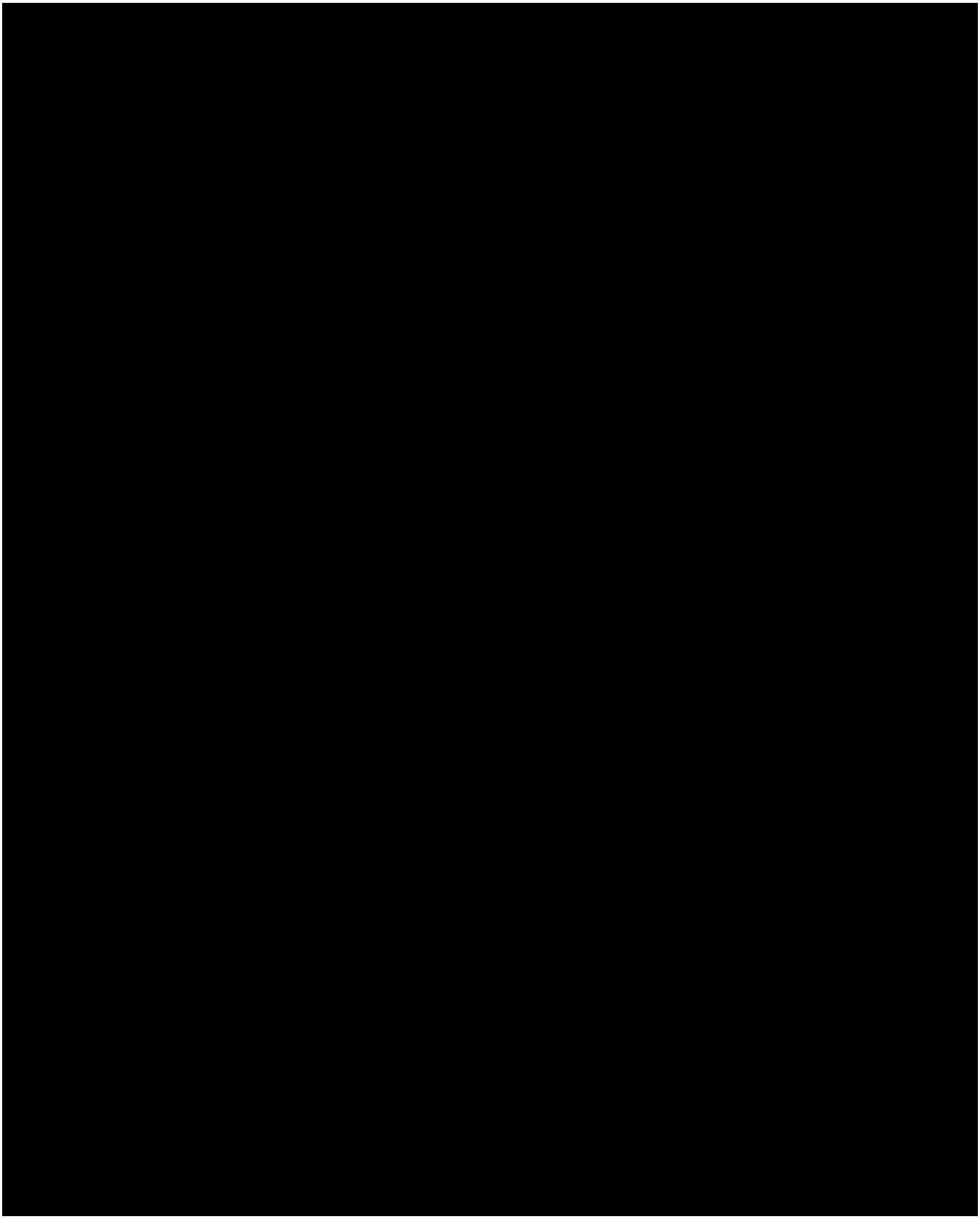
- Inspection of transit fare media to enforce fare policies
- Real-time inspection data retrieved from the INIT back-office
- Offline inspection in areas of low cellular coverage
- Back Office shift reports detailing performed inspections

The provided applications will be installed and managed using a Mobile Device Management (MDM) solution which will control what services, applications, and functionality are accessible on the devices. By default, only the inspection application will be enabled, and users will not have access to any other device features such as phone calls, web browsing, email, etc. The MDM solution provides remote configurable parameters via its cellular services for device location, lock, disable, or erase lost/stolen.

1.9.2 User Interface

The fare inspection/validation app is designed based on industry-accepted user interface design standards taking into consideration ergonomics, human factors, and graphic design best practices. The fare inspection application is locked until a valid login is received. Security lockout features automatically disable the device in the event of repeated unsuccessful login attempts

Following are example Login and Route Selection screen shots from Honolulu:



[redacted]

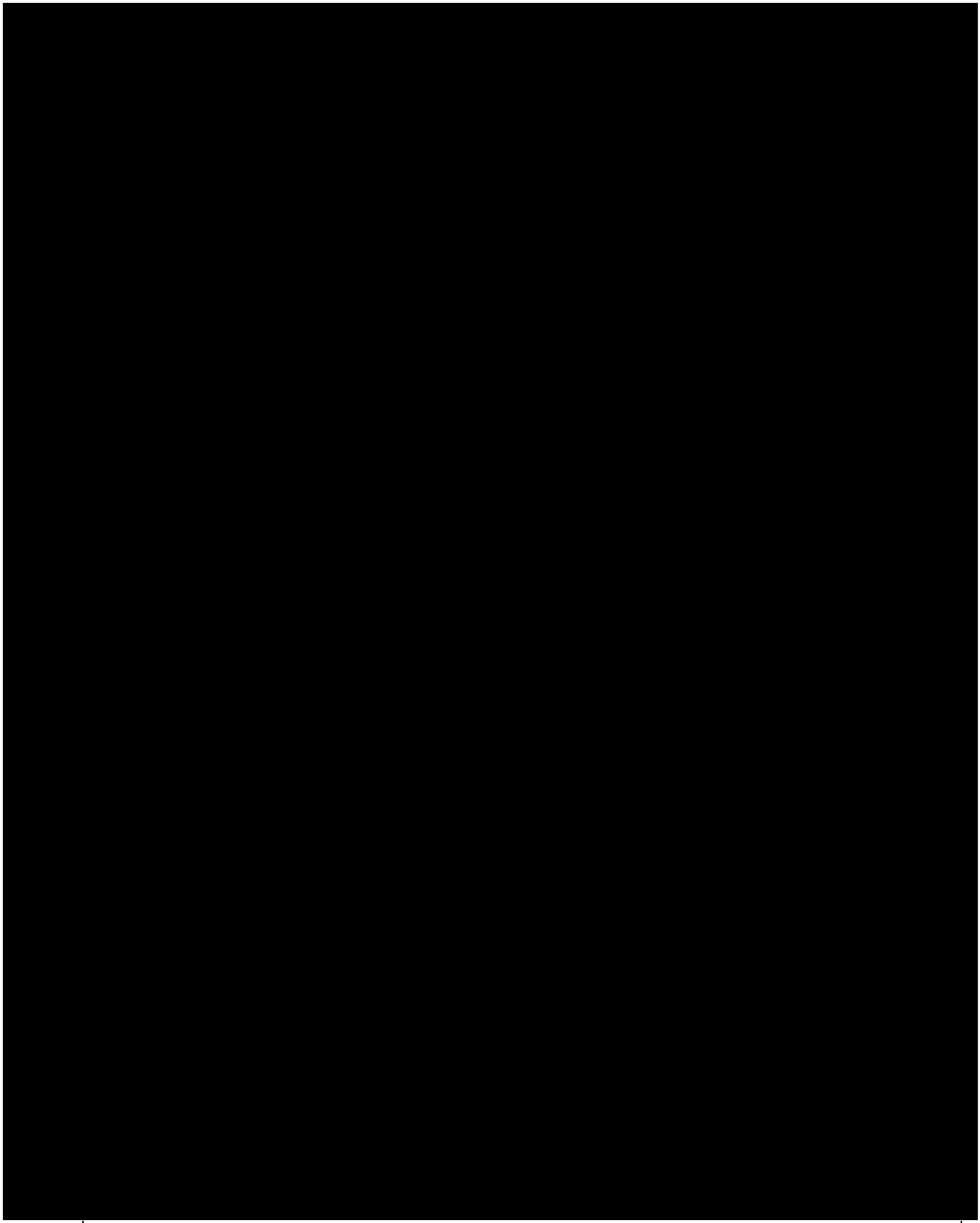
1.9.3 Transaction Processing

The fare inspection/validation application will use the INIT fare inspection API to query the transaction history maintained within the ATP in near real-time. The fare inspection application will be able to read any data written to the media, and receive updates of the negative list from the back office to support local validity checks in the event of offline processing. All inspections queries will return fare inspection data that include the following information, at a minimum:

- [redacted]

1.9.4 Payment Validation

The screen shots below show a typical response for a payment validation performed with the validation app:



The data returned by the validation request for all fare payment types will include but not be limited to the following:

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Next Generation ORCA System Integrator RFP																		
Proposed Payment Milestone Schedule			**Project Phases**															
Item No.	**SOW Ref.***	**Description**	**Design**				**Deployment / Delivery of Product**					**Transition**	**Testing**			**Final Testing and Closeout**		**Total**
1. IMPLEMENTATION SERVICES			**PMP**	**CDR**	**PDR**	**FDR**	**PAT**	**1st 25%**	**2nd 25%**	**3rd 25%**	**Final**	**ngORCA SoR**	**SIT**	**FIT**	**Pilot**	**SAT**	**FSA**	**Total**
2.05	6	Fare Media Management		5.0%	10.0%	10.0%							70.0%				5.0%	100.0%
2.06	6	Financial Management		5.0%	10.0%	10.0%							70.0%				5.0%	100.0%
2.07	6	Central Payment		5.0%	10.0%	10.0%							70.0%				5.0%	100.0%
2.08	6	Configuration and Change Management		5.0%	10.0%	10.0%							70.0%				5.0%	100.0%
2.09	6	Tariff Management		5.0%	10.0%	10.0%							70.0%				5.0%	100.0%
2.10	6	API Management		5.0%	10.0%	10.0%							70.0%				5.0%	100.0%
		Externally Sourced Applications																
2.11	5	Customer Mobile App		**5.0%**	**10.0%**	**10.0%**							20.0%	25.0%		20.0%	10.0%	100.0%
2.12	5	Agency Mobile Apps (Fare Inspection & Fare Payment)		5.0%	10.0%	10.0%							20.0%	25.0%		20.0%	10.0%	100.0%
2.13	5	Customer Website		5.0%	10.0%	10.0%							20.0%	25.0%		20.0%	10.0%	100.0%
		Field Device and Equipment Software																
2.14	4	Onboard and Wayside Validator Software		**5.0%**	**10.0%**	**10.0%**							37.5%	37.5%				100.0%
2.15	4	Driver Display Unit Software		5.0%	10.0%	10.0%							37.5%	37.5%				100.0%
2.16	4	Customer Service Terminal Software		5.0%	10.0%	10.0%							37.5%	37.5%				100.0%
2.17	4	Full Feature Vending Machine Software		5.0%	10.0%	10.0%							37.5%	37.5%				100.0%
		API Development																
2.18	3	Application Programming Interface (API) Development		**5.0%**	**10.0%**	**10.0%**							37.5%	37.5%				100.0%
		System Integration Services																
2.19	3	Onboard Integration (PT, CT, KT, ET)		**5.0%**	**10.0%**	**10.0%**							20.0%	35.0%		15.0%	5.0%	100.0%
2.20	3	Onboard Integration (KCM)																
2.21	3	Washington State Ferries Integration		5.0%	10.0%	10.0%							20.0%	35.0%		15.0%	5.0%	100.0%
2.22	3	Data Access and Reporting Platform (DARe) Integration		5.0%	10.0%	10.0%							20.0%	35.0%		15.0%	5.0%	100.0%
2.23	3	Retail Network Integration		5.0%	10.0%	10.0%							20.0%	35.0%		15.0%	5.0%	100.0%
2.24	3	Integration with Legacy ORCA Back Office		5.0%	10.0%	10.0%							20.0%	35.0%		15.0%	5.0%	100.0%
2.25	3	ADA Paratransit Integration		5.0%	10.0%	10.0%							20.0%	35.0%		15.0%	5.0%	100.0%
2.26	6	Integration of Agency Provided CRM Application ($0 if SI-provided CRM application is proposed)																
2.27	6	Integration of Agency Provided Financial Application ($0 if SI-provided financial application is proposed)																
		Vanpool Integration		5.0%	10.0%	10.0%							20.0%	35.0%		15.0%	5.0%	100.0%
		Transit Payment Application																
2.28	7	Transit Payment Application		5.0%	10.0%	10.0%							20.0%	35.0%		15.0%	5.0%	100.0%
3. EQUIPMENT AND SPARES																		
		Producion Equipment and Spares																
3.01	4	Back Office Hardware - Four Environments ($0.00 if cloud is proposed)																
3.02	4	Onboard Validator (including spares)																
3.03	4	Onboard Validator Mounting System and Installation Kit (including spares)																
3.04	4	Driver Display Unit (including spares)																
3.05	4	Driver Display Unit Mounting System and Installation Kit (including spares)																
3.06	4	Wayside Validator (including spares)																
3.07	4	Wayside Validator Mounting System and Installation Kit (including spares)																
3.08	4	Customer Service Terminal (including spares)																
3.09	4	CST Portable Printer																
3.10	4	CST Mail Center Printer																
3.11	4	Full Feature Vending Machine (including spares)																
3.11a	4	Credit for omission of bill and coin acceptance																
3.11b	4	Credit for omission of coin acceptance																
3.11c	4	Credit for omission of change issuance																
3.11d	4	Credit for omission of media issuance																
		Light Vending Machine																
		Test Equipment																
3.12a	2	Test System with online applications of the Main System License																
3.12b	2	1 Vehicle BiB Per Agency (excluding WSF)																
3.12c	2	Platform Validator																

Equipment to be billed 100% after delivery on a monthly basis.

Next Generation ORCA System Integrator RFP																		
Proposed Payment Milestone Schedule			**Project Phases**															
Item No.	**SOW Ref.***	**Description**	**Design**				**Deployment / Delivery of Product**					**Transition**	**Testing**			**Final Testing and Closeout**		**Total**
1. IMPLEMENTATION SERVICES			**PMP**	**CDR**	**PDR**	**FDR**	**PAT**	**1st 25%**	**2nd 25%**	**3rd 25%**	**Final**	**ngORCA SoR**	**SIT**	**FIT**	**Pilot**	**SAT**	**FSA**	**Total**
3.12d	2	Large Full Service TVM																
3.12e	2	Small Profile Full Service TVM																
3.12f	2	CST Test Unit																
	Training Equipment																	
3.13	2	On-board Training Unit (BIB) - including validator, DDU and other SI equipment)																
3.14	2	Wayside Training Unit - including wayside validator																
3.15	2	CST Training Unit																
4. FARE MEDIA																		
	Fare Media																	
4.01	7	Contactless Extended-use Smart Cards (including training and test cards)	Fare Media to be billed 100% after delivery.															
6. SOFTWARE LICENSES																		
6.01	3	Software Licenses - All Environments	Licenses to be billed 100% after delivery.															
		Oracle Enterprise Edition with Advanced Security & Maintenance																
		Shareplex Subscription & Professional Setup Services																
		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)																

Concern #144 SAT prior to fleet installation

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

For Resubmittal July 23, 2018

The Future of Mobility

Price

Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

July 23, 2018

The Future of Mobility

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All sections of this document contain trade secret information that provides a business advantage to INIT over competitors. These sections are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

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Next Generation ORCA System Integrator RFP
Proposal Pricing Form

Pricing Summary

Item No.	Description	Total Price
1	Implementation Services	[redacted]
2	System Software and Design	
3	Equipment and Spares	
4	Fare Media	
5	Operations and Maintenance Support Services	
6	Software Licenses	
7	Value-added Features and Capabilities	
	GRAND TOTAL	**$ 88,850,143.77**

Signed:

7/23/2018

Date

Roland Staib, President & CEO

Name & Title

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Next Generation ORCA System Integrator RFP
Pricing Form

Item No.	SOW Ref.*	Description	Unit	Est. Quantity	Unit Price	Amount
1. IMPLEMENTATION SERVICES						
	Program and Contract Management					
1.01	2	Program & Contract Management (NTP to System Acceptance)	LS	1		
		UI/UX Consulting				
		Project Management, Project Initiation and Onboarding	LS	1		
		Corporate Desgin Style Guide	LS	1		
		Website Design Guide	LS	1		
		Validator	LS	1		
		Driver Display Unit	LS	1		
		Front Office Ticket Sales	LS	1		
		TVMs	LS	1		
				Subtotal - Program and Contr		
	Installation and Transition Services					
1.02	2	Transition Strategy and Planning	LS	1		
1.03	2	Back-Office Installation and Configuration, Including Documentation	LS	1		
1.04	2	Field Device Site Surveys and Prototyping	LS	1		
1.05a	2	Onboard Equipment (validator and DDU) Installation (Excluding KCM)	EA	650		
1.05b	2	Onboard Equipment (validator and DDU) Commissioning (Excluding KCM)	EA	650		
1.05c	2	Onboard Equipment Documentation	LS	1		
1.06	2	Onboard Validator Equipment Installation, Commissioning, and Documentation (KCM Only)	EA	0		
1.07a	2	Wayside Validator Installation	EA	1095		
1.07b	2	Wayside Validator Commissioning	EA	1095		

1.07c	2	Wayside Validator Documentation	LS	1
1.08a	2	VM Installation	EA	291
1.08b	2	VM Commissioning	EA	291
1.08c	2	VM Documentation	LS	1
1.09a	2	CST Installation	EA	41
1.09b	2	CST Commissioning	EA	41
1.09c	2	CST Documentation	LS	1
				Subtotal - Installation and Tr
	Testing			
1.10	2	Agency Test Facility Implementation, Housing, and Documentation	LS	1
1.11	2	Factory Testing and Documentation	LS	1
1.12	2	Integration Testing and Documentation	LS	1
1.13	2	Pilot Testing and Documentation	LS	1
1.14	2	System Acceptance Testing and Documentation	LS	1
	Training			
1.15	2	Training Course Development and Materials	LS	1
1.16	2	Training Course Delivery	EA	1
				S
	Manuals			
1.17	2	System Manuals	LS	1
				S
				TOTAL PRICE - 1. IMPLEMENTA

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Item No.	SOW Ref.*	Description	Unit	Est. Quantity
2. SYSTEM SOFTWARE DESIGN				
	Back Office Applications			
2.01	6	Account-based Transaction Processor	LS	1
2.02	6	Customer Relationship Management	LS	1
2.03	6	Asset Incident Management	LS	1
2.04	6	System Manager	LS	1
2.05	6	Fare Media Management	LS	1
2.06	6	Financial Management	LS	1
2.07	6	Central Payment	LS	1
2.08	6	Configuration and Change Management	LS	1
2.09	6	Tariff Management	LS	1
2.10	6	API Management	LS	1
				Subtotal - Back O
	Externally Sourced Applications			
2.11	5	Customer Mobile App	LS	1
2.12	5	Agency Mobile Apps (Fare Inspection & Fare Payment)	LS	1
2.13	5	Customer Website	LS	1
				Subtotal - Externally Sou
	Field Device and Equipment Software			
2.14	4	Onboard and Wayside Validator Software	LS	1
2.15	4	Driver Display Unit Software	LS	1
2.16	4	Customer Service Terminal Software	LS	1
2.17	4	Full Feature Vending Machine Software	LS	1
				Subtotal - Field Device and Eq
	API Development			
2.18	3	Application Programming Interface (API) Development	LS	1
				Subtotal -
	System Integration Services			

					[redacted]
2.19	3	Onboard Integration (PT, CT, KT, ET)	LS	3	
2.20	3	Onboard Integration (KCM)	LS	1	
2.21	3	Washington State Ferries Integration	LS	1	
2.22	3	Data Access and Reporting Platform (DARe) Integration	LS	1	
2.23	3	Retail Network Integration	LS	1	
2.24	3	Integration with Legacy ORCA Back Office	LS	1	
2.25	3	ADA Paratransit Integration	LS	1	
2.26	6	Integration of Agency Provided CRM Application ($0 if SI-provided CRM application is proposed)	LS	1	
2.27	6	Integration of Agency Provided Financial Application ($0 if SI-provided financial application is proposed)	LS	1	
		Vanpool Integration	LS	1	
				Subtotal - System In	

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	Transit Payment Application				
2.28	7	Transit Payment Application	LS	1	
Subtotal - Transit Pay					
TOTAL PRICE - 2. SYSTEM SOFT					

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Item No.	SOW Ref.*	Description	Unit	Est. Quantity
3. EQUIPMENT AND SPARES				
	Producion Equipment and Spares			
3.01	4	Back Office Hardware - Four Environments ($0.00 if cloud is proposed)	LS	1
3.02	4	Onboard Validator (including spares)	EA	2,926
3.03	4	Onboard Validator Mounting System and Installation Kit (including spares)	EA	2,926
3.04	4	Driver Display Unit (including spares)	EA	1,086
3.05	4	Driver Display Unit Mounting System and Installation Kit (including spares)	EA	1,086
3.06	4	Wayside Validator (including spares)	EA	1,160
3.07	4	Wayside Validator Mounting System and Installation Kit (including spares)	EA	1,160
3.08	4	Customer Service Terminal (including spares)	EA	41
3.09	4	CST Portable Printer	EA	12
3.10	4	CST Mail Center Printer	EA	2
3.11	4	Full Feature Vending Machine (including spares)	EA	146
3.11a	4	Credit for omission of bill and coin acceptance	EA	
3.11b	4	Credit for omission of coin acceptance	EA	
3.11c	4	Credit for omission of change issuance	EA	
3.11d	4	Credit for omission of media issuance	EA	
		Light Vending Machine	EA	146
				Subtotal - Production Equip
	Test Equipment			
3.12	2	Agency Test Facility Hardware		
		Test System with online applications of the Main System License	LS	1
		1 Vehicle BiB Per Agency (excluding WSF)	EA	6
		Platform Validator	EA	1
		Large Full Service TVM	EA	1
		Small Profile Full Service TVM	EA	1
		CST Test Unit	EA	1

				Subtotal
	Training Equipment			
3.13	2	On-board Training Unit (BIB) - including validator, DDU and other SI equipment)	EA	12
3.14	2	Wayside Training Unit - including wayside validator	EA	3
3.15	2	CST Training Unit	EA	7
				Subtotal - Tr
				TOTAL PRICE - 3. EQUIPME

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Item No.	SOW Ref.*	Description	Unit	Est. Quantity
4. FARE MEDIA				
	Fare Media			
4.01	7	Contactless Extended-use Smart Cards (including training and test cards)	EA	1,000,000
				TOTAL PRICE

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Item No.	SOW Ref.*	Description	Unit	Est. Quantity
5. OPERATIONS AND MAINTENANCE SUPPORT SERVICES				
	Software Maintenance Agreement			
5.01	**8**	**Year 1 – Software Maintenance Agreement**		
		Annual Licenses & Subscriptions (Must be paid in full at the beginning of the license term)		
		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1
		Sage 300c (100 Users, Annual Renewal)	LS	1
		Antivirus Subscription	LS	1
		Shareplex Subscription	LS	1
		JIRA Service Desk	LS	1
		JIRA Software	LS	1
		Confluence	LS	1
		BitBucket - Source Code Management	LS	1
		Faronics DeepFreeze	LS	1
		RIADA INSIGHT CORE	LS	1
		RIADA INSIGHT DISCOVERY	LS	1
		Azure API Management	LS	1
		Ivanti (Shavlik) Support	LS	1
		CimTrack Support	LS	1
		Bomgar Annual Support	LS	1
		New Relic APM	LS	1
		New Relic Support	LS	1
		INIT Software Escrow Agreement	LS	1
		INIT Software Maintenance & Monthly Recurring Licenses (Billed Monthly)		
		Salesforce (100 Users, Per User/Per Month)	MO	12
		Azure Active Directory (100 Users,per user/per month)	MO	12
		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	MO	12
		Azure ExpressRoute (100MB/month Data Plan)	MO	12

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		INIT Central Software Maintenance	MO	12		
		INIT Vehicle Software Maintenance	MO	12		
		INIT Central Software Upgrade	MO	12		
		INIT Vehicle Software Upgrade	MO	12		
5.02	8	Year 2 – Software Maintenance Agreement	MO	12		
5.03	8	Year 3 – Software Maintenance Agreement	MO	12		
5.04	8	Year 4 – Software Maintenance Agreement	MO	12		
5.05	8	Year 5 – Software Maintenance Agreement	MO	12		
5.06	8	Year 6 – Software Maintenance Agreement	MO	12		
5.07	8	Year 7 – Software Maintenance Agreement	MO	12		
5.08	8	Year 8 – Software Maintenance Agreement	MO	12		
5.09	8	Year 9 – Software Maintenance Agreement	MO	12		
5.10	8	Year 10 – Software Maintenance Agreement	MO	12		
5.11	8	~~Year 11 – Software Maintenance Agreement~~				
				Subtotal - Software Mainte		
	System Operations and Maintenance					
5.12	8	Year 1 – System Operations & Maintenance	MO	12		
5.13	8	Year 2 – System Operations & Maintenance	MO	12		
5.14	8	Year 3 – System Operations & Maintenance	MO	12		
5.15	8	Year 4 – System Operations & Maintenance	MO	12		
5.16	8	Year 5 – System Operations & Maintenance	MO	12		
5.17	8	Year 6 – System Operations & Maintenance	MO	12		
5.18	8	Year 7 – System Operations & Maintenance	MO	12		
5.19	8	Year 8 – System Operations & Maintenance	MO	12		
5.20	8	Year 9 – System Operations & Maintenance	MO	12		
5.21	8	Year 10 – System Operations & Maintenance	MO	12		
5.22	8	Year 11 – System Operations & Maintenance	MO	12		
5.23	8	~~Year 12 – System Operations & Maintenance~~				
				Subtotal - System Operations		
	System Hosting					
		Monthly Recurring				
5.24	**3 & 8**	Year 1 - Back Office, Test Facility, and Website Hosting				

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					[redacted]
		Mobile Payment System Hosting	MO	12	
		INIT Back Office, Test Facility and Website Hosting	MO	12	
5.25	**3 & 8**	Year 2 - Back Office, Test Facility, and Website Hosting	MO	12	
5.26	**3 & 8**	Year 3 - Back Office, Test Facility, and Website Hosting	MO	12	
5.27	**3 & 8**	Year 4 - Back Office, Test Facility, and Website Hosting	MO	12	
5.28	**3 & 8**	Year 5 - Back Office, Test Facility, and Website Hosting	MO	12	
5.29	**3 & 8**	Year 6 - Back Office, Test Facility, and Website Hosting	MO	12	
5.30	**3 & 8**	Year 7 - Back Office, Test Facility, and Website Hosting	MO	12	
5.31	**3 & 8**	Year 8 - Back Office, Test Facility, and Website Hosting	MO	12	
5.32	**3 & 8**	Year 9 - Back Office, Test Facility, and Website Hosting	MO	12	
5.33	**3 & 8**	Year 10 - Back Office, Test Facility, and Website Hosting	MO	12	
5.34	**3 & 8**	Year 11 - Back Office, Test Facility, and Website Hosting	MO	12	
5.35	**3 & 8**	Year 12 - Back Office, Test Facility, and Website Hosting	MO	12	
5.36	**3 & 8**	Year 13 - Back Office, Test Facility, and Website Hosting	MO	12	
5.37	**3 & 8**	~~Year 14 - Back Office, Test Facility, and Website Hosting~~			
				Subtot	
	Warranty				
5.38	8	System Warranty (1 Year System Warranty Included)	LS	1	
				TOTAL PRICE - 5. OPERATIONS AND MAINTENANCE SUP	

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Item No.	SOW Ref.*	Description	Unit	Est. Quantity
6. SOFTWARE LICENSES				
6.01	3	Software Licenses - All Environments		
		Oracle Enterprise Edition with Advanced Security & Maintenance	LS	1
		ESET Antivirus & Ongoing Subscription	LS	1
		Shareplex Subscription & Professional Setup Services	LS	1
		Faronics DeepFreeze	LS	1
		New Relic APM & Support	LS	1
		Ivanti (Shavlik) & Support	LS	1
		CimTrack File Integrity Management (Production, Staging and Test) and Project Support	LS	1
		Bomgar Remote Support w/Vault Go	LS	1
		Solarwinds (NPM, NCM, SAM, DPA)	LS	1
		Azure Active Directory (100 Users,per user/per month)	LS	1
		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)	LS	1
		Azure ExpressRoute (100MB/month Data Plan)	LS	1
				TOTAL PRICE - 6. SOFT

Item No.	SOW Ref.*	Description	Unit	Est. Quantity
7. Value-added Features and Capabilities				
		Open Payments		
		Open APIs		
		Fare Capping/Loyalty Programs		
				TOTAL PRICE - 7. Value-added Features

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*Refers to sections in the RFP SOW where capabilities associated with the pricing item are listed. Capabilities for any given pricing item may also be included in other sections of the SOW not listed on the pricing form.

System Integrator -- As-Needed Services

Item No.	Description	Unit	[redacted]
AS-NEEDED SUPPORT SERVICES			
AS.01	Senior Project Manager	HR	
AS.01	Project Manager	HR	
AS.02	Systems Engineer (Sr)	HR	
AS.03	Systems Engineer (Mid)	HR	
AS.04	Systems Engineer (Jr)	HR	
AS.05	Software Engineer (Sr)	HR	
AS.06	Software Engineer (Mid)	HR	
AS.07	Software Engineer (Jr)	HR	
AS.08	Technician	HR	

* Agreed upon rates (applicable to CY 2017) may be subject to modification on an annual b
exceed a percentage equivalent to the change in the BLS Consumer price index (CPI), from e
most recent available 6 month data period. Requests for rate adjustments must be submitt
Manager 45 days prior to the beginning of a new calendar year.

Signed:

7/23/2018

Date

Roland Staib, President & CEO

Name and Title

System Integrator - Tiered Equipment Pricing

Item No.	Description		
TIERED EQUIPMENT PRICING		**Unit**	
	On Board Validators, 1-10 quantity	EA	$
	On Board Validators, 11-20 quantity	EA	$
	On Board Validators, 21-50 quantity	EA	$
	On Board Validators, 51-100 quantity	EA	$
	On Board Validators, 100+ quantity	EA	$
	Driver Display Unit, 1-10 quantity	EA	$
	Driver Display Unit, 11-20 quantity	EA	$
	Driver Display Unit, 21-50 quantity	EA	$
	Driver Display Unit, 51-100 quantity	EA	$
	Driver Display Unit, 100+ quantity	EA	$
	Wayside Validators, 1-10 quantity	EA	$
	Wayside Validators, 11-20 quantity	EA	$
	Wayside Validators, 21-50 quantity	EA	$
	Wayside Validators, 51-100 quantity	EA	$
	Wayside Validators, 100+ quantity	EA	$
	Customer Service Terminal, 1-10 quantity	EA	$
	Customer Service Terminal, 11-20 quantity	EA	$
	Customer Service Terminal, 21-50 quantity	EA	$
	Full Featured Vending Machines, 1-2 quantity	EA	$
	Full Featured Vending Machines, 3-10 quantity	EA	$
	Full Featured Vending Machines, 11-20 quantity	EA	$
	Full Featured Vending Machines, 21-50 quantity	EA	$
	Full Featured Vending Machines, 51-100 quantity	EA	$
	Full Featured Vending Machines, 100+ quantity	EA	$
	Light Vending Devices, 1-2 quantity	EA	$
	Light Vending Devices, 3-10 quantity	EA	$
	Light Vending Devices, 11-20 quantity	EA	$
	Light Vending Devices, 21-50 quantity	EA	$
	Light Vending Devices, 51-100 quantity	EA	$
	Light Vending Devices, 100+ quantity	EA	$
	Training BIB - On Board Validator, 1-10 quantity	EA	$
	Training BIB - On Board Validator, 11-20 quantity	EA	$
	Training BIB - On Board Validator, 21-50 quantity	EA	$
	Training BIB - Wayside Validator, 1-10 quantity	EA	$
	Training BIB - Wayside Validator, 11-20 quantity	EA	$
	Training BIB - Wayside Validator, 21-50 quantity	EA	$
	Training BIB - CST Unit, 1-10 quantity	EA	$
	Training BIB - CST Unit, 11-20 quantity	EA	$
	Training BIB - CST Unit, 21-50 quantity	EA	$

Item No.	Description		
Spare Part Modules		**Unit**	
	customer display size 15", TOUCH 15" + controller, cables, 1-10 quantity	EA	
	customer display size 15", TOUCH 15" + controller, cables, 11-20 quantity	EA	
	customer display size 15", TOUCH 15" + controller, cables, 21+ quantity	EA	
	FEIG Card Reader for TVM, 1-10 quantity	EA	
	FEIG Card Reader for TVM, 11-20 quantity	EA	
	FEIG Card Reader for TVM, 21+ quantity	EA	
	Coin handling Unit with change (6x carousel without hoppers), 1-10 quantity	EA	
	Coin handling Unit with change (6x carousel without hoppers), 11-20 quantity	EA	
	Coin handling Unit with change (6x carousel without hoppers), 21+ quantity	EA	
	Bill Handling Unit (MEI SCR), 1-10 quantity	EA	
	Bill Handling Unit (MEI SCR), 11-20 quantity	EA	
	Bill Handling Unit (MEI SCR), 21+ quantity	EA	
	Banknote Vault (for 1400 notes), 1-10 quantity	EA	
	Banknote Vault (for 1400 notes), 11-20 quantity	EA	
	Banknote Vault (for 1400 notes), 21+ quantity	EA	
	Bank Card Processing Unit, 1-10 quantity	EA	
	Bank Card Processing Unit, 11-20 quantity	EA	
	Bank Card Processing Unit, 21+ quantity	EA	
	1 x Double printers (2 paper rolls in total), 1-10 quantity	EA	
	1 x Double printers (2 paper rolls in total), 11-20 quantity	EA	
	1 x Double printers (2 paper rolls in total), 21+ quantity	EA	
	Smartcard Dispenser, 1-10 quantity	EA	
	Smartcard Dispenser, 11-20 quantity	EA	
	Smartcard Dispenser, 21+ quantity	EA	
	VENDstation board, 1-10 quantity	EA	
	VENDstation board, 11-20 quantity	EA	
	VENDstation board, 21+ quantity	EA	
	VENDstation extension board, 1-10 quantity	EA	
	VENDstation extension board, 11-20 quantity	EA	
	VENDstation extension board, 21+ quantity	EA	
	Power Supply, 1-10 quantity	EA	
	Power Supply, 11-20 quantity	EA	
	Power Supply, 21+ quantity	EA	
	UPS, 1-10 quantity	EA	

	UPS, 11-20 quantity	EA	[redacted]
	UPS, 21+ quantity	EA	
	HP Elite USB-C Dock	EA	
	HP EliteDisplay E220t 21.5-inch Touch Monitor	EA	
	Logitech MK520 Wireless Keyboard and Mouse Combo	EA	
	INIT USB Card Reader	EA	
	Logitech 4K Pro Web	EA	
	Epson DS-1630 Flatbed Color Document Scanner	EA	
	Epson DS-40 Color Portable Scanner	EA	
	MS-Cash Drawer (J-423-USB-M-B) □	EA	
	Ingenico IPP350-11P1914A Payment Terminal	EA	
	Epson C31CB25A8791 Receipt Printer w/Power Supply	EA	
	Brother Ruggedized RJ-4030	EA	
	Hewlett-Packard LV3000 Pole Display 7" Video with USB Connector, Dark Grey	EA	
	TrippLite USB Hub	EA	
	TrippLite UPS 500VA 280W UPS	EA	

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1. IMPLEMENTATION SERVICES			**PMP**	**CDR**	**PDR**	**FDR**	**PAT**	**1st 25%**	**2nd 25%**	**3rd 25%**	**Final**	**ngORCA SoR**	**SIT**	**FIT**	**Pilot**	**SAT**	**FSA**	**Total**
	Program and Contract Management		**Sep-18**	**Oct-18**	**May-19**	**Aug-19**	**Jan-20**				**Dec-21**	**Jul-21**	**Oct-20**	**Aug-21**	**Aug-21**	**Aug-22**	**Sep-22**	**Total**
1.01	2	Program & Contract Management (NTP to System Acceptance)	**5.0%**	**5.0%**	**10.0%**	**10.0%**	**10.0%**					**10.0%**	**10.0%**	**10.0%**	**10.0%**	**15.0%**	**5.0%**	100.0%
		UI/UX Consulting																
		Project Management, Project Initiation and Onboarding	**5.0%**	**25.0%**	**25.0%**	**25.0%**							5%	5%	5%	5%		100.0%
		Corporate Desgin Style Guide	5.0%	25.0%	25.0%	25.0%							5%	5%	5%	5%		100.0%
		Website Design Guide	5.0%	25.0%	25.0%	25.0%							5%	5%	5%	5%		100.0%
		Validator	5.0%	25.0%	25.0%	25.0%							5%	5%	5%	5%		100.0%
		Driver Display Unit	5.0%	25.0%	25.0%	25.0%							5%	5%	5%	5%		100.0%
		Front Office Ticket Sales	5.0%	25.0%	25.0%	25.0%							5%	5%	5%	5%		100.0%
		TVMs	5.0%	25.0%	25.0%	25.0%							5%	5%	5%	5%		100.0%
	Installation and Transition Services																	
1.02	2	Transition Strategy and Planning		**10.0%**	**40.0%**	**50.0%**												100.0%
1.03	2	Back-Office Installation and Configuration, Including Documentation		**5.0%**	**10.0%**	**10.0%**							50.0%			20.0%	5.0%	100.0%
1.04	2	Field Device Site Surveys and Prototyping			10.0%	10.0%	20.0%	15.0%	15.0%	15.0%	15.0%							100.0%
1.05a	2	Onboard Equipment (validator and DDU) Installation (Excluding KCM)			10.0%	10.0%	20.0%	15.0%	15.0%	15.0%	15.0%							100.0%
1.05b	2	Onboard Equipment (validator and DDU) Commissioning (Excluding KCM)			10.0%	10.0%	20.0%	15.0%	15.0%	15.0%	15.0%							100.0%
1.05c	2	Onboard Equipment Documentation (Excluding KCM)			10.0%	10.0%							80.0%					100.0%
1.06	2	Onboard Validator Equipment Installation, Commissioning, and Documentation (KCM Only)			10.0%	10.0%		15.0%	15.0%	15.0%	15.0%							
1.07a	2	Wayside Validator Installation			10.0%	10.0%	20.0%	15.0%	15.0%	15.0%	15.0%							100.0%
1.07b	2	Wayside Validator Commissioning			10.0%	10.0%	20.0%	15.0%	15.0%	15.0%	15.0%							100.0%
1.07c	2	Wayside Validator Documentation			10.0%	10.0%							80.0%					100.0%
1.08a	2	VM Installation			10.0%	10.0%	20.0%	15.0%	15.0%	15.0%	15.0%							100.0%
1.08b	2	VM Commissioning			10.0%	10.0%	20.0%	15.0%	15.0%	15.0%	15.0%							100.0%
1.08c	2	VM Documentation			10.0%	10.0%							80.0%					100.0%
1.09a	2	CST Installation			10.0%	10.0%	20.0%	15.0%	15.0%	15.0%	15.0%							100.0%
1.09b	2	CST Commissioning			10.0%	10.0%	20.0%	15.0%	15.0%	15.0%	15.0%							100.0%
1.09c	2	CST Documentation			10.0%	10.0%							80.0%					100.0%
	Testing																	
1.10	2	Agency Test Facility Implementation, Housing, and Documentation											50.0%			35.0%	15.0%	100.0%
1.11	2	Factory Testing and Documentation											100.0%					100.0%
1.12	2	Integration Testing and Documentation												100.0%				100.0%
1.13	2	Pilot Testing and Documentation													100.0%			100.0%
1.14	2	System Acceptance Testing and Documentation														100.0%		100.0%
	Training																	
1.15	2	Training Course Development and Materials											100.0%					100.0%
1.16	2	Training Course Delivery											100.0%					100.0%
	Manuals																	
1.17	2	System Manuals											100.0%					100.0%
2. SYSTEM SOFTWARE DESIGN																		
	Back Office Applications																	
2.01	6	Account-based Transaction Processor		**5.0%**	**10.0%**	**10.0%**							75.0%					100.0%
2.02	6	Customer Relationship Management		5.0%	10.0%	10.0%							75.0%					100.0%
2.03	6	Asset Incident Management		5.0%	10.0%	10.0%							75.0%					100.0%
2.04	6	System Manager		5.0%	10.0%	10.0%							75.0%					100.0%
2.05	6	Fare Media Management		5.0%	10.0%	10.0%							75.0%					100.0%
2.06	6	Financial Management		5.0%	10.0%	10.0%							75.0%					100.0%
2.07	6	Central Payment		5.0%	10.0%	10.0%							75.0%					100.0%
2.08	6	Configuration and Change Management		5.0%	10.0%	10.0%							75.0%					100.0%
2.09	6	Tariff Management		5.0%	10.0%	10.0%							75.0%					100.0%

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2.10	6	API Management		5.0%	10.0%	10.0%							75.0%					100.0%
	Externally Sourced Applications																	
2.11	5	Customer Mobile App		**5.0%**	**10.0%**	**10.0%**							20.0%	35.0%		20.0%		100.0%
2.12	5	Agency Mobile Apps (Fare Inspection & Fare Payment)		5.0%	10.0%	10.0%							20.0%	35.0%		20.0%		100.0%
2.13	5	Customer Website		5.0%	10.0%	10.0%							20.0%	35.0%		20.0%		100.0%
	Field Device and Equipment Software																	
2.14	4	Onboard and Wayside Validator Software		**5.0%**	**10.0%**	**10.0%**							37.5%	37.5%				100.0%
2.15	4	Driver Display Unit Software		5.0%	10.0%	10.0%							37.5%	37.5%				100.0%
2.16	4	Customer Service Terminal Software		5.0%	10.0%	10.0%							37.5%	37.5%				100.0%
2.17	4	Full Feature Vending Machine Software		5.0%	10.0%	10.0%							37.5%	37.5%				100.0%
	API Development																	
2.18	3	Application Programming Interface (API) Development		**5.0%**	**10.0%**	**10.0%**							37.5%	37.5%				100.0%
	System Integration Services																	
2.19	3	Onboard Integration (PT, CT, KT, ET)		**5.0%**	**10.0%**	**10.0%**							20.0%	35.0%		15.0%	5.0%	100.0%
2.20	3	Onboard Integration (KCM)																
2.21	3	Washington State Ferries Integration		5.0%	10.0%	10.0%							20.0%	35.0%		15.0%	5.0%	100.0%
2.22	3	Data Access and Reporting Platform (DARe) Integration		5.0%	10.0%	10.0%							20.0%	35.0%		15.0%	5.0%	100.0%
2.23	3	Retail Network Integration		5.0%	10.0%	10.0%							20.0%	35.0%		15.0%	5.0%	100.0%
2.24	3	Integration with Legacy ORCA Back Office		5.0%	10.0%	10.0%							20.0%	35.0%		15.0%	5.0%	100.0%
2.25	3	ADA Paratransit Integration		5.0%	10.0%	10.0%							20.0%	35.0%		15.0%	5.0%	100.0%
2.26	6	Integration of Agency Provided CRM Application ($0 if SI-provided CRM application is proposed)																
2.27	6	Integration of Agency Provided Financial Application ($0 if SI-provided financial application is proposed)																
		Vanpool Integration		5.0%	10.0%	10.0%							20.0%	35.0%		15.0%	5.0%	100.0%
	Transit Payment Application																	
2.28	7	Transit Payment Application		5.0%	10.0%	10.0%							20.0%	35.0%		15.0%	5.0%	100.0%
3. EQUIPMENT AND SPARES																		
	Producion Equipment and Spares																	
3.01	4	Back Office Hardware - Four Environments ($0.00 if cloud is proposed)																
3.02	4	Onboard Validator (including spares)																
3.03	4	Onboard Validator Mounting System and Installation Kit (including spares)																
3.04	4	Driver Display Unit (including spares)																
3.05	4	Driver Display Unit Mounting System and Installation Kit (including spares)																
3.06	4	Wayside Validator (including spares)																
3.07	4	Wayside Validator Mounting System and Installation Kit (including spares)																
3.08	4	Customer Service Terminal (including spares)																
3.09	4	CST Portable Printer																
3.10	4	CST Mail Center Printer																
3.11	4	Full Feature Vending Machine (including spares)																
3.11a	4	Credit for omission of bill and coin acceptance																
3.11b	4	Credit for omission of coin acceptance																
3.11c	4	Credit for omission of change issuance																
3.11d	4	Credit for omission of media issuance																
		Light Vending Machine																
	Test Equipment																	
3.12	2	Agency Test Facility Hardware - Seven Agencies																
	Training Equipment																	
3.13	2	On-board Training Unit (BIB) - including validator, DDU and other SI equipment)																
3.14	2	Wayside Training Unit - including wayside validator																
3.15	2	CST Training Unit																
4. FARE MEDIA																		
	Fare Media																	

Equipment to be billed 100% after delivery on a monthly basis.

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4.01	7	Contactless Extended-use Smart Cards (including training and test cards)					20.0%	20.0%	20.0%	20.0%	20.0%							100.0%
6. SOFTWARE LICENSES																		
6.01	3	Software Licenses - All Environments	Licenses to be billed 100% after delivery.															
		Oracle Enterprise Edition with Advanced Security & Maintenance																
		ESET Antivirus & Ongoing Subscription																
		Shareplex Subscription & Professional Setup Services																
		Faronics DeepFreeze																
		New Relic APM & Support																
		Ivanti (Shavlik) & Support																
		CimTrack File Integrity Management (Production, Staging and Test) and Project Support																
		Bomgar Remote Support w/Vault Go																
		Solarwinds (NPM, NCM, SAM, DPA)																
		Azure Active Directory (100 Users,per user/per month)																
		IBM Maas 360 Mobile Device Management (200 devices, per device/per month)																
		Azure ExpressRoute (100MB/month Data Plan)																

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Confidentially Statement

The sections in this document contain trade secret information that provides a business advantage to INIT over competitors. All sections in this document are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating this RFP response and third parties retained by the agency who have been retained to assist in evaluation of this RFP response and then only to the extent they agree to abide by this limitation.

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2.7.2.4.5 Integration Testing

The Integration Testing test phase includes the following:

- Functional Unit Testing (FUT)
- System Integration Testing (SIT)
- Field Integration Test (FIT)
- Pilot Test(s)

The integration test phase is where the independent timelines and progression of system components need to start to come into alignment. Like a zipper, each test phase represents a further tightening of the system's schedule and completion; to the point where the FIT cannot complete until full alignment. Of additional note, during the integration testing all tests are to be performed either in the Agency test facility or within Agencies premises. Generally speaking, the FUT and SIT will consist primarily of lab-based tests and as such occur in the Agency test facility while the FIT test occurs as it sounds, in the field.

During the integration tests INIT will also undergo the required redundancy validation, system load and performance, and usability tests.

The vision with this test phase is to confirm the system components are able to operate and function in an integrated manner in accordance with the system requirements, the system can be validated as scalable and obsolescence resistant, and, in the end, is ready for live operation capable of providing end-users with a secure, reliable, and technology-thoughtful in design.

2.7.2.4.5.1 Functional Unit Testing

Where the Factory Test phase is focused on the system hardware, the Integration Test phase looks more at the performance of the software meant to operate on the unit and then how the complete picture performs. During the Functional Unit Testing (FUT), INIT will first demonstrate the performance, function, and operation of the developed software. As this is the first stage of the integration testing, this test is performed in a controlled laboratory environment where no changes or design scope are introduced. However, in the event of a design change or test failure, component-level regression testing will be performed after the formal test cycle.

Prior to test execution, INIT will provide ~~for Agency approval the~~ FUT test procedures for Agency approval. The test procedures will include step-by-step instructions of every test, including entry and exi~~s~~t criteria, and test location or specific configuration details in accordance with the stated requirements of the SOW and approved Inspection and Test Plan. Due to the volume of testing to occur, INIT anticipates testing to occur in groups, FUT-1, FUT-2, FUT-3 based on readiness and appropriateness for the test (e.g. Validator Hardware and Software must be ready in order to be in a test group; they should not be divided between FUT-1 and either FUT-2 or FUT-3). Based on our experience on other projects, we anticipate this testing to take approximately 3-4 weeks in total though divided over blocks of specified time for the test set up and configuration of the facility, the test execution, and then any follow up or ad hoc tests.

FUT Test Prerequisites

- Successful completion of Factory Testing
- Completed component-level software development
- Test bench including all system components delivered and installed in agency test facility
- FUT Test Procedures have been submitted and approved by the Agencies

FUT performance will occur on the first production equipment that has successfully passed Factory Acceptance Tests. Additionally, all software versions are those that have passed any required QA processes and is ready for revenue service. Interfaces between systems may be simulated if said interface(s) or back-office configuration is not ready for testing, for the purposes of the lab environment and the general nature of a lab-based test and phase of the project.

Testing of equipment functionality is intended to utilize the full range of fare media and fare structure prepared by the Agencies and approved as part of Final Design Review (FDR). This fare structure may include the fares for each Agency, plus inter-agency and regional fares and stored-value. Since all fare media to be used is provided by INIT. INIT will document and inventory the, its type and usage during testing. Where applicable this test data will be included in the test procedure and report.

Following the conclusion of FUT, including any sub-group FUT testing, INIT will draft and submit for Agency review and approval a detailed Test Report. Using the test procedure as the framework, INIT will indicate, among other things, the outcome of the test, remediation or corrective action needed to complete a test, date and token of personnel executing the test,

notes or comments regarding the test performance or script, and the next action, if any, required. Coupled with the Test Report will be any other relevant data, comments, discussions or decisions, relevant to the test occurrence.

The ngORCA agencies, at their discretion, may assign staff or representatives to witness and/or audit FUT testing their names and associated Agency or ngORCA project affiliation will be included as part of the test report data

The functionality of the test is meant to include equipment capabilities under normal operating conditions as well as equipment response to induced failures and other abnormal conditions. Each type of equipment shall undergo an independent test with results reported separately. To perform the test, sample data will be used representing the full spectrum of events and alarms.

Upon completion of the required transaction testing, INIT will undergo another set of cycle tests to demonstrate the equipment continues to be capable of operating under the environmental conditions specified in the technical specification. These environmental tests will be performed on the Onboard Validator, Driver Display Unit, Wayside Validator, and the Vending Machine. INIT suggests performing two sets of environmental cycle tests. The equipment temperature tests and the sunlight test. All other environmental tests cannot be performed in combination with the cycle test as the test setup will either compromise the environmental condition or will not follow safety requirements for the test personnel.

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The temperature test will be performed by putting the equipment into the temperature chamber and bringing it to the temperature required in the technical specification. Once the temperature is reached, the equipment will be taken out of the chamber and then the tests will be performed. During testing, the CPU temperature will be watched and if the device temperature drops under 5°C of the original temperature, the device will be put back into the temperature chamber.

The sunlight test will be performed with a sunlight simulator. INIT will not use a third-party laboratory to perform the environmental cycle tests. The performed tests will be documented by video and photo.

INIT will provide the detailed Test Report to the Agencies for review and approval. The Test Report must certify that there were no failures or variables introduced during the test and that the performance is in accordance with the requirement in the SOW and FDR.

2.7.2.4.5.1.1 FUT Devices

The devices required as part of the scope of the FUT testing are as follows: onboard validators, driver display units, wayside validators, vending machines, and customer service terminals. As part of INIT's draft and submission of the FUT test procedures, each component and associated

test script will have pre-defined criteria or expected result in order to successfully pass. The specified structure and criteria will be reviewed and mutually agreed prior to test execution.

As part of the FUT, INIT will perform cycle tests on each item of equipment. As noted, the full scope will be as agreed with the Agencies. For reference, INIT has included samples of criteria for our project in Honolulu:

Validator & Driver Display:

- 8,000 transactions
- Validator will have a wired connection to background system
- Only Closed Loop cards will be used for testing
- Pass Back time will be disabled for the test
- Log File analysis of the Validator and Driver Display will prove the successful tap

To execute 8,000 transactions on an onboard validator, INIT will use a spinning wheel which simulates the tap of a customer. The fare media will be mounted to the wheel. While spinning, the cards will periodically enter the communication field of the reader and therefore creating a tap. INIT suggests the following configuration for the fare media and transit accounts linked to them:

- (2) Fare Media loaded with Stored Value
- (2) Fare Media loaded with a pass product

Every transaction will be shown simultaneously on the driver display. ~~The PROXmobil3 uses an Ethernet port to communicate with the driver display.~~ To analyze the successful taps, the

recorded transactions will be written to several files on the device. INIT suggest splitting the 8,000 transactions in online and offline transaction to ensure both ways of validation.

Beside the audit register counts of the device, the test setting provides an external counter to track the expected number of card taps.

Vending Machines:
The cycle test for the TVMs will cover 8,000 transactions. INIT will perform manual tests which will cover:

Test Case	Number of Transactions	Description
Top Ups	2000	Spinning wheel to perform top up transactions. The payment for those transaction will be simulated.
Pass Loads	2000	Spinning wheel to perform load transactions. The payment for those transaction will be simulated.
Fare Media Sales	300	Scripted test that automatically issues a card from the dispenser.
View Account Status	700	Spinning wheel to perform an account lookup.
View Transaction History	1000	Spinning wheel to perform a lookup of the transaction history.
Text to Speech	70	Perform 10 TVM menu transactions per language.
Audio Jack	230	The TVM must automatically enable audio instructions when headphones are plugged into the audio jack.
Audio Button	200	Enable audio instructions when pushing the audio button.
Coin Acceptance	300	Test coin acceptor on a per accepted coin type basis.
Bill Acceptance	400	Test bill acceptor on a per accepted bill type basis.

Test Case	Number of Transactions	Description
Maintenance Tests	800	Exchange coin vault, exchange bill vault, exchange card dispenser magazine, load receipt paper.
Total	**8000**	

Customer Service Terminal:

INIT does not see a way of automating the Customer Service Terminal; therefore, unless we are able to identify a new solution, we suggest performing the tests manually.

2.7.2.4.5.1.2 FUT Back Office & Website

FUT testing for the back-office applications, mobile apps and website covers functionality of each component individually. INIT may use test data and may stimulate interfaces to other software component for FUT testing; each test must demonstrate 100% accuracy in performance of both data exchange(s) and display. The criteria to consider a test as 'pass', must not result in any failure or discrepancy to the agreed functionality as approved in the FDR or otherwise stated in the SOW.

2.7.2.4.5.2 System Integration Test

Once all system components have undergone and successfully completed the FUT, INIT can initiate the System Integration Test (SIT). This test will be performed in the lab, in a controlled non-production environment.

In order to adequately perform the SIT, all devices and system components must be available as defined in the SOW for launch; this includes the installation and configuration of the back office applications, web portal, retail network, agency-specific interfaces, onboard system integrations including CAD/AVL, Washington State Ferries field equipment, DARe, and also the availability of the updated Legacy ORCA back-office and incumbent vendor supplied updated software for validation integration. Further, the system will be provided with test data simulating the Agencies' databases for purposes of this test.

As part of the Inspection and Test Procedures, INIT will include the required test configuration(s), detailed test steps, entry and exit criteria, fare media required, and system integration components. Additionally, during this test phase INIT will being to coordinate with the Agencies on a regression test procedure for future integration test validation. Ultimately, a

successful SIT will demonstrate the installed, integrated system is capable of performance and operation under test conditions.

In order to simulate this kind of performance, the test must include continuous testing across a pre-determined period of time (e.g. where the validator is online and performing validation test for three (3) days without disruption) whereby a prescribed quantity and type of transactions occur, across each device or unit type without failure.

Simulated transactions must occur on the onboard validators and driver displays, wayside validators, vending machines, mobile fare inspection app, mobile fare validation app, and customer service terminal. Each device must experience test validation using each specified fare media type and exercise the fare structure as provided and agreed by the Agencies during FDR.

It is important to note that while the testing nomenclature focuses a great deal on successful test execution, such successes will also be confirmed in the context of system failures, alarms, or parameter violations. During these tests INIT will confirm the boundary conditions and parameters are met during the test that the appropriate alarms, warnings, alerts, etc. perform in accordance with the agreed design.

SIT Test Prerequisites

- Successful completion of FUT
- Back office system completely integrated into the Agencies network
- One complete test bench with at least one of each component type installed in the test lab

SIT will cover data transmission tests, system monitoring exercises, verification of accounting processes, payment transactions and database performance. Any software modifications will need to be approved by the Agency after the completion of SIT.

Load Testing

To simulate the proposed ngORCA system's peak volume plus the required 200% of peak volume as agreed during design review, the test data will be generated by automated scripts, executed by INIT. The type of data, number of accounts and associated transactions can be discussed and agreed as part of the Inspection and Test Plan during design review as well. To facilitate the discussion, INIT proposes the following for a load testing approach:

- The simulation will produce a steady load of usage and sales transactions
- The test goal is to verify that this load will not exceed any system component or lead to reduced response times for any participating sales channel

- The load is created by a scripted process that will call the online validation service and sales API functions
- The transactions will be exported to the accounting system according to the defined rules

Based on the determined, agreed active, frequently used cards in the system, the simulation will first fill the database over a course of time (e.g. 7 days) with accounts loaded with cash value, day passes and annual passes in a ratio in alignment of the figures relevant to the perceived load.

After the first predefined step noted, the simulation will keep creating cash and pass loads and new accounts over a period of time, however with reduced numbers. In addition to that the simulation will perform fare validations over an evenly distributed time over the course of a day for a defined period.

Disaster Recovery and Redundancy

During the FIT, INIT will draft and submit the plan for performing and demonstrating the Disaster Recovery Plan, including accuracy testing (required for INIT becoming the system of record) and accuracy testing between the AUT and relational database for the specified application and data storage location, as defined during design review as well as any individual system component failover / recovery redundancy measures. As part of the plan, the redundancy or recovery parameters will be predefined and agreed. This test will be a performance and implementation of that plan the specified parameters. Further, the testing will also demonstrate atomicity, consistency, isolation, and durability of the database.

Due to the time critical nature of the project, if during SIT any changes are made to the software, whether to address design change needs in Change Orders or as a result of remediation or corrective action undertaken by INIT or affiliated vendor, the system change will need to be reviewed, demonstrated, tested, and approved. In this stage, INIT recommends the introduction of a Change Control Board (CCB). While at the discretion of the Agencies, this practice lends a layer of oversight, ensuring risk is limited as project launch planning and occurrence is approaching.

During integration testing, each software change will first be delivered to the Agency test facility and be tested prior to deployment. As part of that initial planned delivery, INIT will discuss~~ed~~ in advance with the Agencies and when the package is ready, INIT will provide a detailed software delivery paper and installation instructions. The delivery paper will include the tracking ID of the change, the nature of the change, personnel making the request, as well as any device specific information such as version, dates, file sizes, etc.

Successful completion of SIT is one of the critical path items in the overall program schedule; as such, once SIT is complete the ability to maintain system stability and predictability is essential. Procedurally, this means INIT or any vendor may not under any circumstances introduce a change, no matter its size, without prior written approval of the Agencies. Further, changes should be prioritized by level of need and urgency. Where possible, changes should be tabled for post-launch implementation.

2.7.2.4.5.3 Field Integration Test

In the absence of a detailed technical design discussion about the Field Integration Test (FIT), Pilot Test, and Transition Plan (parallel back-office approach), describing or defining them as independent elements poses several challenges and may lead to some confusion.

As stated in the SOW, to perform the FIT, the back-office needs to be up and operational, and all configuration and integration of the system components (all devices, back office applications, website, retail network, interfaces, integrations including CAD/AVL, Washington State Ferries field equipment, DARe, the Legacy back office and all other aspects of the System) is complete and functional in what will become the production system.

To initiate the FIT, the necessary successive test steps (Pilot Test, INIT as system of record) need to also be clear and fully defined. During the FIT, INIT will demonstrate a production-like setting but can only test with simulated tests without otherwise impacting Agency accounting and reconciliation efforts because there is already a live production system. There may be some discussion with the Agencies around a fixed set of tests, using specified media, where somehow, we simulate production and process live/real transactions in advance of the formal Pilot Test, but cannot be detailed at this stage. As we cannot scrub the database, the lost revenue from the test is less of an issue but the Agencies ability to reconcile and deal with the output from an accounting perspective is unknown at this point and will likely place demand on those resources.

In the SOW, it is noted that the back-office system must be, “fully deployed and operational before the first validator can be operational in the field”. However, once the back-office is operational, where or how any equipment can be deployed and connected in the field is unclear during the FIT test. The FIT test environment restricts how many devices can be installed because the INIT supplied equipment cannot yet accept production transactions without layers of complexity. Further, the tests must be controlled and constrained to predefined procedures and outcomes and as such cannot be widely accessed by the public without risk to muddying data integrity or test performance.

~~That said, INIT understands as well that there are new stations and services that will be built and 'ready for revenue service' prior to the successful completion of these test phases. To accommodate what might be needed there, INIT-supplied Vending Machines and validators, as well as what is defined as part of this test phase, there may be some equipment that is live and available to support this test. Albeit in a modified or restrictive fashion.~~

To perform FIT, there a subset of 'test' equipment that is installed in production but is restricted in access, must be available. To validate the integration, agreement on how the data is transmitted and processed, and agreed criteria for test completion or pass criteria must be defined in the test plan. Unlike the tests in the controlled lab environment, this test is more restrictive and yet of vital importance as we want to validate those same integration tests work as intended in a production state and where possible out of Agency facilities and locations.

Regardless of the constraints and the absence of specificity to offer for this test at the moment, we are confident that our discussions at a technical and project prioritization level with the Agencies can iron out how best to plan and execute the test. Ultimately, there are two key drivers that need to be realized in this test; one, INIT's ability to perform a full system integration test in a production / production-like environment and two, INITs ability to successfully plan and test the Transition Plan and parallel back-office, in a brownfield environment prior to execution of the transition itself without otherwise negatively impacting the Agencies ability to collect and reconcile transactions or customers' ability to access and manage their ORCA experience.

One key point to note, should the Agencies preferred transition approach (parallel back-office) change during design review or other discussions, then what we propose will need to be adjusted or modified accordingly.

The above factors aside, INIT understands the general requirements of this test and will work with the Agencies during design review to define the plan and approach for successful execution. As part of that, in preparation of this test INIT will work with the Agencies to define the test procedures and scripts, test set-up and environment including exact locations or configurations, and the necessary entry / exit criteria which will be submitted prior to the test for Agency review and approval. We will estimate the test durations as well during design review; however, the exact proposed and agreed test procedure may be further defined as the specific nature of the test becomes more clear and imminent.

The test procedures will provide for the following categorical inclusions:

- Validation of the back-office configuration and operational readiness
- Installation checklists for equipment intended as part of the test

- Confirmation of data provisioning capable of simulating full operational load of the central system
- Schedule for continuous integration testing with systems online 24-hours per day
- Pre-determined, minimum quantity of transactions per system component (onboard validators, driver display units, wayside validators, vending machines, customer service terminals, fare inspection mobile app, fare validation mobile app)
- Pre-determined minimum quantity of transaction type and fare media type per system component
- Method for testing a pre-determined minimum quantity of transaction through the different user interface elements (CRM application, web portal, customer mobile app, and agency mobile apps)
- Method for testing all available functions of each different user interface element as stated in the previous bullet
- Validation that system alerts or other boundary conditions as defined are adhered to System redundancy and recovery validation
- Disaster Recovery Plan simulated demonstration
- Database accuracy validation; demonstrate accuracy between the AUT and relational database
- Atomicity, consistency, isolation, and durability of the database

Additionally, the test data, minimum data volume and transactions to demonstrate full operations load, and data transfer methods will be stated in the provided test procedure as well as the pass / fail criteria for each test.

Following successful completion of this test phase, it is INITs understanding that the next stages are the final validation steps available to ensure the planned transition from the legacy system to INIT as the system of record, and subsequently the soft launch of ngORCA, goes as planned. As such, the outcome of this test and the capability of determining the successful completion will largely be based on a combination of stringent factors. Subsequently, INIT recommends, following the completion and approval of the test, that the parties engage in a transition meeting and evaluate the test results and forthcoming tests to determine any risk mitigation or other strategies that may need to be deployed or administered. These are purely preventative or cautious considerations and not otherwise required.

2.7.2.4.5.4 Pilot Test(s)

Performance of the Pilot Test as defined poses a series of logistical challenges due to the brownfield nature of this project in general. The Pilot Test, which occurs following approved completion of the FIT test noted above and is the last test in the Integration Testing phase, requires the back-office system is up and running while the field equipment is required to be only partially installed or specifically limited to test-only access. The key distinction for the Pilot is that it needs to occur or validate in some respects, production or production-like environment while not interfering with legacy ORCA performance, transaction processing, or accounting and data reconciliation.

To achieve the Pilot Test to the extent possible INIT proposes a series of controlled, low-impact tests of the following system components, performed quite similar to that which would occur as part of the FIT. Test validation and connection to the back-office as well as data processing will need to be more clearly defined so that it can progress, in a limited fashion, beyond the controlled scripted test. To support the discussion in how to design this plan, INIT proposes for consideration the following test setup(s):

- Web Portal, specific test group with preset scripted test functions to perform for a final 'usability validation' test
- Fare Inspection and Validation Mobile Apps, loaded on a minimum defined number but at least one (1) per Agency that performs the function
- Customer Mobile App, loaded on a minimum defined number of devices and execute performance of a 'usability validation test'
- Customer Service Terminal, temporary set up at each Agency facility, outside of normal office hours
- Vehicle prototype, on either out of service or new buses not yet commissioned
- Vending Machine prototype, on a select station outside of high impact commute hours
- Wayside Validator prototype, on a lower impact platform and outside of high impact commute hours

INIT will work collaboratively with the Agencies to develop a Pilot Test Plan that accomplishes the needs of system testing in an installed basis within the chosen transition approach. Ultimately, the timing and agreed approach for the Transition Plan will govern how specifically the Pilot Test can occur and at what pace full system installation will need to undertake.

It is noted that following completion of the SIT and prior to the completion of the Pilot Test the system will enter a settling in period. During this time, INIT can proceed with the fleetwide system installation and the Agencies can perform their own ad hoc tests. However, in this same time frame, to achieve the transition plan (using the back-office parallel approach) as currently understood, INIT must become the system of record prior to the full fleet installation.

If INIT is not the system of record and system-wide installations are required, the INIT supplied equipment would not be able to 'speak' to the legacy back-office. As such, installations would be required in a side-by-side state and decommissioning of legacy equipment could not occur until the start of the SAT. Further, in this scenario the INIT installation would not be able to repurpose the existing installation materials driving up both cost and schedule as well as a potential unforeseen impact to ORCA riders.

Second to that, if the Agencies are performing ad hoc tests, the scope and data for the tests needs to be carefully coordinated and planned. While not intending to limit the Agencies test capability, if the system is not 'live' for ngORCA, similar to the previous integration phase, the same production-based constraints apply and need to be considered in the planning of such tests due to the reconciliation or settling action required.

~~While it may be that INIT's understanding of the test and Transition Plan are not in full alignment with the Agencies, it is important that in the absence of additional clarification, that INIT make clear the constraints we are seeing currently based on what we envision the system transition to look like for Agency consideration.~~

That understood, based on INIT's understanding of the Agencies preferred transition approach and the way in which the data should be handled we propose that the following occur:

- Pilot Test is approved
- During the Pilot INIT provides validation that it can reconcile the ngORCA back-office in preparation for the transition with that of the legacy ORCA system
- INIT becomes the system of record and all processing is now managed and handled by the INIT provided system (ngORCA is realized)
- System Settling In starts
- INIT and the Agencies begin the system-wide installation efforts
- The Agencies perform ad-hoc testing as desired

Upon completion of the above tasks starting with Pilot Test approval have been undertaken and~~,~~ once ~~80% or so of~~ the system equipment has been fully installed and the system ~~has been~~ able to validate performance against the metrics provided for acceptance testing, the Integration Testing phase should be concluded and approved.

~~Notably, the percentage of installation completion should likely include full installation of all Customer Service Terminals and Vending Machines; however, since King Country Metro and Community Transit are performing their own installations, INIT cannot control the schedules of completion for both their onboard and wayside validation equipment. Conversely, both~~

~~Agencies could complete their installation work in advance of INIT and as such, 100% of equipment is factored.~~

~~Currently, the possible variances are not possible to be determined at this point but if there are challenges to system-wide installations that INIT cannot control or impact, consideration to start the acceptance test should be reasonably undertaken.~~

2.7.2.4.6 System Acceptance Testing

The System Acceptance Testing test phase includes the following:

- System Acceptance Test
- Final System Acceptance

Once the Pilot Test has been approved, system equipment fully installed, and INIT becomes the system of record, the acceptance testing can begin. INIT understands ~~that in general,~~ the SAT will be performed in the production environment with all components, subsystems, and third-party networks completely functional, operational, online, and in service; fundamentally the ngORCA system must be live and fully installed.

As with each test phase, INIT will provide the requisite procedures and also test reports. In this case, the report will validate the test criteria and that it was met and the test passed based on the stated preconditions or metrics.

2.7.2.4.6.1 System Acceptance Test

The System Acceptance Test (SAT) is intended to validate the performance of the fully installed system as required for project completion. While intended to be complete as part of the final integration test phases, any existing functionality requiring deployment must be in place and the requisite tests approved, prior to the actual start of the SAT since the SAT serves to verify that the System and all provided equipment meet the performance requirements for project completion. INIT will be responsible for supporting all elements of SAT and as part of that will meet regularly with the Agencies to discuss progress, outcomes, and status of the test(s).

INIT's submission of the SAT Inspection and Test Plan will detail the system components, tests and data collection, and metrics intended to be validated as part of performance criteria. During the SAT, and as validated by the supplied test reports, the metrics must be adhered to; meeting or exceeding not less than the stated minimal performance standards. In the event INIT's performance of the SAT is sub-standard, as with the previous test phases, remedial action will take place and provided as part of the in-scope requirements to the project.

In the event INIT is unable to meet a performance metric during SAT, it is understood that the SAT duration may be extended until all performance requirements are met. The performance requirements and test durations will be those mutually agreed-upon with the Agencies and made part of the Inspection and Test Plan.

The INIT Proposed Project Schedule details a 60-day duration for the SAT test; however, an additional 60 days of slack have also been allocated in the event a stated metric has not passed in accordance with the agreed requirements. That said, should further failure events arise that extend the duration of the test component that slack duration may extend further as time is needed for the metric to be achieved.

2.7.2.4.6.2 Final System Acceptance

Achievement of Final System Acceptance (FSA) tends to comprise a combination of factors including initiation of the start of warranty if not done so already. Specific to the test phase, FSA cannot be achieved without signed written agreement the SAT has been carried out successfully and approved by the Agencies.

While the SAT is often the primary driver of FSA due to the rigorous nature and system-wide validation that is undertaken as part of the test, there are often varying other factors that exist ~~such as: sign off that all system equipment in scope to INIT has been installed, tested, and operational, equipment or spares and fare media have been delivered in accordance to the agreements set forth, training has been validated as delivered and approved, demonstration of the Disaster Recovery Plan has in fact been performed, validated, and approved, as well as any other system component delivery has been made in full~~.

INIT's creation and use of a Requirements Traceability Matrix (RTM), mapping the requirements through the design, build, and test phases, has been a useful tool in helping to organize and sign-off system acceptance.

In addition to the system validation points noted above, there are additional FSA-based activities that need to be undertaken to ensure full compliance with the overall project deliverables. Activities include but may not be limited to INIT's compliance against all contractual requirements (technical or otherwise), the required deposits to escrow have been made, and resolution or agreement to resolve for any open or outstanding issues to be made part of a software release have been agreed. It is important, with respect to the final point regarding software deliveries, that FSA completion not be unduly withheld for issues that are low priority or not otherwise made part of the SOW.

Following INIT's provision of validation that the above stated items have been met, INIT shall then submit for Agency approval a formal request for project completion or FSA. Upon completion, the Agencies will provide the associated certificate of completion.

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PROPOSAL FORM NO. 3B DBE/SMALL BUSINESS COMMITMENT FORM

Procurement No.	1. RTA/RP 0119-17	Company Name	3. INIT, Innovations in Transportation
		Address	4. 424 Network Station Road
Procurement Title	2. Systems Integrator for Next Generation ORCA	City/State/Zip	5. Chesapeake, VA, 23320
		Contact Name	6. Mr. Jim Hicks
		Contact Phone	7. 757-413-9100 ext 314
		Contact Email	8. JHicks@INITusa.com

Diversity Contract Goals		
Small Business Commitment	9.	10 %
DBE Commitment		10 %
Small Business Goal	10.	**5%**
DBE Goal		**2%**

11. Total Proposal Price $ 49,958,703.11

12. DBE/Small Business Participants (May include Proposer if counted towards Goal)	13. Small Business Indicator (DBE, MBE, WBE, Size, etc.)	14. Description of Work	DBE/Small Business Participants	
			15. Proposed Subcontract Amount	16. Percent of Proposed Contract
ESP Enterprises, Inc.	DBE/MBE	Vending Machine and Validator Installation Services	$ [redacted]	
Edco Incorporated	DBE/WBE	Contract Manufacturing	$	
West Sound Workforce	DBE/WBE	Customer Service Terminal Installation Services	$	
Go Systems and Solutions	DBE/WBE	Business Analyst Consultant	$	
Babinec Consulting	DBE/WBE	Technical Writing	$	
Subtotal and percent from attached list of DBE/Small Business participants:			1	
(Please attach a separate list of additional planned DBE/Small Business participants, as necessary)		**DBE/Small Business Participants Total:**	**19.** $ 5,023,281.77	20. 10.1 %

Revised Proposal dated June 8, 2018

1. Technical Proposal of INIT's Account Based Open Architect System

2. Methodology and Approach to Implementation and Operation and Maintenance Services

3. Extensive Experience and History of Innovation in Transit Technology

4. Knowledge and Recent Experience of Key Individuals

5. Price

6. Value Added Features or Capabilities

7. Commitment to and Compliance with Equal Employment Opportunity Law

8. Outreach Efforts and Commitment to Small Businesses and DBEs

9. Appendices (Appendix 1 – Resumes, Appendix 2 – Required Forms, and Capability Conformance Matrix Tab 1 and Tab 2

10. ORCA Commercial Legal Terms
Software License Information
Draft Maintenance Agreement

Systems Integrator for Next Generation ORCA
Request for Proposal (RFP)
RFP No. RTA/RP 0119-17
Submitted 06/08/2018

INIT Innovations in Transportation, Inc.
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Chesapeake, Virginia 23320
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http://www.initusa.com

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June 8, 2018

Attn. Ashley Bowman, Agency Agreements Analyst
Sound Transit Procurement and Contracts Division
401 S. Jackson Street
Seattle WA 98104-2826

RE: RFP No. RTA/RP 0119-17 – Cover Sheet and Declaration of Revision

Dear Ms. Bowman:

INIT is pleased to provide you with our Revised Proposal #2 to be the System Integrator for the ngORCA Program and to collaboratively develop, build, and test the best solution for the Region.

We appreciate the valuable Sound Transit feedback that allowed us to improve our offer. This Revised Proposal #2 supersedes the previously revised proposal submitted by INIT Innovations in Transportation on March 23rd 2018. All changes are clearly marked per the revised proposal submittal instructions. I hereby declare the text in the revised proposal that is not marked as changed has not been changed, and if it has the text of the last revised proposal prevails.

Additionally, we have provided a revised Price Proposal document which reflects modifications to our system design and scope of work. We have also included a cross reference which identifies the specific sections of the Proposal which have been revised.

We remain excited about the prospect of working with the ORCA agencies to deliver the ngORCA project on time and on budget. We are convinced that the agencies will be amazed at the functionality and flexibility of our best-in-class fare collection solutions and the capabilities of our company.

INIT was founded in 1983 with the goal of providing Intelligent Transportation Systems (ITS) to Public Transit Agencies. INIT Inc. (USA) was incorporated in the Commonwealth of Virginia in 1999 to serve the North American market. The INIT group of companies has never changed ownership. Many of our original employees are still working at INIT; giving us unmatched insight into the deployment of all types of transit oriented ITS projects. INIT has deployed over 50 electronic fare collection systems to transit agencies around the world and every day millions of transit riders pay for their public transit rides using INIT supplied technology.

This Project will be led by INIT's Pacific Northwest team, who recently delivered a state of the art, open payment, account based fare collection system to TriMet and its regional partners in Portland,

Oregon. The regional HOP FastPass system, which Sound Transit recently visited, was implemented on schedule and on budget and publicly launched on July 17, 2017. Recently the HOP FastPass system recorded its one millionth smartcard tap. The system already supports open payments through Android and Apple smartphones and is the first in the world to support virtual closed loop cards through Android Pay and soon through Apple Pay!

The system that INIT proposes to Sound Transit will accept agency issued smart cards as well as credit, debit and smartphone payments. All financial transactions will be processed – end to end - in less than ½ second. The technology is complex but to the end-user it will be simple and easy to use and appear to work like "magic".

> "Any sufficiently advanced technology is indistinguishable from magic." Noted Author and futurist Arthur C. Clarke

When fully delivered by 2021, this INIT integrated system will provide ORCA's customers with convenient, flexible, and secure fare payments and will allow for the introduction of new payment options as they become available. We will implement a service-proven, modular system, leveraging industry leading COTS applications. The design follows principles of open architecture which will permit the next generation ORCA system to evolve as technology changes. As an added bonus INIT is proposing advanced value added features such as open payments and fare capping at no additional charge to Sound Transit.

INIT's system will be designed specifically to respond to the goals that were specified in your RFP. An experienced Project Team will deliver this most technically advanced and service proven AFC solution within the project timeline. INIT has assembled a team of employees with deep industry experience and thorough leadership expertise, as well as an ecosystem of experienced and very well qualified subcontractors, all aligned with the organizational structure defined in your RFP. The key project management and the technical staff as well as a software development group will be located at INIT's Seattle facilities.

INIT has proposed Amy Gardner as the Lead Project Manager. Amy has previous knowledge of the legacy ORCA system and has most recently worked with INIT as the Project Manager responsible for the delivery of the TriMet "HOP Fastpass" system. Amy has the unique experience of working with both card-based and account-based fare collection systems. She will be responsible for guiding project resources and the schedule through the duration of the project.

Thomas Schaich, the proposed Lead Project Engineer, has deep technical knowledge of AFC systems and worked with Amy to successfully deliver the Portland "HOP Fastpass" system in 2017. Thomas is well known and respected in the industry and was recently recognized as a "Top 40 under 40" by Mass Transit magazine.

INIT is proposing David Steigleiter as the Project Systems Engineer. As the primary architect of INIT's Online Validation module, MOBILEvario, David has substantial expertise in the engineering and core technical components of the INIT back office system and was very much involved in the TriMet HOP Fastpass" project implementation. David will be relocating to Seattle from INIT's German HQ and will be the lead engineer responsible for the project specific software development.

These key project positions are augmented by highly talented and dedicated technical and project professionals, with extensive AFC experience, who have successfully implemented AFC systems worldwide. For more details and background on the team see Tab 4 "Knowledge and Experience of Key Individuals".

Our local Seattle office team – lead by Eric Linxweiler, Regional Director and Contract Representative – has an established presence in the area. This gives us a complete understanding of the regional transit system and the Pacific North West. Your single point of contact will be Jim Hicks, Director of Business Development for Western North America, also associated with our Seattle office. Jim can be reached at 757-413-9100 ext. 314 or at jhicks@initusa.com.

Our UBI number is 602-407-922 and Federal Tax ID Number is 54-1930353.

As a complete ITS solutions provider to Public Transit Agencies worldwide, INIT is uniquely qualified to provide Sound Transit and the ORCA member agencies with a comprehensive electronic fare collection system with unmatched flexibility, reliability, and speed. The combined capabilities of INIT's technology and the strength, experience, and local support that our Seattle based Project Team will bring to the Puget Sound Region is truly unique and we look forward to demonstrating this to Sound Transit and the ORCA member agencies in the coming months .

Yours Sincerely

[redacted]

Roland Staib
President and CEO

Legend:	
mandatory	This weakness must be addressed as defined in the scope of work in order to be considered for award.
high priority	This weakness is considered high priority and is weighted accordingly in the evaluation of your firm's proposal. Further priority is indicated with bold text.
	More detail has been added to the existing weakness or it is a new weakness.

Notes:
- Comments that are stricken are no longer considered a weakness or deficiency
- Some weaknesses/deficiencies are no longer included in this list as indicated by the evaluation tracking number. Those comments are no longer considered weaknesses or deficiencies so they are not included in this document.

Evaluation Tracking Number	Revised Proposal Reference (Proposer completes this column)	Original Proposal Reference	Weakness	Capability and/or RFP Submittal Requirement Reference	Attention
Evaluation Criterion 1 - Technical Proposal					
1. Security:					
4	Federated Indenity Services are certainly a possibility; however are not called out for in the RFP. INIT is happy to discuss adding to the SOW	Tab 1, 143			
2. Integration:					
7	Tab 1, section 1.4.3.4	Tab 1, 58		Evaluation Criterion 1, Submittal Requirement 4	**high priority**
8	Tab 1, section 1.4.3.5	Tab 1, 53		General	
12	Removed DataWarehouse language from Tab 1, section 1.8.2	Tab 1, 138		Genaral	
15	Tab 1, section 1.4.3.9	Section 1.4.3.9		SOW Section 3.3.10	
3. Other System Architecture:					
17	Provided more information in Tab 2, section 1.7.2	Tab 1, 65		Evaluation Criterion 1, Submittal Requirement 8.e.ix	
19	Tab 1, 1.4.2.5.1	Tab 1, 37		General	

24	Tab 1, section 1.4.1.6 Tab 5 Price Notes 1.01	Section 1.4.1.6	[redacted]	SOW Section 3.1.6	high priority
26	Tab 1, 1.4.2.5.1	Tab 1, 37		SOW Section 3.2.6, 3.2.6-5	
4. Vending Machines:					
27	Tab 1, section 1.4.1.9.3 corrected	Tab 1, 19-21		Evaluation Criterion 1, Submittal Requirement 2.b.	
31	Tab 1, section 1.6.3.2.1.	Tab 1, 92		General	
33	Tab 1, section s 1.6.3, 1.6.3.8.1	Tab 1, 70		SOW Mandatory Capability 3.1.1-1	mandatory
34	Tab 1, section 1.6.3.2.3,	Tab 1, 98 and 104		~~SOW Capability 4.5.2.2-1, 3.1.6-3,~~ and Section 3.1.7	
35	Conformance Matric 4.5.2.5-10 and 3.1.9.3-1	Capability Conformance Matrix Tab 2: pg 11 and 90		SOW Capability 4.5.2.5-10 and 3.1.9.3-1	
39	Tab 1, section 1.6.3.2.2	Tab 1, 96		SOW Section 4.5 narrative	
5. Customer Service Equipment:					
41	Tab 1, section Chapter 1.6.4.1	Tab 1, 110-115		Evaluation Criterion 1, Submittal Requirement 6	
42	Tab 1, section 1.6.4.1 and Tab 5 Price Form should agree	Tab 1, 111- 113		Evaluation Criterion 1, Submittal Requirement 6	
43	Tab 1, section 1.6.4.1 and 1.6.4.1. 11	Tab 1, 111 and 113		SOW Capability 3.1.1-1	mandatory
44	referred to Tab 1 section 1.6.4.1.14 for explaination of offering three different printers for you different use cases	Capability Conformance Matrix Tab 2: pg 70 and 77		SOW Capability 4.4.2.10-6, 4.4.4.3-10	

45	Tab 1, section 1.6.4.2.4	Tab 1, 117	[redacted]	SOW Capability 4.4.2.1-5	
49	Added section to Tab 1 - 1.6.4.1.14 Addressed document scanner in Tab 1 section 1.6.4.1.8 Added datasheets to section 1.6.4.1.12 and 1.6.4.1.13	Tab 1, 111- 113	[redacted]	SOW Section 4.4 and Capability 4.4.1-8, 4.4.1-3	high priority
54	Added section to Tab 1 - 1.6.4.1.14	Tab 1, 110-111	[redacted] ~~quantities and pricing b ased on table provided.~~		
6. Other Onboard/Wayside Field Devices and Fare Media:			[redacted]		
55	Tab 1, section 1.4.2 provided INIT's description of how we meet the capabilities listed in Section 2 titled "System Architecture" of the SOW Added PROXmobil3 and TOUCHit2 datasheet to Tab 1, section 1.4.1.9.2 Described PROXmobil3 SAM and USB interfaces in section 1.4.1.9.2 Added VENDstation datasheet to Tab 1 section 1.4.1.9.3	Tab 1, 19-21		Evaluation Criterion 1, Submittal Requirement 2 and 6	
56	Added PROXmobil3 and TOUCHit2 datasheet to Tab 1, section 1.4.1.9.2	Tab 1, 78		Evaluation Criterion 1, Submittal Requirement 6	
58	INIT addressed these weaknesses in Tab 1, section 1.6.5			General	
60	Tab 1, section 1.8.2.2	Tab 1, 141		SOW Section 6.2.1	high priority
62	Tab 1, section 1.5.1.4 Tab 1, section 1.6.5. The "years in service" numbers refer to industry proven design that explicit device version	Tab 1, 68		SOW Mandatory Capability 3.1.1-1	mandatory
63	Conformance Matrix 3.1.9.3-1	**Conformance Matrix Tab 2, 3.1.9.3-1**		SOW Capability 3.1.9.3-1 ~~and 3.1.1-1~~	
64	Conformance Matrix 4.2.2.4-3	Conformance Matrix tab 2 - pg 53		SOW Capability 4.2.2.4-3	
66	Tab 1, section 1.6.1.1			SOW Capability 4.2.4-7	
68	Tab 1, section 1.6.1.2.5	Tab 1, 84		SOW Section 3.1.6	
7. External Apps (Web/Mobile):					
72	Conformance Matrix 5.3-12	**Conformance Matrix Tab 2, pg 114**		**SOW Capability 5.3-2** **SOW Capability 5.3-12**	mandatory

73	Conformance Matrix 5.3-12	Conformance Matrix Tab 2, pg 114	[redacted]	SOW Capability 5.3-12	
74	Tab 1, section 1.7.3	Tab 1, 125-126		Evaluation Criterion 1	
75	Provided more information in Tab 2, section 2.7.2	Section 1.7.2		~~Evaluation Criterion 1, Submittal Requirement 5~~ SOW Section 5.2 SOW Capability 5.1-16	high priority
76	1.7	Tab 1, 126		Evaluation Criterion 1, Submittal Requirement 7.a.	
77	1.7	Tab 1, 125		Evaluation Criterion 1, Submittal Requirement 7.a.iii and SOW Section 5.2 and Capability 5.1-16 and 5.2-13	
79	Tab 1, section 1.7.1.2	Tab 1, 124		General	
80	1.7	Section 1.7		General	
82	Tab 1, section 1.7. added sentence: . INIT owns the Intellectual Propoerty rights of the proposed Marthon Solution. Software Licensing Information.xlsx : The document " Marathon - Umbraco License.doc" is attached to this list.	Tab 1, 128		SOW Section 3.1.11	
84	Provided more information in Tab 2, section 2.7.2			SOW section 5.2	high priority

302	1.7				
8. Finance, Central Payment, Tariff Management:					
88	Tab 1, section 1.8.2.10.1	Financial Management		Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e.	
89	Tab 1, section 1.8.2.3	**Tab 1, 140**		Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e.	**high priority**
90	1.8.2.10.1 **1.8.2.10.2**	Tab 1, 150		Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e. SOW Section 6.2.5.2-1	**mandatory**
92	1.8.2.10.1	Tab 1, 150		Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e. SOW Capability 6.2.5.2-2	
9. Customer Relationship Management:					
98	Tab 1, section 1.8.3	Tab 1, 152		Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e.	
102	Tab 1, section 1.8.3			SOW Capability 3.1.1-4	
105	Tab 1 Section 1.8.3	Section 1.8.3		SOW Capability 6.3.1-1	**mandatory**
106	1.8.3.1.8	**Section 1.8.3**		SOW Section 6.3	
113	Tab 1, section 1.8.3 and subsections	**Section 1.8.3**		**SOW Section 6.3.3**	
10. Other Back Office Applications:					
114	Tab 1, section 1.8.2.3	Tab 1, 143 Section 1.8.2.3.2		Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e.	
115	Tab 1, section 1.8.2.10.1	Section 1.8.2.2		Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e.	

116	Increased to 40%, Tab 1, section 1.5.1.3 Tab 5, Price Forms, Line 2.05	Tab 1, 148 and 162		Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e.	
118	Removed all references to cold list	Tab 1, 141		General	
124	Tab 1, section 1.8.2.4	Tab 1, 143		SOW Capability 3.1.14.2-10	
303	1.8.7.6				
Evaluation Criterion 2 - Methodology and Approach to Project Manageme					
11. Training:					
132	Tab 2, section 2.7.2.5.4 Tab 2 Table 2-4 updated	Tab 2, 46		SOW Section 2.5.4	
133	Added Tab 2 section 2.7.2.5.6	Table 2.3		SOW Section 2.5	**high priority**
136	Tab 2, section 2.9	Manual_MOBILE va rio_Tariff_Manag e ment_1.0		SOW Section 2.5.2	
137	Tab 2, section 2.7.2.6.1 and 2.7.2.6.2	Section 2.5.2.5.7		SOW Section 2.6.1	
138	Tab 2, section 2.7.2.5.3	Tab 2, 46		SOW Section 2.6.2	
12. Testing:					
141	Removed word "beta" from Tab 2, section 2.7.2.4.1 Modified Tab 2, sections 2.8.3 and 2.12.6. Gantt lines 222 & 223 & 230	Section 2.10.6		General	
144	Tab 2, section 2.7.2.4.6	Section 2.5.2.4		SOW Section 2.4	**mandatory**
147	Tab 2, section 2.7.2.4.2.1			SOW Section 2.4.2.1	

148	Tab 2, section 2.7.2.4.2	Tab 2, 37	[redacted]	SOW Section 2.4.2.2	
149	Tab 2, section 2.7.2.4.5.3	Tab 2, 40-41		SOW Section 2.4.5.3	
13. Transition and Installation:					
151	Added Tab 2, section 2.8.5 Added Section 1.8.5 Tab 2, section 2.8.1 Added Section 1.8.5	Section 2.6		Evaluation Criterion 2, Submittal Requirement 6	high priority
154	Tab 2, sections 2.10 and 2.13	Section 2.12		See Toolbox for Risk Mitigation and Management for ideas about a risk security solution.	high priority
157	Gantt Line 170, 188, 235, 243, 246, 252, 255, 257 and 259 added	Tab 1, 63		SOW Section 2.3.1.1	
158	Tab2 Updated: 1.7.2.3.1.1 1.7.2.3.1.2 1.7.2.3.1.3	Section 2.6.1		SOW Section 2.3.2	
159	Updated Tab 2, sections 2.7.2.3.1.1 and 2.7.2.3.1.5			SOW Section 2.3.2	

160	Gantt 247-254 extended	Tab 2, 63	[redacted]	SOW Section 2.3.3	
161	Updated Tab 2, sections 1.7.2.3.1 and 1.7.2.3.5	Tab 2, 33		SOW Section 2.3.5	
162	Updated Tab 2, section 2.7.2.3.7	Tab 2, 34		SOW Section 2.3.6	
14. Operations:					
164	Tab 2, section 2.14.1	Tab 2, 65		Evaluation Criterion 2, Submittal Requirement 12.a.	
165	Tab 2 Section 2.14 and sub sections	Section 2.12.3		Evaluation Criterion 2, Submittal Requirement 12.c.	
169	Compliance Matrix Tab 1 Requirement 8.2-11 Tab 2, section 2.14.2.1	Compliance Matrix 8.2-11		SOW Capability 8.2-11	
172	Tab 2, section 2.14.2.1	Section 2.12.2.4		SOW Capability 8.5-6	
173	Tab 2, section 2.14 and sub sections Note that the quoted statement was removed in the previous submission	Section 2.13.7.1.1		SOW Capability 8.7.2-3	
174	Tab 2, section 2.14 and sub sections Note that the quoted statement was removed in the previous submission	Section 2.13.7		SOW Capability 8.7.2-3, 8.7.2-4	
176	Tab 2, section 2.14 and sub sections Note that the quoted statement was removed in the previous submission	Section 2.13.7.1.1.1		SOW Capability 8.7.2-3, 8.7.2-4	
177	Tab 2, section 2.14 and sub sections Note that the quoted statement was removed in the previous submission	Section 2.13.7.1.1.3		SOW Capability 8.7.2-3, 8.7.2-4	
178	Tab 2, section 2.14 and sub sections Note that the quoted statement was removed in the previous submission	Section 2.13.7.1.2.1		SOW Capability 8.7.2-3, 8.7.2-4	
179	Tab 2, section 2.14.1	Section 2.13.6		SOW Capability 8.7.2-3, 8.7.2-4, 8.12.2.5	
180	Tab 2, section 2.14	Tab 2, 68 through 70		SOW Section 8.1	

182	Tab 2, sections 2.14.1 and 2.14.2.2	Section 12.2	[redacted]	SOW Section 8.1	
185	Tab 2, section 2.14.2.1	Section 2.12.2.1		SOW Section 8.11	
188	Tab 2, Section 2.14 and sub sections	Tab 2, 67 and 77		SOW Section 8.2	
192	Tab 2, section 1.14.2.4	Section 2.12.2.4		SOW Section 8.5	
195	Tab 2, Section 2.14 and sub sections	Tab 2, 77 and 80		SOW Section 8.7.2	
198	Tab 2, section 2.7.2.4.3	Tab 2, 73		~~SOW Section 8.9 SOW Section 2.4.3~~	
199	Tab 2, section 2.7.2.4.3	Section 2.5.2.4.3		SOW Section 8.9	
304	Tab 2, 1.14.2.4				
15. Project Management:					
200	Tab 2, section 2.7.2.2.1 Gantt lines 61, 75, 76, 100 and 101	Tab 2, 29 and 30		Evaluation Criterion 2, Submittal Requirement 10	
201	Refer to Tab 2, section 2.12.9, 2.12.10 and 2.12.11 for modified timeline	Tab 2, 57		Evaluation Criterion 2, Submittal Requirement 10	
203	Tab 2, section 2.7.2.4.6.1 and 2.12, 1.12.6	Tab 2, 63		Evaluation Criterion 2, Submittal Requirement 10	
205	Tab 2, section 2.12.1 Gantt chart lines 66, 109, 110, 120, 164, 168 and 177	Section 2.10.9		Evaluation Criterion 2, Submittal Requirement 10	
207	Tab 2, sections 2.4, 2.5.2.1.1 and 2.2	Sections 2.4 and 2.5.2.1.1. See also org chart in Section 2.2.		Evaluation Criterion 2, Submittal Requirement 2	
208	Tab 2, sections 2.4; 1.10 and 2.7.2.1.3.5	Tab 2, 52		Evaluation Criterion 2, Submittal Requirement 2 and 3	
210	Tab 2, sections 21.12 and 2.7.2.4.6.1	Schedule, Line 174		General	

213		Tab 2, 62	General	
214	2.5.2.1.1	Tab 2, 3	General	
220	Tab 2, section 2.7.2.1.3.3	Tab 2, 13	SOW Section 2.1.3.2	
226	Tab 2, section 2.7.2	Tab 2, 29	SOW Section 2.2	
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16. Firm Experience & History:				
228	1.7	**Tab 3, 10**	Evaluation Criterion 3, Submittal Requirement 2	
230	Tab 1 1.7.3	Section 3.1.4	Evaluation Criterion 3, Submittal Requirement 3	
231	Tab 2, section 2.3	Tab 3, 26 through 28	General	
232	Provided more information in Tab 2, section 2.7.2	Tab 3, 22 and 23	General	**high priority**
233	Tab 3, sections 3.1.6 and 3.1.2 Tab 1, section 1.4.1.6 Tab 5 - Pricing	Tab 3	General	**high priority**
234	Tab 3, section 3.6.1	Tab 3	General	
235	Tab 3, section 1.1 added	Tab 3	General	
237	Tab 2, section 2.2		Information gained from reference check.	
238	Tab 2, section 2.2		Information gained from reference check.	
239	Tab 2, section 2.2		Information gained from reference check.	
240	Tab 2, section 2.2		Information gained from reference check.	
241	Provided more information in Tab 2, section 2.7.2		Information gained from reference check.	**high priority**
242	Provided more information in Tab 2, section 2.7.2		Information gained from reference check.	**high priority**
243	Tab 1, section 1.4.1.6	Tab 1, 16	Information gained from reference check.	**high priority**
305	Tab 2, section 2.11 Tab 1, section 1.4.1.6			

306	Tab 2, section 2.11		[redacted]		
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17. Knowledge & Experience of Key Individuals:					
244	Tab 4, section 4.1.15	Tab 4		Evaluation Criterion 4, Submittal Requirement 2	
248	Tab 4, section 4.1.3.2	Tab 4		General	
249	Tab 2, section 2.2.	**Tab 4**		Information gained from reference check.	**high priority**
250	Tab 2, section 2.7.2.1.3.1			General	
253	Tab 2, section2.3 and 2.11			Information gained from reference check.	**high priority**
254	Updated Table in Tab 2, sections 2.4 and 2.5			Evaluation Criterion 2, Submittal Requirement 3	
307	Tab 4, section 4.2				**high priority**
Evaluation Criterion 5					
18. Price:					
255	Tab 5, Price Forms Line 1.05 a,b,c. Line 107 a,b,c. Line 108 a,b,c. Line 109 a,b,c.	Line 1.05 and 1.06			
259	Tab 1, section 1.8.5	Line 2.01 and 2.04		SOW Section 3.1.1	

260	Tab 5, section 5.2, 2.11 Customer Mobile App Tab 5, Price Forms Lines 5.12 - 5.23 a Tab 5, section 5.2, 2.13 Customer Website	Line 2.11 through 2.13 Line 2.11 through 2.13 Line 2.11 through 2.13 Line 2.11 through 2.13	[redacted]	OW Section 5.2	**high priority** **high priority** **high priority** **high priority**
261	Tab 5, Price Forms Line 2.12 Tab 5, section 5.2, 2.12 Agency Mobile Apps	Line 2.12			
263	Tab 5, Price Forms, Line 2.19	Line 2.19		OW Section 3.3.3	
265	Tab 5, section 5.2, 2.19-2.27 System Integration Services	Line 2.21			
267	Tab 5, Price Forms, Tiered Equipment Pricing	Line 3.11			
269	Tab 5 Price Forms, Line 5.01	Line 5.01			
273	Tab 5, Price Forms, Line 5.38 Tab 5, section 5.2 System Warranty	Line 5.38			
274	Tab 5 Price Forms, Line 5.01	Line 6.01			
276	Tab 5, Section 5.2, System Software and Design	Tab 1, 168			
280	Tab 5, Section 5.2, Items 2.05 and 2.06 Tab 5, Price Forms Line 2.24 Tab 5, section 5.2 (removed from scope)			valuation Criterion 5, Submittal Requirement 2	**high priority**
308	Tab 1, section 1.4.1.6 Tab 5, Attachment A				
Evaluation Criterion 6					
19. Value-added Features:					
283	Tab 6, section 6.11.2	Tab 6, 7		valuation Criterion 6, Submittal Requirement 2.b.	

285	Removed from Tab6	Tab 6, 8	[redacted]	SOW Capability 3.1.14.1-2, 4.2.1-3, etc.	
286	Removed from Tab6	Tab 6, 3 and 9		SOW Capability 7.2.2-4	
288	Removed from Tab6	Section 6.11.6		SOW Capability 7.2.2-4	
289	Removed from Tab6	Tab 6, 3		SOW Section 3.3.2	
290	Removed from Tab6	Tab 6, 3		SOW Section 6.5	
Evaluation Criterion 7					
20. Equal Employment Opportunity:					
294	Tab 7, section 7.2.3	Tab 7, 2		Evaluation Criterion 7, Submittal Requirement 2.b.	
295	Tab 7, sections 7.2.2, 7.2.3 and section 7.3 This information is available upon request of your EEO office	Tab 7, 1		Evaluation Criterion 7, Submittal Requirement 2.c.	**high priority**
Evaluation Criterion 8					
21. Outreach Efforts and Commitment:					
297	no changes unless Eric has an idea	Tab 8		Evaluation Criterion 7, Submittal Requirement 2	
298	See Form 3B	Form 3B		Form 3B	

Contract Negotiation					
309	Software Licensing Information.xlsx :added 3 columns for Licnsor, Licensee, Re-seller. "License exectued/implemented in Project Phase. (Referencing the Proposed Program Schedule)"	Software Licensing Information			
310	Software Licensing Information.xlsx :added column "License exectued/implemented in Project Phase. (Referencing the Proposed Program Schedule)"				
311	Tab 10 Standard Maintenance Agreement (new document)				
312	Tab 2, section 2.13.2.2.3.2	Tab 2, section 2.13.2.2.3.2			
313	Tab 2. section 2.7.2.1.3.9	[Proposed] Systems General Conditions, Article 7.29			
314	There is no separate O&M agreement at this time.	Tab 2, section 2.13.2.4			
315	Tab 2, section 2.7.2.7 (new section)	[Proposed] Systems General Conditions, Article 7.29			

Technical Proposal of INIT's Account Based Open Architecture System

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

Resubmittal June 8, 2018

orca

init

The Future of Mobility

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The sections listed below contain trade secret information that provides a business advantage to INIT over competitors. These sections are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

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1 INIT's Open Architecture, Account-Based AFC System

INIT is pleased to submit this technical proposal to Sound Transit in order to demonstrate how INIT meets and exceeds the capabilities stated in the next generation ORCA (ngORCA) RFP Scope of Work (SOW). As required by the RFP (Section 1.10.B), our proposal is in the order specified in Section 1.11.E.

The following chart illustrates which Evaluation Criteria submittal requirements corresponds to which proposal section.

Evaluation Criteria 1 Submittal Requirement	**INIT Proposal Section (Tab 1)**
1. Complete and submit Tab 2 of Proposal Form No. 1, Capability Conformance Matrix.	Appendix
2. Include a detailed narrative description of how the system architect[redacted] capabilities in the Scope of Work will be fulfilled. This section should also include the approach for providing and validating an account-based and open architecture system that will enable ease of integration for new partners, equipment and meet the capabilities of the Scope of Work	1.2 An Innovative, Open Architecture, Service-proven Account-based System
3. Include a chart that identifies the subcontractor firms that will be responsible for providing the products or services required by the Scope of Work	1.3 INIT's Highly-Qualified Subcontractor Team
4. Provide a description of the proposed system architecture (Scope of Work, Section 3) with supporting diagrams that clearly identify the following: a. Relationships between applications and devices in the proposed System b. Systems integration and open architecture Application Programming Interfaces (APIs) that will be used to exchange data between the different applications within the System c. The interface points of each element and the physical and logical communication standards utilized between applications within the System	1.4 INIT's Open Architecture System
5. Include a detailed description of how the proposed System conforms to the service- proven and other capabilities in the Scope of Work Sections 3 through 7, and, if applicable, clearly indicate whether or not the solution requires new development (and the extent of development required) or	1.5 A Service-Proven and Innovative Solution

Evaluation Criteria 1 Submittal Requirement	INIT Proposal Section (Tab 1)
commercial-off-the–shelf (COTS) applications. Describe how the firm proposes to satisfy the service-proven capabilities and still be the innovative solution described in Scope of Work Section 1. For each furnished device that has been used in service, list public agencies or private organizations for which device has been supplied. Include the following information for each: a. Agency or company name and contact person, b. Business address and phone number, c. Model number (and original equipment manufacturer, if applicable) of the module, d. Quantity of equipment provided, and e. Approximate number of years in revenue service	
6. Specifically, for Field Devices and Subsystems (Scope of Work Section 4): a. Provide a detailed description of each of the following proposed devices, software, and associated mounting systems i. Onboard Validator ii. Driver Display Unit iii. Wayside Validator iv. Vending Machine v. Customer Service Terminal b. For each device listed in 6.a. above: i. Provide drawings that show dimensions and materials used ii. Describe supported functionality as it relates to the capabilities in Scope of Work Section 4 iii. Describe the proposed customer interfaces for each device iv. Describe the communication interfaces provided v. Describe the interchangeability of modules and assemblies among devices and ease of maintaining the components of the system and the expected reliability of the equipment	1.6 INIT's High-Reliability Field Devices and Subsystems
7. Specifically for Website and Mobile Application (Scope of Work Section 5): a. Provide your proposed subcontractor's development methodology for the following items: i. Customer account website ii. Content management system iii. Customer mobile app iv. Agency mobile apps	1.7 INIT's User Friendly and Intuitive Website and Mobile Applications

Evaluation Criteria 1 Submittal Requirement	INIT Proposal Section (Tab 1)
b. Provide previously designed website URLs and credentials to websites developed by the proposed provider. c. Describe how the proposed UI/UX solution provider will design a common user experience across multiple platforms. d. Provide a draft licensing agreement(s) for items in this section.	
8. Specifically, for Back Office (Scope of Work Section 6): a. Describe in detail each component of the proposed back office including details such as: i. System hardware ii. Interfaces iii. Operating system iv. Databases v. Applications software vi. Supported functionality b. Identify any proprietary hardware, interfaces or software utilized, indicate whether industry standard equivalents are available, and if so, describe the benefits justifying use of the proprietary product. c. Considering the information provided in Scope of Work Section 6.3, explain in detail the reasoning for choosing the proposed CRM solution including why other solutions were not proposed. For example, if you are proposing a CRM solution that does not leverage another agency's existing CRM application, explain why the agency's existing CRM software was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions. d. Considering the information provided in Scope of Work Section 6.7, explain in detail the reasoning for choosing the proposed financial management solution including why other solutions were not proposed. For example, if you are proposing a financial management solution that does not leverage another agency's existing financial management application, explain why the agency's existing financial management application was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions. e. Describe in detail the proposed systems for providing	1.8 INIT's Back office: Open-Architecture and Interchangeable Modular Applications

Evaluation Criteria 1 Submittal Requirement	INIT Proposal Section (Tab 1)
the full range of services including: i. Monitoring and management of field devices ii. Authorization of payments, debit and credit networks iii. Data collection from devices iv. Timely and accurate transaction processing v. Clearing and settlement between participants vi. Third-party billing and funds collection vii. Financial reconciliation viii. System management and monitoring ix. Indicate which applications and functions are already operational, and which have to be developed. Also, indicate which applications have been purchased from industry vendors and which have been or will be developed on a proprietary basis. f. Describe the proposed reporting system and the types of reports that will be provided to meet the system needs including KPIs, device health, and asset inventory reporting. g. Describe how the agencies will be able to generate custom reports using provided data and standard report generator tools	

1.1 INIT's Capability Conformance Matrix – Tab 2

As indicated in INIT's Capability Conformance Matrix, INIT meets all the mandatory capabilities and key desired capabilities. While there are a few desired capabilities which INIT does not meet exactly as stated in the SOW, INIT does meet the required functionality in a different manner. INIT offers value-added capabilities beyond what is stated in the RFP; therefore, we believe we exceed the required capabilities for the next generation ORCA system.

1.2 An Innovative, Open Architecture, Service-Proven Account-Based System

Include a detailed narrative description of how the system architecture capabilities in the Scope of Work will be fulfilled. This section should also include the approach for providing and validating an account-based and open architecture system that will enable ease of integration for new partners, equipment and meet the capabilities of the Scope of Work.

INIT will fulfill and exceed the next generation ORCA requirements by aligning with the ORCA Agencies' strategy of utilizing:

- Service-proven Automated Fare Collection System (AFCS) system core modules and devices,

- Best-of-breed Commercial-off-the-Shelf (COTS) business applications,
- Industry leading firms with proven AFC track-record for externally sourced applications, and
- New development of selected existing modules for innovative enhancements.

INIT will implement an open architecture solution with a modular design and extensive use of Application Programming Interfaces (APIs), which has been INIT's consistent approach for ID-based ticketing systems. INIT's API's are well defined, documented and are woven throughout our solution providing fast and flexible integration possibilities for validation, inspection, retail sales, mobile ticketing, system monitoring, and websites.

This approach will enable the use of INIT's core AFC modules, including INIT's service proven account-based Transaction Processor (ATP), to integrate with best of breed Commercial Off-the Shelf (COTS) sub-systems – such as, Salesforce Customer Relationship Management (CRM) and Sage Financial Management. INIT has selected industry leading firms (such as, Bytemark) for mobile apps, and Marathon Consulting for website development, which has a strong proven record for AFC website development. With our approach of service proven AFC modules, best of breed COTS sub-systems, industry leading firms for external apps, and innovative development, INIT will provide the best solution for ngORCA.

1.2.1 INIT Fulfills and Exceeds the System Architecture Capabilities

INIT meets all the key ngORCA system architecture capabilities, and exceed these requirements, with service proven solutions which include:

- Account-based automated fare collection
- Open architecture
- Modular design
- API driven
- Real-time transactions
- Real-time fare calculation
- Secure payment transactions
- Fraud prevention
- Accurate multi-agency revenue apportionment
- Flexible and powerful tariff management
- Customer-friendly user interfaces and user experience

- User-friendly reporting
- Best of breed COTS support systems
- Retail network interfaces
- Ruggedized field devices
- Minimal transition-only software
- Maintainability and serviceability
- Scalability
- High-availability

In addition to meeting the above functionality required for ngORCA, INIT is proposing to implement its service-proven open payments solution, which can significantly enhance customer experience, as a value-added option. As the functionality will be designed and developed as part of the project, the feature can be 'turned' on at any point. However, in light of the Agencies preference to ensure core system functionality is delivered to users first, INIT proposes implementing this option at the end of the Phase 1 deliver, to ensure the required functionality is implemented first.

1.2.1.1 INIT's Modular Design System Architecture Leverages Open APIs

INIT's modular open architecture design enables the interchangeability of system blocks. In the event the ORCA agencies wish to utilize a different subsystem today or in the future, INIT's flexible architecture supports this interchangeability.

From its inception, INIT's Automated Fare Collection (AFC) system has supported an open architecture with extensive use of Application Programming Interfaces. INIT recognizes the need for the agencies to be able to efficiently upgrade their systems as transit customer expectations and operations evolve. INIT offers a complete open architecture approach. From the COTS based equipment solutions to the open architecture of the back-office software, INIT offers an open solution which enables the ORCA agencies to control:

- System enhancements to add future capability
- Third party integration to add future capability

INIT's existing API's are currently in use by several transit agencies to grow their system capability cost-efficiently and with minimal delay. These existing APIs are documented with their own specifications including online help giving the ORCA agencies detailed information on how to enhance the system by implementing new functionality. In addition to the use of existing

APIs, INIT will leverage its extensive experience in the development, implementation and use of APIs to develop new functionality to fulfill ngORCA's requirements and desired capabilities.

1.2.1.2 Leveraging Best of Breed Commercial-Off-the-Shelf (COTS) Subsystems

INIT's open architecture, modular design enables the use of best-of-breed Commercial Off-the-Shelf (COTS) solutions for the AFC ancillary functions. The table below lists the COTS INIT solicited, considered, and selected. As indicated above, INIT's open architecture can accommodate interfaces with any third party; therefore, INIT is open to considering other COTS solutions if so preferred by the ORCA agencies and agree upon during design review. For some of the subsystems INIT has priced an additional option in case ORCA prefers INIT's second option.

ngORCA Subsystem	COTS Solutions Considered	Solution Proposed	Potential Alternative
Customer Relationship Management (CRM)			
Financial Management Application (FMA)			

Asset Incident & Management (AIM)	[redacted]	[redacted]	
Configuration & Change Management (CCM)	[redacted]	[redacted]	[redacted]
Fare Media Management (FMM)	[redacted]	[redacted]	[redacted] ons
Light Featured VM	[redacted]	[redacted]	[redacted]
Bank Card Payment Gateway	[redacted]	[redacted]	[redacted]

1.2.1.3 INIT Teams with Expert COTS Consultants/Integrators

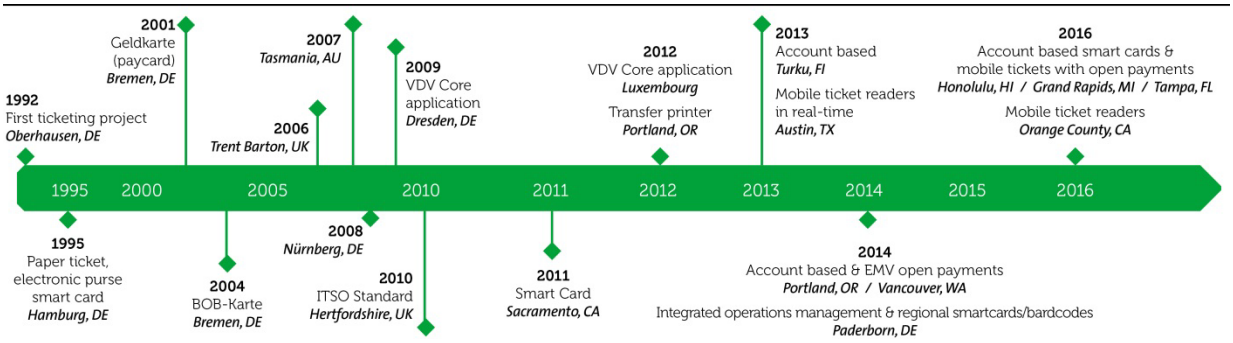
The selection of best-of-breed commercial-off-the-shelf software does not ensure successful integration and interoperability with the INIT system; therefore, INIT is leveraging relationships with COTS value-added resellers and experts. These companies will provide knowledge and expertise required to realize the full potential of interoperability between COTS products and INIT's API library. Please see Section 1.3 for a listing and information on the INIT subcontractor team.

INIT is uniquely suited to be the System Integrator (SI) for ngORCA because:

- INIT has experience implementing multi-agency, account based, Automated Fare Collection System (Portland, Tampa, Honolulu)
- INIT has experience transitioning an existing Vix Automated Fare Collection System to an INIT AFCS (Christchurch, New Zealand)
- Approximately 80% (1700 out of approximately 2100) ngORCA vehicles are currently equipped with INIT onboard equipment resulting in reduced onboard integration risks

1.2.1.4 INIT's Extensive Automated Fare Collection Experience

The figure below provides a timeline summary of INIT's 25 years of fare collection history showing key systems and reflecting INIT's innovation and ability to evolve with changing technology.



INIT's 25 Years of Fare Collection History – Innovations with Changing Technology

INIT has deployed two account-based systems that are currently in revenue service, one in Portland, Oregon and the other in Turku, Finland. Additionally, we are currently implementing account-based systems in Tampa, Florida and Grand Rapids, Michigan which are all about to enter the pilot phase of the project and will soon be starting the pilot phase in Honolulu, Hawaii.

Each of these systems leverage open architecture and extensive use of APIs as similarly proposed for ngORCA. The following table provides a more comprehensive list of our automated fare collection system experience including multi-agency systems similar to ngORCA.

City	Buses	LRV / Platform Validator	German Chip Card (Geld Karte)	Agency Smart Card	2D Barcode	Multi-Agency	Account Based	Open Payments (EMV)
Marburg, Germany	50			●				
Hamburg, Germany	1,200		●	●				
Hildesheim, Germany	80		●					
Neunkirchen, Germany	70		●					
Frankfurt, Germany	200		●					

City	Buses	LRV / Platform Validator	German Chip Card (Geld Karte)	Agency Smart Card	2D Barcode	Multi-Agency	Account Based	Open Payments (EMV)
Hamm, Germany	80		●					
Osnabrück, Germany	282		●					
Leverkusen, Germany	240		●					
Keil/Plön, Germany	96		●					
Bochum, Germany	340	90	●					
Mühlhausen, Germany	113		●					
Bonn/Troisdorf, Germany	250		●					
Südthüringen, Germany	85		●					
Solingen, Germany	100		●					
Heidelberg, Germany	100		●					
Trier, Germany	120		●					
Mülheim a.d. Ruhr, Germany	65		●					
Oberhausen, Germany	150		●					
Bremen, Germany	265	128	●	●				
Bremerhaven, Germany	70		●	●				

City	Buses	LRV / Platform Validator	German Chip Card (Geld Karte)	Agency Smart Card	2D Barcode	Multi-Agency	Account Based	Open Payments (EMV)
Herne-Castrop-Rauxel, Germany	56		●					
Oldenburg, Germany	88		●	●				
Gotha, Germany	110		●					
Wesermarsch, Germany	38		●					
W.Giese, Germany	27		●					
Delmenhorst, Germany	12		●					
Fulda, Germany	40		●					
Lüdenscheid, Germany	335		●					
Dortmund, Germany	240		●					
Graftschaft Hoya, Germany	22		●					
Trent Barton, Nottingham, UK	330			●				
Bavaria, Germany	3,100		●	●	●			
Tasmania, Australia	220			●				
Dresden, Germany	685		●	●	●	●		
Nuremberg, Germany	352	52		●	●			

City	Buses	LRV / Platform Validator	German Chip Card (Geld Karte)	Agency Smart Card	2D Barcode	Multi-Agency	Account Based	Open Payments (EMV)
Christchurch, NZ	305			●				
Sacramento, CA.	425			●	●	●		
Portland, OR	888	49		●	●	●	●	●
Turku, Finland	260			●	●		●	●
Birmingham, UK	1500						●	●
Orange County, CA	556						●	
Tampa, FL	600					●	●	●
Grand Rapids, MI	150	34					●	
Honolulu, HI	550	250				●	●	

1.2.1.4.1 INIT's Experience Transitioning a Vix System

INIT possesses experience transitioning agencies from legacy Vix system to INIT-offered systems. In an AFCS competitive procurement, Christchurch, New Zealand selected INIT over other competitors as well as the incumbent (Vix). Although the Christchurch project was not as large as ngORCA, INIT transitioned the system with Christchurch successfully addressing similar complex AFC system transition challenges, including:

- Minimizing customer impact
- Preserving operating revenue
- Minimizing operational impacts to the agency
- Overcoming onboard equipment space constraints
- Minimizing transition-only software

In addition to the Christchurch, NZ solution, INIT also successfully transitioned a legacy card-based solution to an account-based solution in Turku, Finland. The Turku system was transitioned approximately 3 years ago and is one of INIT's key reference projects.

1.2.1.4.2 INIT's Existing Transit Technology Deployment with ORCA Agencies Reduces Integration and Implementation Risk

INIT currently provides the transit CAD/AVL systems for King County Metro (KCM) and Community Transit (CT), which involves over 50% of the ORCA agencies' vehicles. This will significantly simplify and mitigate the risk related to the onboard integration – as the INIT onboard validators will be communicating with the INIT Vehicle Logic Unit (VLU) COPILOTpc2s (CPC2s). This advantage is especially pronounced for the KCM vehicles which require the AFCS to communicate not only the INIT VLU service data, but also to share the single Driver Display Unit (DDU).

1.2.2 Enabling Ease of Integration for New Partners and Equipment

INIT's open architecture and modular design, leveraging our broad API library, enables ease of integration of new equipment or the addition of 3rd party hardware and software providers. Should the ORCA Agencies wish to add a new agency to ngORCA, INIT's MOBILEvario can easily do so. In the rare event the new agency utilizes business rules which do not exist, there may be additional scope involved. MOBILEvario is inherently architected to support multiple agencies and can easily add new agencies quickly and non-disruptively. Each agency's data is partitioned from one another to ensure data integrity and privacy. These controls prevent an agency from accessing another agency's data, user administration, etc. The system has the capability of providing separate, agency-oriented storage of data, presentation (GUIs), and configurations (customizations).

Each transit agency or subdivision is only able to see and change its own data. In MOBILEvario the agency is the top-level partition for access authority and represents a closed, technical and organizational, data unit within the system.

The system contains both global and agency specific data and parameters. Agency specific data and objects can be customized. Examples are additional tickets or different fare fees. Universal agency data and objects serve the general and agency-independent configuration of the system. Examples are customer data, card management and system parameters.

The additional API Management platform, hosted in [redacted] provides for simplified and controlled on-boarding of 3rd party API consumers. As the API gateway, the API management platform can ensure the identity, integrity and appropriate access and API call volume restrictions required to safely provision new partners and equipment.

1.2.3 Meeting and Exceeding the Capabilities of the Scope of Work

In summary, INIT will meet and exceed the capabilities required for ngORCA by:

- Using INIT's service-proven open architecture with an extensive use of open APIs
- Leveraging best-of-breed COTS subsystems
- Leveraging INIT's experience transitioning legacy systems, including Vix systems
- Utilizing best-of-breed expert consultants for the different COTS subsystems
- Utilizing API Management best practices
- Providing direct access to developers
- Exceeding requirements by providing service-proven open payments capability as part of Phase 1

1.3 INIT's Highly-Qualified Subcontractor Team

Include a chart that identifies the subcontractor firms that will be responsible for providing the products or services required by the Scope of Work.

The INIT team includes highly-qualified, industry leading subcontractor firms as indicated in the following table:

Subcontractor Firm	Qualifications	Scope
Marathon Consulting	Extensive experience with website development and CRM implementations – including both Salesforce and Microsoft Dynamics. Website developer for INIT's Portland, Grand Rapids, Tampa, and Honolulu AFCSs.	Design & development for the responsive Website CRM (Salesforce) integration and implementation
Bytemark	Extensive mobile app development experience in the transit industry including work with INIT in Grand Rapids, Tampa, Austin and Sacramento.	Mobile app (virtual card) development

Subcontractor Firm	Qualifications	Scope
BrainSell	Extensive experience in the integration and implementation of Sage financial management applications.	Financial management application (Sage) integration and implementation
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
ESP	Extensive vehicle installation experience and DBE.	Vehicle installations
WOWRACK Hosting	Enterprise Class data center with multi-datacenter locations in Seattle supporting large Seattle based organizations.	Datacenter hosting –Production System, Pre-Production System, Test System, Out-of-region Backup
Arctic Wolf	Security Operations Center –as a service provider with security engineering personnel and tools providing security monitoring and escalation.	Information Security, Compliance, Operations and Maintenance
[redacted]	[redacted]	[redacted]

1.4 INIT's Open Architecture System

This section is ordered according to the RFP Scope of Work Section 3, System Design & Architecture.

1.4.1 Common Design Capabilities

Following are design elements common throughout the System – including the overall system architecture that will support the System leading to a cohesive, reliable, and easy-to-use regional fare collection system.

1.4.1.1 Service-Proven Design

INIT is proposing a modern System which is proven at the core. The software and hardware proposed will have a service life of at least 12 years from the commissioning date. INIT will enhance some elements to meet next generation ORCA's required capabilities, but the main back office and field components are currently in use in similar transit fare collection systems as indicated in the following table.

System	In-Service Date	ngORCA Proposed Back Office	ngORCA Proposed Wayside & Onboard Validators	ngORCA Proposed VMs	ngORCA Level Reliability, Accuracy, Availability
Portland, Oregon	Jun. 2017	●	●	Not in Scope	●
Turku, Finland	2016	●	●	Not in Scope	●
Sacramento, CA	Jul. 217	●		Not in Scope	●
Tampa, FL	Pilot Q2 2017	●	●	Not in Scope	●
Luxembourg		●		●	●
Bremen, Germany		●		●	●
Grand Rapids, MI	Pilot Q3 2017	●	●	Not in Scope	●
Honolulu, HI	Pilot Q1 2018	●	●	●	●
Orange County, CA	Pilot Q4 2017	●	●	Not in Scope	●
Metrolink SCRRA, So. California	Pilot Q4 2019	●	Not in Scope	●	●

1.4.1.2 Nonproprietary Technology

INIT's proposed next generation ORCA system does not include any obsolete or discontinued components. The system is service proven and does not involve prototypes. The system is designed using open standards for software design, communication protocols, and fare media. INIT's proposed system leverages best of breed commercial-off-the-shelf (COTS) software where possible. The proposed fare media is available for competitive purchase from multiple U.S. sources.

The proposed System utilizes a modular design for all relevant field replaceable components, without the need to make adjustment for compatibility. INIT was the first AFC vendor to introduce intelligent wayside validator platforms which stored metadata in non-volatile memory to enable replacement without any configuration of the new validator.

1.4.1.3 Supply & Availability

INIT will make best efforts to supply devices, components, parts, modules assemblies and subassemblies, as well as software and other essential elements of the Systems, itself and from original equipment manufacturers (OEM) that have a service life of 12 years after Final System Acceptance. If any OEM component is discontinued or obsoleted by the SI or OEM, INIT will provide the Agencies six (6) months advance notice prior to the last available date of purchase or support. Additionally, INIT will work with the Agencies to provide suitable replacements which are like in functionality and compatibility as the original.

1.4.1.4 Materials & Workmanship

INIT will utilize new components which conform to the capabilities of the next generation ORCA SOW – however, as allowed for in the SOW, INIT may utilize new components which utilize recycled materials. In the event INIT wishes to change components, it will do so only with the ORCA Agencies' approval. INIT will utilize equipment which is free from safety hazards and complies with relevant Underwriter's Laboratory (UL) standards. All interior and exterior surfaces will be fee from sharp edges, protrusions, exposed wires, and other hazards. If it is found that approved sources do not furnish a uniform product, or if the product from such source proves unacceptable in meeting the requirements in the SOW, INIT will address and correct these issues.

1.4.1.5 Software Design Principles

INIT is determined to deliver quality implementations for all customers. Detailed below is INIT's CMMI based Design Principles. CMMI design principles along with JIRA, our Defect Tracking Tool, define the process for reporting, tracking, and resolving problems/issues during and after implementation.

Carnegie Mellon University's Capability Maturity Model Integration (CMMI) principals are designed to correct issues with software, firmware, hardware products, service, maintenance processes and more.

The CMMI is a world-class performance improvement framework for organizations that want to achieve high-performance operations. CMMI best practices address three areas of interest:

- CMMI for Development addresses product and service development processes
- CMMI for Acquisition addresses supply chain management, acquisition, and outsourcing processes
- CMMI for Services addresses guidance for delivering services within an organization and to external customers

To address user security, the security guides "Security Management" and "Security by Design" are part of the CMMI.

Principles embraced include:

- Built in diagnostics and reporting
- Object-oriented software
- Easily configurable
- Portability
- Automated distribution of updates

The ORCA agencies will benefit from this reliability and performance improvement system embraced by INIT that paves the way for reliable software, firmware, hardware, and dependable service.

INIT's Quality Engineer, Matthew Riley, lead INIT's ISO 9001:2008 efforts to ensure superior Quality Management across all business processes and functions. He facilitates continual process improvement and ISO audit recommendation implementation. In a few short months INIT will be ISO 9001:2015 certified.

1.4.1.6 User Interface & User Experience

The RFP highlights the importance of improving customer experience with the next generation ORCA system and lists important customer experience goals, including (from the RFP, page 5):

- Ease of use
- Convenience

- Equitability
- Existing relationships
- Open customer communication
- Seamless transition to customer

We complement the region for recognizing that a positive and consistent customer experience is critical to customer adoption and perception of the new system. Designing easy to use, accessible and consistent system interfaces will also support other agency needs such as operational efficiency, scalability of the interfaces to other agencies, as well as decreased customer support costs often incurred when the system is difficult for customers use.

Achieving this consistent and positive customer experience across all next generation system interfaces (which currently leverage different technologies and vendors), doesn't happen by accident. It requires a repeatable, proven and wholistic approach for engineering human experiences that involves the users of the system at all stages of the design and development process.

In partnering with the Agencies for the next gen ORCA project, INIT will provide this focus on user experience throughout the design and development phases. [redacted]

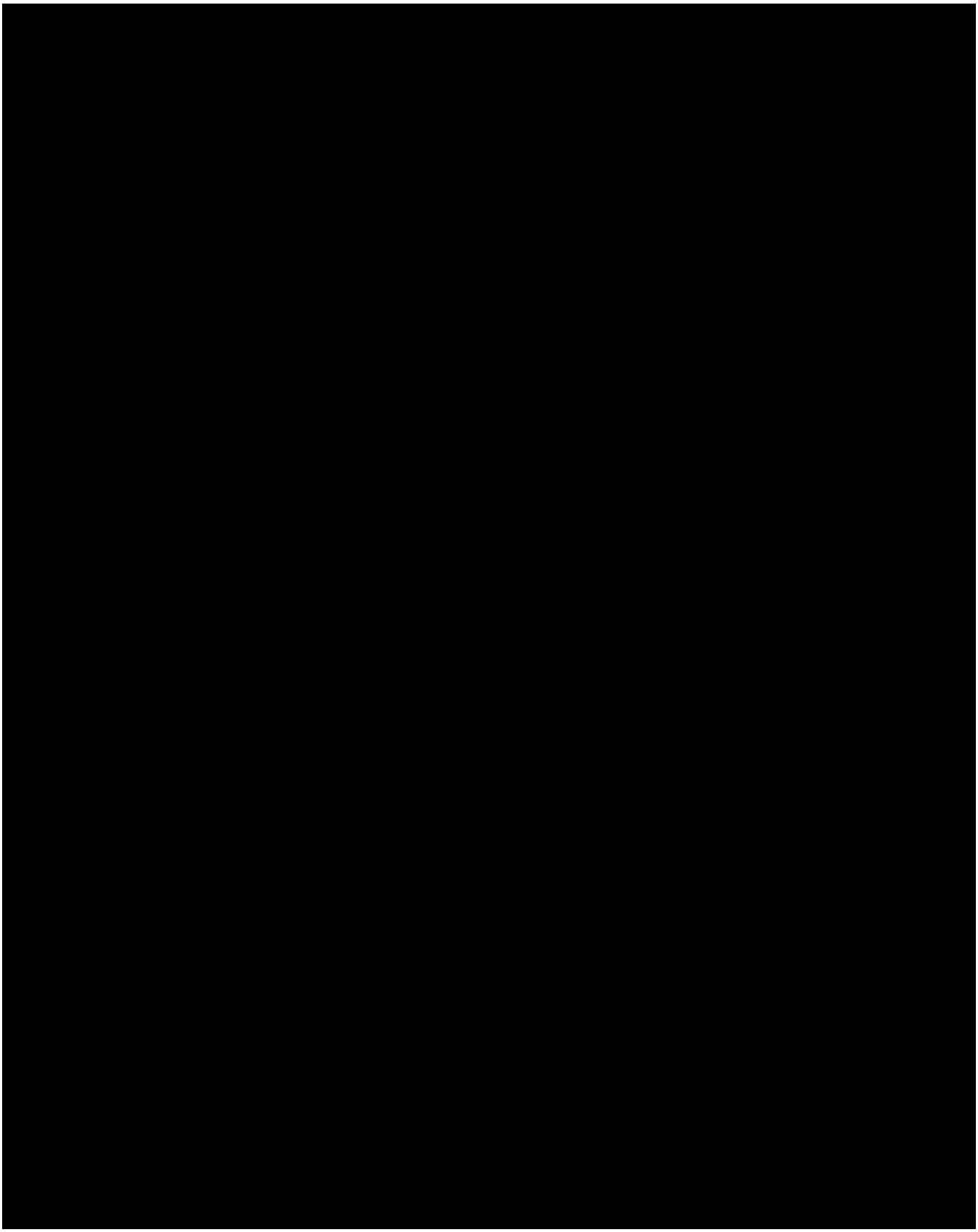
[redacted]

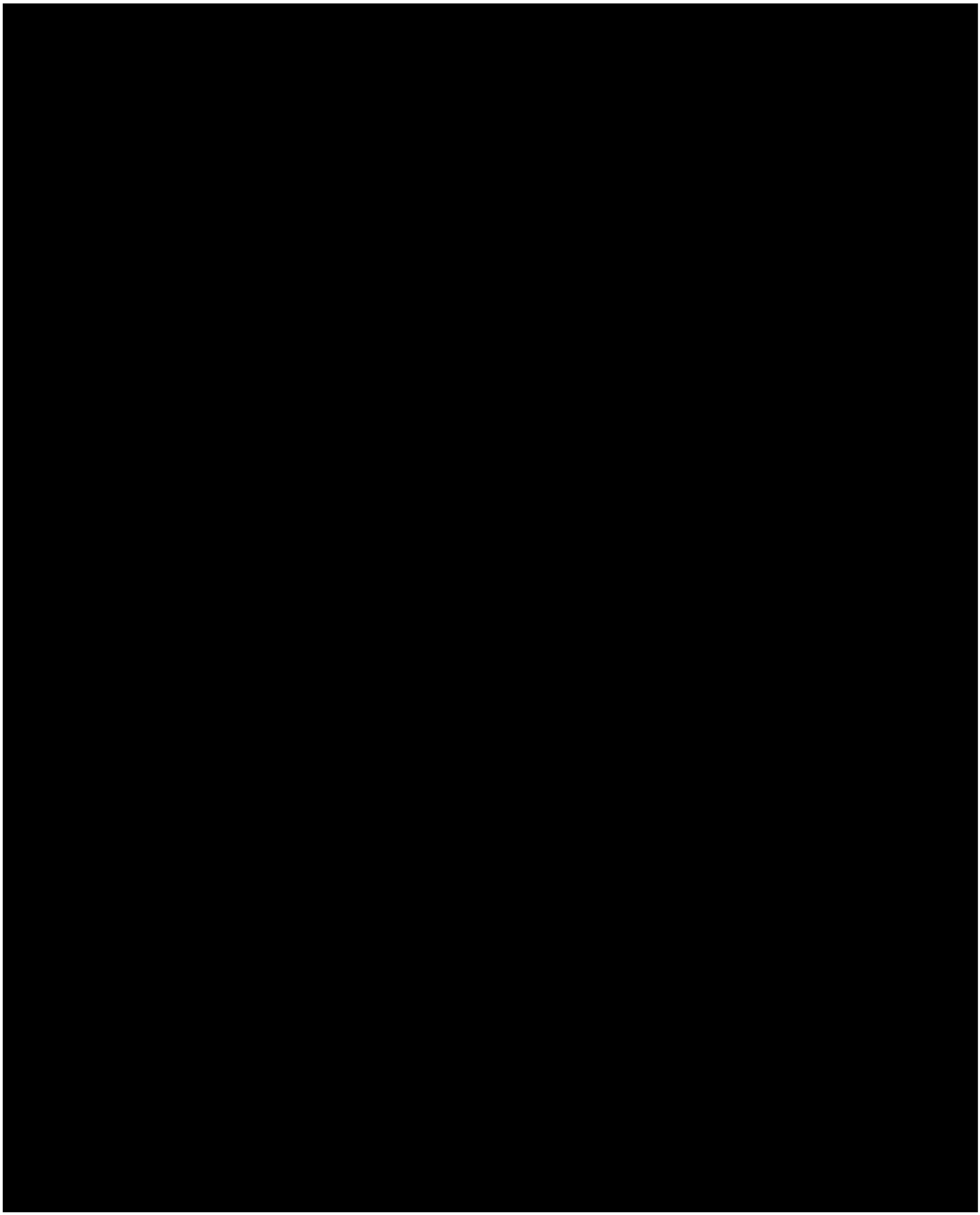
User-centered design approach for creating UI/UX

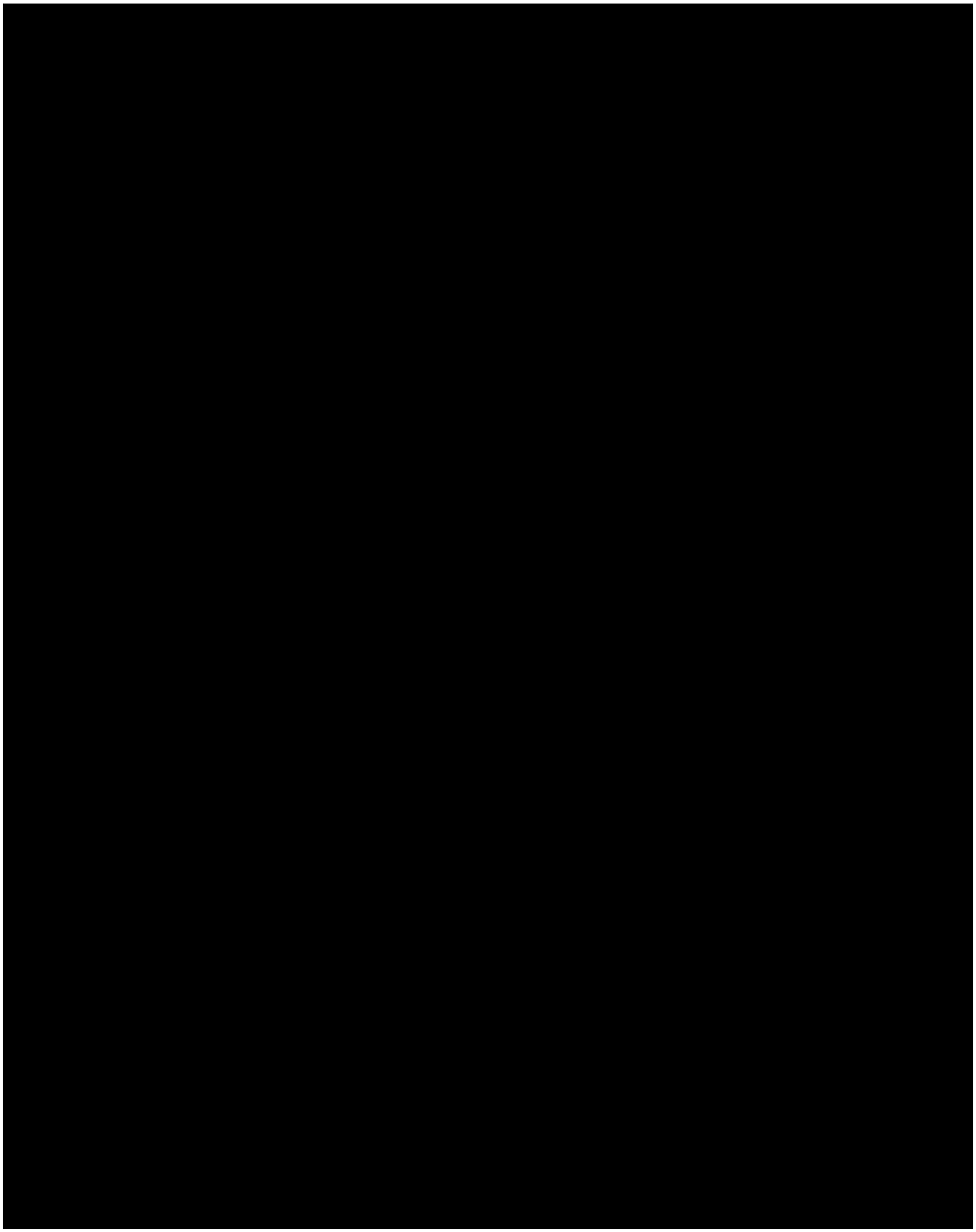
[redacted]

[redacted]

[redacted]







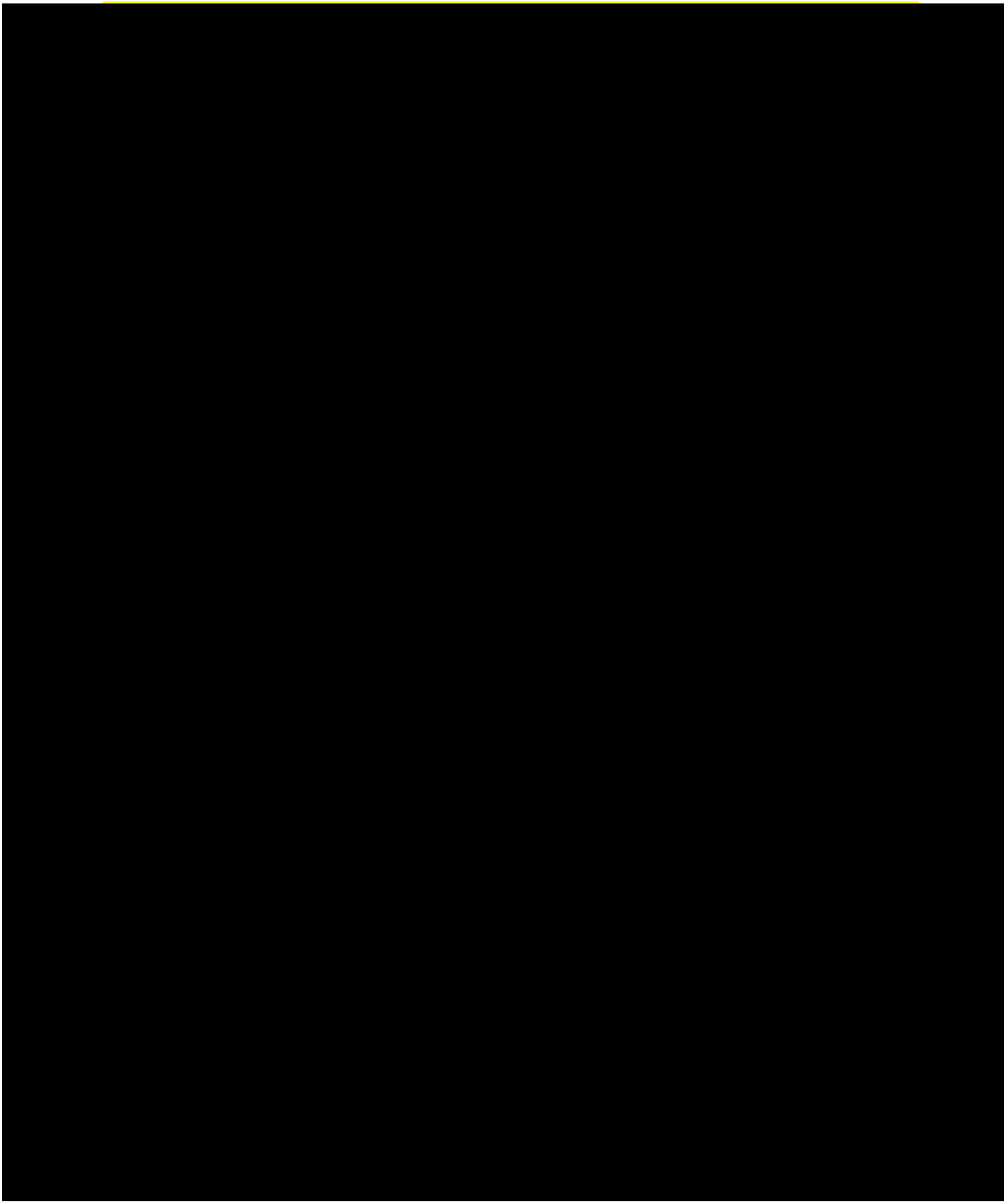
1.4.1.6.1 UI/UX Approach for next gen ORCA

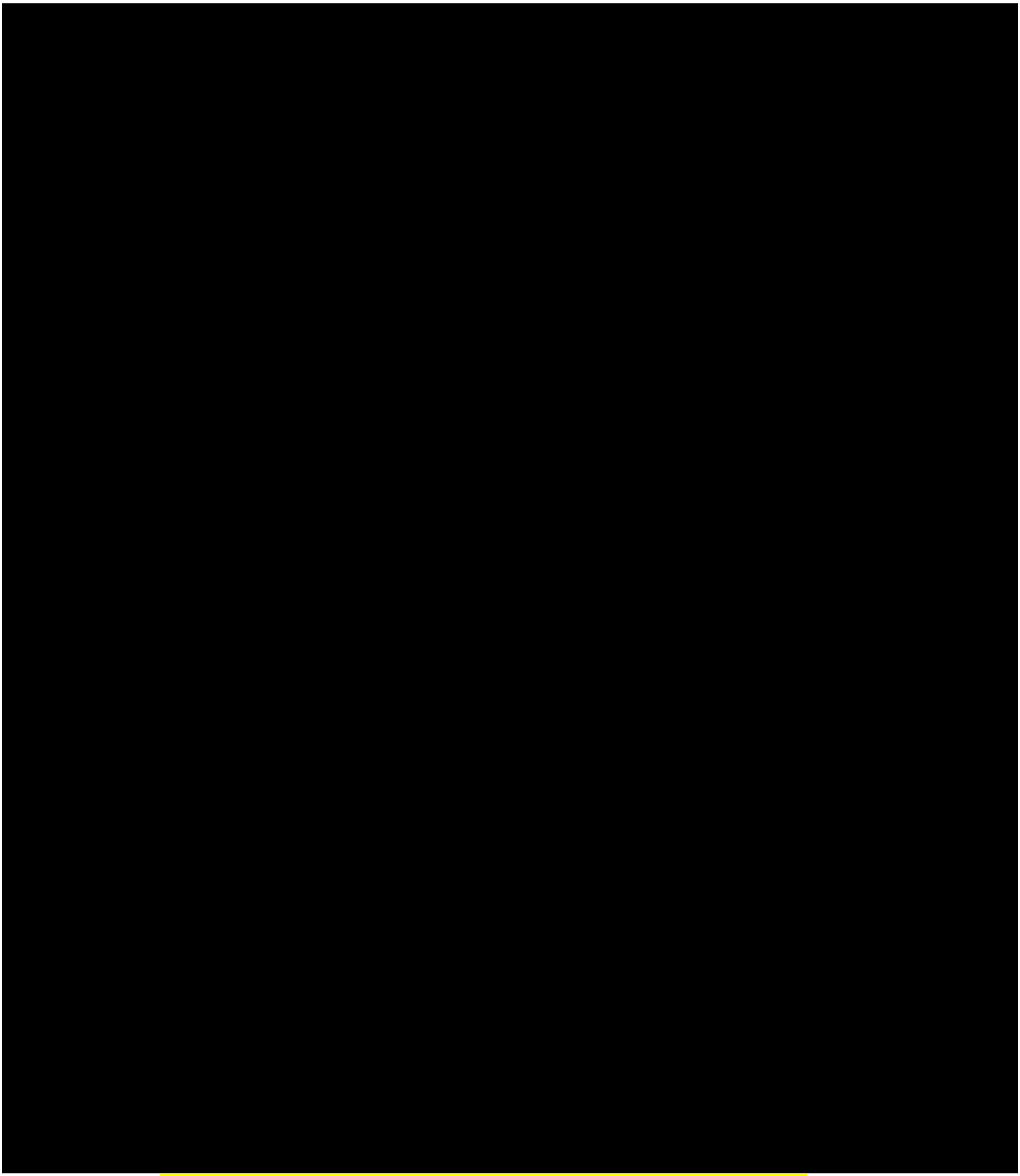
The following section outlines our UI/UX approach for the next generation ORCA project.

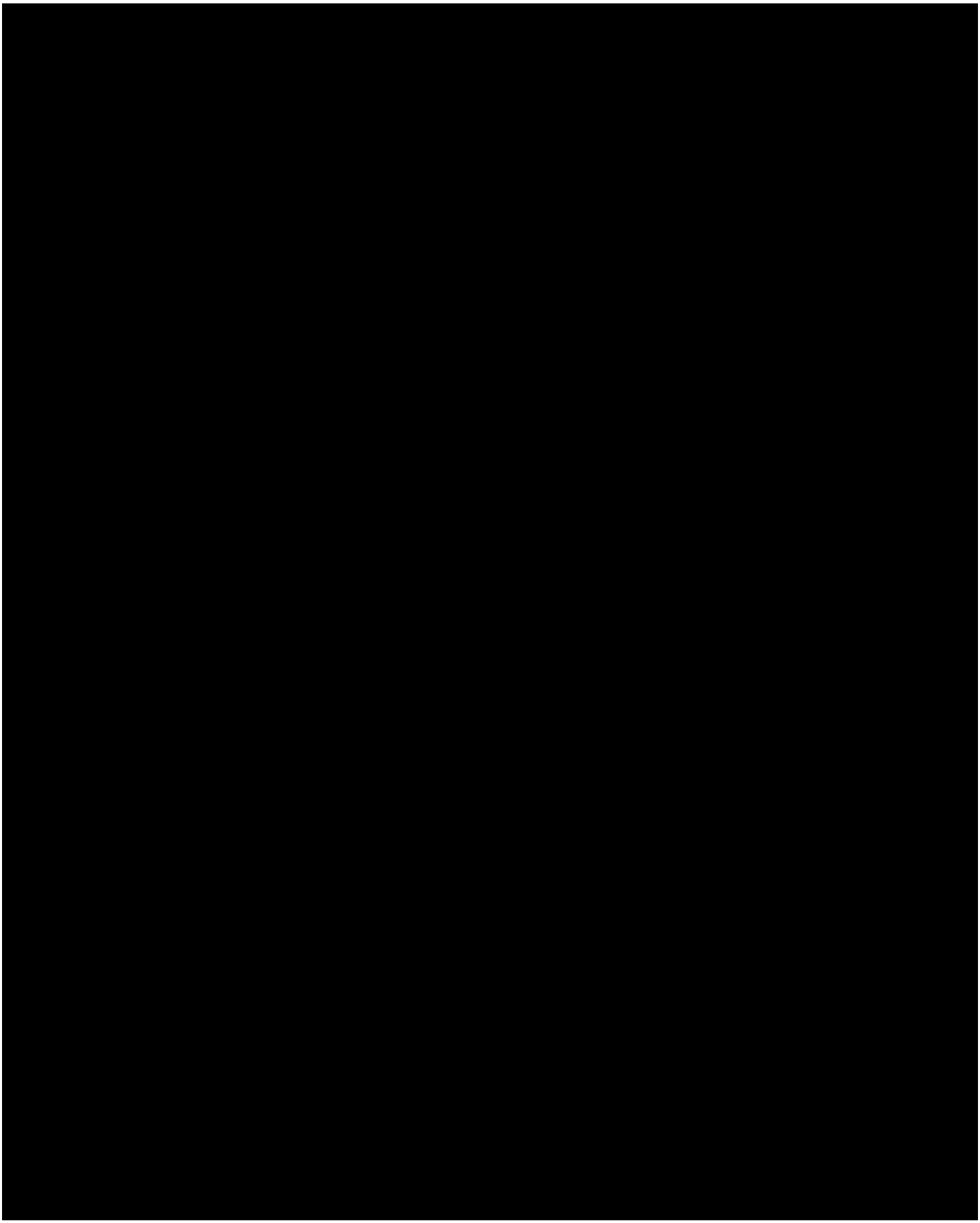
Our goal is to ensure a seamless, user friendly experience across interfaces following the user-centered design process and principles outlined above while also meeting the sensitive timeline for the project.

For next gen ORCA, the definition of 'users' of the system is inclusive of both Agency operators and administrators as well as patrons/customers so this would include public transit riders, business customers who manage public transportation benefits, agency operators and administrators, bus drivers, fare inspectors and other people who are interfacing with next gen ORCA systems.

We have scaled the user-centered design process and activities to three high-level areas of focus that we believe most appropriately meet the combined user-experience, schedule, and budgetary needs of the project:







Detailed approach for usability testing

The RFP states that the design and acceptance of UI/UX components will include usability testing - a common technique for evaluating the usability of system interfaces. Anthro-Tech's approach to testing the user-experience follows the principles detailed in ISO 9241-210:2010 - Ergonomics of human-system interaction. This validated approach includes summative and formative usability testing with next gen ORCA representative users to evaluate designs for interactive systems.

Formative evaluations (or diagnostic usability tests)

We propose formative evaluations for the majority of Next gen ORCA user tests. This type of user experience evaluation helps inform the design for the specific interface/component (web portal, web app etc.). These tests are conducted throughout the design and development phases, with the goal of detecting and eliminating usability problems early in the development cycle and incrementally improving customer experience.

Summative evaluations (or pre-launch usability tests)

The summative user experience tests evaluate a complete or near complete design under realistic conditions to determine whether the design meets specific measurable performance and/or satisfaction goals. For each of the customer-facing access points we have proposed pre-launch user experience summative evaluations (see UI/UX roadmap in section 1.4.1.6.2).

Usability testing principles

All usability tests will adhere to definitive components of usability testing:

- The primary goal is to improve the product. We will articulate test-specific goals and concerns when planning each test
- The participants represent real users
- The participants perform real tasks/scenarios
- A qualified team observes and records what participants do and say, including errors, task completion, time on task, satisfaction, and perceptions of usability
- A qualified team analyzes data, diagnoses problems and recommends UI/UX design solutions to fix problems

Next gen ORCA usability testing

We will screen participants to ensure they meet recruitment profile criteria, include meaningful subgroups of users, and meet any criteria for the inclusion of minorities, unbanked, women, and people with disabilities.

Next gen ORCA testing will include current and prospective users from each of the partnering agencies, representing a mix of regular commuters, transit dependent riders, occasional transit riders, visitors, business customers and other users.

To plan the usability tests, we will:

- Develop recruitment criteria, quota, and screener to ensure the user testing participants are representative of the existing system and prospective users of the Next gen ORCA
- Develop usability schedule and guide recruitment process of representative participants
- Design the test: identify research issues, develop tasks, write scenarios, and determine measurements and data collection
- Get approval on the test plans: get input and final approval from agency stakeholders on the test plan to ensure their priority test questions are addressed

A typical test will include the following activities:

- Greet and orient participant to the purpose of the study (outlined in a Facilitator Script)
- Participant completes consent form that explains that participation is voluntary and requests permission to video tape the sessions
- Facilitator administers pre-study questionnaire to gather basic background information about the participant such as role, demographics, frequency of use of ORCA, perceptions of the system and more
- Participant works with the mobile app, web portal, ticket vending machine (and other interfaces) to accomplish pre-determined tasks and scenarios while thinking out loud. Researchers observe and collect quantitative and qualitative data
- After the participant has finished working with the system, they may be asked to complete post study survey to evaluate their satisfaction and rate their perception of the usability of the system
- Participant takes part in a post-study interview to gather impressions and subjective feedback about their experience using the system

The researchers will protect the confidentiality of participants' information by removing identifying information from the data collected. Eligible participants will be given an honorarium for participating in the study.

Each testing session is:

- approximately 60 – 90 minutes;
- facilitated by an experienced researcher;

- documented by an experienced notetaker; and
- digitally captured on video (audio and participant screen activity) with participants' consent.

User experience testing sessions can take part in [redacted]'s usability lab, in the field, or remotely using our usability testing software tools. We have proposed a variety of approaches to best match the goals for each testing focus.

Data analysis and findings and recommendations

Data gathered during usability studies includes:

- A list of usability problems observed during the sessions
- Quantitative data on task time, errors, task completion and other measures
- Quantitative on subjective ratings such as post study questions, post task questions and exit surveys
- A log of qualitative data with participants' comments and description of their behaviors typed into a spreadsheet or usability testing software
- Observer notes about problems observed or participant quotes
- Background data on the participants from the user profiles, recruiting questionnaire or pre-study questionnaire

To analyze the data and develop findings and recommendations, we will:

- Analyze qualitative and quantitative usability test data such as time on task, task completion, pathways, clicks, errors, customer satisfaction and perceptions
- Prioritize found issues according to scope and severity
- Develop a summary report documenting the main findings
- Debrief core team and stakeholders on study findings and recommendations
- Develop actionable UX design solutions to address found usability problems in the system

Our recommended approach for conducting usability testing throughout the design and development phases, as well as during the pre-launch phase, ensures usability problems are found and fixed before next gen ORCA is rolled out the region. A positive first-time user experience with next gen ORCA is critical for a seamless transition for riders and users across the region.

[redacted] **Experience in Focusing on the user first in all UI/UX projects.**

We were selected as the UI/UX partner based on the following factors:

- Over 20 years of demonstrated experience in user-centered design (UCD) which involves users in all phases of the design and development process to ensure systems are intuitive, usable and satisfactory to use
- Extensive experience in UI/UX for (public) transportation focused interfaces (including ORCA, Sound Transit, Community Transit, WA State Department of Transportation, WALTZ)
- Deep expertise in helping dozens of WA state agencies
- Extensive experience providing customer experience leadership and strategy for large scale, multi-agency initiatives with the goal of creating a consistent user experience (including Department of Energy, State of WA Business Portal, Integrated Project Review and Mitigation Tool, Bill & Melinda Gates Foundation post-secondary program)
- Thought leadership and forward-thinking approach to customer experience design based on close affiliation with the UW Department of Human Centered Design and Engineering (https://www.hcde.washington.edu/about) at the College of Engineering, an internationally recognized Department with a focus on research, design and interactions between humans and technology
- Extensive user research and UI/UX design experience for innovative payment systems for Amazon Pay, Chase, and WALTZ
- Highly relevant and applicable agency-specific and ORCA-specific experience in UI/UX (User research and personas, TVM user interface redesign, TVM decals, ORCA websites baseline studies, focus groups with all the regions to gather agency needs for next generation ORCA system, UX for regional trip planner, Sound Transit mobile site, Sound Transit digital signage, etc.)
- Proven experience collaborating closely with COTS solution providers, helping traditional tech engineering focused firms embrace a user-centered design process to adapt their out of the box interfaces to be more intuitive and usable for end-users

These experiences and resulting accomplishments all involved strong execution of the user-centered design process, which by design includes users at all stages of the design and development process. Over the course of our firm's 20-year history we have successfully improved hundreds of interfaces and services by putting the user first and involving them through usability testing, focus groups, field studies, surveys, customer feedback sessions, and other methods in all stages of the development process.

We are receptive to feedback about past work with ORCA agencies and would welcome the opportunity to understand and clear up the concern regarding the neglect of users in past projects, especially since involving users at all stages is at the core of our proven process. At the

same time, we are confident in our proposed UI/UX roadmap (Section 1.4.1.6.2)which we developed based on our expertise in providing UI/UX leadership for large scale projects and a solid understanding of what it takes to meet the objectives of the engagement to provide a seamless, consistent, simple to use, intuitive, accessible user experience for all customer and agency interfaces.

As we indicated in the UI/UX roadmap and cost proposal we plan to:

a) Clearly define target users for all system interfaces and document their top tasks/use cases, goals, needs and current pain points. For the purposes of next gen ORCA, the definition of 'users' of the system is inclusive of both Agency operators and administrators as well as patrons/customers

b) Develop up a customer advisory panel so it is easy and efficient to quickly tap into customer feedback at key junctures as we develop the UI/UX

c) Involve users in all stages of the design and development process through focus groups, usability testing, field studies, surveys and other methods

d) Work with the region and project partners to assemble and guide a UI/UX steering group, with representation from across the ORCA agencies to ensure agency stakeholders are involved in reviewing and approving UI/UX (see proposed stakeholder touchpoints in the UI/UX roadmap) and cost proposal)

e) Ensure we conduct a pre-launch usability test with representative users to validate that the experience across system interfaces is truly consistent and seamless

We understand the scale and complexity of the next gen ORCA system roll out and know from experience that the only way to design great user-experiences is to involve users at all stages in the design and development process.

[redacted] UI/UX roadmap and proposed price is tailored to the desired outcomes for the project

The RFP highlights important UI/UX requirements to ensure positive customer experiences with the system as the region transitions to next generation ORCA:

- The UI/UX across all platforms will be similar and designed for ease of use and commonality (RFP page 43)
- UI/UX design spans all user and agency interfaces such as back office applications, validators and DDU's, vending machines, customer web site, mobile app and agency mobile apps (RFP page 43)

- System equipment will provide customers and agency users with displays, graphics and signage, controls and mechanisms that are simple to use, easy to understand, and conveniently located (RFP page 43)
- All interfaces will be user friendly; that is safe, predictable, simple to use, accessible for personas with disabilities, and in accordance with other applicable human engineering principles (RFP page 43)
- The customer website and mobile app will be designed to be user friendly and accessible to current and potential riders and agency employees (RFP, page 54)
- All equipment, software, employee and customer interfaces will meet or exceed ADA standards to maximize ease of use (RFP, page 54)
- The design and acceptance of UI/UX components will include usability testing (RFP page 43, page 54)
- The system satisfies federal, state, and other requirements for ergonomics and usability (RFP page 55)
- For all transactions, the VM will display a progression of screens to the customer that will be easy to understand and intuitive (RFP, page 140)

These requirements are directly in service of the overarching customer goals and agency needs for the new system to improve customer experience, improve ease of use and support a seamless transition for customers (RFP, page 5) and increased ORCA usage.

Accomplishing these goals and meeting the requirements of the RFP requires much more than adding a UI/UX polish to a variety of system interfaces that were currently not designed to work together as a seamless system, and some of which are Commercial of the Shelf Solutions (COTS), which do not always provide an out-of-the-box usable interface.

Meeting the goals as outlined in the RFP requires the proven and repeatable user-centered design process to create usable systems and wholistic user experiences. As outlined in our UI/UX roadmap and price proposal, our process goes far beyond late cycle user input and is designed to keep the needs, limitations and goals of the users front and center at all stages of the design and development process. Prototyping and wireframing are part of this process and allow for ideation and exploration of innovative design solutions in a cost-effective and low risk manner. Throughout the project we will test the efficacy of designs through multiple rounds of usability testing with end users (including users with disabilities) and adapt the user interfaces based on the testing results to optimize usability and best fit users' needs. Our resulting UI/UX requirements package provides all the UX specifications such as task flows, visual design mockups, interface terminology, help text, and user interface behaviors so development partners

can efficiently develop the user interface in line with a set of consistent UI/UX standards for all interfaces.

To accomplish the objectives of this engagement, we cannot work in interface, vendor or agency silos. Instead, it requires agency stakeholders, subject matter experts, researchers, designers, developers, plain talk and accessibility experts, engineers, communication specialists to work together to engineer the human experience across each of the next generation ORCA interfaces. We designed our UI/UX roadmap and cost proposal to support such a partnership and leadership across the workstreams.

As an example, Anthro-Tech has used a user-centered design approach to improve the interface of the ticket vending machine. For reference, we have included an article on this engagement to provide further background and illustrate how the interface was improved using an iterative design and usability testing approach. The article demonstrates how good UI/UX requires more than a facelift but instead involves improving the information architecture, task flows, language, interactions, animations to support a more efficient, effective, error-tolerant and engaging user experience.[1]

The next gen ORCA will need a similar and thoughtful approach for not just a single interface but across multiple systems and interfaces so that design elements such as layout, buttons, language, interactions, icons, maps, calls to action work in concert and are consistent in support of a seamless experience across the customer websites, mobile app, ticket vending machines and other interfaces.

Finally, the RFP indicates a desire for agency partners be closely involved in design reviews, approvals and UI/UX decisions. We recognize that it is critical to tap into the unique perspectives of each agency and have successfully facilitated these design discussions in the past, bringing along the customer and research perspective which accelerates data-driven decision making. Our UI/UX roadmap proposes stakeholder touchpoints and involvement throughout the entire engagement.

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[1] The total UCD/UI/UX task order for the TVM user interface redesign was $330,000. This includes design and user testing of the signage decals that are placed on the hardware

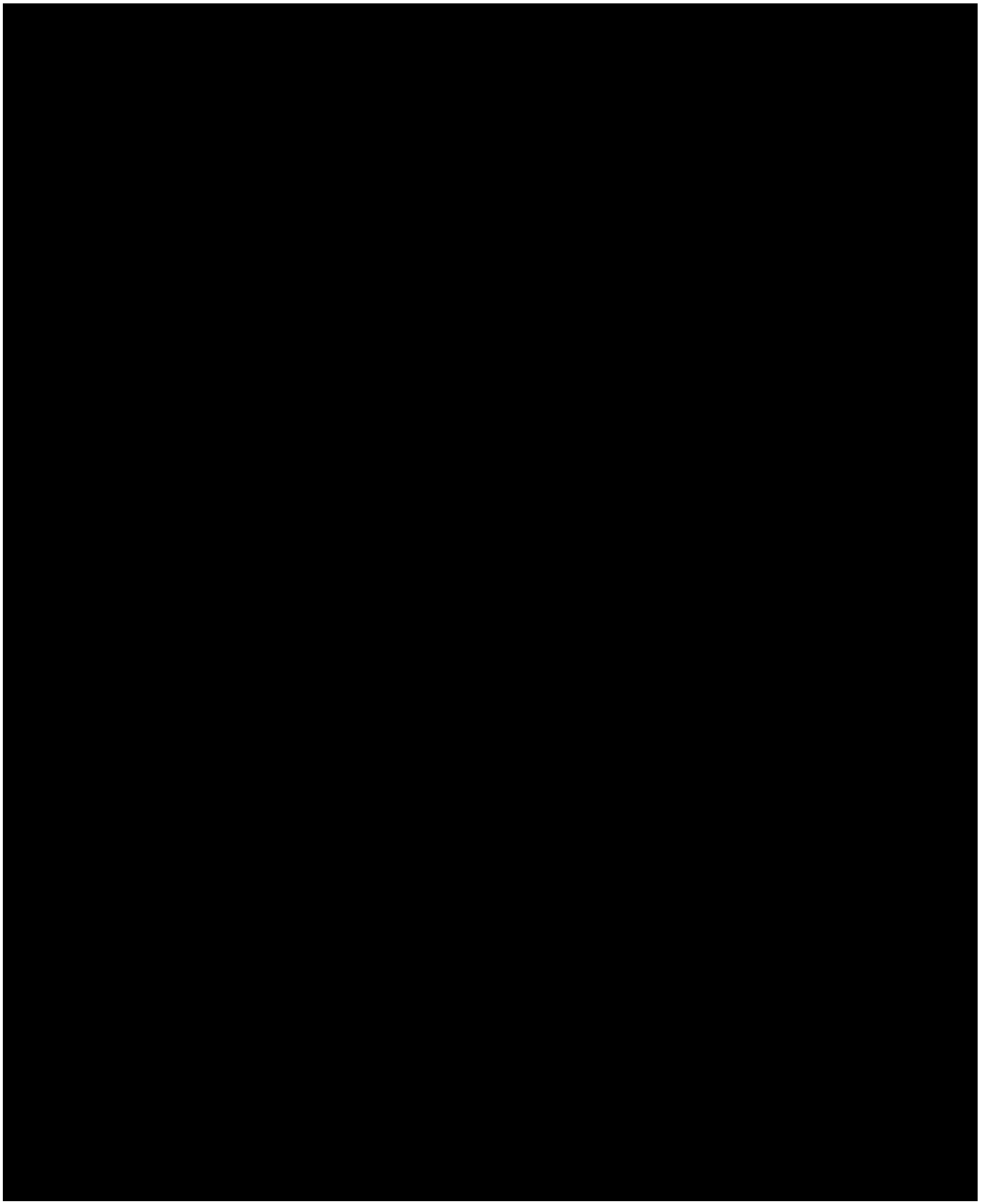
Our UI/UX roadmap and price proposal reflect a thorough understanding of the scale and complexity of this project and is carefully designed to successfully accomplish the desired outcomes for the project.

1.4.1.6.2 UI/UX Roadmap

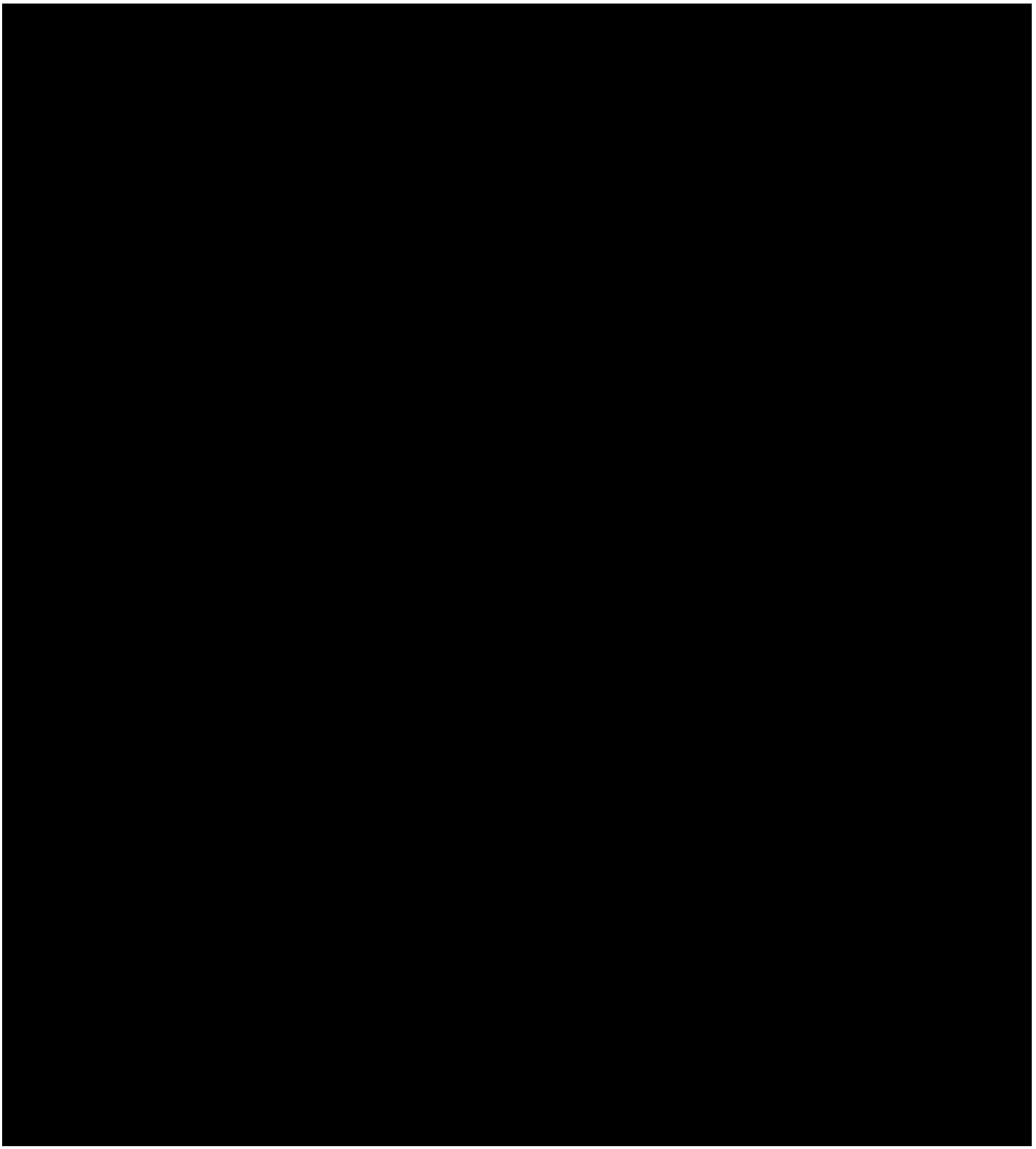
We have provided an overview of [redacted] T[redacted] UI/UX tasks and their expected window of activities below. The overarching focus for this effort is to deliver a great customer experience for ngORCA users and stakeholders. That means making sure user interfaces are intuitive, easy to use, plain talked, and accessible to people of all abilities and seamlessly integrated with the other touchpoints.

1.4.1.6.2.1 UX Strategy, Consulting & Stakeholder Engagement

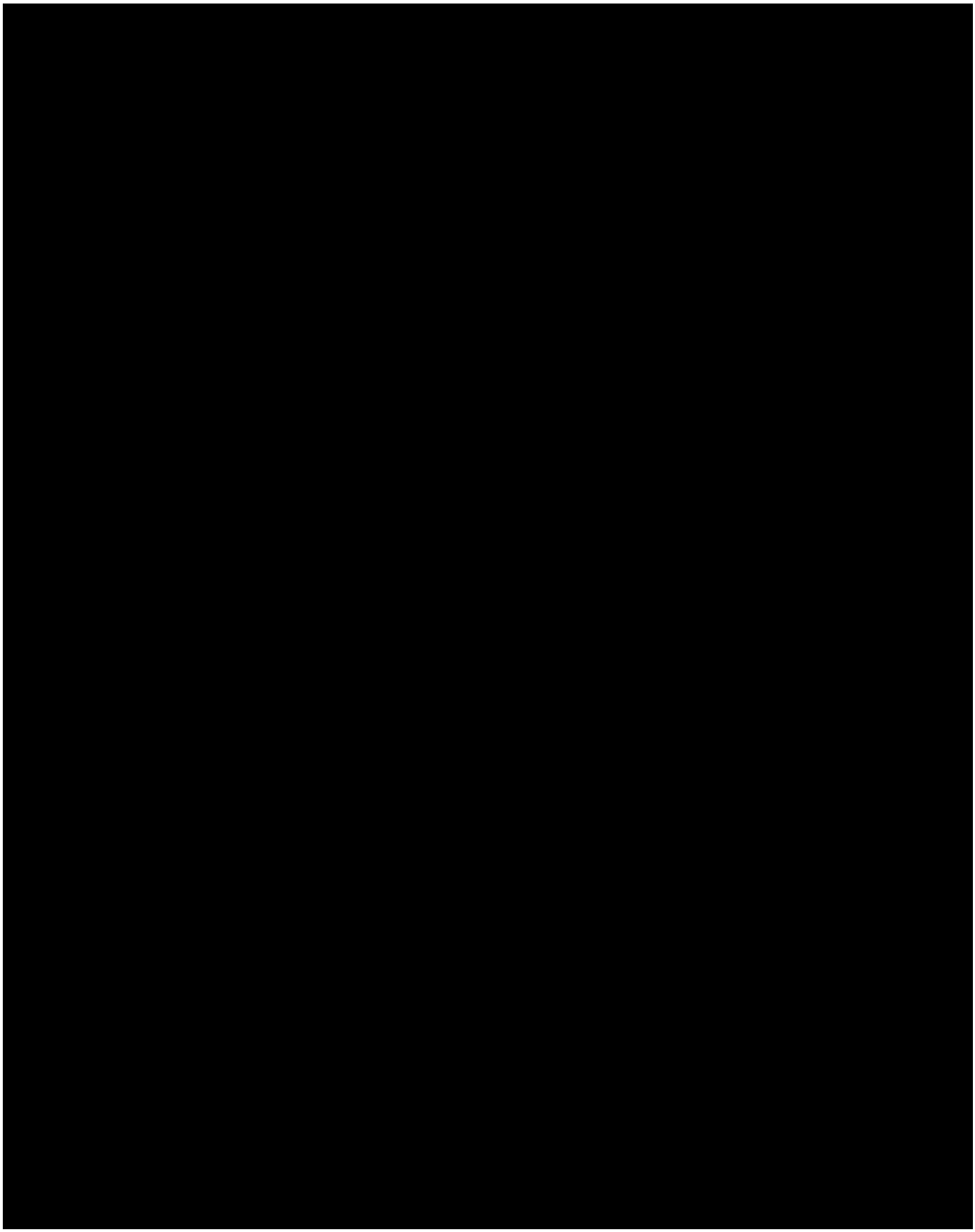
[redacted]

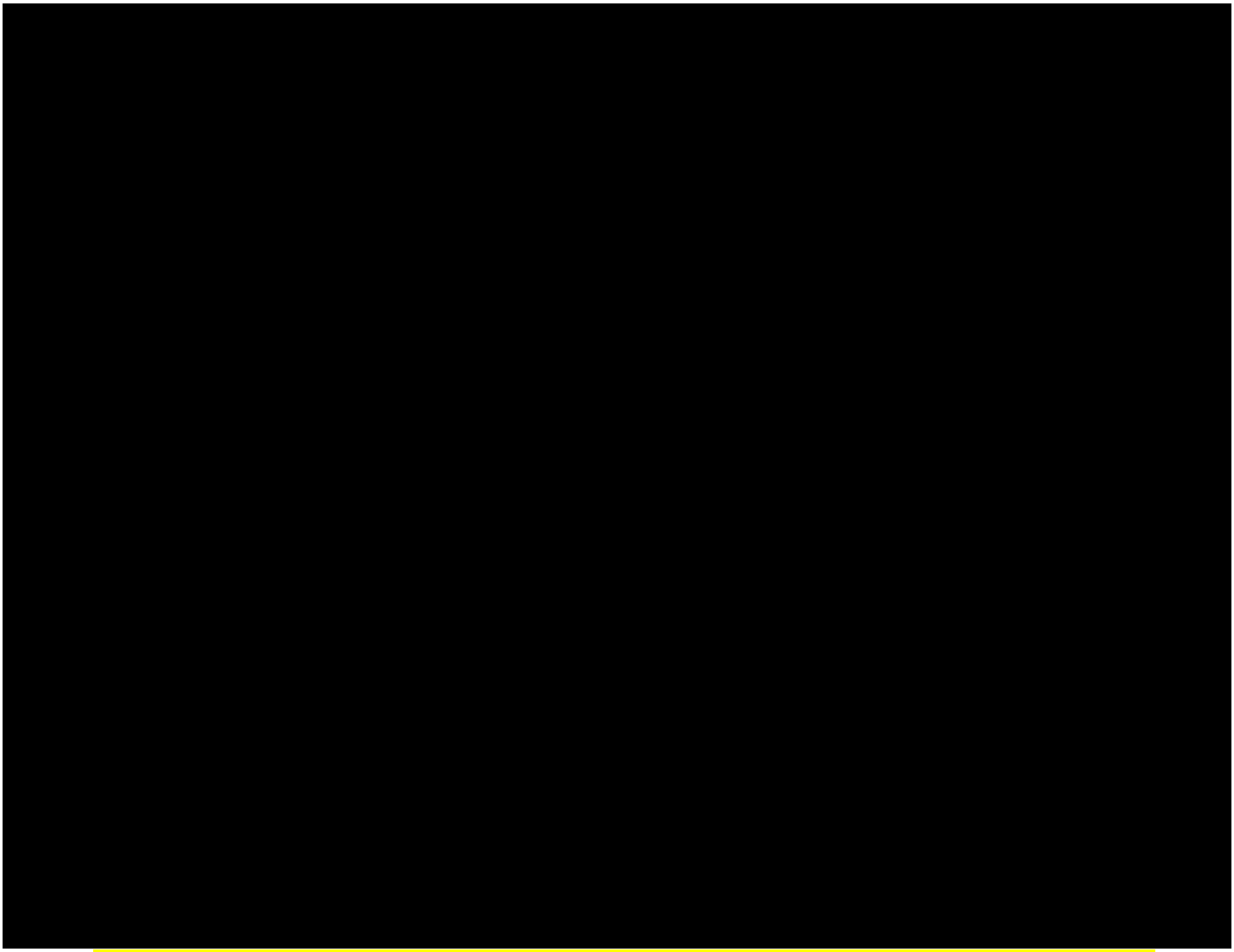


1.4.1.6.2.2 UI/UX Ticket Vending Machine



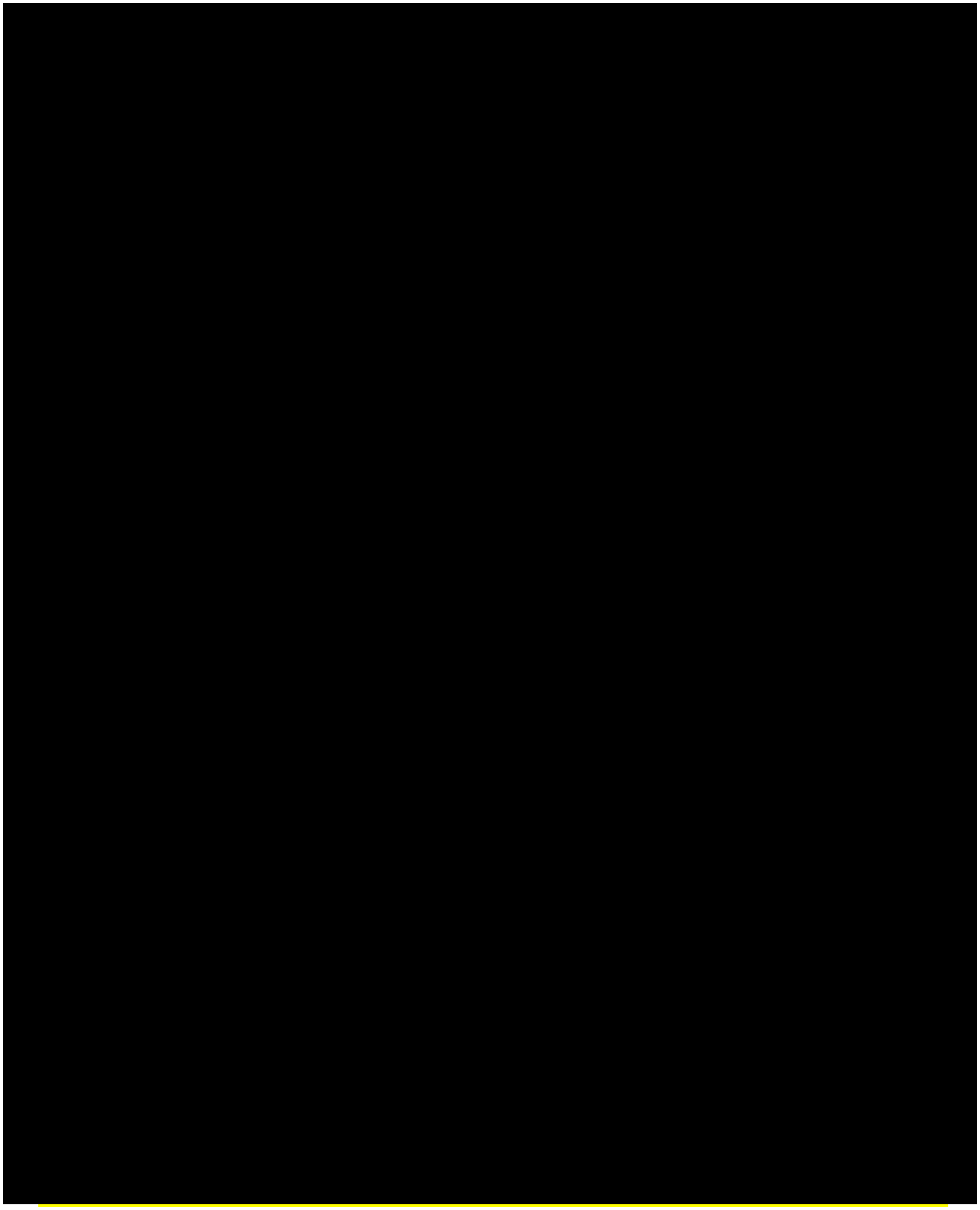
1.4.1.6.2.3 UI/UX Customer Website – Focus on Riders

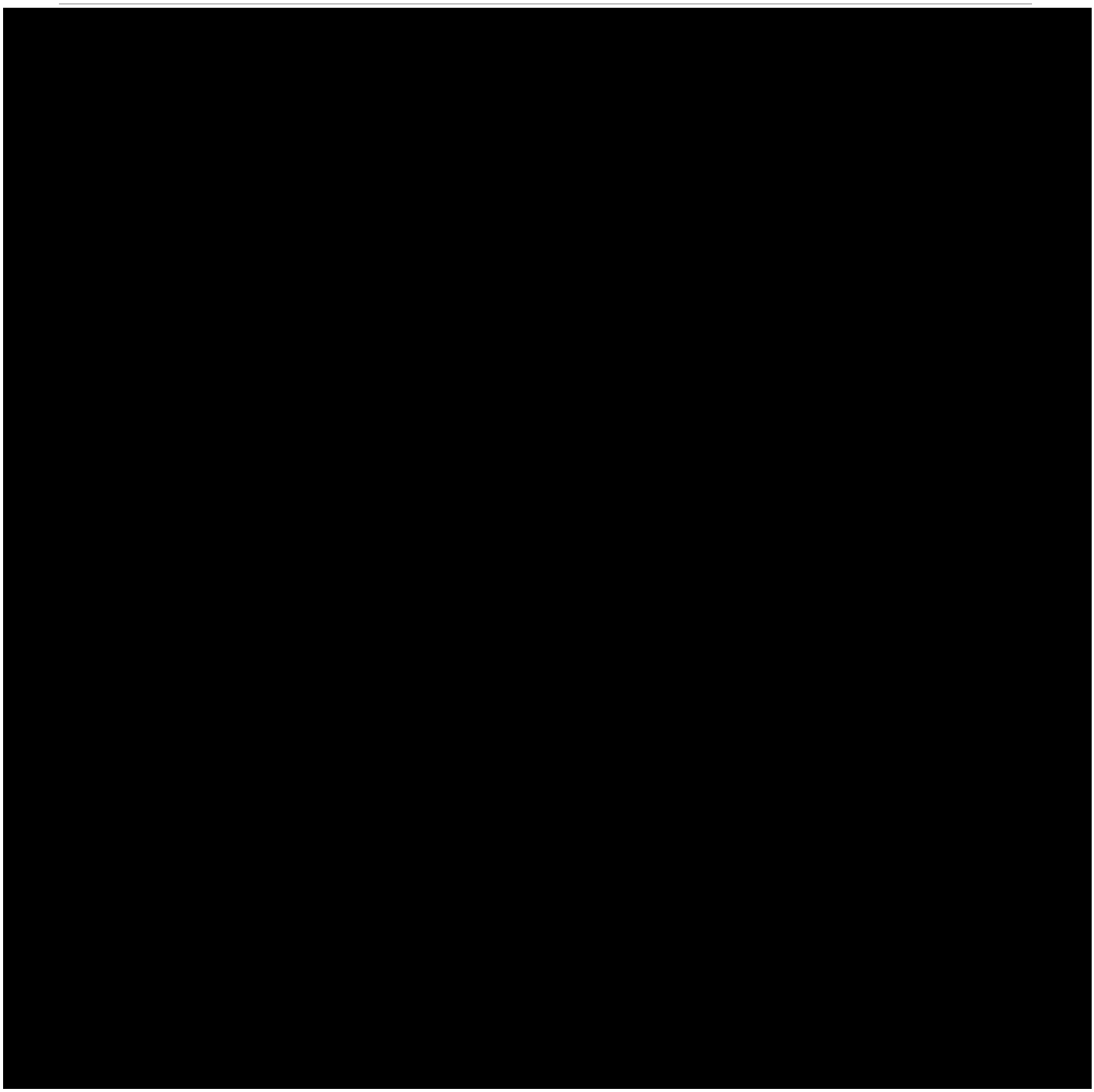




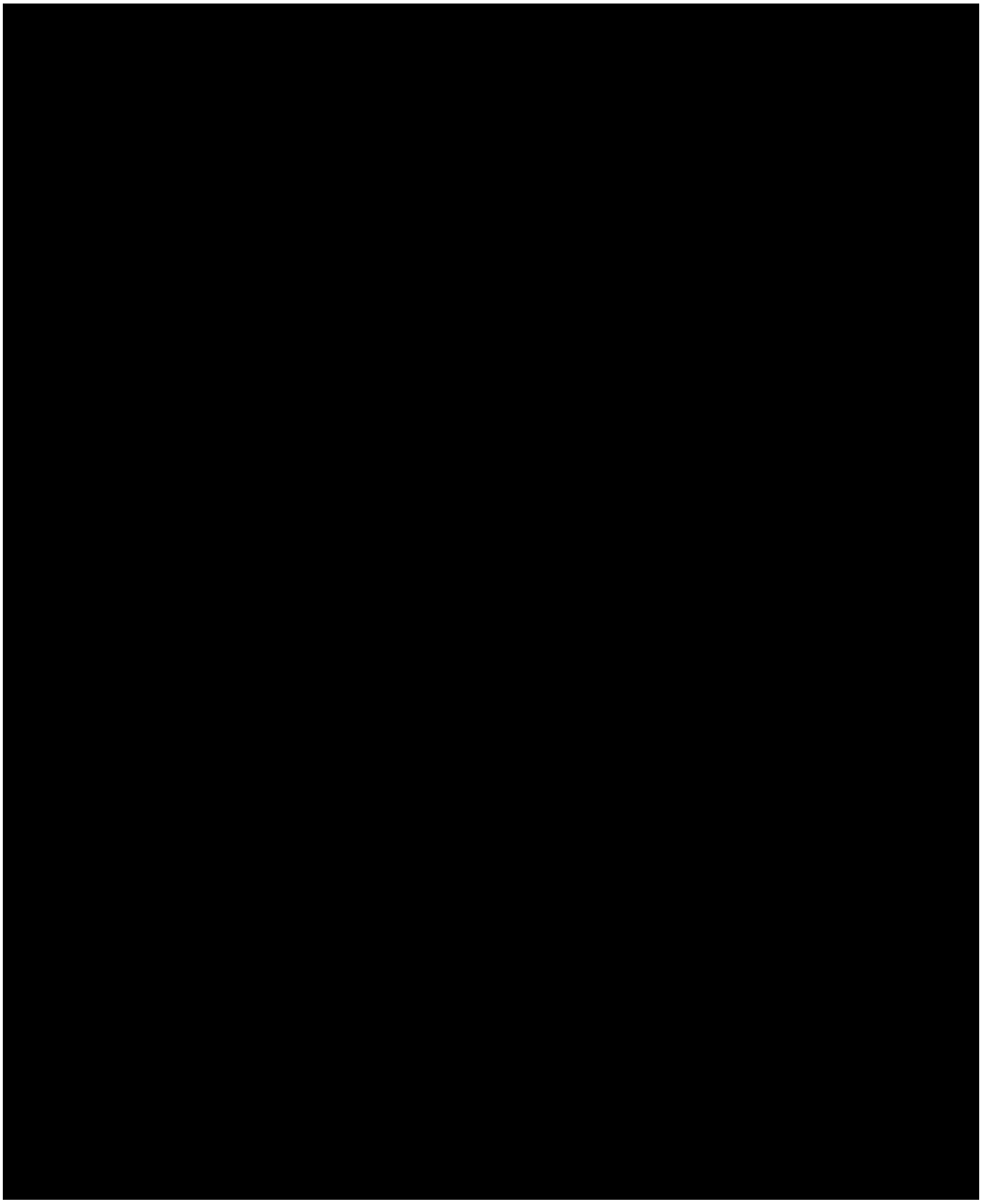
Note: The customer website will be a single website with varying levels of permissions, however the needs and goals of the customer groups (riders and institutional users) are different and unique. Therefore we have two parallel but separate workstreams for UI/UX to ensure that the website is designed to reflect and address their unique needs and pain points.

1.4.1.6.2.4 UI/UX Customer Website – Focus on Institutional Users

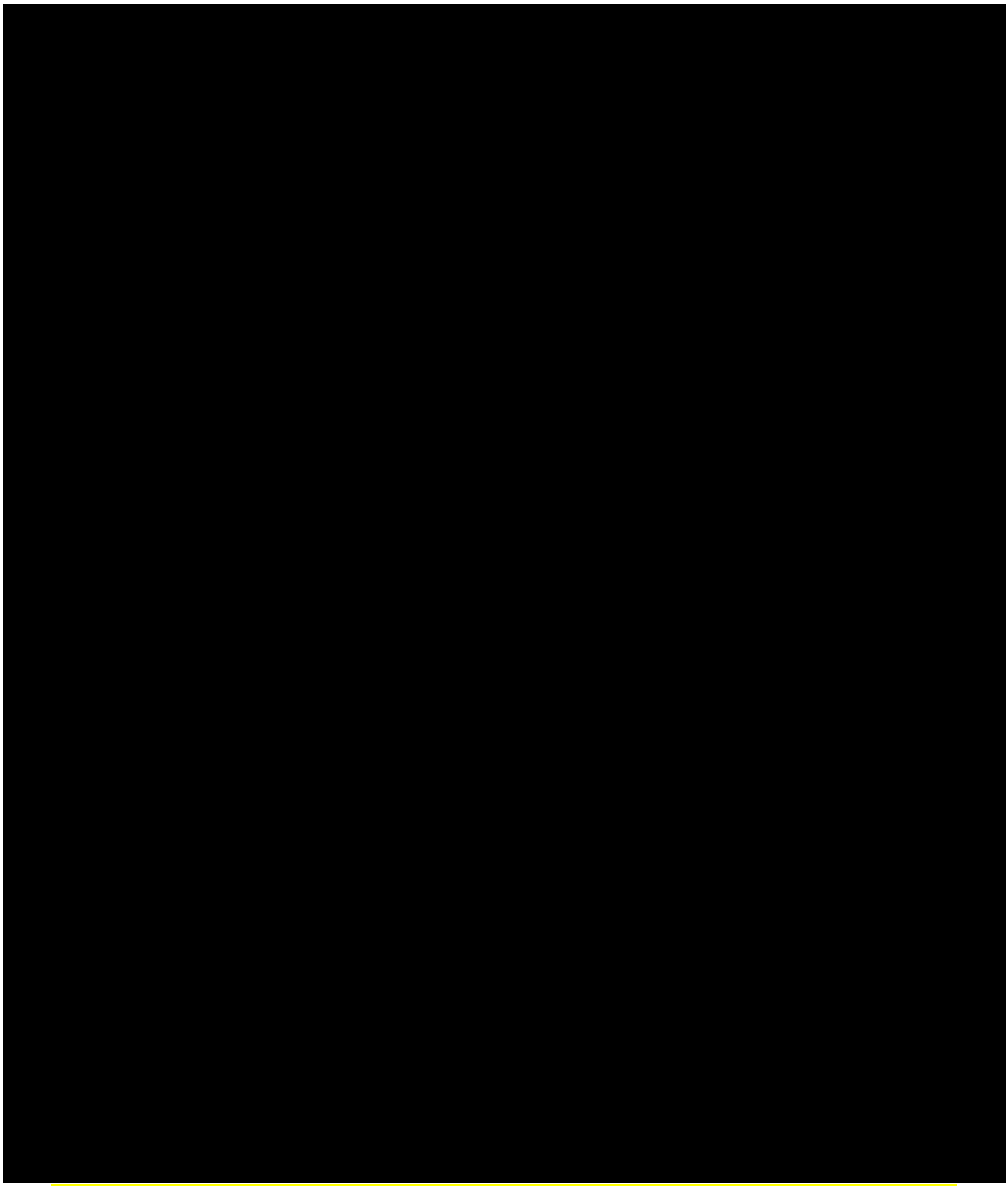


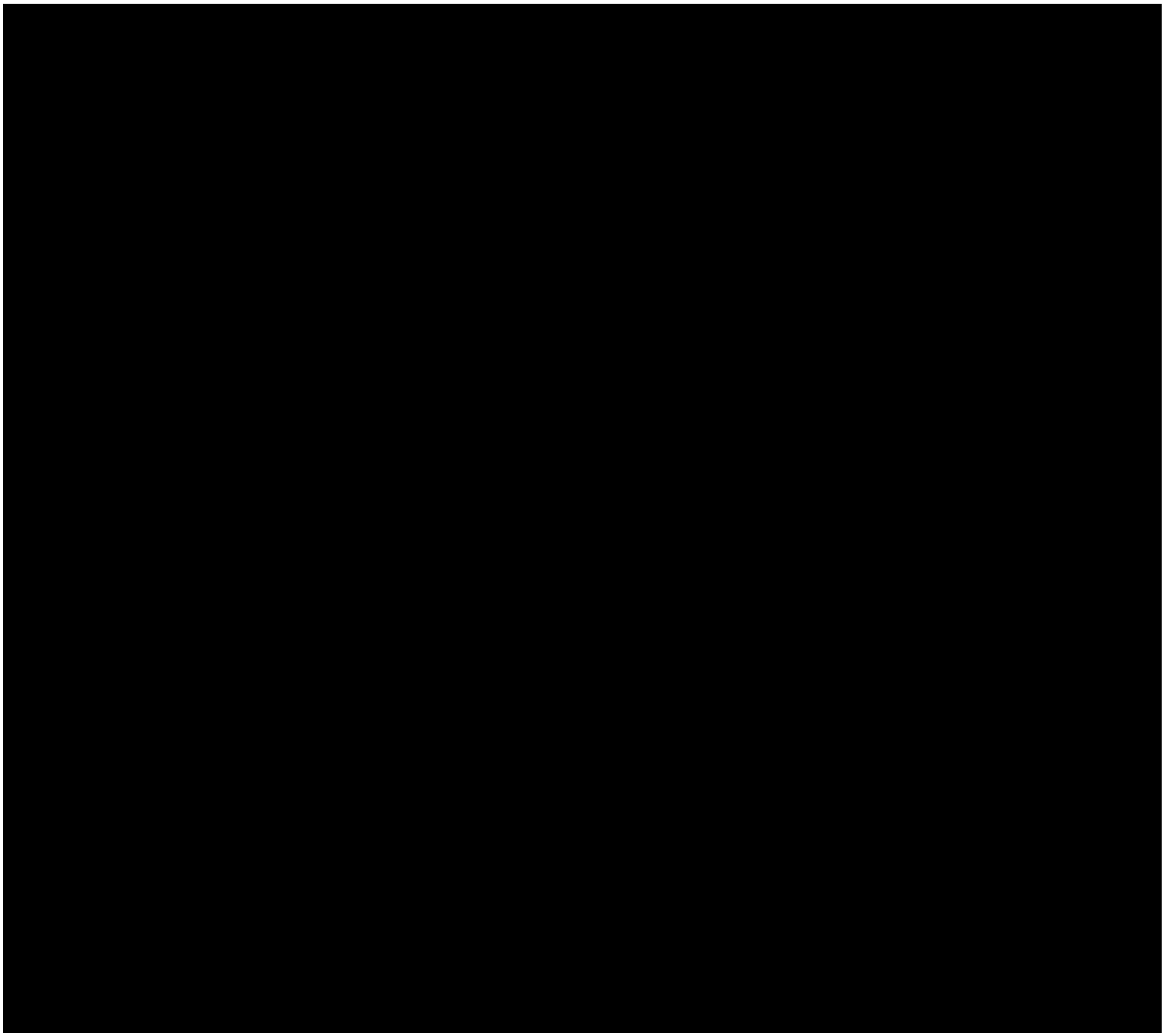


1.4.1.6.2.5 UI/UX Customer Mobile App



1.4.1.6.2.6 UI/UX Other Interfaces





1.4.1.7 Maintainability & Serviceability

Given INIT's extensive experience with transit CAD/AVL and AFC systems, INIT has ruggedized its field equipment to require minimal scheduled and unscheduled maintenance. As the chart below indicates, most of the equipment is maintenance-free, and there is minimal scheduled maintenance on some mechanical moving parts.

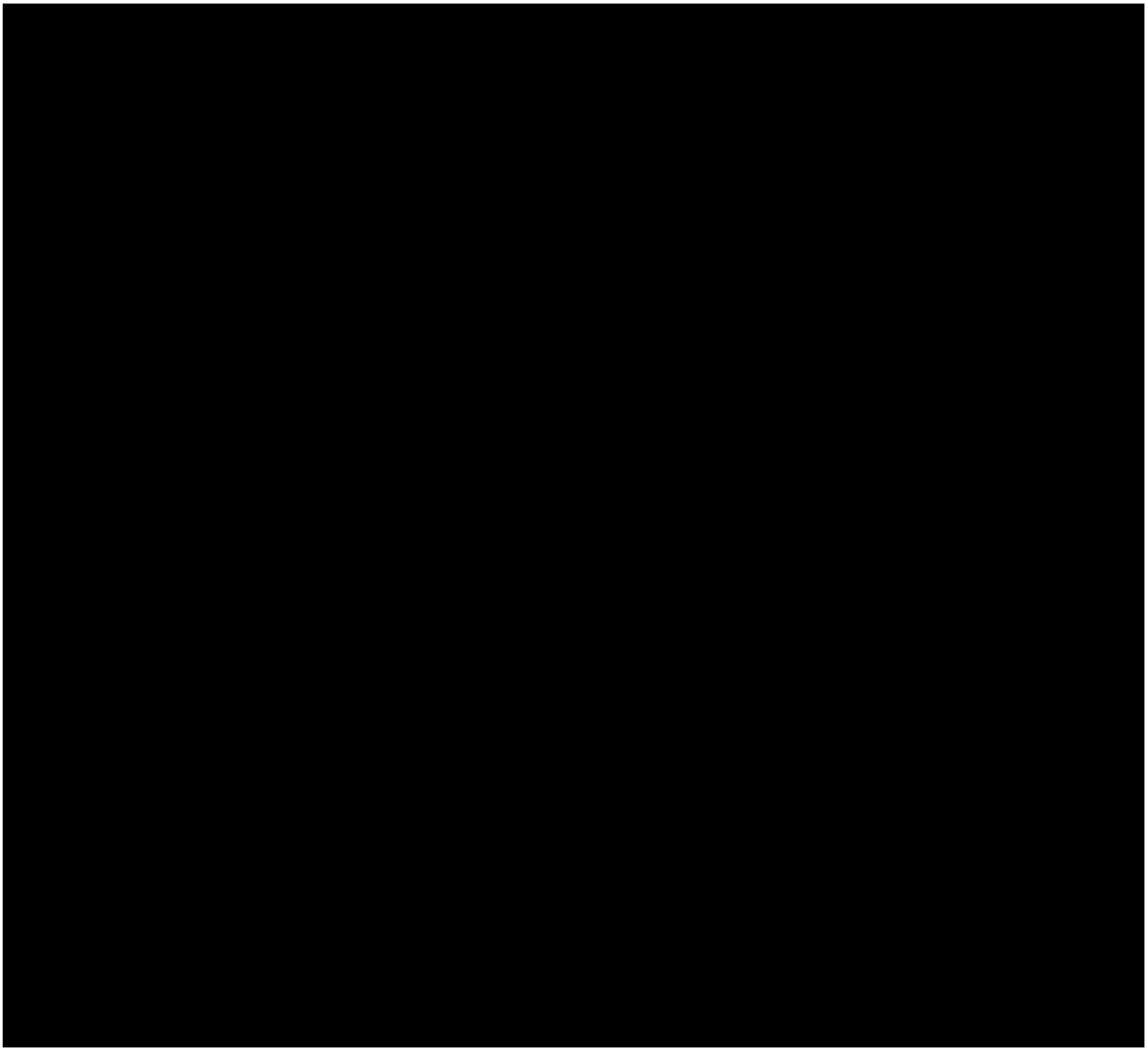
Equipment	Scheduled Preventative Maintenance Requirement (Not Including Consumables – such as, printer paper)
PROXmobil3 onboard/platform validator	Possibly change battery (after 5-10 years)
TOUCHit3 Driver Display Unit (DDU)	None (maintenance-free)
VENDstation and VENDmobile Vending Machines (VMs)	Minimal (lubrication of some moving mechanical parts annually, and compressed air spraying of sensors every 6 months)
Customer Service Terminal (including peripherals)	None (maintenance-free)

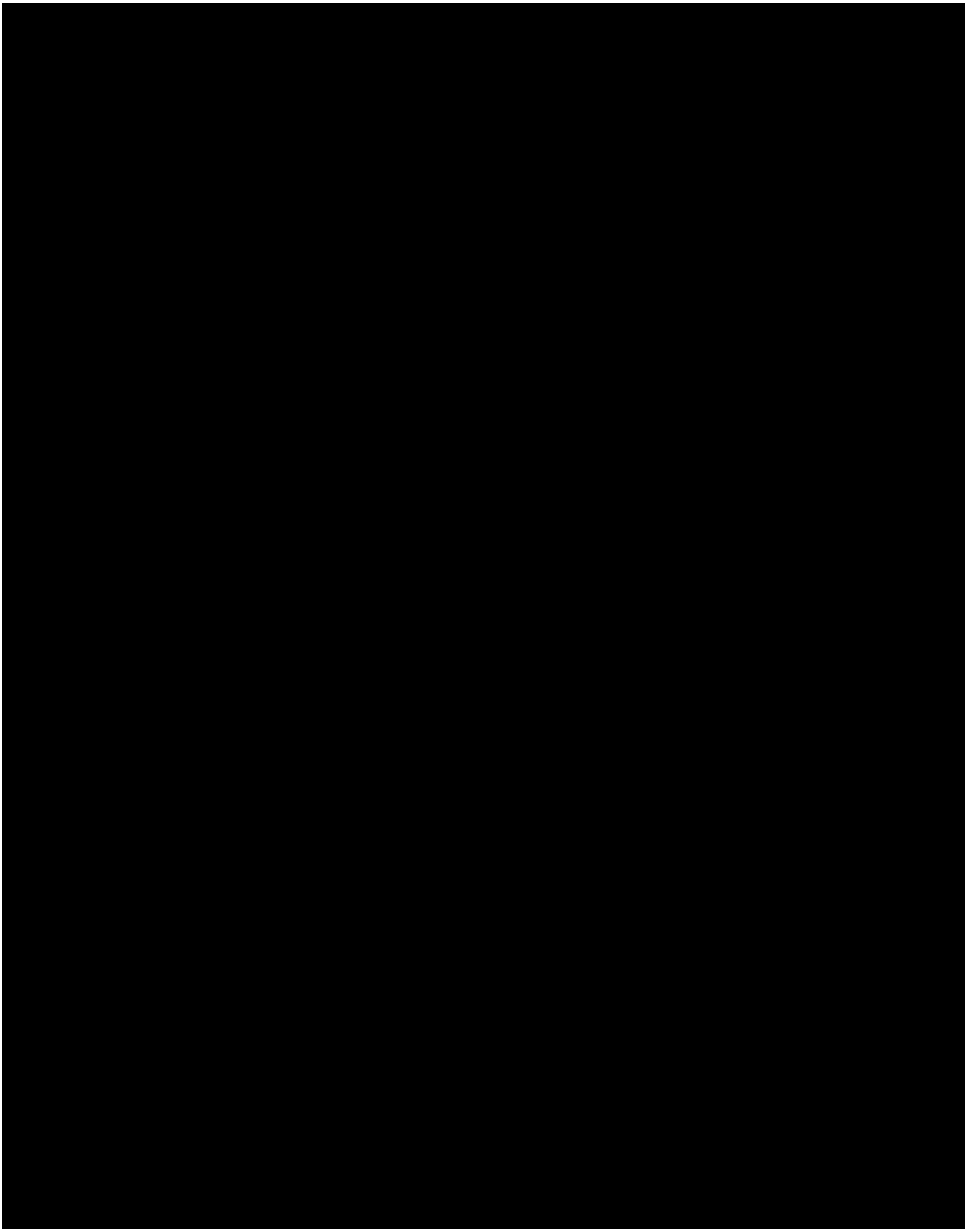
All the scheduled, preventative maintenance required – including frequency, procedures, durations, and required tools, parts, and materials – will be provided by INIT in a Preventative Maintenance Plan.

System components include automatic diagnostic test routines to aid in troubleshooting down to the Lowest Level Replaceable Unit (LLRU). As the chart below indicates, most of the equipment is maintenance-free, and there is minimal scheduled maintenance on some mechanical moving parts.

INIT minimizes unscheduled maintenance by designing equipment suitable for the transit industry with high Mean Time Between Failures (MTBF). INIT ensures that any COTS components used, also possess these characteristics.

The placement of the Onboard and Wayside Validators, the Driver Display Units, and the Customer Service Terminal equipment will be finalized jointly with the agencies to ensure adequate access for maintenance. INIT's field equipment has been designed and optimized taking maintenance considerations into account. The interior of housings and cabinets provides easy and safe access, and provides adequate space to work on the internal components as indicated in the figures below of the VENDstation and VENDmobile, which show that all components are accessible.





As indicated in the above two figures, the different modules are on rails and tracks and include handles for easy removal and insertion. This modularized design also leads to lower weight modules that a single technician can replace – none of the modules, other than a full cash containers, weighs more than 20 lbs.

redesign – the changes only require the upgrading of the VENDpc and VENDpc Extension

[redacted]

1.4.1.8 System Sizing & Scalability

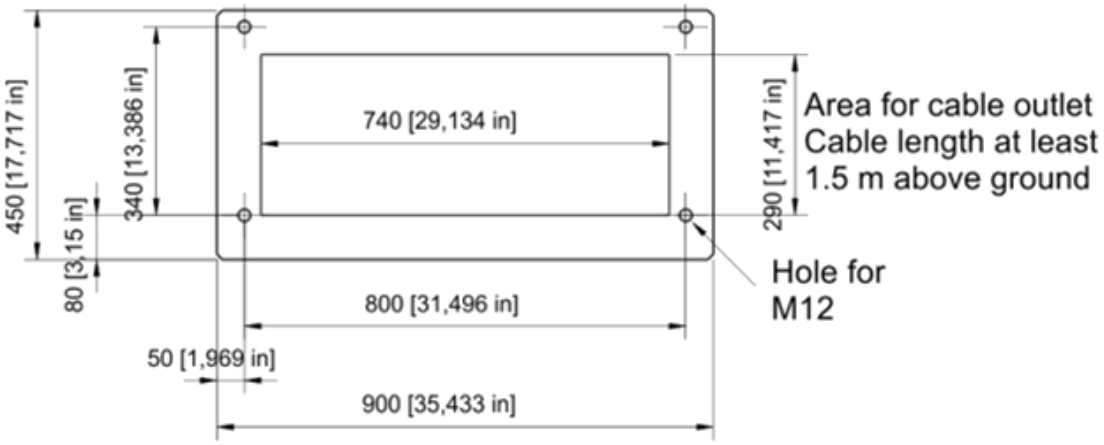
As part of the design process, INIT conducts usage and transaction analysis to model the peak usage of the System – including peak concurrent account-based transactions, peak website usage, etc. – and designs the system to accommodate at a minimum 200% of the current and anticipated ridership figures for the year 2040 and up to 400% of the anticipated peak processing load.

1.4.1.9 Operating Environment

As a transit CAD/AVL and AFC system provider, and currently having six systems operating in the environmental conditions of the Pacific Northwest, INIT's field equipment is environmentally service-proven.

1.4.1.9.1 Shock & Vibration

INIT will comply with the local codes regarding stability of structures and contents in earthquakes, high velocity wind (up to 60 mph), and other natural phenomena. For VMs INIT utilizes a pedestal made of 0.08" [2mm] stainless steel, which is fixed to the ground with M12 screws (see the following figure for the VENDstation pedestal mounting). In the event additional bracing is required, INIT will ensure it complies with the specifications related to seismic, wind, and other natural phenomena.



VENDstation Stable Pedestal Mounting

INIT's system components are designed to withstand structure-borne stresses and vibrations caused by the motion of transit vehicles, daily customer use, passing of trains or other vehicles, and emergency braking of fully-loaded trains. INIT products are vibration tested according to European Railway standards EN50155. In EN50155 sinusoidal testing has been replaced with broad band random vibration. Test parameters used by INIT are: Frequency range of 5-1000Hz, Acceleration 1.3g rms, sweep time 5h per axis. The standard intends to simulate 25 years of usage onboard a rail vehicle.

The PROXmobil3 is rugged in design and the housing is made in a special die casting process named thermoplastic structure foam molding (TSG) and are made of polystyrene (PS) or acrylonitrile butadiene styrene (ABS). This casting process creates a device that has a very stiff structure compared to normal die casting processes. The housings are flame-retardant according to UL94 V-0, and meet the product meets the horizontal shocks of up to 6g and vertical shocks of 1.2g without permanent deformation or failure. Both devices pass the EN 61373 Railway applications for Rolling stock equipment for Shock and vibration – specifically:

- EN 60068-2-27: Environmental testing - Tests - Test Ea and guidance - Shock
- EN 60068-2-64: Environmental testing - Tests - Test Fh - Vibration, broadband random and guidance

These onboard devices also meet the specified the shock and vibration tests:

- IEC 60068-2-27
- IEC 60068-2-64

The rail equipment, including vending machines and wayside validators will pass the ERTMS/ETCS shock and vibration tests – e.g., EEIG 97s0655.

1.4.1.9.2 Onboard Equipment

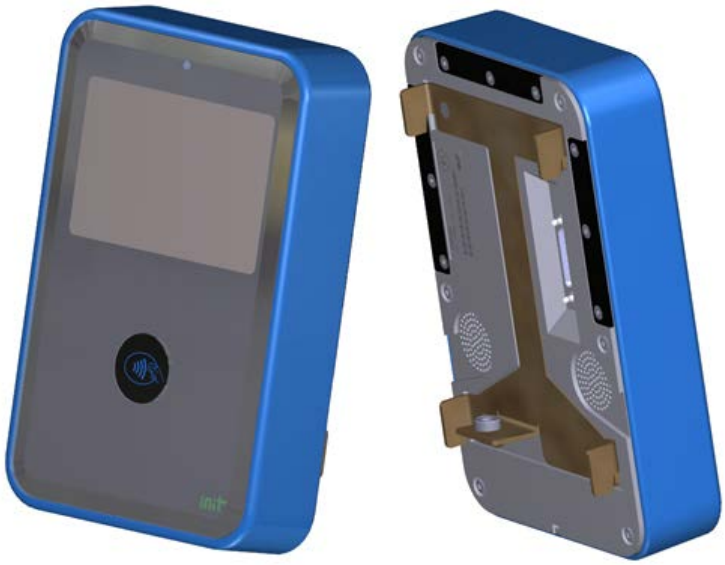
INIT's onboard equipment is designed, and proven, to prevent degradation in performance from exposure to moisture or dust raised by inclement weather or interior cleaning. As the two figures below show, both, the PROXmobil3 onboard validator and the TOUCHit3 driver display unit, are tightly sealed to provide a high degree of ingress protection. The PROXmobil3 has been installed in approximately 12,000 transit vehicles, and the TOUCHit3 predecessors on approximately 16,000 without any ingress issues.

INIT's PROXmobil3 supports four (4) SAM slots integrated into the FEIG reader

INIT's PROXmobil3supports three (3) USB ports as follows:

- One USB on the bottom of the device (special connector, designed for device maintenance)
- One usb connector on the d-sub connector on the back of the device. This is currently reserved for the storage chip on the mounting bracket that contains the vehicle/platform number
- One internal USB interface

The validator is a payment terminal so it cannot have any general purpose USB interfaces on the housing for security reasons. If the agency wants to integrate external devices, INIT suggests to integrate them via Ethernet or Ethernet/USB or Ethernet/UART bridge. The validator can be delivered with an integrated 2d barcode reader if the agency opts for this during the system specification phase.



PROXmobil3 tight seal prevents ingress

TOUCHit3 provides high ingress protection

As indicated in the previous section, the PROXmobil3 and the TOUCHit3 are designed and service proven to withstand the harsh, high shock vibration operating environments of onboard transit vehicles.

The following chart demonstrates that INIT's onboard equipment operating environment specifications meet the SOW requirements.

Capability	**SOW Requirement**	**PROXmobil3** **Onboard Validator Specification**	**TOUCHit3** **Driver Display Unit Specification**
Storage temperature	-22 to +150°F	-22 to +176°F	-22 to 158°F
Operating temperature	-15 to 140°F	-15 to 140°F	-15 to 140°F
Thermal shock	Up to 50°F in 1-hour, non-condensing	Up to 50°F in 1-hour, non-condensing	Up to 50°F in 1-hour, non-condensing
Relative humidity	5-100% non-condensing	5-100% non-condensing	5-100% non-condensing
Airborne dust	Up to 180 µg / m^3, with iron & salt particles	Up to 180 µg / m^3, with iron & salt particles	Up to 180 µg / m^3, with iron & salt particles
Sunlight	Direct sunlight, radiation loading of up	Direct sunlight, radiation loading of up	Direct sunlight, radiation loading of up

Capability	SOW Requirement	PROXmobil3 Onboard Validator Specification	TOUCHit3 Driver Display Unit Specification
	to 789J/s/m^2	to 789J/s/m^2	to 789J/s/m^2
Inclination	0 to 20° off vertical	0 to 20° off vertical	0 to 20° off vertical
Rainfall	10" over 12 hrs	Ingress Protection (IP) 54 (splashing water protected)	Ingress Protection (IP) 53 (spraying water protected)
Water/solvents	IEC529 to level IP54 or equivalent	IP54	IP54
Pollution	Vog (e.g., sulfur dioxide-laden air)	Atmospheric pollutants characteristic of Puget Sound area	Atmospheric pollutants characteristic of Puget Sound area
Other	Water spray, industrial cleaning solvents, and mud from cleaning vehicles	Water spray, industrial cleaning solvents, and mud from cleaning vehicles	Water spray, industrial cleaning solvents, and mud from cleaning vehicles

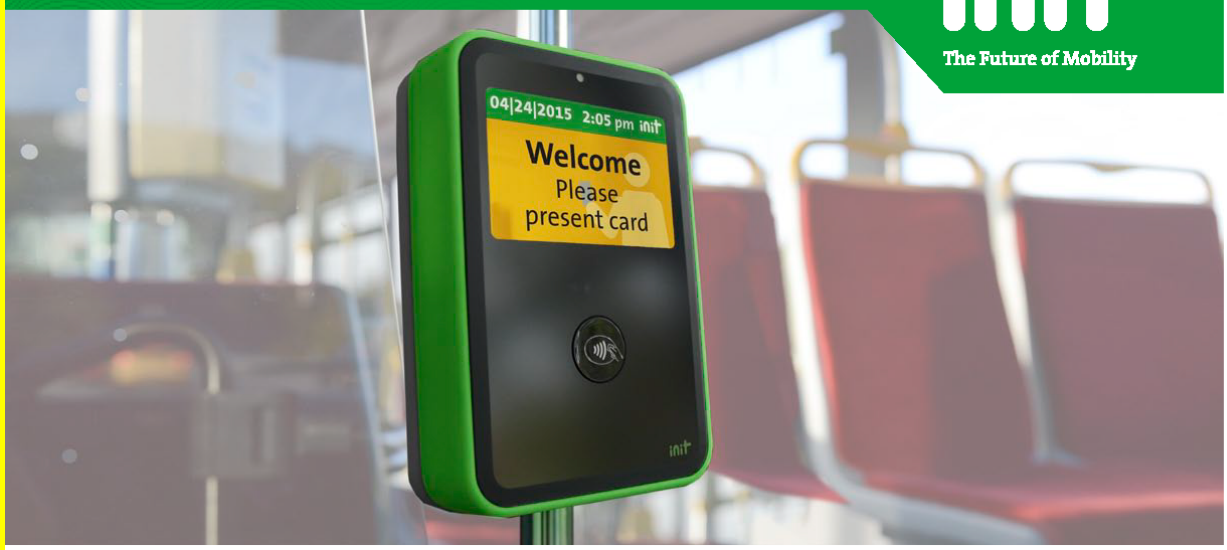
The onboard equipment will not be impacted from the damaging effects of visible spectrum and ultraviolet radiation. There are no active cooling devices in the onboard equipment to report failures on. The onboard equipment will be tested and certified to operate under the environmental conditions specified in SAE J1455.

1.4.1.9.2.1 PROXmobil3 DataSheet

PROXmobil3

Passenger Terminal

The Future of Mobility



Flexible, fast and secure

An easy-to-use fare collection system makes public transportation more attractive. Especially now that electronic fare management and passenger-operated terminals are in great demand.

Like its predecessor, INIT's new passenger terminal PROXmobil3 supports all variations of e-ticketing. The housing is more sleek taking up less aisle space on the vehicles.

With its 12.0 cm (4.75-inch) display PROXmobil3 offers passengers a convenient and intuitive way to manage all their ticketing transactions. For instance, they can select the ticket that is best suited for their needs, store tickets on smart cards, or validate bar code tickets. VDV-KA, ITSO, Calypso and boarding control are supported, as well as credit card based applications according to the EMV standard or account-based ticketing. The software supports different standards, even combined in one system.

The intelligent terminal can be operated as well as a stand-alone device as it is equipped with WLAN and GPRS/UMTS. PROXmobil3 is available in two versions: for mobile use inside vehicles and for stationary use at platforms.

Features

- Contactless payment in the vehicle
- Controlled boarding
- Check-in / check-out
- Automatic fare calculation
- EMV, NFC
- On-board or at platforms
- Easy installation

PRODUCT INFORMATION

Passenger Terminal

PROXmobil3

- Support of different standards (VDV-KA, ITSO, Calypso, etc.)
- Compact housing
- Hybrid card reader
- Back-up storage of sales data on a µSD card in the mounting plate

Technical Data	
Display	12.0 cm [4.75"] Diameter 754 x 480 dots 262k colors 900 cd/m² LED-backlight (controlled) Projected Capacitive Touch (optional)
Processor and Memory (RAM)	32-Bit ARM Cortex-A9 800 MHz 512 MByte DDR3L
Memory (Flash)	2 x 1 GByte µSD-card
Interfaces and Modules	Ethernet 10/100 Mbit WLAN IEEE802.3 a/b/g/n (optional) UMTS/LTE (optional) 2D Barcode scanner (optional) Audio output
Contactless RFID Reader	Chip cards (contactless): ISO 14443 a/b; Mifare(R) EMVCo Level2 (Mastercard, Visa, American Express, Discover), PCI PTS SRED certified optional: – VDV-KA – ITSO – Calypso NFC reader compliant Up to 4 safety modules (ISO 7816)
Power Supply	8 V – 33 V; max. 10 Watt
Dimensions	140 mm [5.5"] x 212 mm [8.3"] x 41 mm [1.6"] (width x height x depth) Installation using quick-change bracket; device secured by lock
Weight	approx. 1.1 kg [2.43 lbs]

We reserve the right to make future modifications / © INIT 10/2017

All information in this data sheet are to be perceived as proposals for configuration and don't necessarily belong to the basic scope of supply. The product is individually set up in accordance with customer requirements and corresponding commissioning.

INIT
sales@initse.com | www.initse.com

The Future of Mobility

1.4.1.9.2.2 TOUCHit3 DataSheet

There is not a datasheet for the TOUCHit3at this time. Below please find the datasheet for our TOUCHit2. The TOUCHit3 utilizes similar circuitry as the highly proven TOUCHit2, but with the following enhancements:

- Use of a capacitive (as opposed to a resistive) touchscreen for a brighter and sharper display, and a more responsive touch
- Independent standalone power circuitry as opposed to being dependent on the COPILOTpc2 onboard computer

TOUCHit2

Ergonomic Touch Screen Data Terminal

The Future of Mobility

Improved features of proven technology

TOUCHit2 is the 16.5 cm (6.5"), full-color touch screen that is ergonomically designed to provide essential information to drivers at a glance. Thanks to the fully graphical touch panel, maps and route displays and much more can be clearly displayed on the screen. The terminal also offers turn by turn navigation. All pertinent information is easy to grasp and functions are easy to operate, providing more efficiency to the driver.

TOUCHit2 is designed with a high resolution touch screen of 800 x 480 pixels giving drivers easy to read information even in bright sunlight. The improved display comprises LED backlights adjusting automatically to ambient light conditions. It also provides an easier light setting for night mode.

With its user friendly touch panel and outstanding readability of the display, TOUCHit2 is a sound investment for transportation companies worldwide.

Features

- Ergonomic design
- Flexible display layout
- Full-color touch screen graphics
- Customer-tailored display layout
- Custom functionalities can be added

PRODUCT INFORMATION

Ergonomic Touch Screen Data Terminal

TOUCHit2

- Automatic adaptation to the ambient lighting conditions
- Anti-glare touch screen
- 1 million touches guaranteed
- Connection to on-board computer via Ethernet with integrated power supply
- Double head operation possible (up to 60 m)

Technical Data	
Display	Graphic 6.5" [16.5 cm] TFT display, 800 x 480 dots, brightness up to 600 cd/m² LED backlight with automatic brightness control and 70,000 hours operating lifetime 0.5 – 100 % wide range dimming
Touch screen	Analog resistive touch screen 0.07" [1.8 mm] thickness ITO-glass antireflection coating
CPU	Freescale i.MX6 Solo (ARM Cortex A9) with 800 MHz, 512 MB RAM, 4GB Flash
Touch controller	Texas Instruments TSC2046E
Interfaces	Ethernet 10/100 Mbit/s (with integrated power supply)
Power supply	Input voltage range 8 V to 36 V Max. voltage of 1.5 A
Dimensions	7.3" [185 mm] x 4.1" [105 mm] x 1.4" [36 mm] (width x height x depth)
Weight	1.32 lbs [0.6 kg]

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D | Brisbane/AUS | Chesapeake/USA | Dubai/UAE | Montréal
& Toronto/CDN | Neuhausen/CH | Nottingham/GB |
Singapore/SGP | Tampere/FIN

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1.4.1.9.3 Wayside Equipment

The following chart demonstrates that INIT's wayside equipment meets the SOW requirements, except the ingress protection level IP65 as discussed below.

Capability	SOW Requirement	PROXmobil3 Platform Validator Specification	VENDstation / VENDmobile VMs Specification
Storage temperature	0 to +140°F	0 to 150°F	0 to 150°F
Operating temperature	-15 to 140°F	-15 to 140°F	-15 to 140°F
Thermal shock	Up to 30°F in 1-hour, non-condensing	Up to 30°F in 1-hour, non-condensing	Up to 30°F in 1-hour, non-condensing
Relative humidity	5-100% non-condensing	5-100% non-condensing	5-100% non-condensing
Airborne dust	Up to 180 μg / m^3, with iron & salt particles	Up to 180 μg / m^3, with iron & salt particles	Up to 180 μg / m^3, with iron & salt particles
Sunlight	Direct sunlight, radiation loading of up to 3MJ/hr/m^2	Direct sunlight, radiation loading of up to 3MJ/hr/m^2	Direct sunlight, radiation loading of up to 3MJ/hr/m^2
Platform inclination	0 to 10° off vertical	0 to 10° off vertical	0 to 10° off vertical
Rainfall	10" over 12 hrs	10" over 12 hrs	10" over 12 hrs
Water/solvents	IEC529 to level IP65 or equivalent	IP54 according to IEC 60529	IP34 according to IEC 60529
Pollution	Vog and other forms of native air pollution	Air pollution characteristic of Puget Sound	Air pollution characteristic of Puget Sound
Other	Water spray, industrial cleaning solvents, and mud from cleaning vehicles	Water spray, industrial cleaning solvents, and mud from cleaning vehicles	Water spray, industrial cleaning solvents, and mud from cleaning vehicles

Our standard validator is IP54 classified and therefore suitable for outdoor use. The suitability for outdoor use has been proven in environments similar to Seattle, e.g. in Portland, OR.

IP 54 means that the validator has a limited protection against dust ingress, with no harmful deposit of dust within the device. In addition the validator is protected against splash water from any direction.

Getting the validator to a IP65 classification would require a redesign that could be priced as an option.

INIT will ensure that incidental moisture that enters the VMs through the coin, bill, and card slot is managed – for instance, the coin shutter directs any water that enters the coin slot to the waste chute. The wayside platform validator and VMs do not use any cooling devices to report on and cause a graceful shutdown.

Please see Appendix 3 for the following VM component hardware specifications:

- Display
- Bill handling unit
- Coin acceptor
- Coin shutter
- Coin escrow
- Bank card reader and pin pad
- Smartcard dispenser
- Receipt paper
- Receipt paper roll
- Power supply
- UPS

VENDstation

Stationary Ticket Vending Machine

The Future of Mobility

Cash or cashless: easy access to the requested ticket.

The stationary ticket vending machine VENDstation offers a clearly structured menu on an easy-to-read 15" TFT display. The colorful touchscreen provides a clear presentation of various tariffs and can be easily read under all lighting conditions. Passengers benefit from the ability to find their way around more easily – even if they are not familiar with the local tariff structure.

In addition, braille fonts and the adapted height of all user components (compliant to the TSI PRM standard) make it much easier for people with reduced mobility or visual impairment to use the ticket vending machine.

According to their preference, passengers can pay for their tickets either by credit card, smart card or cash. Depending on the option selected, passengers receive their tickets on their smart card or printed as paper ticket.

Features

- Touch screen operation
- Clearly structured menu
- Credit card acceptance
- Smart card acceptance
- Cash processing
- Disability-friendly

PRODUCT INFORMATION

Stationary Ticket Vending Machine

VENDstation

- Credit card payment in accordance with all standards
- Complies to disability act based on US-standards
- Up to 4 independent thermal printers
- Various paper types possible

Technical data	
Housing	2 mm steel housing, 4 mm stainless steel door with 2 mm aluminum front Degree of protection IP54 (excluding apertures, e.g. ticket tray), 9-toothed locking bar for multiple locking
Display	38.1 cm [15"] TFT-color display, resolution 1024 x 768 pixels, brightness 1100 cd/m² IPS Resistive touch (operation with gloves possible)
Processing unit	Industrial PC with Intel Atom processor; Flash memory (µSD); passive cooling
Printer	Thermal printing unit(s) (up to 4 independent printers): Graphics-capable printer supports 1D and 2D barcode printing Ticket output up to 200 mm/s [7.87"/s] , resolution 200 dpi (8 px/mm) Each printer uses one paper roll with up to 300 mm [11.81"] diameter Print width of 50 mm [1.97"] to 80 mm [3.15"], paper width of 70 mm [2.76"] to 82.5 mm [3.25"], paper thickness up to 140 g/m²
Barcode scanner	1D / 2D barcode scanner, Standards (among others): VDV-KA und UIC 918.3; reads from cell-phone display or paper
Coins	Electronic lock of the coin slot, electronic coin checker, 6 change devices with 50 coin holders each, up to 4 hoppers, self-sealing coin box with 7 liters
Banknotes	Coin box 600 / 1400 / 2000 banknotes; Escrow with up to 15 banknotes; Recycling up to 4 note values
Debit / credit cards	Customer requirement Option: Contactless credit card reader
Smart cards	Card reader for contactless cards (RFID); RFID standards: ISO 14443a/b, ISO 15693, MIFARE®, Support of NFC mobile phones; 4 x SAM (ISO 7816), supported standards: VDV-KA, EMV-Level-1, ITSO (optional), Calypso (optional) Card dispenser to issue cards with 250 / 500 cards on stock; internal writing to and reading from the cards; ticket return
Interfaces	USB, LAN, WLAN, GSM/GPRS/EDGE/UMTS/LTE
Temperature range	-20° C to +65° C (-4° F to +149° F)
Power supply	100 V to 240 V / with integrated uninterruptible power supply
Special features	Handicapped accessible in accordance with TSI-PRM, braille, loudspeaker, alert
Optional modules	Microphone, headphone connection, anti-graffiti paint, drum lock
Dimensions	max. 900 mm [35.43"] x 1930 mm [75.98"] x 450 mm [17.72"] (width x height x depth; incl. base and cover)
Weight	Approx. 300 kg

All information in this data sheet are to be perceived as proposals for configuration and don't necessarily belong to the basic scope of supply. The product is individually set up in accordance with customer requirements and corresponding commissioning.

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1.4.1.9.4 Office Equipment

The Customer Service Terminals (CSTs) will be designed to be installed in an office and mobile environment. Please see Section 1.6.4 for information and specifications of the CST components.

1.4.1.10 Electrical

This section addresses the electrical capabilities of the onboard and wayside equipment. Please see Section 1.6.4x.x for CST electrical capabilities.

1.4.1.11 Power & Voltage Capabilities

INIT's equipment incorporates robust, reliable power and voltage capabilities suitable for the environment it's operating in. The PROXmobil3 onboard validator and the TOUCHit3 DDU draw power from the vehicle DC power source. The VMs obtain power from the station 115 or 240 Vac line voltage, and the platform validators can obtain power from the station line voltage or Power over Ethernet (PoE). All power conditioning is done within the equipment enclosures, except for the platform validator (whose power conditioning is done within the installation pole).

The onboard equipment, as indicated by the chart below, can operate over a wide range of input voltage.

Onboard Equipment	Minimum Input Voltage	Maximum Input Voltage
PROXmobil3 onboard validator	9 Vdc	36 Vdc
TOUCHit3 Driver Display Unit	8 Vdc	36 Vdc

The PROXmobil3 uses a varistor in the power supply rail to absorb transient surges which provides protection against damage to internal components. The PROXmobil3 system controller monitors the voltage level, and will shut down the device if the voltage level is too high. Low-voltage conditions are handled by the power circuitry itself by performing a power-on reset. The PROXmobil3 uses filters and switching regulators to withstand noise and power fluctuations. The printed circuit board is an 8-layer board with two complete ground planes, which vastly improves immunity to electronic interference, which may come from other onboard equipment. The validator protects against transaction data damage, loss or modification during voltage fluctuations or other power related events through the use of high-grade flash memory by storing several copies of the sales data to different flash areas in the validator.

The VENDstation and VENDmobile use the station line voltage, and can accept an input voltage range of 90 Vac to 305 Vac (as indicated in the power supply specification in Appendix 3).

The VMs incorporate a UPS within its enclosures which provides 30 minutes of back-up power to allow for graceful shutdowns in the case of power loss. The VMs power up automatically upon resumption of AC power. The platform validators can utilize either station line voltage or Power over Ethernet (PoE), and will accommodate 10% fluctuations in the line voltage. All field equipment will retain all information stored on non-volatile memory regardless of any voltage or power issues.

1.4.1.11.1 Electrical Noise Capabilities

1.4.1.11.2 Grounding

INIT shall, with respect to grounding, conform to the National Electric Code (NEC) and UL, SAE, and local codes where applicable.

1.4.1.12 Licensing & Ownership

1.4.1.13 Accessibility & ADA Compliance

The proposed System will be compliant with current accessibility standards, laws, and regulations and ensures that the system meets or exceeds the Americans with Disabilities Act (ADA) and accessibility requirements of federal, Washington State and Puget Sound regional governments. INIT is working with external ADA consultants to ensure ADA compliance.

1.4.1.14 Code & Regulation Compliance

INIT concurs with the requirement that the proposed system will be compliant with relevant standards, laws, and regulations to ensure that the System

- Presents no safety hazards for customers and agency employees
- Will withstand the rigors of the environments in which the equipment will be installed, and the public use to which it will be subjected
- Provides for the secure storage and transmittal of data
- Is designed using state-of-the-art methods to maximize quality
- Satisfies federal, state, and other requirements for ergonomics and usability

1.4.1.15 Information Security

Information security is a critical component of the next generation ORCA technology solution. Ensuring the confidentiality, integrity and availability of the system is critical to the customer experience and trust in the system. The people, processes and technology involved in system delivery will need to work collaboratively under common guidance to achieve system security. INIT will work with the agencies, subcontractors, vendors and service providers to ensure selected ISMS controls are implemented and followed. INIT has not included effort to pursue or obtain ISO or ISMS certification independently, as we understand that this is portion of a ROOT-managed ISMS.

An ISO27001:2013 driven ISMS has a broad amount of guidance and controls, therefore INIT recommends the selected ISMS controls to be right-sized and appropriate for the solution rather than attempted to be applied at a level requiring compliance with every potential control within the ISO framework. Not every ISO control is applicable or likely palatable to the agency, provider or subcontractors due to the costs and time to document and manage the vast amount of information associated with implementation, testing and tracking every control. While INIT understands the intention of the system to be operated within a selected set of ISMS controls, INIT has included a subset of recommended controls as described in section 1.4.2.8. INIT assumes that the agencies, ROOT, or other external auditing party may recommend additional controls throughout the lifetime of the system. The implementation of these new controls, if adopted or requested by the agencies, will be considered a change as they are additional to what has been priced and included.

1.4.1.15.1 Information Security Management System – Asset Management

As a control objective of an ISMS, asset management within the next generation ORCA information technology is concerned with the identification and management of the assets involved in service delivery. Inventory will be managed using a CMDB within the Asset Information Management (AIM) platform. Assets include hardware, software, licenses, and other equipment or systems associated with the delivery of the system. Each tracked asset will be assigned an asset owner, description, and location, criticality and classification. The CMDB will be

the system of record to manage the assets and their associated information and life cycle. All hardware and software will be procured through primary sources rather than the secondary market to ensure integrity of firmware and legality of licenses. Ensuring license, support and access to primary sources supports ISO guidance regarding supplier relationships and the reduction of risk associated with supplier's assets. In the case of the proposed hosted environments, the hosting provider will ensure the maintenance and lifecycle of the assets.

1.4.1.15.2 Access Control

This chapter is focused on INIT's access control approach.

1.4.1.15.2.1 User Authentication

All users of the system are required to authenticate to a centralized directory within the back office. Windows Active Directory centrally manages user login identity, password policy, and roles for access to the INIT provided systems and applications. The role based access control available within the integrated Active Directory and INIT solution can provide individual or group access and ensure which level of access those users are granted. While Active Directory between the next generation ORCA system and the existing ORCA agencies could be federated and trusted, the large number of users combined with the internal and external applications will benefit from a universal directory. In alignment with ISO27001 guidance, INIT recommends deploying this strategy to create user authentication consistency in the distributed network environment required by the next generation ORCA system. A federated identity solution provider such as Azure AD Services can provide the recommended universal directory, SaaS application integration, multi-factor authentication and secure access.

1.4.1.15.2.2 Password Policy and Management

Password policy is set and enforced in the settings of the primary user directory. Accounts will be forced to create and rotate passwords depending on a mutually agreed policy definition. INIT recommends adopting the most recently updated NIST password guidelines which emphasize longer passwords with longer rotation schedules. This provides a higher level of security through increasing the amount of entropy within an individual password as well as decreasing user shortcuts that inevitably occur when forced to create complex passwords at a high frequency. With the addition of Azure AD, password policies and changes should be able to be enforced throughout the entire distributed application infrastructure adding additional security and easing the burden on end-users.

1.4.1.15.2.3 Privileged Remote Access [redacted]

[redacted]

1.4.1.15.2.4 Firewalls, Routers, Switches and Network Security

Edge devices such as firewalls and routers, along with internal access layer devices such as layer 2

[redacted]

1.4.1.15.2.5 Physical, Environmental and Equipment Security

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

1.4.1.15.3 Encryption

[redacted]

1.4.1.15.3.1 Database Encryption

1.4.1.15.3.2 Communication Security

1.4.1.15.3.2.1 API Communication

INIT secures all API communication

1.4.1.15.3.2.2 Field Device Communication

[redacted]

1.4.1.15.3.2.3 Public Website

The publicly accessed web applications are secured [redacted].

1.4.1.15.4 PCI & PII

In order to reach 100% PCI compliancy and most important a bullet proof secure payment system, [redacted]

For this project, INIT will also contract with a local PCI QSA who can make all local evaluations necessary.

Highlights of the INIT PCI solution:

- [redacted]

In order to provide reliable, flexible and versatile and 100% PCI compliant payments, INIT is working with different gateway providers such as the CreditCall payment gateway.

The following diagram gives an overview how payments are processed in the system and which parts of the system are in the PCI scope.

On the lower left hand side is the card holder who can purchase services via different system services. The card can be presented to one of the validators (PROXmobil3) which generates an open payment credit card transaction and forwards in to the payment gateway.

[redacted]

1.4.1.16 Fraud Prevention

INIT's system supports a host of fraud detection and prevention functionality – including:

- Data analytics to support fraud detection based on ridership data
- Agency-configurable velocity checks
- Detection of potentially cloned cards

In addition to the detection of fraud, the system provides numerous fraud prevention capabilities:

- Passback protection configurable by fare media type, fare product, agency, mode, and passenger type which can be set differently for different device types
- Upper ride limits on period passes generating automated alerts, with the configurable auto-blocking
- Configurable "floor limit" for stored value (which can be set to zero or a negative value) with configurable auto-blocking
- Ability to set credentials and transit accounts to "observation mode" so that all activity is reported in an extra report for further investigation
- Blocking credentials and transit accounts automatically and manually (including on a bulk basis)
- Master Status Lists (MSLs) including negative lists of blocked cards regularly updated to field devices for offline validation provisions
- Writing limited information to cards for offline validation purposes

1.4.2 System Architecture

INIT is proposing an open architecture, modular design system with extensive use of Application Programming Interfaces (which will be licensed to the Agencies) as depicted in the figure below.

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1.4.2.1 Account-Based System

INIT's proposed system is a service-proven account-based system. The back office Account-based Transaction Processor (ATP), performs the fare calculation and processes all transactions in real-time. It also acts as the system of record for fare calculations and enforcement. To keep it a true account based system, fare media such as smart cards and NFC enabled smartphones, will serve only as credential for accessing transit accounts. Limited amount of data will be written to the fare media to support risk mitigation strategies, mostly for fare inspection reasons.

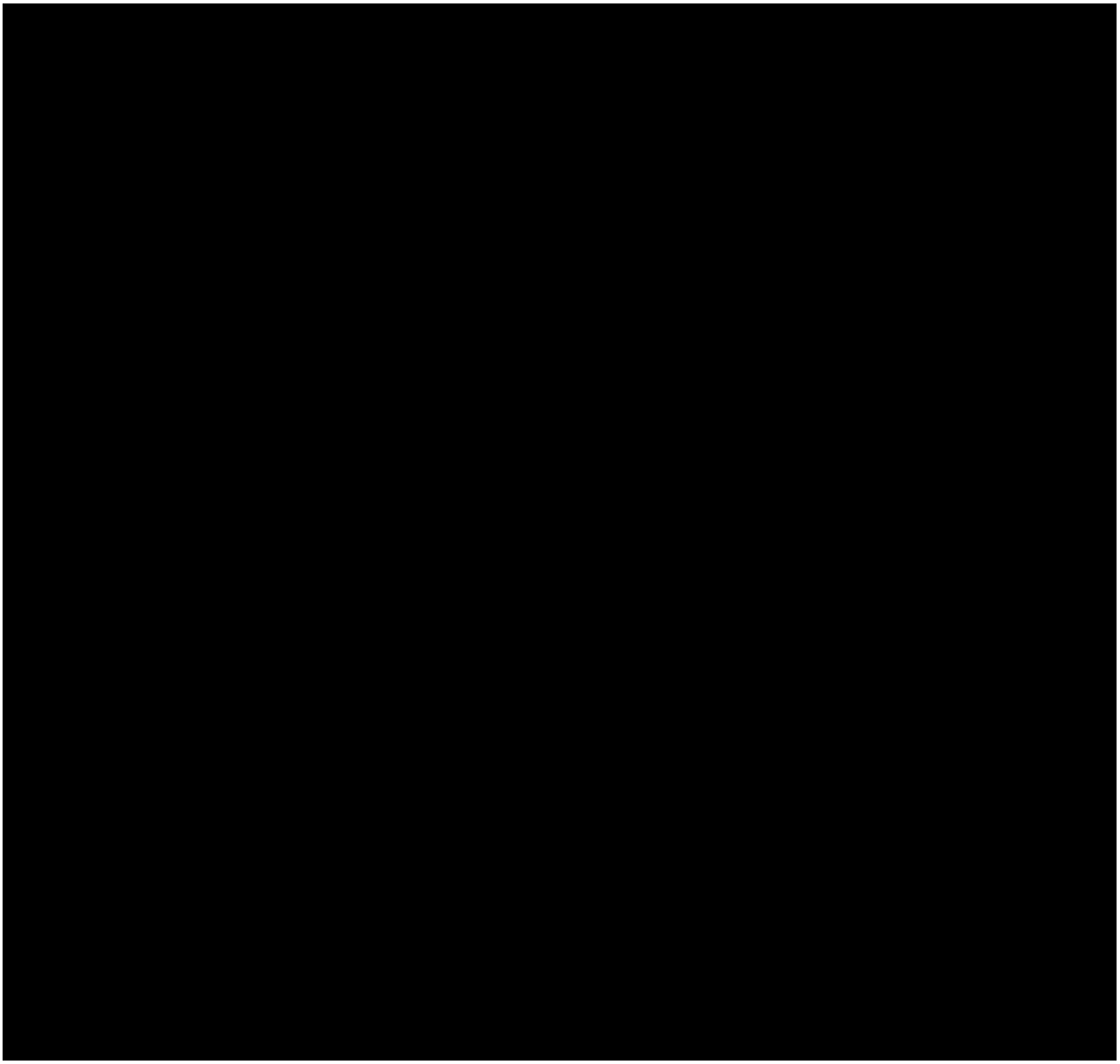
The ATP includes a module to configure and maintain fare apportionment rules between agencies based on fare products purchased, products used, number and value of trips taken, and agency associations. The ATP apportionment module includes an intuitive, user friendly interface to allow the rules to be securely maintained and updated, including the ability to change current rules and add new rules based upon new fare products, trip types, or Agencies being added to the next generation ORCA program.

1.4.2.2 Real-Time Communications

Each fare validation and fare distribution device will perform real-time communications with the back office. If no wired connection can be established (e.g. on-board devices), the devices will communicate using cellular technology.

1.4.2.3 Offline Provisions

[redacted]



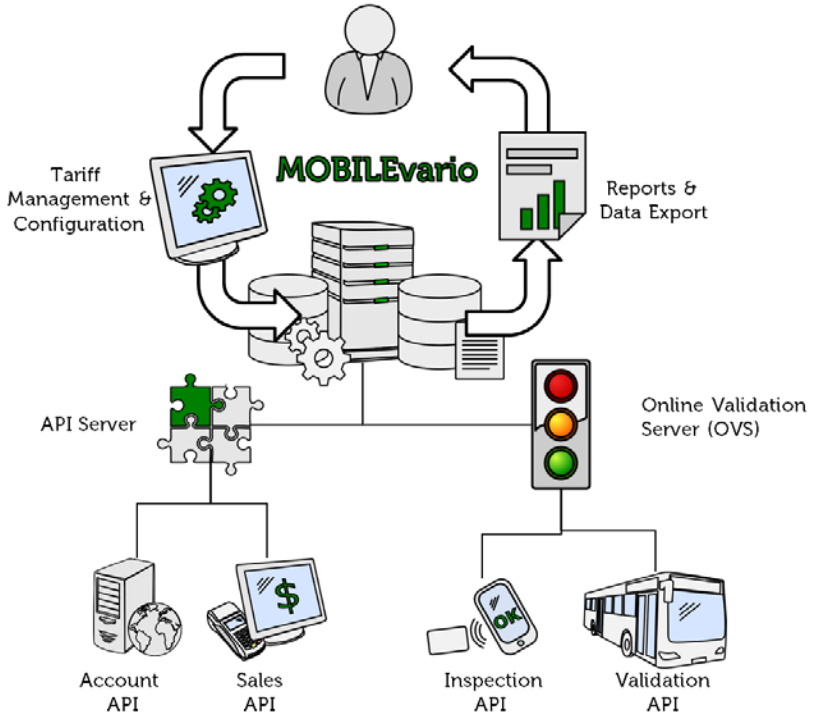
1.4.2.4 Application Programming Interfaces

A core aspect of INIT's account based system is the use of Application Programming Interfaces (APIs). These RESTful (Representational State Transfer) APIs provide an Open Architecture that supports vendor independence and streamlines integration with other payment channels. INIT will utilize the vast majority of its existing service proven APIs, modify some, and develop new ones to meet the next generation ORCA requirements. INIT will develop Interface Control Documents (ICDs) that specify the API calls, data formats, and communication and security protocols. INIT will implement strong security controls to prevent fraudulent use of APIs and

authenticate all users in accordance with the ORCA Agencies Information Security Management System (ISMS).

INIT's open architecture APIs are based on the REST standard and JSON data format which is the de facto standard today for web APIs. The API developers can use the APIs with standard http client libraries of the programming language of their choices (#C, C++, Python, Java, Javascript etc.), command line tools such as curl or wget, or API development tools such as postman or insomnia to test and develop against the APIs.

The figure below shows INIT's existing core APIs that provide functionality for any 3rd party devices and networks to sell and validate fares. All client devices and customer interfaces use INIT's APIs to sell and validate fares.



INIT's Core APIs to create an Open Architecture Platform

The account API provides services to access customer and transit account information in order to integrate mobile applications, web services and even 3rd party CRM tools. All sales transactions like product sales or value loads are generated via the sales API and the Online Validation Service (OVS) provides the validation API to recognize that revenue.

The test environment will allow the ORCA agencies or Third-Party Vendors (TPVs) to design and test their solutions. This protects the agencies' valuable investment for many years to come as it allows the agencies to enhance the system autonomously.

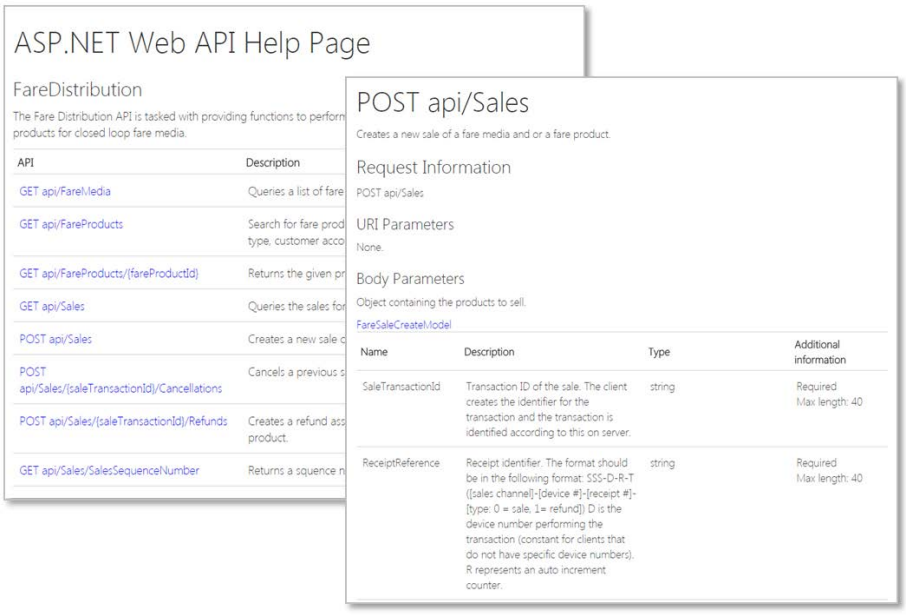
OVS is also an API server that provides REST APIS for the validation/inspection devices. The system clients can access these APIs via the API management gateway (Azure) or directly. For the validators that require very low response times, INIT suggests that the devices access the API services directly.

The APIs provide a standard and easily understandable interface to the next generation ORCA System. These APIs demonstrate the open architecture of the system, and provide the agencies full flexibility to integrate 3rd party sales and fare validation solutions. The following table lists some of the main APIs of MOBILEvario.

Specification	Description
Product API	API is tasked with product related operations
Fare Distribution API	API for selling fare products and adding stored value on transit accounts
Fare Payment API	API used by platform/vehicle validators and agency mobile app for real-time fare validation and stored value usage
Fare Inspection API	API used by fare inspection devices to check if a given fare media has a valid transit product
Transit Account Management API	API used by POS devices, web portals and CRM system to list transactions do value adjustments etc.
Customer Account Management API	API used by web portals and CRM system to manage registered users (including institutional customers)
Cardholder API	API used to query and modify data maintained on cardholders
Device Management API	API for remotely managing and monitoring devices in the City system

In addition to the above existing main APIs, INIT utilizes additional APIs – such as, central payment processing API – which will be added to the list during the design phase. INIT will also add specific APIs required by the ORCA Agencies such as, the onboard integration API. In addition to the APIs, INIT will publish specifications, as requested in the SOW, for all transactions generated and used within the system but not already covered by the required API.

INIT provides an easy to understand help page for all API calls.

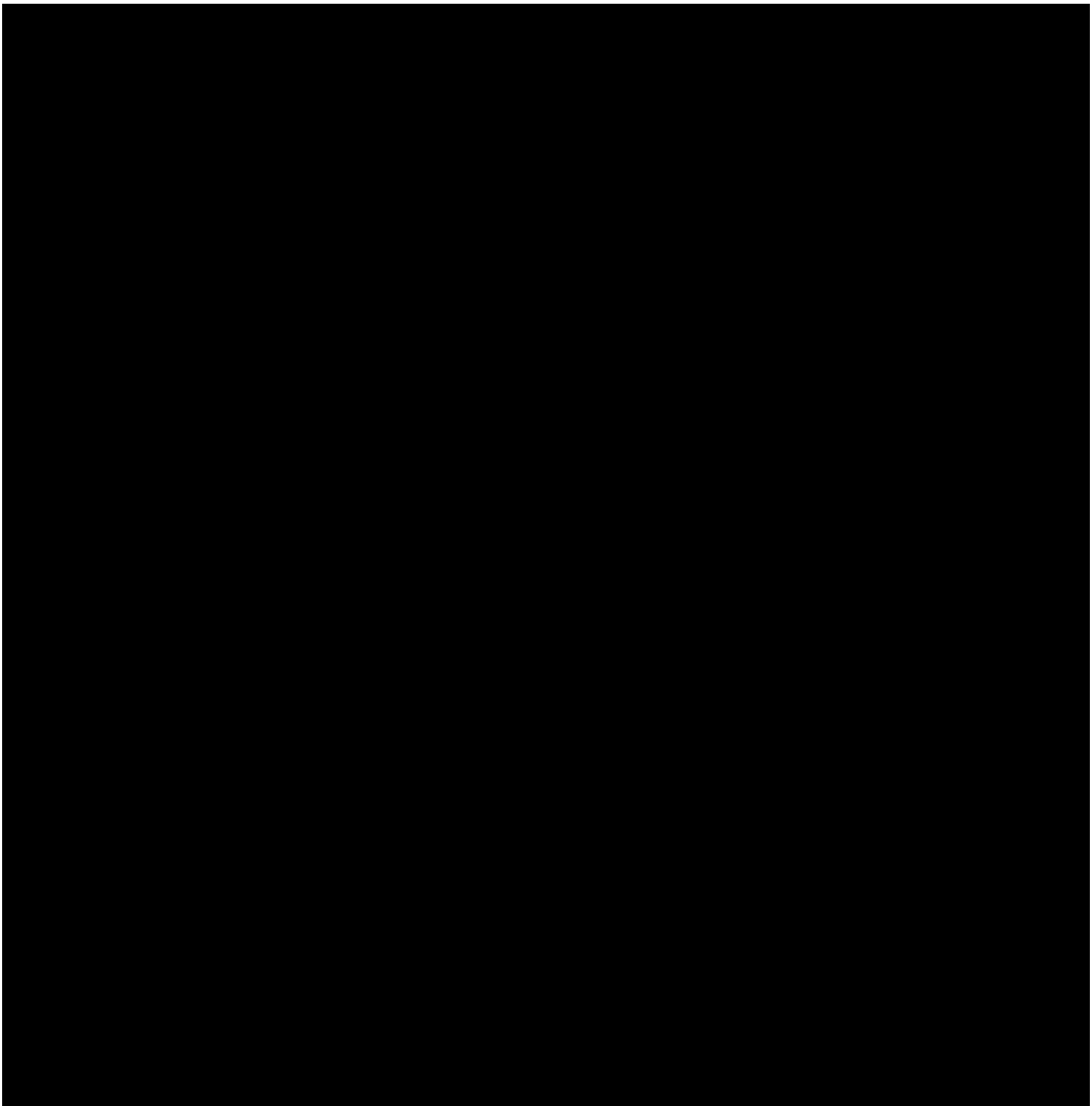


API Help Page

Below is a screenshot of an API development and testing session with postman (a very popular API testing and development tool).

In the above screenshot the users gets a list of the available sales channels with the SalesChannels REST API endpoint.

The following example shows how the get the 5 most recently blocked transit account. The example is written in Python:



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1.4.2.5 Network Architecture

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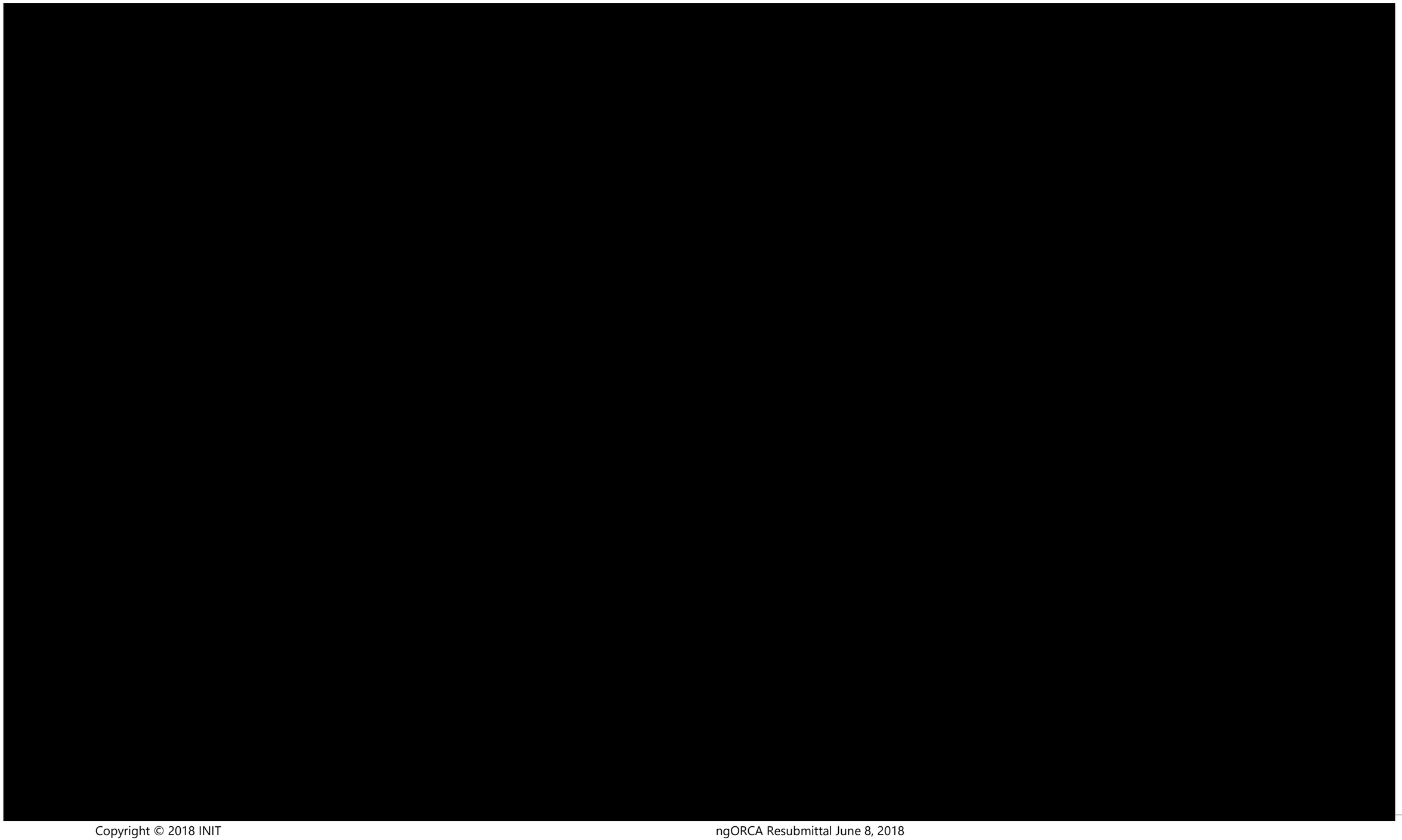

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1.4.2.5.1 Description

The proposed network architecture consists of a datacenter managed [redacted] consisting of enterprise class servers, storage and networking deployed in a multi-site, stretched virtual cluster leveraging geographic load balancing to create an active/active disaster resilient infrastructure. Production and pre-production virtual machines and applications live within the resources of the stretched cluster which is capable of making either proactive or lightly automated decisions to ensure system availability across sites. A separate test back office infrastructure replicates the load balancing and availability characteristics of the production system but without the multi-geographic site strategy. Importantly, a third out-of-region data backup facility ensures data availability in the rare case of a catastrophic regional event.

INIT proposes the managed [redacted]

[redacted]

See Appendix A: Disaster Avoidance vs. Disaster Recovery for additional information.

[redacted] a [redacted] low-latency data center infrastructure with broad wide area networking capabilities ensures uninterrupted access to internet based resources and agency networks. Enterprise class data center software including Windows, VMWare, [redacted] provide commercial off-the-shelf software capabilities to create a managed, secure and resilient information technology infrastructure. Local, remote and data-center managed services provide 24/7/365 response capabilities to infrastructure events. [redacted]

[redacted] hosted environment was proposed to be able to provide a localized data center, with private cloud resources and security, at a predictable cost. Hosting in a public cloud increases latency risks between agencies, users, vehicles and the public cloud hosted back end environment. Due to the sensitive nature of real-time validations, INIT prefers deploying in locations close to the operating environment. INIT recommends private-cloud infrastructures to provide more administrative control, monitoring, and single-tenant storage and resource guarantees. Further, the private cloud strategy provides a more predictable cost over a long period of time which more appropriately matches the fixed price contract and should allow the agency to avoid spikes in operational costs due to configuration changes made in the future.

[redacted]

1.4.2.5.2 Onboard Infrastructure

INIT supplied on-board equipment such as fare validators will leverage the agency-provided mobile access router (MAR) providing the required cellular or wireless communications to the back office. INIT recommends leveraging VLAN capabilities of the MAR to segment fare-related network traffic from other onboard technology systems such as CAD/AVL. INIT will require specific ports and protocols to be able to be routed through the MAR for the purposes of basic communications, software updates, and device management. Typical network protocols such as DNS, NTP, SNMP, UDP, HTTP/S, SSH are requested and either standard or non-standard ports can be assigned during design review. INIT recommends this traffic be routed [redacted] network, file transfer to the backend will occur via the [redacted] protocol.

1.4.2.5.3 Wayside Infrastructure

INIT supplied wayside equipment such as pole validators or VM's will leverage agency-provided wired infrastructure for communications to the back office.

1.4.2.6 System Hosting

INIT interviewed and analyzed several data center providers to provide the hardware, software and managed infrastructure as a service required to operate the next generation ORCA back office technology infrastructure. As expected, a large number of datacenter options available in the Seattle area were capable of fulfilling the technical requirements; however, several providers specifically met INIT's goals of having a strong, local Seattle-based presence, multiple local data centers, and a third, out-of-region on network datacenter. Superior availability, security, and deep technical engineering experience were also a key requirement used during our analysis.

INIT proposes Seattle-based [redacted] IAAS provider. [redacted]

[redacted]

[redacted]

1.4.2.6.1 Customer References

[redacted]

1.4.2.6.2 Security

[redacted]

[redacted].

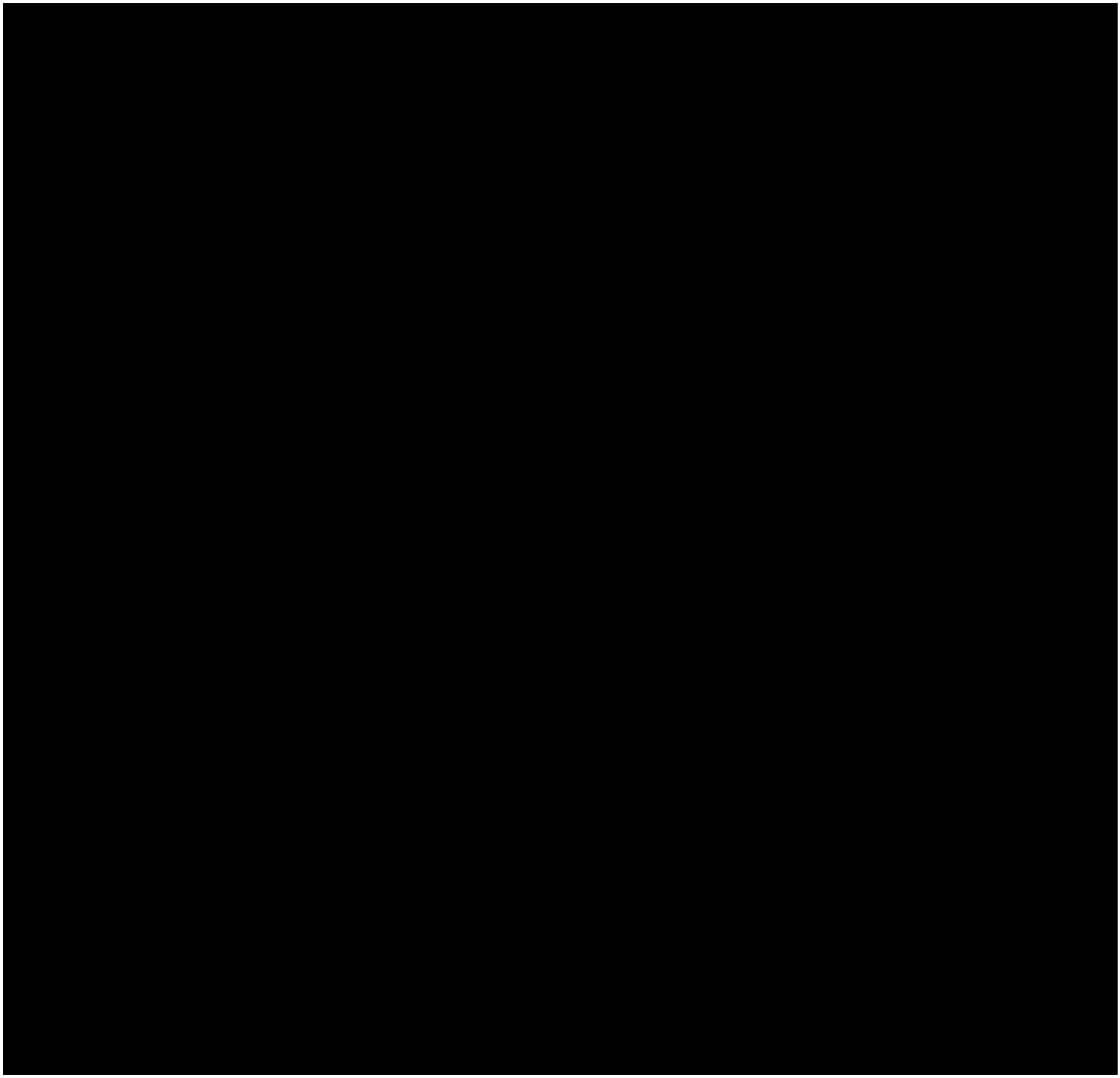
1.4.2.6.3 [redacted] Staffing and Resources

[redacted] uses a multilayered technical and engineering team approach to manage and maintain its cloud operations. The team comprises of engineers with different strength and expertise including program managers and project managers to manage and deliver projects to customers.

The team comprise of the following layers:

- Tier1 Technical Customer Support Representatives
- Tier1 System Administration
- Tier1 Network Administration
- Tier2 System Administration
- Tier2 Network Administration
- Tier3 System Administration & Architect
- Tier3 Network Administration & Architect
- Facility Engineers
- Software developer and application developers
- Technical Project Managers
- Virtual Chief Technical Officer (CTO)

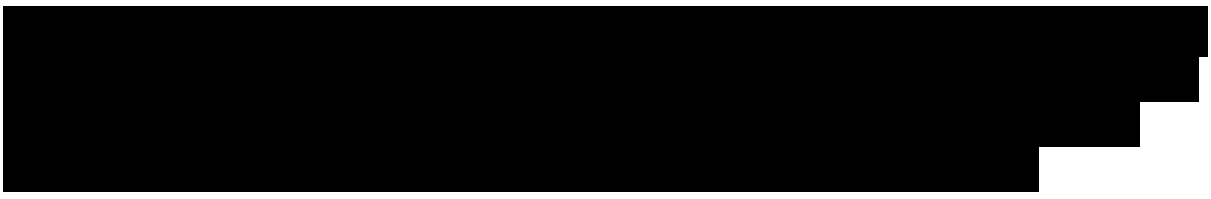
[redacted]



1.4.2.6.4 [redacted] Uptime History

1.4.2.6.5 Wide Area Networking Capabilities

1.4.2.6.6 Single Tenant Private Cloud



1.4.2.6.7 Multi-Site

Multi-site solutions prioritize proactive and partially automated

disaster avoidance over orchestrated failover oriented disaster recovery strategies. A third site will be leveraged for an out-of-region data archive location to ensure data availability in the unlikely event of a regional disaster that could impact both data centers.

1.4.2.6.8 Load Balanced / Parallel Transactions

The multi-site infrastructure allows for the hosting of web sites and API services at both data center locations simultaneously. A load balancing strategy providing global server load balancing DNS-based capabilities allows traffic to be routed into either data center. This allows the infrastructure to operate in an active/active mode, dynamically routing traffic between datacenters to avoid over capacity servers or failed services. Inbound traffic is processed in a primary site by highly available middleware applications and databases capable of being migrated or failed-over to the secondary site.

1.4.2.6.9 Hardware Redundancy

All deployed hardware is deployed using industry standard best practices in either active/active or active/passive configurations depending on the technology layer. Any networking devices such as switches, routers, firewalls, fiber switches, etc. are deployed in high availability configurations with at least two devices in each datacenter location. This allows for multiple network and storage network paths between host servers, storage, and wide area networks.

All storage mediums regardless of location in servers or dedicated storage arrays are protected with RAID ensuring disk failures or disk performance issues can be isolated and protected from impacting the system as a whole.

Multiple host servers are deployed to create a larger, distributed resource pool the virtual machines and appliances can use to perform the compute operations necessary. For example, five host servers are clustered together into a virtual datacenter to create a pool of CPU and Memory resources. The deployed virtual machines can operate on any of the five hosts that has enough capacity to run the provisioned resource requirements. Hosts are configured with greater resource availability then the system requires to provide for availability, scalability and redundancy in the case of a host failure or intentional host maintenance.

1.4.2.6.10 Data Resiliency

Data is written into multiple databases in near-real time ensuring transactional integrity of the database. All databases, virtual machines and applications are stored on enterprise class storage devices leveraging redundant hard drives (RAID) to provide a resilient data infrastructure. Additionally, this data is replicated to secondary storage locations as well as archived to the off-site data storage location outside of the Seattle area.

1.4.2.6.11 Hardware Refresh

Over such a long period of performance, the back office system will necessarily undergo one or more hardware refresh cycles. Estimated to be at least every five (5) years, the INIT and WOWRACK teams will ensure maximum availability through regular hardware maintenance and refresh.

1.4.2.7 Operational Security

Perhaps one of the broadest areas of ISO guidance is operational security. INIT's proposed back office system already addresses many of the primary sub-clauses critical to maintaining the availability of the environment.

1.4.2.8 Security Operations Center

To support the security, compliance and ISMS requirements of next generation ORCA, INIT intends to operate a security operations center to monitor, evaluate, and respond to security incidents, vulnerabilities, or unexpected changes to the environment. The security operations center is responsible for security incident event management (SIEM), log management, intrusion detection and regular vulnerability assessments. In addition to providing a mature set of security related tools, the security operations center will evaluate and escalate important incidents while minimizing the significant amount of noise and overhead associated with managing these tools and their outputs. The Security Operations Center provides security management for perimeter defenses, data protection, endpoint protection, and vulnerability protection.

INIT will leverage [redacted], a Security Operations Center service provider will provide the security operations center applications and staff to monitor, analyze and report on the next generation ORCA infrastructure. [redacted]

1.4.2.8.1 Change Management

While the change management process and communication is handled by the Atlassian tools JIRA Service Desk and Insight, additional device and configuration change of IT devices are monitored and managed by [redacted] is a file integrity management platform that provides change auditing and security protection to servers, networks, databases. Deployed as an on premise, agent based system, [redacted] provides change details to support the who, what, when question details of changes. In addition to supporting ISO guidance, a change management control system also supports related PCI-DSS requirements for file integrity monitoring and change detection. [redacted] multiple change detection and response options including logging, recovering and prevention.

1.4.2.8.2 Web Server Change Tracking

[redacted] can be deployed to protect the configuration and content files behind public web servers. [redacted]

1.4.2.8.3 Network Device Change Tracking

[redacted]

1.4.2.8.4 Databases Configuration Change Tracking

[redacted]

1.4.2.8.5 Malware/Antivirus Protection

In addition to change management, anti-malware and anti-virus solutions align with controls recommended to protect the integrity of information systems. An effective anti-malware platform provides endpoint security to the servers and workstations deployed as part of next generation ORCA. [redacted]

1.4.2.8.6 Patch Management

Expected changes to the environment include those introduced by application and operating system patches. Following ISO guidance and general IT best practices, INIT will deploy a patch management platform to handle physical and virtual environments both internally and externally from the data centers. [redacted]

1.4.2.8.7 Capacity Management

Capacity management which monitors capacity and makes projections about future resource requirements is provided by an array of management and monitoring solutions. While the monitoring solutions are typically implemented as part of a larger Systems Management solution, the individual monitoring tools also provide the capacity management capabilities. [redacted] and storage provide tools for the system administrators to proactively predict and respond to potential resource constraints either through optimization or through the addition of resources.

1.4.2.8.7.1 S[redacted] Network Performance Manager

SolarWinds Network Performance Manager (NPM) provides performance monitoring and trend analysis for network and server devices in the back office environment. The solution extends beyond internal network devices to monitor and track WAN performance and capacity between the back office and the agency endpoints. While primarily used for system monitoring and reporting, the NPM platform provides the data collection and analysis needed for network capacity monitoring.

1.4.2.8.7.2 [redacted] Server Application Manager

SolarWinds Server Application Manager (SAM) provides performance monitoring and trend analysis of server resources in the back-office systems. SAM provides the capability for timeline based data correlation to provide operational intelligence across the technology stack. This data correlation allows for trend analysis intelligence to be performed between network, server, storage, and virtualization layers. While primarily used for system monitoring and reporting, the SAM platform provides the data collection and analysis needed for system resource monitoring.

1.4.2.8.8 Environment Separation

ISO controls suggest the separation of development, testing and production environments and INIT's proposed back-office infrastructure is deployed in support of that guidance. As demonstrated in the network architecture diagram, the production and pre-production back office systems are built within the same hosted, multi-site, distributed infrastructure and share the directory, monitoring, redundancy, load balancers and other administrative services deployed in support of the back-office requirements. Leveraging these support functions for both production and pre-production help limit costs and complexity while providing segmentation and isolation for the pre-production environment. Virtual machines from the

production environment can be replicated to the scaled down, separate test environment deployed on a separate infrastructure. While representing smaller scale and redundancy of the production environment, the test environment will mirror some of the load balancing and disaster avoidance strategies in order to be able to test these functions from the test facility. Development environments are deployed and maintained in virtualized development environments in INIT's on premise datacenters [redacted]

1.4.2.8.9 Backup

Backup is an integral component to system availability, business continuity and disaster recovery objectives. INIT will deploy a backup infrastructure to complement the multi-site disaster avoidance strategy as detailed in the Network Architecture section. INIT deploys backup solutions which are purpose built to leverage virtualization benefits allowing both full and incremental backups to be taken quickly and without production impact. Our backup controls are focused on backup verification and quick data recoverability. Integrations with VMWare, Windows, and Oracle provide granular backup and recovery options at either the virtual machine level or the file level. INIT proposes an out-of-region data backup facility to ensure resiliency from regional issues with the possibility of impacting both production datacenters in the greater Pacific North West region. Backups will occur locally within the production back office and be copied to an offsite, out of region storage location. This strategy provides for near-store backup data for the fastest RTO and RPO as well as for a remote-store backup for longer RTO/RPO but with protection against the rare, regional disaster that could affect the entire regional system and datacenters such as fire, flood, or earthquake. The scope of backups include applications, network devices and databases. Backup controls are additional to the disaster avoidance controls detailed in the Network Infrastructure and Business Continuity sections.

1.4.2.8.10 Network Segmentation

ISO27001 recommends introducing controls within larger network environments that segregate information domains to smaller, specific purpose enclaves. INIT's deployment strategies reflect this guidance using load balancers, firewalls, VLAN's, and DMZ's to segregate public facing services from internal servers including database servers. The creation of logical security perimeters creates the capability of further access control to higher-secured zones. A limitation of Internet access from some of the higher-security zone enclaves provides further protections but also creates complexity in operations. INIT leverages centralized patching, virus management and remote access proxies to extend the necessary management controls into the secure network segments.

1.4.2.8.11 Server Hardening

As recommended, INIT uses a standard server implementation template which has been hardened towards benchmarks from Center for Internet Security (CIS). INIT implements controls suggested by the CIS on a regular basis which improve the security of system without producing undue complexity or overhead. INIT prioritizes the selection of controls that are both simple and secure to ensure an environment simultaneously secure and manageable. Specifically, public facing servers such as web servers with Microsoft IIS receive additional configuration scrutiny and hardening to limit potential attack surfaces.

1.4.2.8.12 Security Incident and Log Management

[redacted]

1.4.2.9 Business Continuity & Disaster Recovery

A load-balanced, multi-site, active/active datacenter architecture provides the highest levels of availability focused on disaster avoidance through both light automation capabilities as well as proactive administrator-driven actions. [redacted]

[redacted]

1.4.2.9.1 Disaster Recovery Plan

INIT's disaster recovery plan, of which a sample template has been included, contains industry standard disaster recovery information. Because the proposed architecture is primarily designed to avoid disaster, the plan also includes details on the expected automated responses the system will take in certain common failure scenarios. Also included are templates for documenting business impact analysis and risk assessments that will be performed in collaboration and cooperation with ORCA agencies. Key personnel, application lists and dependency mappings are also detailed to provide operational intelligence to consumers of the disaster recovery plan. The DRP is intended to be a living document with updates made on a semi-annual basis to ensure accuracy, document changes, or to add additional information. A proposed disaster incident workflow and response plan document a recommended course of action and tracking mechanism that extends from disaster declaration and communication to system recovery priorities and order of operations.

Additionally, the disaster recovery plan would include data restoration procedures to restore data locally or from the proposed out of region data archive.

1.4.2.9.2 Out of Region Backup

[redacted]

1.4.3 System Integration Services

INIT will provide an open platform and work collaboratively with the ORCA Agencies and other parties to integrate new agencies, services, functionality and subsystems to the next generation ORCA system.

1.4.3.1 API Management

For API Management INIT proposes the comprehensive and widely used [redacted] The following diagram shows the proposed integration with the MOBILEvario APIs.

Client devices and software use the MOBILEvario APIs directly to provide the minimal latency times for the most critical system clients (for example the validators that require 500ms response times). Depending on the configuration that is determined during the negotiation or system specification phase, validator components can also be placed to use the API gateway. This depends on whether the vehicle routers (MARs) will provide a public internet or private APN connection.

With the API management, ORCA is able to publish APIs for different 3rd parties and publish even public APIs for everyone to use. ORCA can publish for example a public API to get the pricing information. Since this kind of information is normally read only, it can be cached in the gateway without placing too much burden on the fare collection system.

The Azure API management system also supports industry standard client authentication methods such as Oauth and OpenID. Authentication with client certificates is also possible.

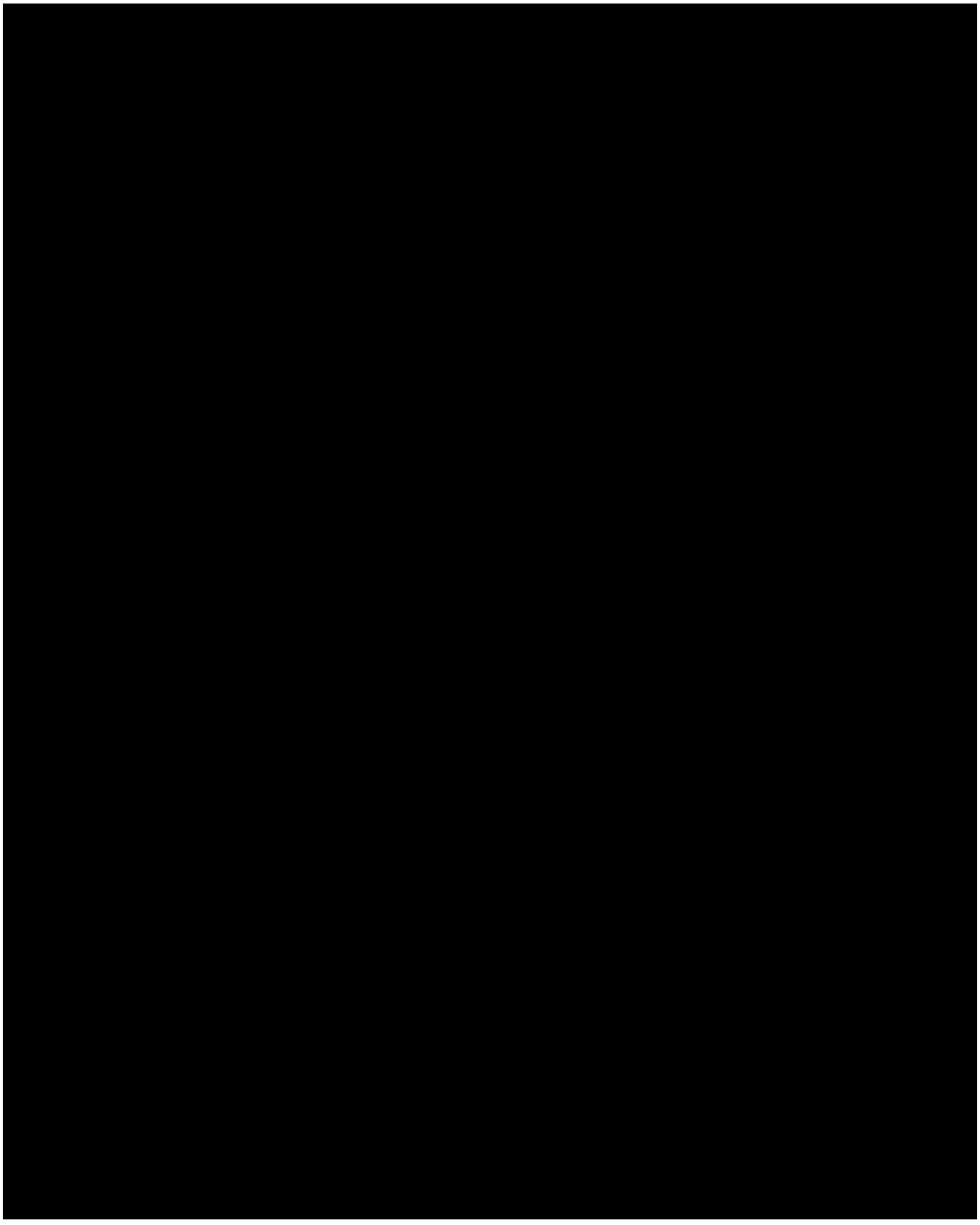
ORCA can also set limits for certain API clients; for example, limiting the number of API calls allowed per day. This is very important to secure proper system operation in case of malfunctioning API clients or DoS attacks on public APIs.

Although it is possible to implement on premises API gateway with some of the API gateway providers (for example Azure does not provide this option), the common way today is to use a

cloud/SaaS based solution which is also in line with the agencies preference. In order to overcome any latency issues for devices for which the latency time is critical (validators), INIT suggests that the validators use the OVS APIs directly to ensure low latency and high throughput for other system clients, Azure API Management provides two independent sites at US west coast (WEST US and WEST US 2). INIT proposes a solution where both sites are used. This will further decreace latency and increase throughput. If the agency prefers on premises API management instead, this can also be discussed during the system design phase.

General information on [redacted]

[redacted]



1.4.3.2 Onboard Integration

INIT currently provides the CAD/AVL equipment for the majority of the buses that participate in the next generation ORCA system (i.e., for King County Metro (KCM) and Community Transit (CT)).

Consequently, INIT can provide the onboard integration more cost-effectively and with lower implementation risk than other proposers. These advantages are especially amplified for the higher-level of integration required for the KCM busses. The integration at KCM, and potentially at Community Transit will require the INIT CAD/AVL DDU to also act as the next generation ORCA DDU. INIT will be able to provide single sign-on easily on these agencies' buses.

INIT's also has extensive experience with onboard integration to other vendors' onboard equipment, such as Clever Devices and Conduent. INIT will integrate with the remaining Agencies' onboard CAD/AVL equipment to obtain geolocation data, work status information (i.e., route/run/trip), and to provide single sign-on logon.

INIT will realize this interface over one of the open onboard communication standards – such as, J1708/1939, Ethernet/Wi-Fi, Bluetooth, and/or USB. The specific details will be determined during the design phase.

INIT recommends the use of the INIT developed Information Sharing Interface (ISI) to perform the on-board integration effort. The ISI is a TCP/IP based interface to share information like login information, trips, routes etc. The ISI messages are XML based and the interface used for dozens of integration projects between INIT devices and other vendors.

1.4.3.2.1 ISI Communication Example

In this example the validator requests the route number from the CAD/AVL system. The validator application sets a cyclic trigger and a change trigger for the route data items. This means that the CAD/AVL system will send the route number whenever the number changes and in addition every 60 seconds.

The application also sets an identifier <IsiId? for the IsiPut Message to have to ability to disable this message later.

The IsiGet Message looks like:

```
<IsiGet>
        <IsiId>123</IsiId>
        <Items>RouteNo</Items>
        <OnChange>RouteNo</OnChange>
        <Cyclic>60</Cyclic>
      </IsiGet>
```

The IsiPut Message that the CAD/AVL system will return looks like this:

```
      <IsiPut>
        <IsiId>123</IsiId>
        <BlockNo>1401</BlockNo>
      </IsiPut>
```

1.4.3.3 Customer & Agency Interfaces Integration

As discussed, connections between the back office and customer and agency interfaces – such as, the customer website, customer mobile app, and agency mobile apps, will be performed through INIT-provided APIs.

1.4.3.4 Washington State Ferries

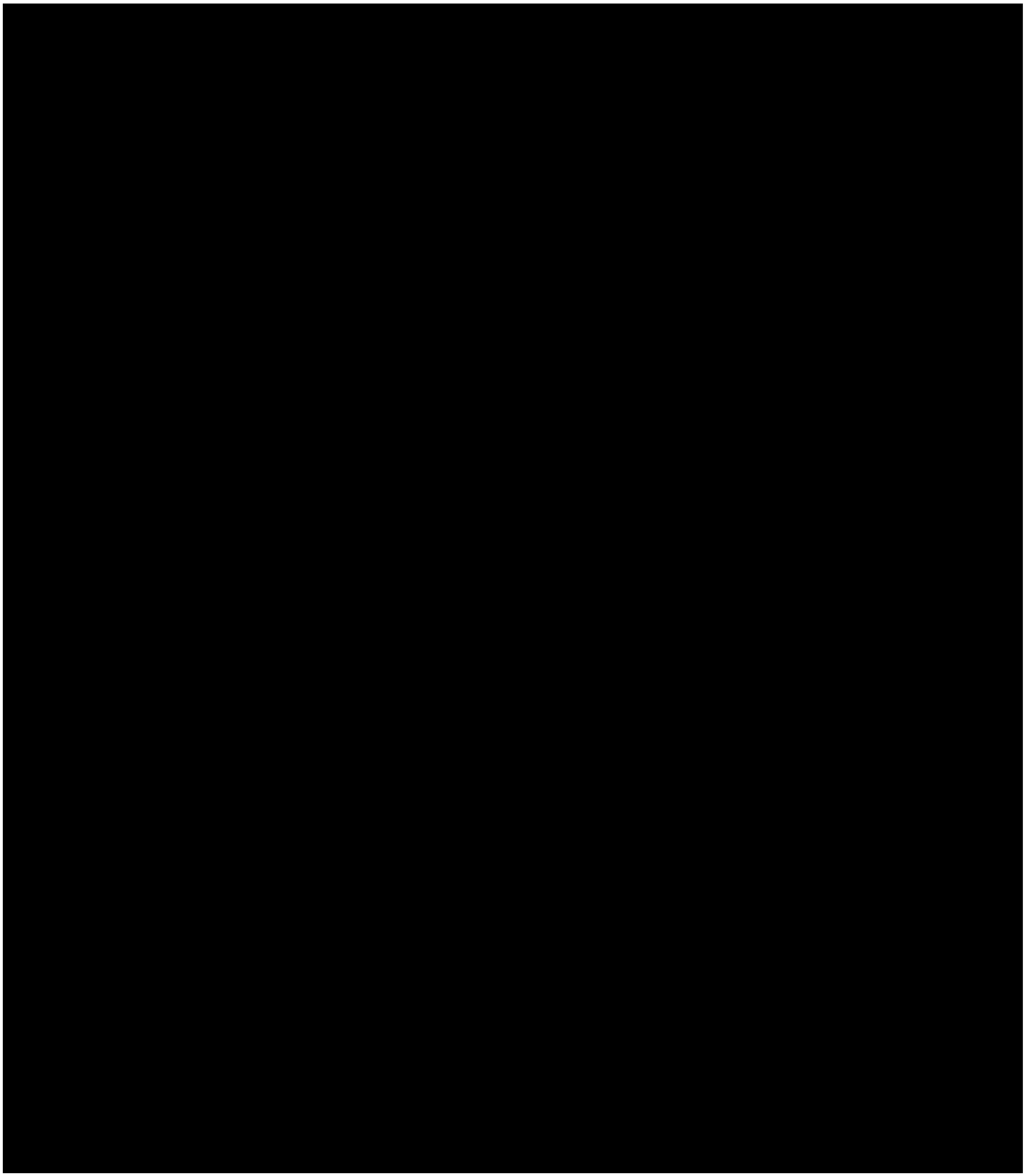
INIT will utilize the core next generation ORCA APIs to interface to the Washington State Ferries (WSF) frontend devices including the following:

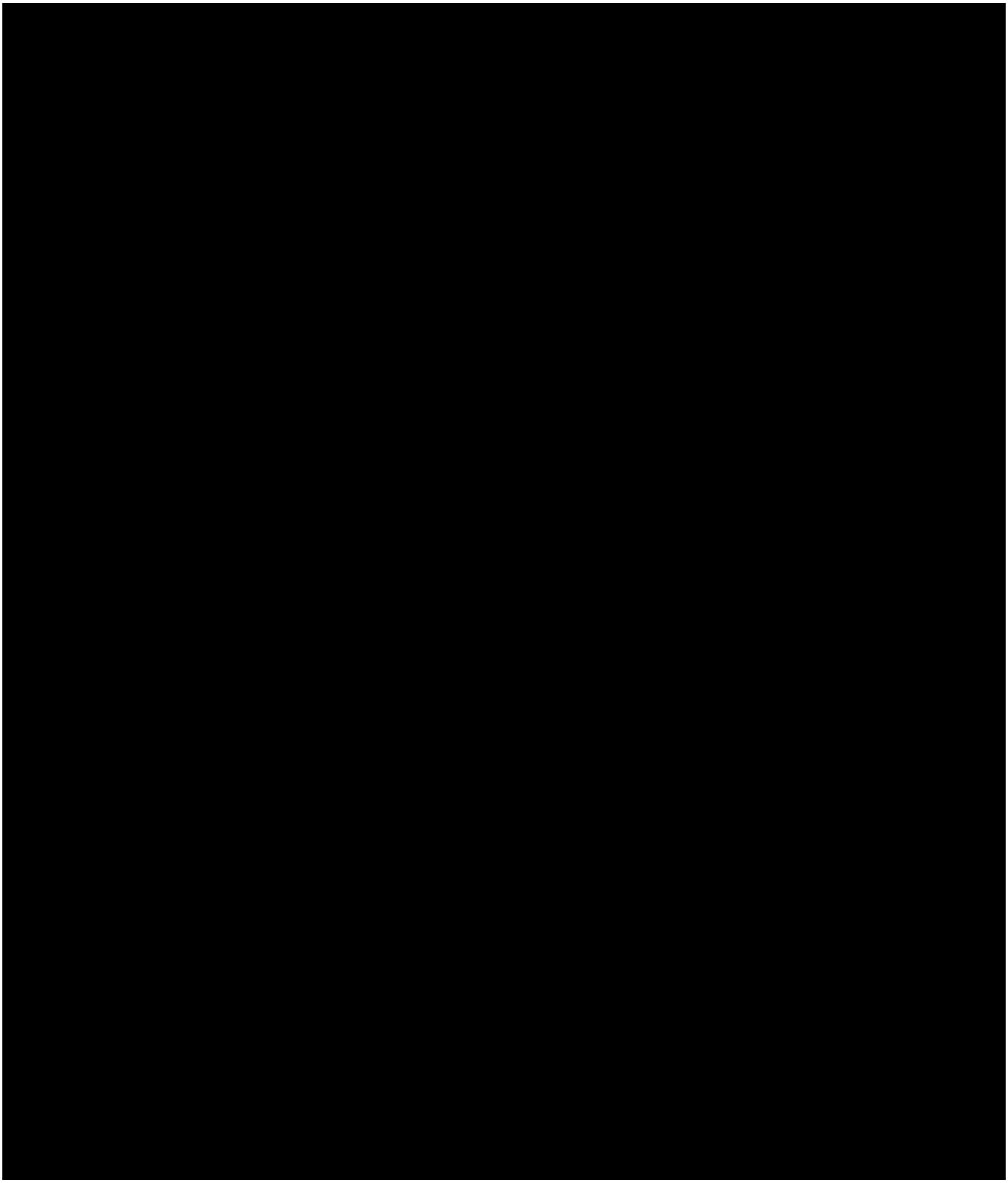
- Turnstiles (fare gates used for walk-on passenger fare payment at certain WSF locations)
- Handheld validators (mainly use for fare payment; however, include additional capabilities to query an account and adjust next generation ORCA value and products)
- POS system (to collect fare payment at a passenger or vehicle tollbooth, do a transit account query, use ORCA stored value, or load value/product)

INIT understands that all fare amounts, including calculated peak fares by trip, will be determined by the new WSF fare collection system, EFS2, and the next generation ORCA back office will only determine the time-based peak pricing.

All INIT validators are using INIT's own Fare Payment APIs to perform fare validation. Those APIs would be used by the WSF Turnstiles and Handheld Validators too to access the ngORCA back office. INIT is familiar with 3rd parties doing fare validation using the APIs. E.g. in the Portland

HOP Fastpass implementation the paratransit scheduling provider Trapeze is integrating into the back-office using INIT's APIs to perform fare payments.





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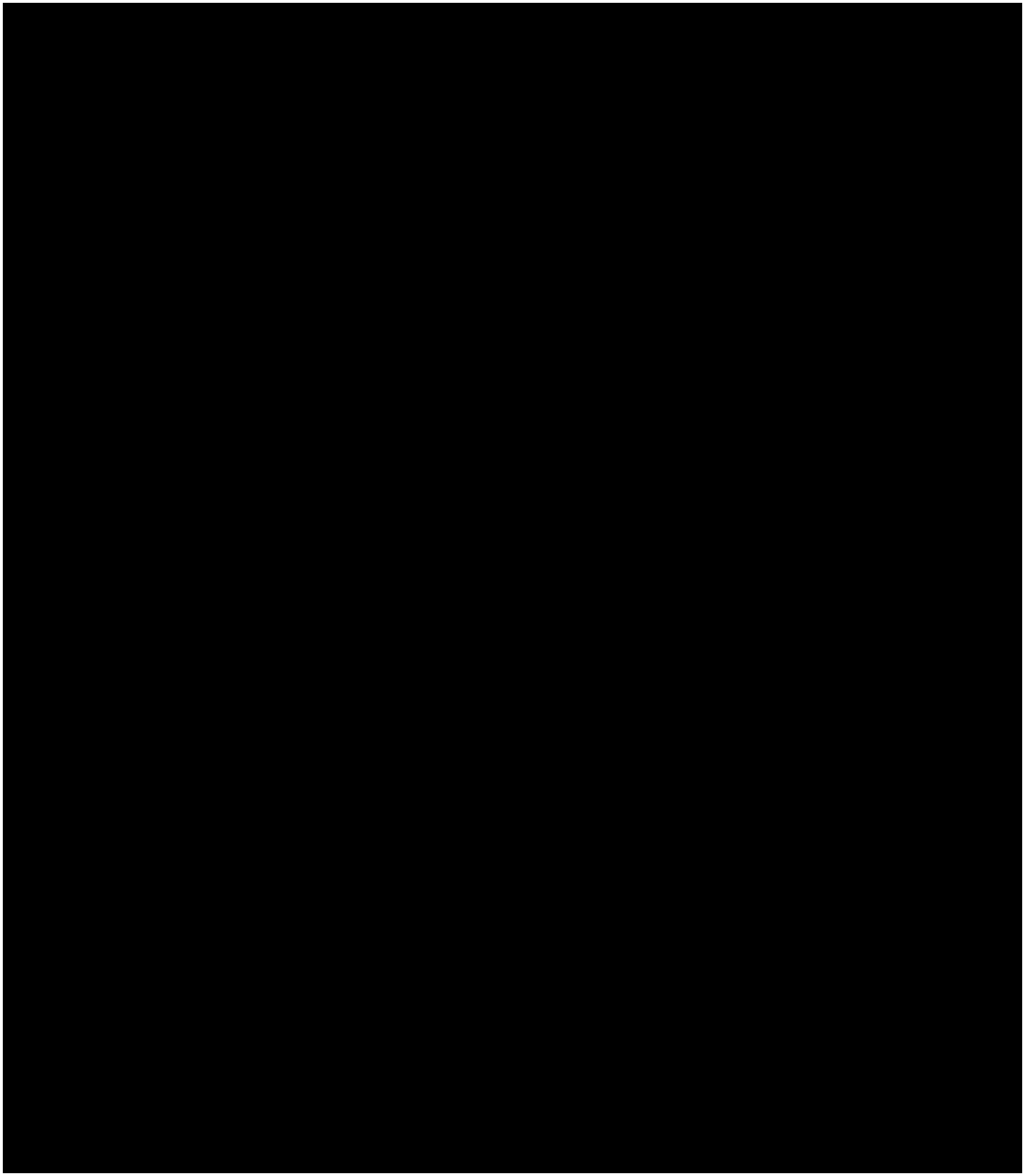
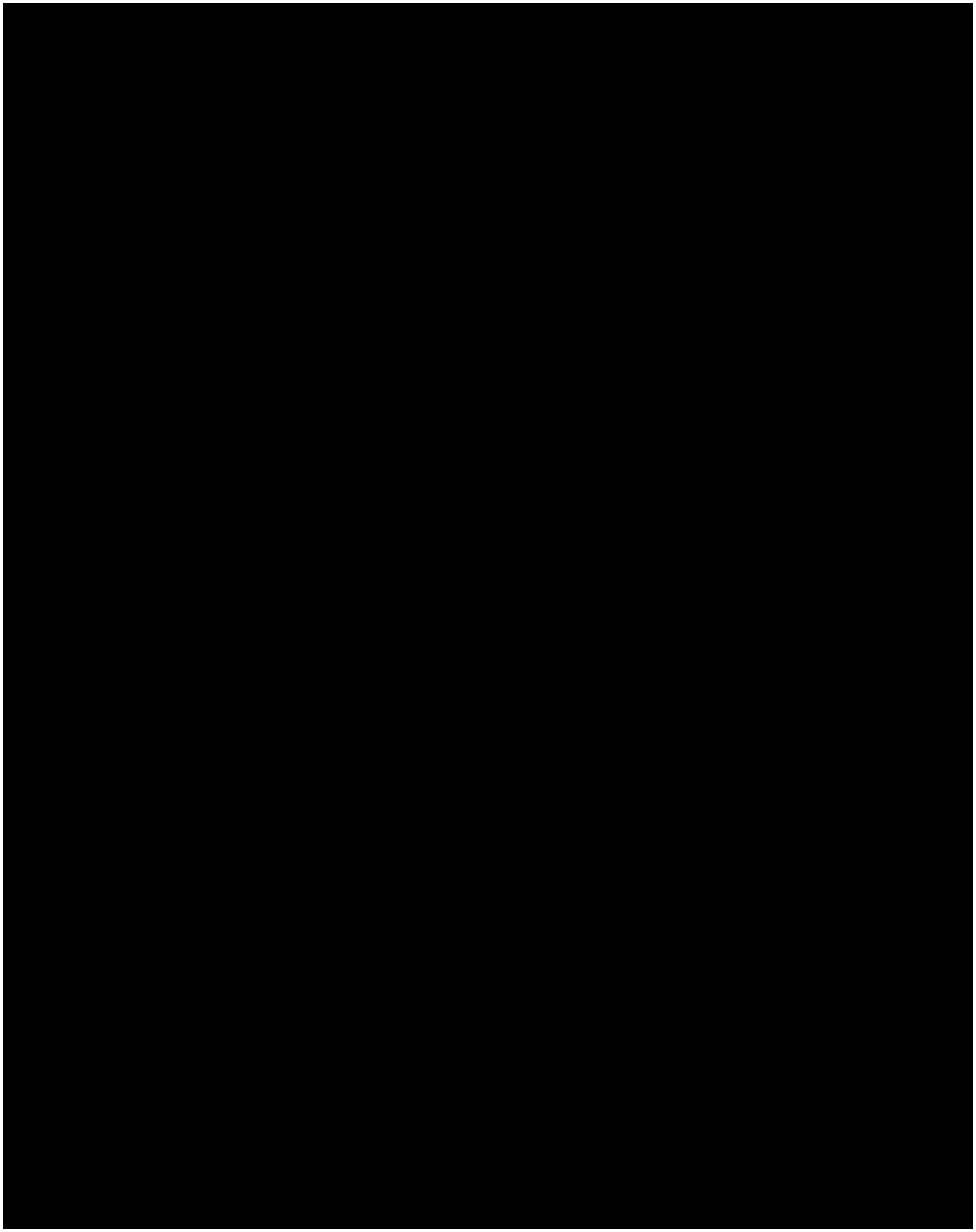
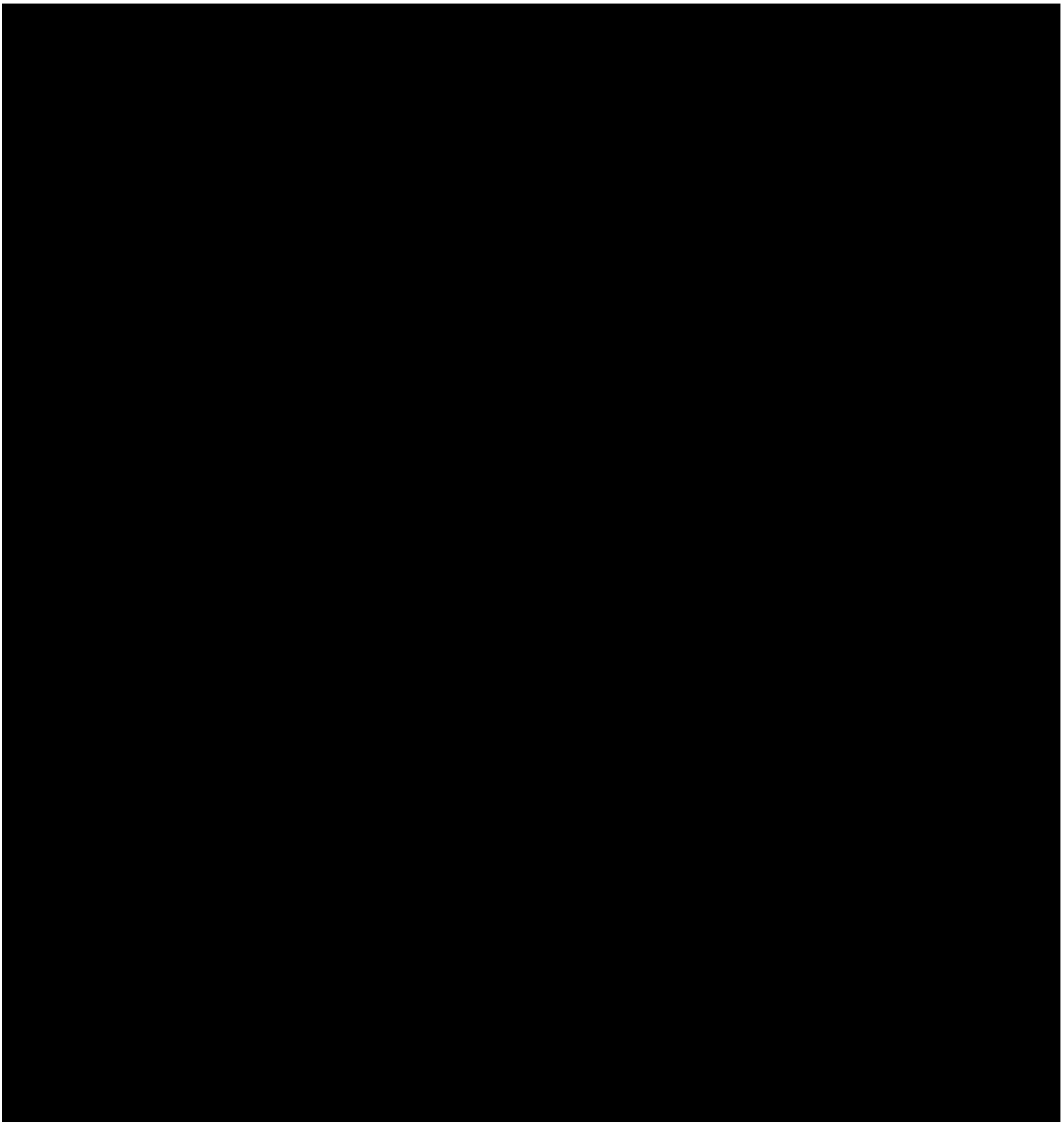
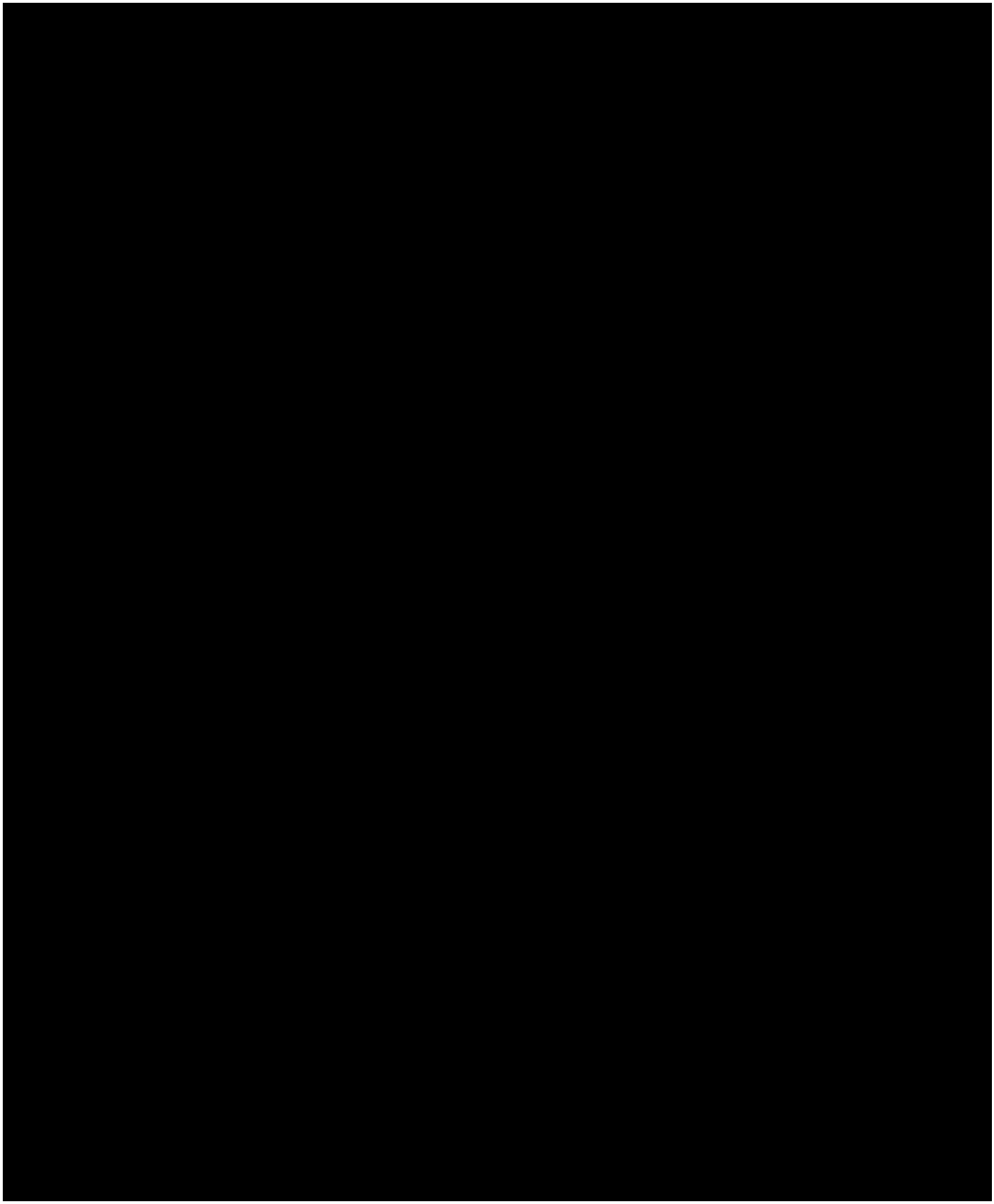
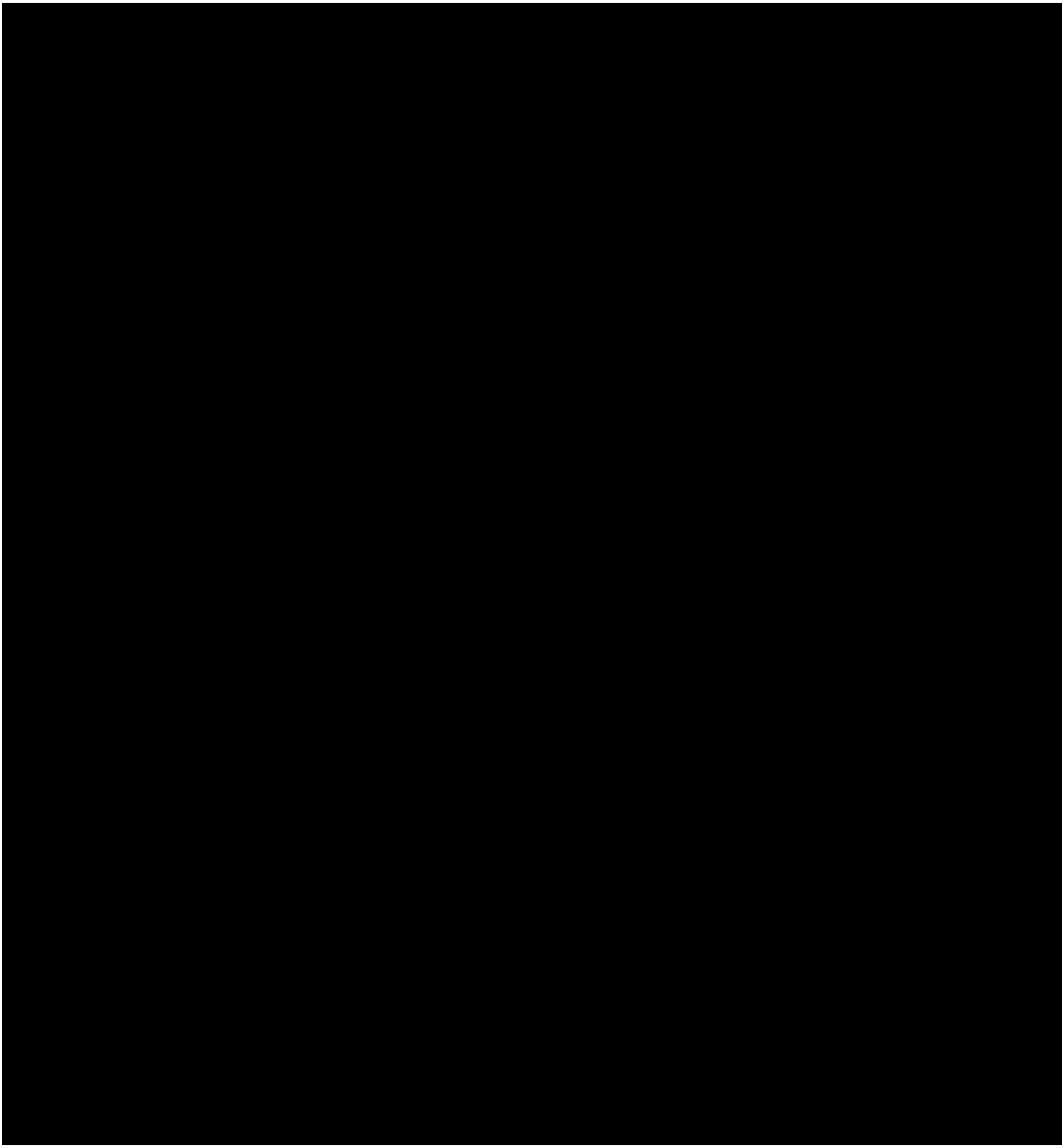
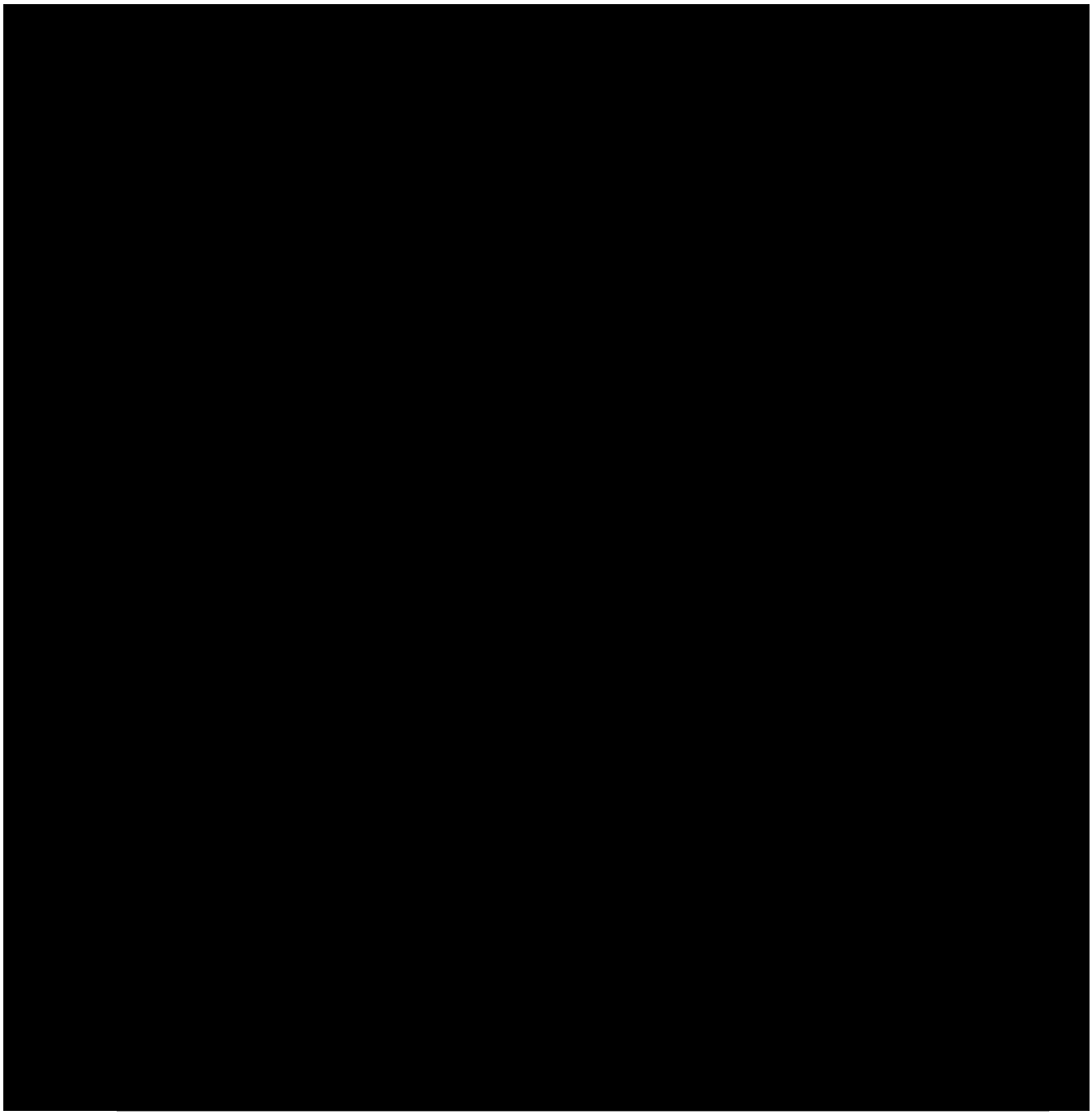












INIT API Reference for POST FarePayment Call

1.4.3.5 Data Access & Reporting Platform (DARe)

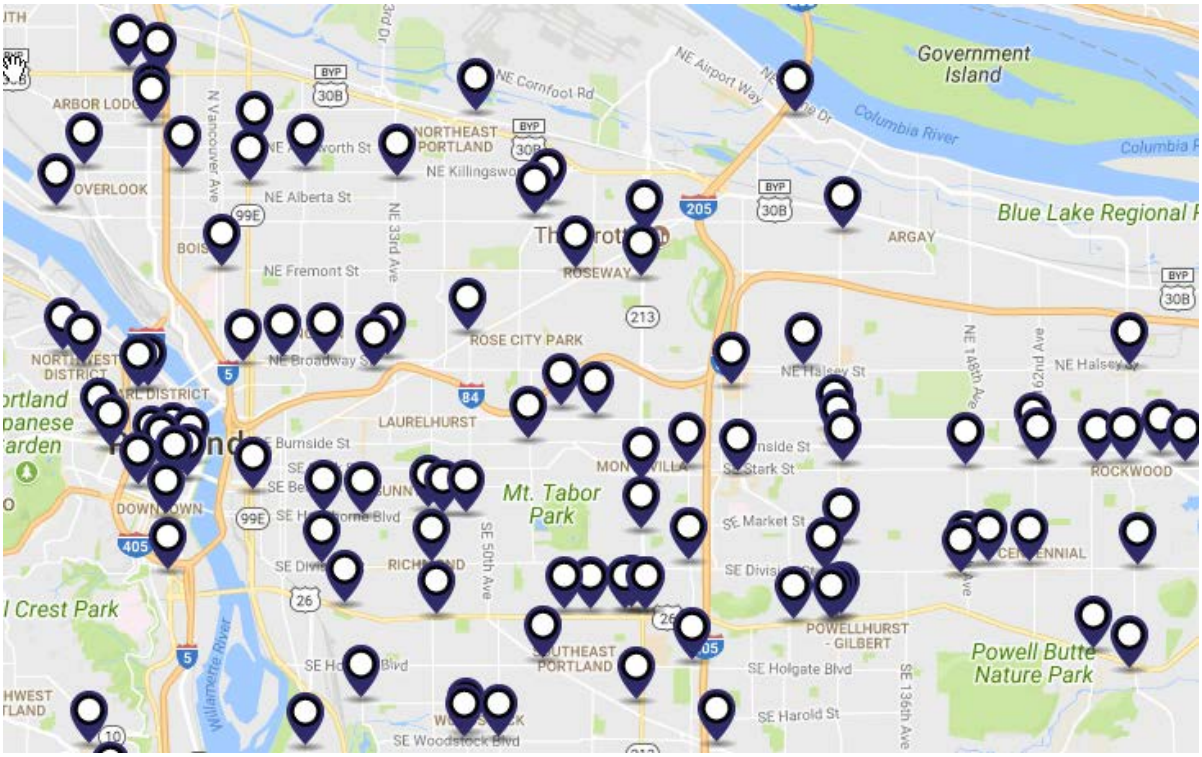
1.4.3.6 Retail Network

MOBILEvario is INIT's account based open architecture back office system that enables the integration of various types of sales clients. This can support a range of devices from individual POS devices up to and including an entire retail sales network.

The main task of a retail sales network is to sell customers new smartcards and to add stored value to existing cards. Since, in an account based fare collection system, the smartcard is used merely as an account identifier and all information is stored in the back office, it is very important that all retail sales transactions are immediately sent to the APIs without any batching being performed which would delay the newly loaded value being credited to the customer's account. This way the passengers will be able to use the card on a bus or platform validator directly after purchasing it in the store. The instantaneous availability of loaded value increases customer satisfaction by eliminating the waiting period for value added to the ORCA card.

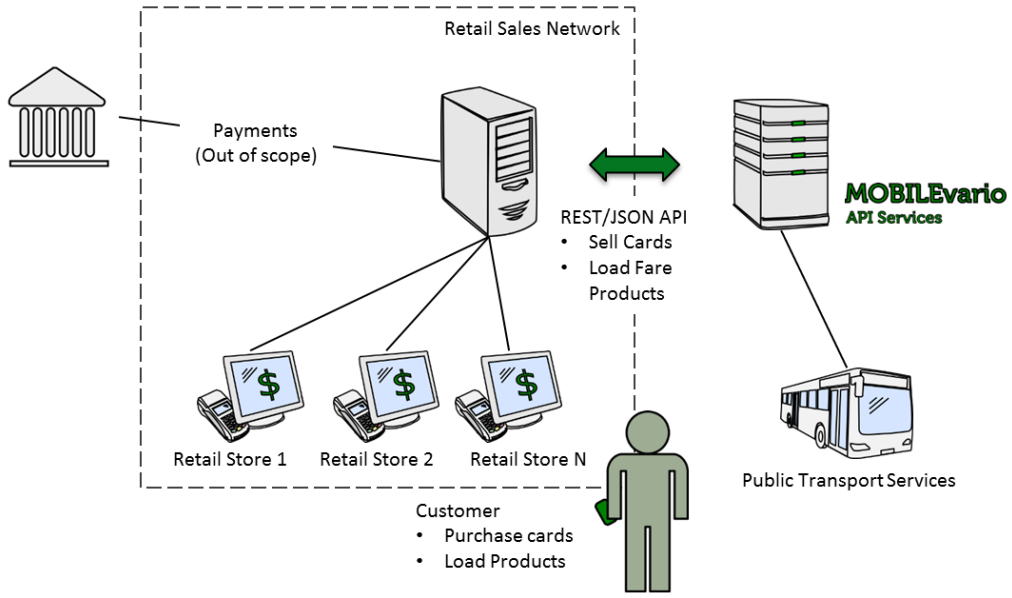
According the next generation ORCA RFP, the primary distribution channel for next gen ORCA fare media and stored value cards will be an extensive network of retail merchants. The retail network will consist primarily of merchant locations that currently sell prepaid debit cards (e.g., gift cards) and where the point-of-sale (POS) system is already integrated with at least one prepaid debit card network provider.

This scenario is identical to the retail network approach that was implemented by TriMet for the HOP Fastpass system in Portland, Oregon. The retail sales network implemented for the Portland HOP card uses ReadyCredit as the retail network. Retail outlets that are connected to this retail network include Safeway, New Seasons, Fred Meyer, 7-11 and others providing card distribution throughout the greater Portland metropolitan area.



Retail locations accepting HOP transactions in the Portland metropolitan area

The following diagram shows the main system components of the Retail Sales Network integration. The central service uses the REST/JSON API provided by the MOBILEvario system to add value/products to the card accounts (aka. transit account) and sell new cards. We do not envision that the payments of the retail network will be processed via the API's, but this would be possible too.



Retail Network System Components

1.4.3.6.1 Standard Use-Case

The retail network can either sell new passes or cash value loads. Giving the retail network the ability to load pass products may require complex interaction between the clerk and the retail load terminal (e.g. choosing the right agency, selecting the right product and fare category, selecting the right validity dates).

To avoid a complex selection process, other projects, like the HOP system in Portland, only allow cash value loads.

The following is a description of a normal sales procedure:

1. Customer selects a card from the card hanger or brings an already purchased card and passes it to the sales person.
2. The sales person swipes the card (either using the magnetic stripe) or scans it (using a barcode reader) to initiate the sale process.
3. The clerk asks for an amount of stored value to be added to the account and enters this amount into the POS.
4. The POS calculates the transaction amount. If the system detects that the card is new, the cost of the card will be added to the transaction.
5. The customer pays the amount owed.
6. The POS system generates the JSON transaction data for the MOBILEvario Sales API.

7. The transaction is sent to the MOBILEvario API.

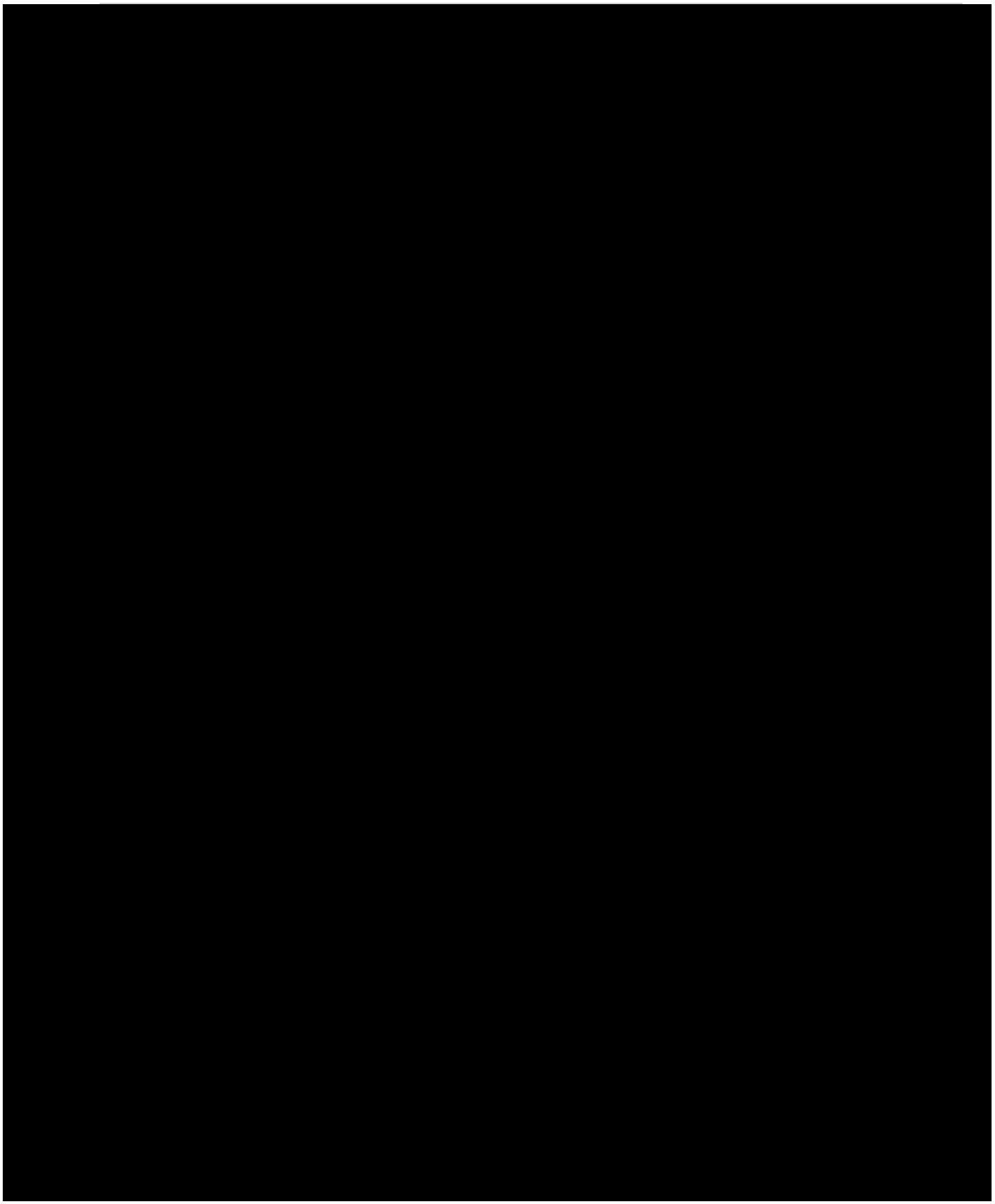
The API supports cancellations and refunds. This is especially important for situations where communication problems between the retail network and the backend exist.

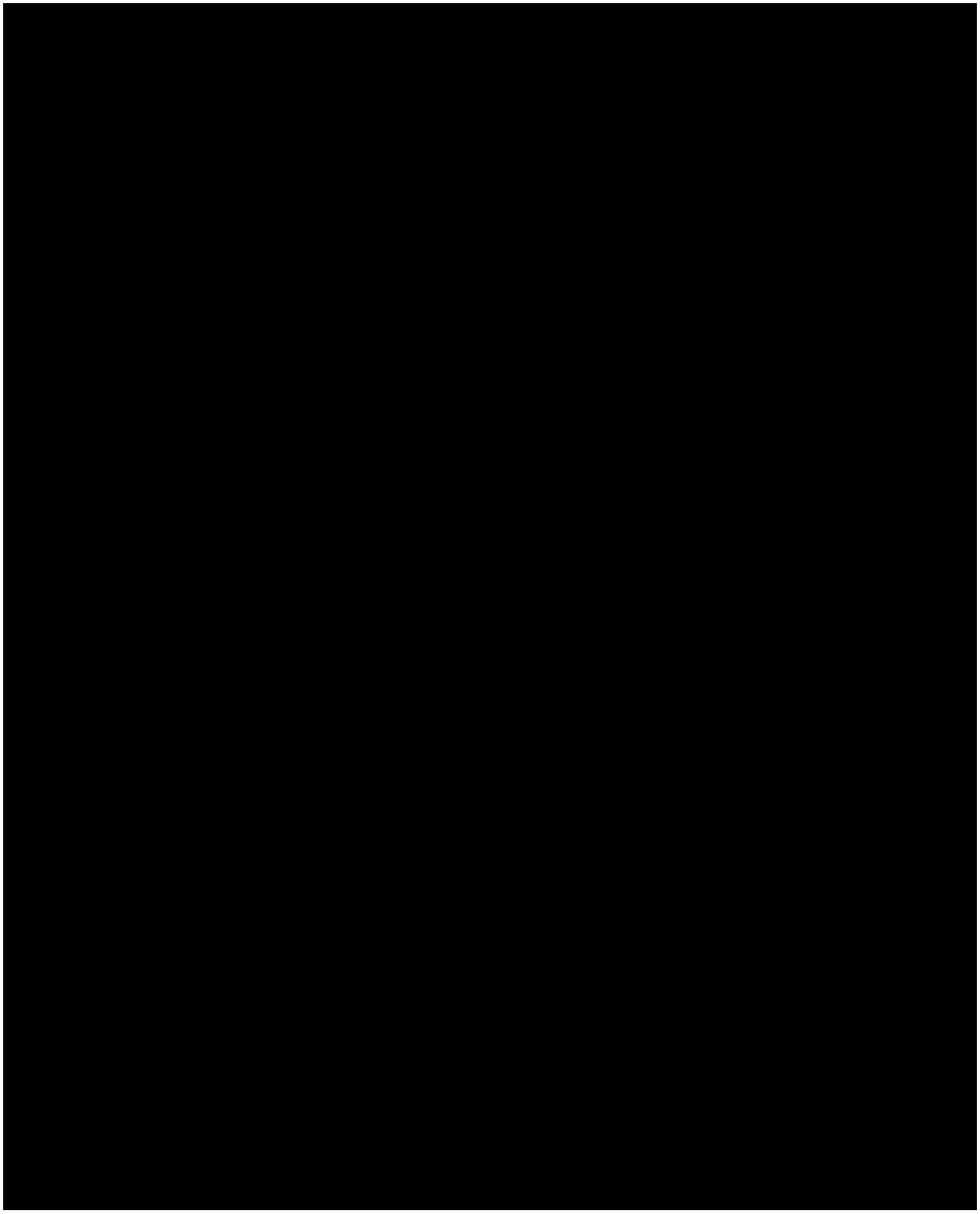
With a cancellation, the sales client can cancel the whole sales transaction shortly after it is executed. For example, if the sales transaction with the API is done before the payment and needs to be cancelled due to failed payment. With the refund transaction, the sales client can refund a transaction made maybe days before and it has finer grade of control on what is being refunded and how the refund is made (cash, credit card etc.). It might be that the customer bought a card, $25 of stored value and a month pass and want to have refund only on the month pass, maybe day after the sales transaction. Which sales channels can make refunds is in the agencies consideration. For example, the sales network does not normally process refunds.

The Retails Sales Network will have its own sales channel identifier that is submitted in every transaction. Based on this identifier the retail network can be invoiced for the amount loaded to the cards.

1.4.3.6.2 Retail Network API Example

The most important end point for any sales client is the Sales API which is used to issue a card and/or add a fare product to the cards account. Following table shows the different fields in the





1.4.3.7 Back Office Integration with Existing Solution

INIT will exchange data with the legacy ORCA system via the DARe repository. During the transition, INIT will obtain legacy ORCA transit account information via the DARe and provide negative lists to the legacy ORCA system using its facility for the bulk uploading of lists. The

actual method of information exchange and the design details will be determined collaboratively during the design phase.

All transactional data (e.g. all taps performed on the legacy ORCA validators) will be transferred to the ngORCA system using the DARe. Based on the dataset received from the DARe the Transit Account balances and all card histories will be updated accordingly.

The same applies to all sales transactions that are made with legacy hardware, for example with the legacy Vending Machines. All transactions will be transferred to the ngORCA system using the DARe.

Once the ngORCA system is the system of record, the only means for the legacy validators to determine if a card is valid is the status list / negative list. INIT will use a middleware to pull the status list information from the INIT API server and modify the list into any format so that it can be consumed by the legacy ORCA system. The status list could be a simple negative list with the card numbers of all cards that are blocked or have a negative balance. In addition, INIT could provide a blocking timestamp so that riders can finish their current ride that they paid for, even if their balance is negative at the end of the trip.

1.4.3.8 ADA Paratransit

INIT will replicate the legacy ORCA integration with King County's ADA paratransit system in Phase 1, and have it available for all participating ORCA Agencies.

Specifically, the next generation ORCA system will receive a list of eligible paratransit customers. INIT will support an agency-specific paratransit monthly pass, and the system will restrict sales of such a pass to eligible customers only. INIT will export a list with pass sales details from the back office on a daily or more frequent basis for import into agency paratransit databases.

In addition to system updates using a file import that contains all eligible customers, the customer eligibility for the ADA services can be managed by the CRM system.

1.4.3.9 Vanpool

In Phase 1, INIT will replicate the current legacy ORCA System integration with vanpool systems in the next generation ORCA system.

The tariff will be configured with a Vanpool product with flexible value. This product will be purchased whenever a customer wants to pay for their individual fare payment. In addition to this flexible Vanpool product, additional Vanpool products can be configured (with fixed value) to represent joint transit or monthly / weekly / annual Vanpool products.

The Vanpool users will be able to purchase the flexible value product by typing in (or selecting from a drop-down) the customized dollar value. The purchase can be made on the website, via app or using the CRM / POS.

All product purchases (the INIT system considers the individual fare payment contribution as a product purchase too) will be recognized based on the accounting rules. This will allow segregation and distribution of the products to individual agencies.

1.4.3.10 Additional Integrations

INIT's proposed next generation ORCA System will support additional integrations beyond Phase 1 to include additional agencies and additional modes. The System will support the addition of unlimited new agencies including fare rules that are part of the existing design. The system will provide a scalable framework to support the growth in users and data inherent in adding agencies. The System will be able to integrate with the Kitsap Fast Ferries reservation system in Phase II. All agencies added after the initial implementation will use the System's user interfaces, process flows, and business rules as designed during the initial implementation. Additional agencies will be able to have revenue sharing and apportionment turned on or off according to the existing apportionment rules.

The System will support the addition of new transportation connections, modes and products (e.g., parking) with unique fare pricing and all the configurability of existing modes and products without additional development. The System will support additional modes (Transportation Connections) through APIs that allow third party developers of external applications to communicate with the System in order to manager fare products, transit accounts, and report transactions.

For further details see Tab 6 of this proposal.

1.5 A Service Proven and Innovative Solution

*Include a detailed description of **how** your proposed System conforms to the service- proven and other capabilities in the Scope of Work Sections 3 through 7, and, if applicable, clearly indicate whether or not the solution requires new development (and the extent of development required) or commercial-off-the–shelf (COTS) applications. Describe how the firm proposes to satisfy the service-proven capabilities and still be the innovative solution described in Scope of Work Section 1. For each furnished device that has been used in service, list public agencies or private organizations for which device has been supplied. Include the following information for each:*

a. Agency or company name and contact person,

b. Business address and phone number,

c. Model number (and original equipment manufacturer, if applicable) of the module,

d. Quantity of equipment provided, and

e. Approximate number of years in revenue service.

1.5.1 INIT's Proposed System conforms to the Scope of Work

INIT meets the ngORCA capabilities by specifically meeting each of the ORCA Agencies' customer, technology, cost, and agency project goal. INIT's proposed system conforms to ngORCA's required service-proven and other capabilities by utilizing a combination of system modules and devices that include:

1. Service-proven INIT AFCS modules and devices
2. Best-of-breed Commercial Off The Shelf (COTS) business applications
3. Industry leading firms with proven AFC track record for externally sourced apps, and
4. New development for innovative enhancements

1.5.1.1 INIT Meets the ngORCA Required Capabilities

The table below indicates how INIT's proposed solution meets the ORCA Agencies' project goals.

next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Customer Goals	
Ease of use	INIT provides intuitive user-friendly design for ngORCA onboard validators and platform validators. The public and internal websites and applications are developed under common UI/UX guidelines and principles ensuring user adoption. High volume applications are deployed through web-browsers for improved consumption and adoption. Agency employees also enjoy the ease of use of familiar web-based and client-server based, point-and click administration tools for back office administration, tariff management, and reporting. INIT administration tools provide the highest levels of configuration flexibility. A UI/UX consultant will assist INIT and the ORCA agencies in ensuring common design principles will support system adoption and use.
Convenience	INIT provides multiple channels to load and manage accounts – including websites, mobile websites, Vending Machines (VMs), call-center functionality, and customer service terminals (CSTs). INIT provides this capability with a service-proven, real-time account-based system so that customers can use their cards immediately after loading. *To enhance customer convenience INIT is offering its service-proven open-payments solutions in Phase I.* The INIT solution supports real-time transactions and real-time fare calculation for quick and accurate transaction time. The INIT solution supports offline transactions which ensure continuous boarding even in the event of back office systems being offline or during cellular service interruption.

next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Equitability	Equitability is supported through cash-enabled vending machines, gift cards available through retail outlets and through innovative fare capping technology. Fare capping allows agencies to guarantee a fixed maximum price for varying terms including daily, weekly or monthly limits.
Existing relationships	INIT's website will provide an easy to use, full-featured administration tool for companies, universities, and social service agencies.
Seamless transition for customers	INIT will implement the ORCA Agencies' innovative transition strategy which utilizes the intermediary DARe database to minimize customer impact. *INIT will advance the Phase 5 and 6 transition schedules via resource loading to minimize the period of side-by-side legacy and ngORCA field devices which involves the most customer impact with customers potentially not receiving the most up to date account information.*
Open customer communication	INIT enables effective customer communication through powerful content management systems for customer information channels – such as, websites, VMs, etc.
Technology Goals	
Open architecture	Since the inception of its Automated Fare Collection (AFC) system, INIT has utilized an open architecture with extensive use of Application Programming Interfaces (APIs) which allow ease of interfacing between different system components – including third-party components.
Modular design	INIT's System highly modular design allows for the use and interchangeability of third-party Commercial-off-the-Shelf (COTS) solutions. This is supported by INIT's open API architecture and Azure API Management gateway.

next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Real-time communications	INIT provides a proven real-time solution which enables customer transactions to occur within milliseconds – customer can use their cards or smartphone "virtual cards" immediately after loading fare products or value onto their transit accounts. The robust solution allows for low risk offline operations with local approvals and store and forward capability.
High availability	INIT utilizes an active-active, load-balanced geographically redundant dual-site Infrastructure as a Service (IaaS) solution at Level 4 data centers to provide disaster avoidance and an extremely high availability hardware and software solution. Additional offsite, out-of-region data backups ensure resilience from generally rare, but increasingly prevalent regional disasters.
Compliance with security standards	INIT has recently deployed multiple Automated Fare Collection (AFC) systems which are certified PCI compliant. INIT's security strategy involves industry best practices including, tokenization and cryptography. Additional IT security best practices such as log management, flow monitoring, file integrity management, endpoint protection and intrusion detection systems are used to protect the production environment. The Oracle Enterprise database is fully encrypted at the table level.
Minimize transition-only software	INIT's solution, based on the ORCA Agencies innovative transition plan, involves very minimal transition-only software. Although INIT will develop an interface to the DARe for information exchange with the Legacy ORCA, this interface will also be utilized for reporting of long-term data.
API integration	Since the inception of its Automated Fare Collection (AFC) system, INIT has leveraged the use of APIs to realize an open architecture platform. This use of APIs to integrate different applications and devices enables the easy use of best-of-breed third-party COTS solutions.

next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Scalability	INIT's use of an Infrastructure as a Service (IaaS) solution allows for easy scalability as ngORCA expands agencies, modes, usage, and customers.
Cost	
Minimize dependencies on a single vendor	INIT's open architecture solution will allow for easy integration of different third-party COTS applications resulting in a higher-level of multi-supplier environment, increasing competition and reducing costs.
Manage and minimize risk to cost and schedule	INIT's use of a service-proven solution, extensive experience in the implementation of Automated Fare Collection systems and integrating to INIT CAD/AVL onboard equipment on the vast majority of the vehicles will significantly minimize risk to the program cost and schedule.
Lower Total Cost of Ownership (TCO)	The INIT solution lowers the TCO through the use of a service-proven platform (which minimizes development costs), an open architecture system (which increases competition), an INIT to INIT onboard system (minimizing complex, costly integration), and a Seattle office to provide deployment and ongoing support locally.
Agency Needs	
Preserve operating revenues	During the transition, integration with the DARe will protect data and operating information and therefore protect operating revenue. After transition, a robust financial management application and advanced multi-agency revenue distribution function will ensure accurate revenue reconciliation.
Revenue distribution	INIT brings an extensive track record in implementing multi-agency Automated Fare Collection systems with successful and accurate revenue distribution.

next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Access to information	INIT employs a browser-based standard reporting application, VASAweb which provides easy access to standard reports. Further information is available in web-based systems management dashboards from MOBILEsymon, JIRA Service Desk, Riada Insight, and MOBILEGuard.
Increase ORCA usage and market penetration	INIT appreciates the business advantages of increasing usage and penetration, and will act as a partner and support the ORCA Agencies to advance this goal from a technology, business and operations perspective. *As indicated above, INIT proposes to advance the use of its open payments solution from Phase 2 to Phase 1 which should assist in increased use of ORCA.* The high performing transactional system combined with the user-friendly and well-designed website will encourage increased adoption and market penetration. The use of fare capping within the INIT platform will increase good will amongst riders by being able to ensure a guaranteed best fare.
Operational efficiency	INIT incorporates extensive experience in the transit industry and will deploy its operations-centric solution to optimize System operations, administration and maintenance. With a COTS-based solution and a very strong subcontractor partner team, the INIT team will be able to roll-out new functionality and upgrades faster. Given the separate test platform, INIT's existing remote field device software update capability, and the configuration and change management application, the INIT solution will facilitate the ORCA Agencies to quickly assess and pilot new technology features and implement them efficiently. INIT's open architecture and extensive use of APIs will enable successful integration and operation with legacy and third party systems.
Work within the limited space available	INIT appreciates the space constraints on transit vehicles and has integrated with all major onboard transit equipment providers in a wide variety of locations including busses, LRV, streetcar, ferry, stations, garages and offices.

next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Scalable to agencies of varying sizes	INIT's system is very scalable and has been successfully implemented for multi-agency platforms with agencies ranging in size from several hundred vehicles to several thousand vehicles.

1.5.1.2 INIT's Service Proven Automated Fare Collection System

The table below shows how the proposed INIT system is service-proven – indicating that all the system components and devices have been deployed in other systems previously.

INIT's Service-proven Automated Fare Collection System

Agency	In-Service Date	ngORCA Proposed Back Office	ngORCA Proposed Wayside & Onboard Validators	ngORCA Proposed VMs	ngORCA Level Reliability, Accuracy, Availability
Portland, Oregon	Jun. 2017	●	●		●
Turku, Finland	2016	●	●		●
Sacramento, CA	Jul. 2017	●			●
Tampa, FL	Pilot Q2 2017	●	●		●
Luxembourg		●		●	●
Bremen, Germany		●		●	●
Grand Rapids, MI	Pilot Q3 2017	●	●		●
Honolulu, HI	Pilot Q1 2018	●	●	●	●

Agency	In-Service Date	ngORCA Proposed Back Office	ngORCA Proposed Wayside & Onboard Validators	ngORCA Proposed VMs	ngORCA Level Reliability, Accuracy, Availability
Orange County, CA	Pilot Q4 2017	●	●		●
Metrolink SCCA – Los Angeles*	Pilot Q4 2019	●		●	●
MTA Nashville, CA*	Pilot Q4 2019	●	●	●	●

* Projects recently awarded but not yet contracted.

1.5.1.3 A Balance of Service-Proven, COTS, and Innovative Modular System Design

INIT's proposed System provides a balance of service-proven, COTS and innovative modular design as indicated in the table below. This approach balances the risk mitigation and cost-effectiveness associated with service-proven components, and state-of-the art functionality associated with new development. Even though INIT's modules are service-proven, they continue to be updated and are very current. The most recently successfully implemented systems include Portland, Turku and Birmingham. Systems currently being deployed include Honolulu, Tampa, Grand Rapids and a recently awarded contract with SCCA Metrolink in Los Angeles County for a large number of VMs and MOBILvario back office software.

INIT understands that the ngORCA project is very complex. We have changed some of the percentage values in the table and added justification for them.

System Module / Application	INIT Service Proven Module	COTS Module	Externally Sourced Modules	Innovative Development/ Customization (Estimated)

System Module / Application	INIT Service Proven Module	COTS Module	Externally Sourced Modules	Innovative Development/ Customization (Estimated)
Account-based Transaction Processor (ATP) Percentage justification: INIT is using the OVS already in four projects and the experience has already shown that the API is mature and does not require much changes. INIT is however not underestimating the ngORCA complexity and the given 5% here is already a high percentage of changes for a mature API. For example, for Tampa and Grand Rapids projects no changes to the API were necessary.	MOBILEvario OVS & MOBILEvario API Server	[redacted]		5%
Customer Relationship Management (CRM) Percentage justification: INIT is not underestimating the CRM integration effort. INITs CRM/Salesforce integration strategy is designed together with a 3rd party Salesforce consultant (Persistent Systems). This strategy is designed with a high level of code-reuse in order to reduce the integration effort. INIT however agrees that the CRM integration is something that will require lot of integration effort and therefore the original estimation of 15% has been increased to 25%.	MOBILEvario CSW	[redacted]		25%

System Module / Application	INIT Service Proven Module	COTS Module	Externally Sourced Modules	Innovative Development/ Customization (Estimated)
Asset Incident Management Percentage justification: Since the effort is mostly integration effort of existing systems, INIT considers that the 15% value here is correct.		[redacted] t		[redacted]
System Manager Percentage justification: INIT will need to make many project specific adaptations to MOBILEsymon and other parts that deliver status information to MOBILEsymon. 20% is already a high level of changes for this purpose. INIT is not under-estimating the effort.	MOBILEsymon			
Fare Media Management Percentage justification: This effort is corrected to 40% since we need project specific changes to the MOBILEvario inventory management	MOBILEvario Inventory Management			

System Module / Application	INIT Service Proven Module	COTS Module	Externally Sourced Modules	Innovative Development/ Customization (Estimated)
Financial Management Application Percentage justification: INIT will need to implement the ORCA specific revenue apportionment and recognition rules. We do not currently know in detail how these rules look like, but according to the comments on INITs proposal they are apparently complicated so the percentage is here corrected upwards. INIT is however allocating a software engineer, who implemented the MOBILEvario revenue recognition and apportionment for on site development in Seattle for the ORCA project. This mitigates the risk and lowers the implementation effort. The revenue sharing and clearing is less SW development and more developing the operational processes for the INIT operational team and ROOT. This effort is not considered SE or integration effort here.		[redacted]		[redacted]
API Management Application Percentage justification: INIT will integrate the API gateway to INIT APIs. INIT needs to develop the API description files that are exported to the gateway. INIT also has effort on the integration and configuration. 20% effort is justified here.				

System Module / Application	INIT Service Proven Module	COTS Module	Externally Sourced Modules	Innovative Development/ Customization (Estimated)
ORCA Website Percentage justification: INIT and Marathon are using an industry standard CMS (Umbraco) with high level of code re-use from other projects. The look and feel however require a decent amount of adaptation. In addition, there are also new features to be implemented. The business website, customer website and Mobile Website are combined in the revised proposal.			[redacted]	
Agency Mobile Apps (Fare Inspection & Validation) Percentage justification: INIT is already delivering the validation and inspection apps to Honolulu and inspection App to Grand Rapids. The user interface needs to be adapted to meet ngORCA's requirements, but we do not expect big changes to the functionality.				
"Virtual Ticket" Mobile App Percentage justification: Bytemark have already implemented account management functionality for their mobile app for our customers in Grand Rapids and Tampa. The Virtual Card is independent on the mobile app.				

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1.5.1.4 Service-Proven Devices and Modules

The table below illustrates the type, quantities, length of time and references for the hardware devices that we are proposing for next generation ORCA project. For the Driver Display Unit (DDU) INIT is proposing it newest model, the TOUCHit3, which utilizes similar circuitry as the highly proven TOUCHit2, but with the following enhancments:

- Use of a capacitive (as opposed to a resistive) touchscreen for a brighter and sharper display, and a more responsive touch
- Independent standalone power circuitry as opposed to being dependent on the COPILOTpc2 onboard computer

Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]							

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]							

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]							
							Reference contact available on request
							Reference contact available on request

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]							

[2] Although the TOUCHit3 is a new model, it mainly uses the same electronics as the TOUCHit2 but with a capacitive (versus resistive) touchscreen for sharper and brighter display and a more responsive screen – the TOUCHit3 also provide internal power conditioning circuitry to obtain the power feed directly from the vehicle power source as opposed to the onboard computer.

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]							

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]							

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Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]							

DocuSign Envelope ID: 26BF6B95-BC90-4605-A5A8-570AB5583CFA

Device / Module	Model	OEM (If Appl.)	Years in Revenue Service (Since Last Major Update)	Total Qty in Revenue Service since Original Version	System/City	Qty	Reference/ Contact
[redacted]							

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The "Years in Revenue Service" in the table below apply to the Service Proven Design. INIT has updated the design to meet industries demands. PROXmobil1, PROXmobil2 and PROXmobil3, TOUCHit1, TOUCHit2 and TOUCHit3 are all based on the same service proven design, PROXmobil3 and TOUCHit3 are very recent and the latest versions of the design. INIT does not have any plans make any of the devices obsolete for the current customers. We still deliver the same hardware for our customers who procured their ticketing systems 15 years ago. Whenever possible, INIT also makes the new models compatible with the old versions. For example, a current TOUCHit1 user can use TOUCHit3 without any HW changes since the attachment, connector and signals are backwards compatible. INIT has a strong experience and knowledge on providing backwards compatible hardware that also meets the latest technology requirements.

Series	Type	Years in Revenue Service
[redacted]		

Please also refer to chapter "1.6.5 INIT's Product Development Philosophy and Roadmap". The figures above (years in service) refer to INITs industry/service proven design, rather than to explicit product versions.

1.5.1.5 Fare Media

For the next gen ration ORCA system, INIT proposes the [redacted] which provide an excellent option for account-based transit applications because of the limited storage capacity that is needed. Additional features of this of [redacted] include:

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

1.6 INIT's High-Reliability Field Devices and Subsystems

Specifically for Field Devices and Subsystems (Scope of Work Section 4):

a. *Provide a detailed description of each of the following proposed devices, software, and associated mounting systems:*
   i. *Onboard Validator*
   ii. *Driver Display Unit*
   iii. *Wayside Validator*
   iv. *Vending Machine*
   v. *Customer Service Terminal*

b. *For each device listed in 6.a. above:*
   i. *Provide drawings that show dimensions and materials used*
   ii. *Describe supported functionality as it relates to the capabilities in Scope of Work Section 4*
   iii. *Describe the proposed customer interfaces for each device*
   iv. *Describe the communication interfaces provided*
   v. *Describe the interchangeability of modules and assemblies among devices and ease of maintaining the components of the system and the expected reliability of the equipment*

INIT's extensive experience and wide range of fare collection solutions including wayside validators, onboard validators, driver display units, vending machines, and customer service terminals provide a coherent customer experience, with similar look and feel across all the POS service points throughout the entire next generation ORCA system. The customer payment experience is designed to be a uniform and smooth experience for all riders including

commuters, infrequent customers (including tourists), children, the elderly, persons with disabilities, customers with impaired vision, customers with impaired hearing, and non-English speaking customers.

INIT's highly configurable Vending Machines (VMs) and validators will facilitate ORCA agencies to design a coherent customer experience for all customer facing equipment and applications. INIT and its User Interface/User Experience (UI/UX) consultant, will work collaboratively with the Agencies to develop a design that defines the UI/UX components – including:

- Consistent cross-platform branding
- Interface displays
- Lettering
- Lights
- Colors
- Tactile feedback
- Brightness
- Graphics
- Animation
- Screen savers
- Surface texture
- Component size and height

1.6.1 INIT's Service-Proven PROXmobil3 Vehicle Onboard and Station Platform Validator

INIT is proposing the same validator for vehicles and platforms. This simplifies operations and maintenance due to the benefit of shared spares and common training.

For well over a decade, INIT has provided validators to process tickets and electronic fare media serving riders around the world. We are now in our third generation of smartcard validation/processing devices, the PROXmobil3. Our latest generation of validators is designed to process all currently available smart media, barcoded paper and mobile tickets.

PROXmobil3

Passenger Terminal

The Future of Mobility

Flexible, fast and secure

An easy-to-use fare collection system makes public transportation more attractive. Especially now that electronic fare management and passenger-operated terminals are in great demand.

Like its predecessor, INIT's new passenger terminal PROXmobil3 supports all variations of e-ticketing. The housing is more sleek taking up less aisle space on the vehicles.

With its 12.0 cm (4.75-inch) display PROXmobil3 offers passengers a convenient and intuitive way to manage all their ticketing transactions. For instance, they can select the ticket that is best suited for their needs, store tickets on smart cards, or validate bar code tickets. VDV-KA, ITSO, Calypso and boarding control are supported, as well as credit card based applications according to the EMV standard or account-based ticketing. The software supports different standards, even combined in one system.

The intelligent terminal can be operated as well as a stand-alone device as it is equipped with WLAN and GPRS/UMTS. PROXmobil3 is available in two versions: for mobile use inside vehicles and for stationary use at platforms.

Features

- Contactless payment in the vehicle
- Controlled boarding
- Check-in / check-out
- Automatic fare calculation
- EMV, NFC
- On-board or at platforms
- Easy installation

PROXmobil3, INIT's Space-Efficient and User-Friendly Validator

1.6.1.1 Hardware

The PROXmobil3 meets the stringent requirements of the ADA standards. Furthermore, the PROXmobil3 fully complies with all environmental requirements, as stated in the RFP.

PROXmobil3 Reliable and Easy to Maintain Hardware

- **The Environmental Light Sensor** ensures that the screen brightness is appropriate for all lighting conditions making it easy to read even in bright sunlight
- **Customer Display** with optional touch function gives passengers information on the validation status and shows passengers information about the payment options (such as MasterCard and Visa logos). The touch function is not included in this proposal but can be priced as an option. The Tariff Management tool would be used to configure the functionality of the optional buttons
- **Reader EMV L1 & L2 and PCI/PTS certified** reader fast and secure closed and open loop payment card validations. The anti card clash collision is implemented according to the EMV Contactless Specifications for Payment Systems, Book D.
- **Barcode Reader (unpriced option)** can read all industry standard barcode formats with high speed. The barcode decoding is implemented with a HW accelerated barcode decoding module
- **Service Port** is a magnetic coupled USB 2.0 port that provides maintenance personnel an easily accessible interface. Non-standard waterproof design adds an additional layer of security while protecting internal electronics from water and dust
- **Mechanical Lock** is used to lock the PROXmobil3 device to the mounting plate

- **Mounting Plate** is firmly attached to the mounting pole. The mounting plate contains integrated memory where the vehicle number and any specific configurations are stored. Thus, the device can be exchanged without any configuration effort—Hot swappable. The mounting plate also contains backup memory for transactions to further protect your transaction history

PROXmobil3 =

Hot swappable

- **Cellular Communication (unpriced option)** can be included for the validator using an on-board cellular option so that there is no need for a mobile access router connected to the validator. There is an extra cost for this internal cellular device

INIT provides "Hot Swappable" field devices. Because logs of transactions as well as core configurations are stored in an intelligent mount, one need only swap out an INIT PROXmobil3 should a unit fail in the field. This can be done in a matter of seconds saving you valuable time minimizing any impact on your revenue and customer confidence. On boot-up, it will pick up without the need for further configuration or programming.

The PROXmobil3 can be equipped with a 2D barcode scanner, located at the bottom of the device. In the event the agencies will require barcode scanning in the future, the validators could be modified to include the reader. The convenience of placing the barcode scanner at the bottom of the device allows for a minimal footprint onboard a bus, where space is already limited.

1.6.1.1.1 ADA Compliance

The onboard validator was designed such that obstruction is minimal and to make access simple so that ADA compliance can be achieved. Within the vehicle, an ADA compliant location for the validators will be identified and confirmed by the agency together with INIT.

In order to be compliant, the validator must be installed at 48" (see requirement 308.3.1 of the ADA Accessibility Guidelines) maximum above the finished floor surface and provided in an area that provides a minimum of 30" x 48" of clearance in the floor space for wheelchair users to approach and access either by parallel or forward approach (see requirement 305 of the ADA Accessibility Guidelines).

If the validator is mounted in the dash console of the vehicle and is set back greater than 10" from the edge, forcing the user to reach over an obstruction, then a maximum of 46" to highest operable part or element is required (see requirement 308.3.2 of ADA Accessibility Guidelines).

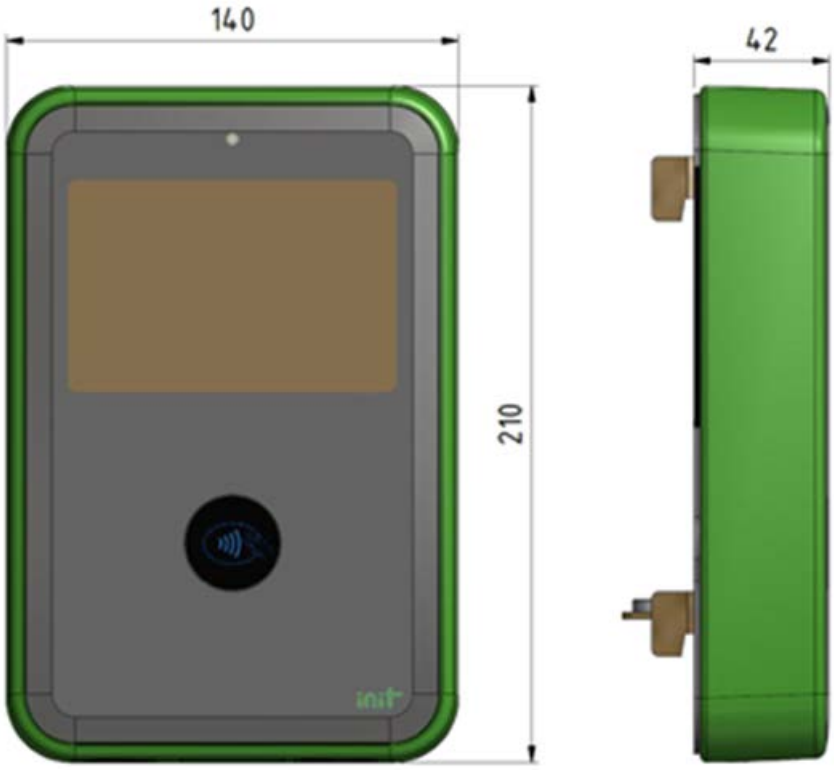
A speaker included in the validator will provide different audible tones to provide visually impaired persons with the validation result (either positive or negative).

With regard to the applicable ADA requirements, it is important to remember that the on-board validator is located in an attended environment (bus operator).

1.6.1.1.2 Enclosure

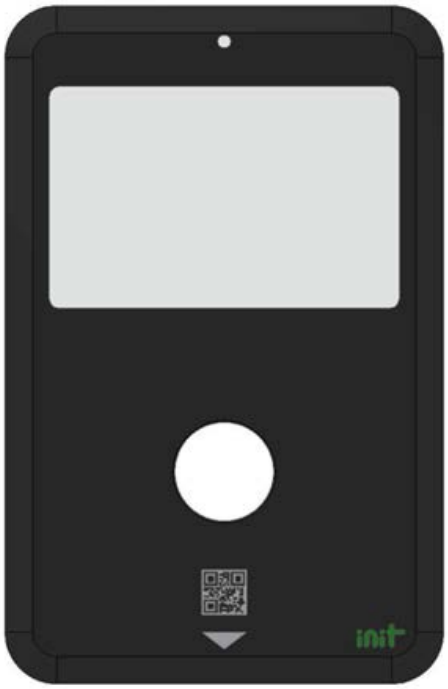
The PROXmobil3 is ruggedized and specifically designed for the transit industry with a proven track record. The PROXmobil3 has a safe design with all validator corners rounded, no exposed or accessible bolt heads, nuts, sharp edges, or cracks on outside surfaces. The display is flush-mounted in the housing. The validator housing covers for accessing modules and subassemblies are secured with mechanical locks. The keys are uniquely serialized and cannot be copied.

The dimensions of the PROXmobil3 validator are 5.5" x 8.3" x 1.6" (width x height x depth) as indicated in the drawing below.



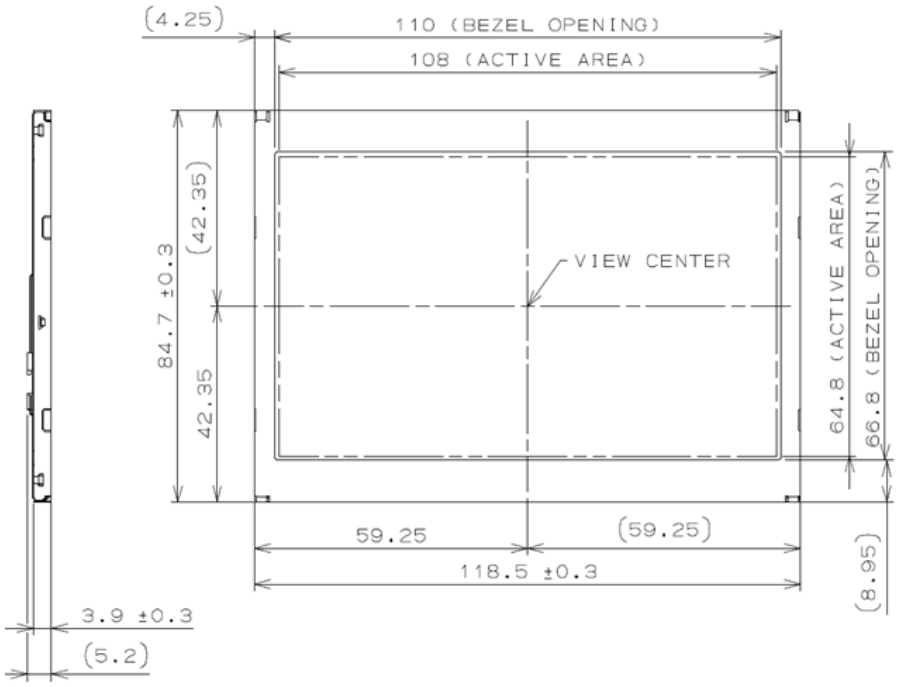
PROXmobil Validator Drawing

This proposal includes a glass screen as part of the housing. The validator housing can be optionally equipped with a plexi-glass screen (instead of a glass screen at no additional cost. The front glass screen is shown below.



PROXmobil3 Validator Glass Screen

The drawing below provides the dimension of the PROXmobil display.



PROXmobil3 Display Drawing

Please see the following section for some high-level specifications of the PROXmobil3, and detailed hardware specifications in Section 1.6.1. See section 1.6.1 for the software and functional information.

PRODUCT INFORMATION

Passenger Terminal

PROXmobil3

- Support of different standards (VDV-KA, ITSO, Calypso, etc.)
- Compact housing
- Hybrid card reader
- Back-up storage of sales data on a µSD card in the mounting plate

Technical Data	
Display	12.0 cm [4.75"] Diameter 754 x 480 dots 262k colors 900 cd/m² LED-backlight (controlled) Projected Capacitive Touch (optional)
Processor and Memory (RAM)	32-Bit ARM Cortex-A9 800 MHz 512 MByte DDR3L
Memory (Flash)	2 x 1 GByte µSD-card
Interfaces and Modules	Ethernet 10/100 Mbit WLAN IEEE802.3 a/b/g/n (optional) UMTS/LTE (optional) 2D Barcode scanner (optional) Audio output
Contactless RFID Reader	Chip cards (contactless): ISO 14443 a/b; Mifare(R) EMVCo Level2 (Mastercard, Visa, American Express, Discover), PCI PTS SRED certified optional: – VDV-KA – ITSO – Calypso NFC reader compliant Up to 4 safety modules (ISO 7816)
Power Supply	8 V – 33 V; max. 10 Watt
Dimensions	140 mm [5.5"] x 212 mm [8.3"] x 41 mm [1.6"] (width x height x depth) Installation using quick-change bracket; device secured by lock
Weight	approx. 1.1 kg [2.43 lbs]

We reserve the right to make future modifications / © INIT, 02/2016

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The Future of Mobility

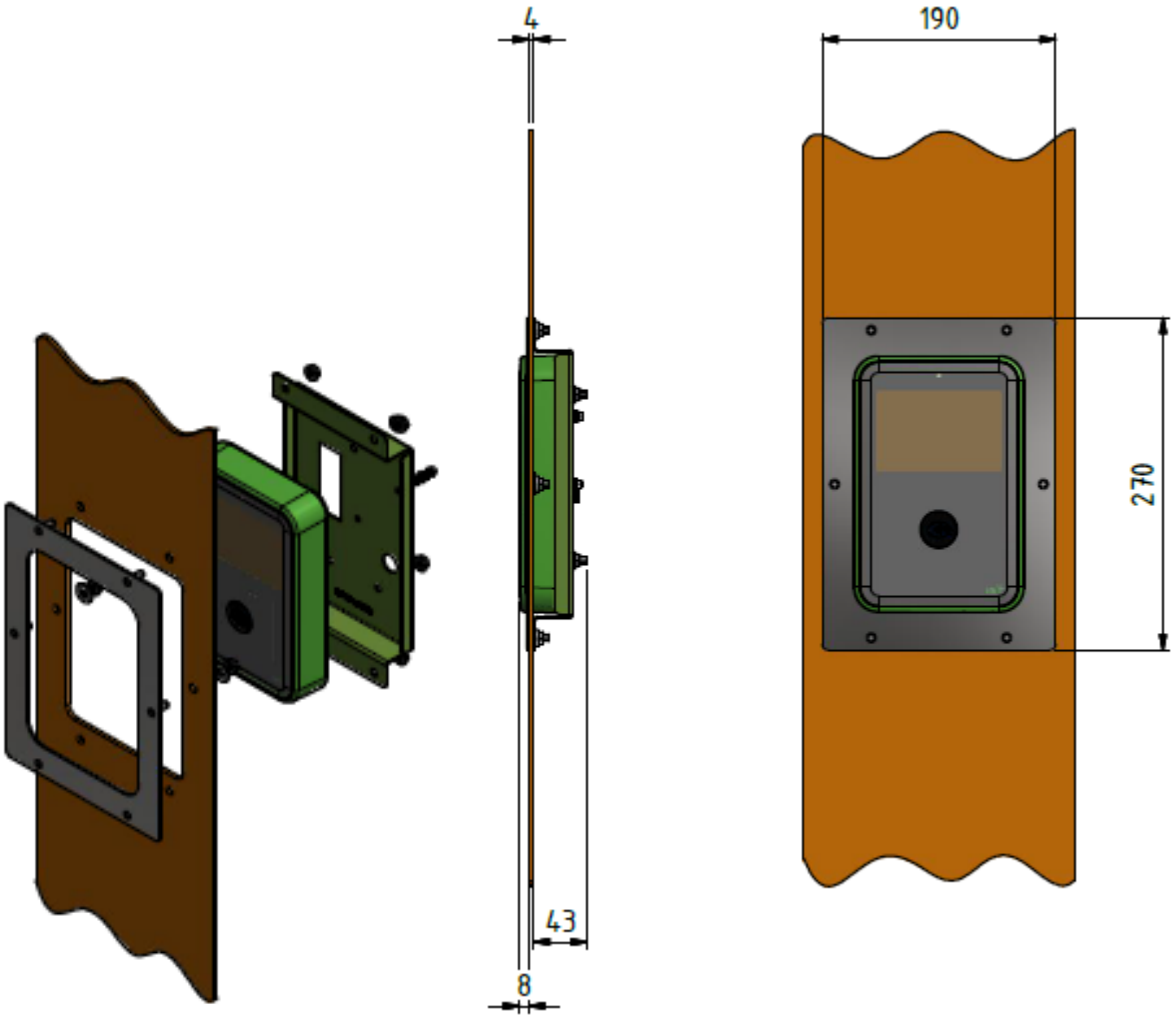
1.6.1.1.3 Installation & Mounting

The PROXmobil3 is capable of a variety of installations as shown in the figure below. Whether it's on a platform, bus or LRV, the PROXmobil3 has been designed to support the agencies requirements, even in outdoor environments.

Ease of PROXmobil3 Installation and Mounting

In addition to the mounting variants shown above, INIT designed a surface-mounted wall mount and a flush mount of the validator. See drawings / renderings below for more information.

Surface mounted wall mount



Flush-mounted wall mount

Because of its compact footprint, even dashboard mounting is possible. INIT works closely with our clients to find the optimal locations for the equipment supporting both ergonomic and aesthetic considerations. As seen here, most installations include vertical mounting, however, INIT can also provide a horizontal mount if preferred by an agency. The horizontal mount, is available for a small upcharge, which is provided in the options pricing.

1.6.1.1.4 Power

The PROXmobil3 can operate with the wide voltage range from 8V to 33V. When the bus ignition is turned off, the onboard validator will remain powered for a configurable time to allow completion of transmission of any and all data files and transaction records.

1.6.1.1.5 Communications

The figure below provides an overview of the onboard communications, which involves a single cable to the onboard validator to provide Ethernet connection, power, ground and the ignition signal to turn the validator on and off.

The validator will utilize Ethernet to connect to the ORCA Agencies' provided Mobile Access Route (MAR), the INIT or third-party CAD/AVL Vehicle Logic Unit (VLU), and the INIT or third-party DDU.

For [redacted]). Interfacing between INIT-only onboard components will lead to a very simple, cost-effective, low risk and quick integration for the KCM vehicles. INIT utilizes this same architecture for the HOP Fastpass project in Portland and Vancouver, WA, which utilized INIT for both CAD/AVL and AFC. For the Community Transit vehicles, INIT can also provide a simple, cost-effective, low risk, and quick integration, given that it involves communications between INIT-only components. For the CT vehicles, INIT can provide a separate DDU for the fare collection or share the existing one being used for CAD/AVL. Given that the KCM and CT vehicles make up the vast majority of next generation ORCA vehicles, there would be a significant advantage to utilizing an INIT System – especially, for the more complex KCM interface involving the sharing of the DDU for both CAD/AVL and AFC. For the non-KCM and non–CT vehicles, INIT will interface to the third party onboard CAD/AVL equipment.

[redacted]

The platform validator will connect to the back office via Ethernet to a station switch and then via the Agencies' WAN.

For the platform devices, the PROXmobil3 validators may be connected using standard POE.

1.6.1.2 Software (Functionality)

When the vehicle ignition is turned on, the PROXmobil3 will boot and go through its self-diagnostics. Any errors or anomalies will be logged and sent to the central system where MOBILEsymon, INIT's system monitoring too, will record and process them according to mutually agreed policies.

If no issues are found, the validator will finish its initialization routine and display a gray screen stating "Not in Service". This status and message will be pushed to the DDU for display to the operator.

Once the operator logs on the DDU, the validator will change its display to the default passenger screen, e.g. 'Please tap on'.

The onboard CAD/AVL system will report the vehicle location to the validator periodically. On door cycle events, the onboard CAD/AVL system will push the stop and location information to the validator so that any passenger payment interaction may be correlated with the route, stop and location.

In addition to the door cycle events or if the door cycle events are not available to the CAD/AVL system, the location (GPS coordinates and Stop ID) can be updated on a time basis (e.g. every 15 seconds).

1.6.1.2.1 Transaction Records

Onboard and wayside validators will generate, store and transmit a discrete data record for each transaction and/or validation performed, and include the information indicated in the table below:

Onboard PROXmobil3 Transaction Record	Wayside PROXmobil3 Transaction Record

1.6.1.2.2 Audit Registers

INIT's validators include local audit registers for data and analysis purposes, which maintain counts for the following events as applicable:

- [redacted]

- [redacted]

1.6.1.2.3 Events & Alerts

The PROXmobil3 validators will provide real-time status of device events and alerts to the MOBILEsymon, INIT's system manager – including:

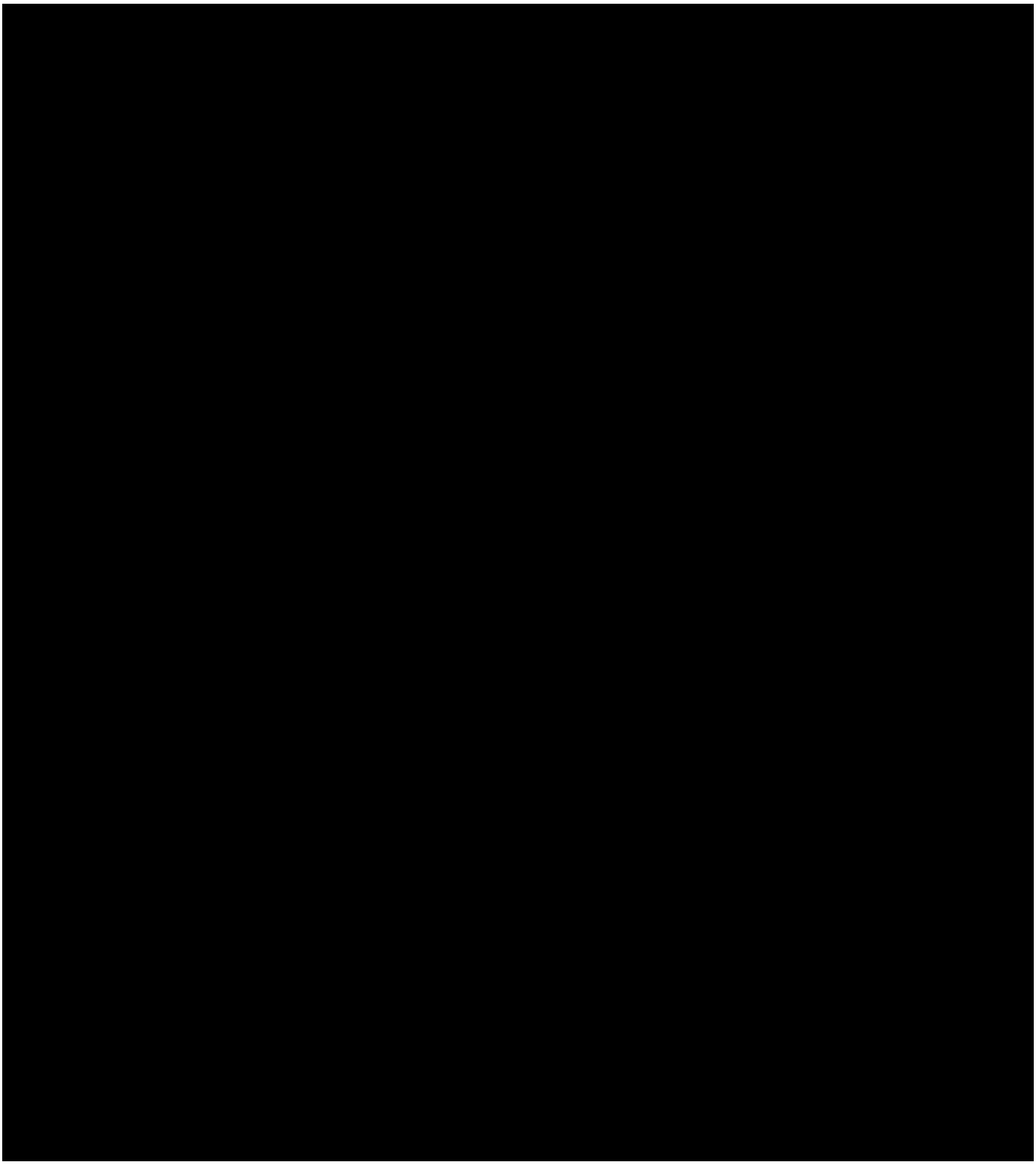
- [redacted]

In addition to providing real-time status information, the validators will locally store events and alert logs for up to three (3) months in the event of loss of communications to the back office.

The validators will transmit "heartbeat" messages at an adjustable frequency to confirm communication with the back office and basic status.

1.6.1.2.4 High-Speed Validation Process with Offline Provisions

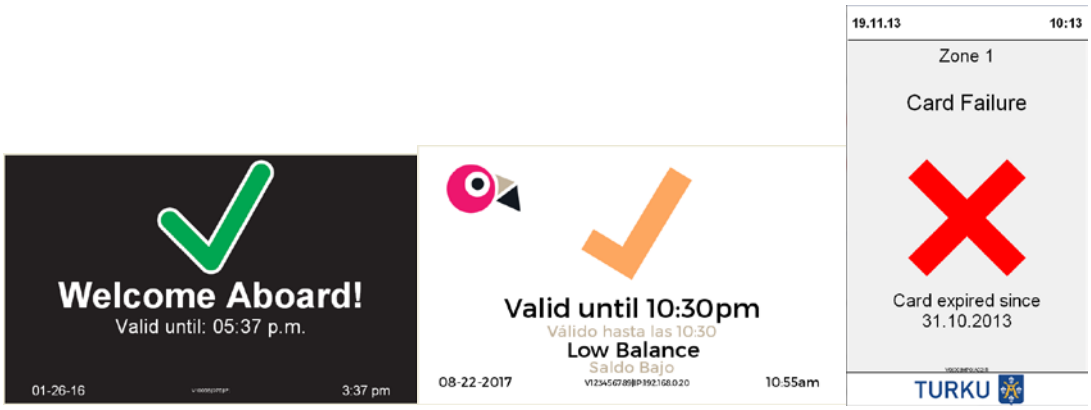
The figure below provides a flow chart of the validation process which includes an inherent provision for offline situations, by providing a local validation in the event the validator does not obtain a response from the ATP.



1.6.1.2.5 Customer Interfaces

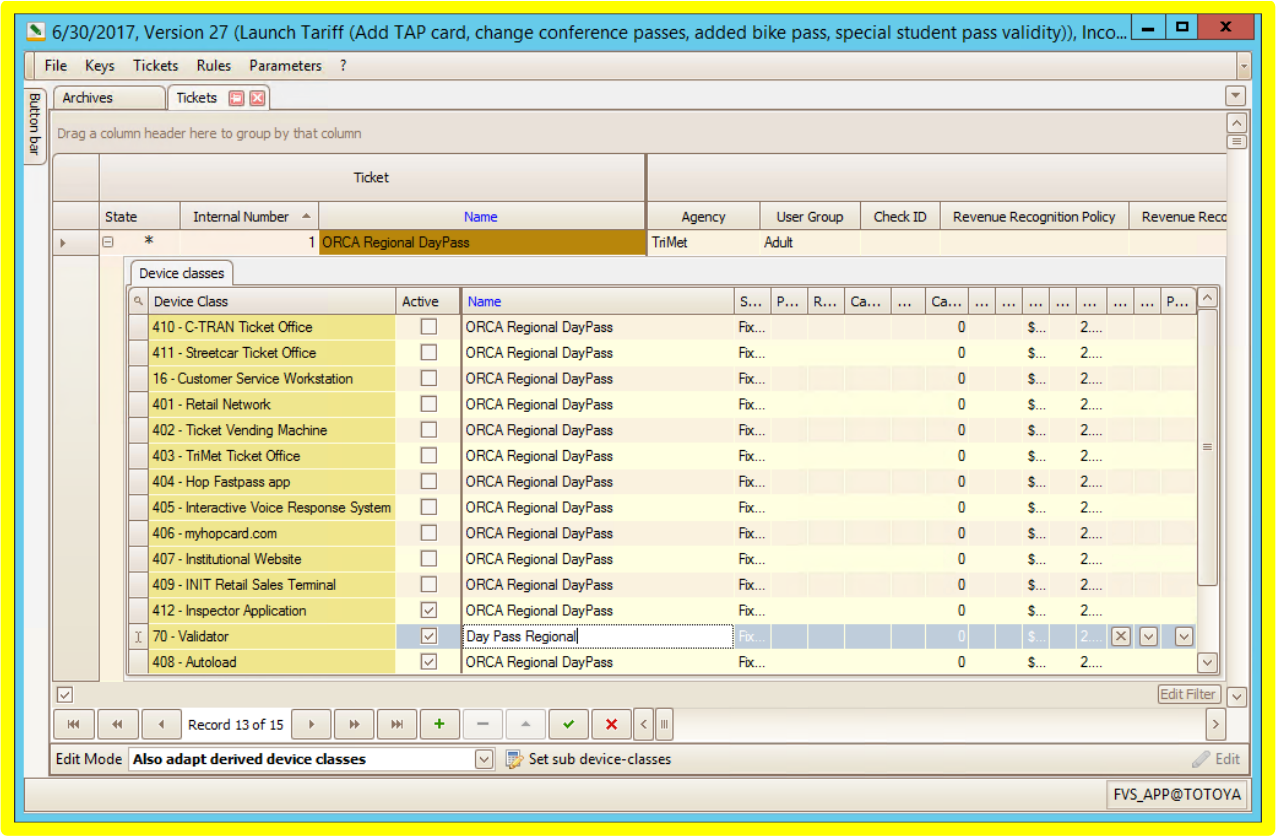
The PROXmobil3 customer interface is highly configurable. From left to right in the pictures below, you can see the look and feel of the user interfaces for the HOP Fastpass (Portland, OR), Tampa and Turku. These projects are all account based systems, making them very similar to the next generation ORCA functionality. The PROXmobil3 display is LED based with a light sensor to determine brightness. As evidenced above, the GUI will be customized to fit the look and feel of the next generation ORCA design. A speaker included in the validator will provide different audible tones to provide visually impaired persons with the validation result (either positive or negative).

The screens will be designed during the design phase together with the agencies and the UI experts. Changes to specific text elements (e.g. product names) can be configured by the agency. Changes to the main screen layout would need to be done by INIT.



INIT's Highly-Configurable Validator User Interface

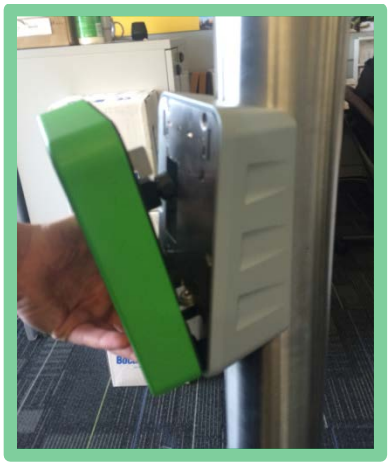
Changes to the text would be made in INITs Tariff Management. The example below shows how the text that it displayed on the validator when the product 'ORCA Regional Day Pass' is used. The name can be changed sales channel specific. In the example below only the name displayed on the validator is changed to 'Day Pass Regional'. As soon as this change is made in Tariff Management the validator would show the updated product name.



Changing the Validator Specific Product Name

1.6.1.3 Maintainability

INIT provides "Hot Swappable" field devices. Because logs of transactions as well as core configurations are stored in an intelligent mount, one need only swap out an INIT PROXmobil3 should a unit fail in the field. This can be done in a matter of seconds, saving you valuable time minimizing any impact on your revenue and customer confidence. On boot, it will pick up without the need for further configuration.



Easy validator replacement

1.6.2 INIT's Color, High-Resolution TOUCHit3 Driver Display Unit

INIT is proposing its new TOUCHit3 Driver Display Unit (DDU) for the next generation ORCA project.

INIT's Transit-Rugged Touchscreen DDU

1.6.2.1 Hardware

The TOUCHit3 consists of a brightness sensor for regulation of the display brightness, status LEDs and touch sensitive display. The 6.5", 800x480, full-color touch screen is ergonomically designed, and the display has LED backlight for optimal contrast and extended life-time. The

TOUCHit3 is designed with a high resolution screen giving drivers easy to read information even in bright sunlight. It automatically adjusts to ambient light conditions and offers a night mode.

The compact housing contains:

- All electronic components
- TFT Display
- Touch panel
- Connector to the on-board computer

1.6.2.1.1 Controller Board

The electronics of the TOUCHit3 are specially designed for automotive use. The components are nearly all manufactured in SMT (Surface Mount Technology). This offers the possibility of a compact design and the advantages of high-quality mechanics. The components are selected to fit the required industrial temperature range.

The TOUCHit3 is controlled by a 32-bit CPU-Module with ARM Cortex A9 processor from Freescale. The device features 512 MB RAM and 4 GB Flash Memory. A touch controller from Texas Instruments performs signal interpretation of the touch panels.

1.6.2.1.2 TFT-Display

The color display is a TFT display with LED Backlight:

- Aspect Ratio:16/9
- Screen diagonal: 6.5 inch
- Brightness: 600 cd
- Display Resolution: 800 x 480 dots
- Visible area: approx. 5.7" x 3.1" (144 mm x 78 mm)

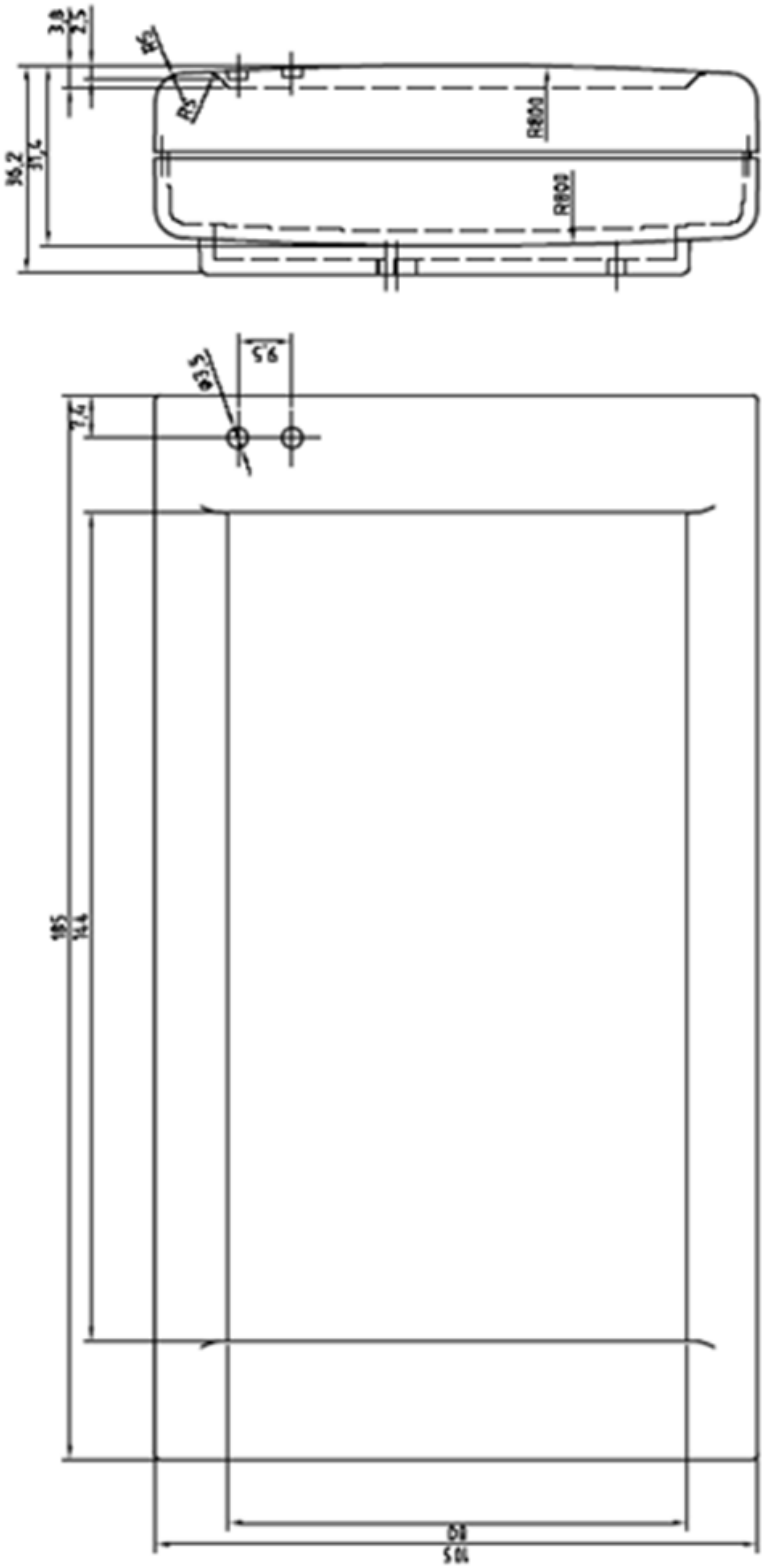
1.6.2.1.3 Touch Panel

The touch panel utilizes capacitive touchscreen technology and is coated to feature an anti-glare surface. The lifetime of the touch foil is specified to one million finger touches. As confirmed by the agency, a touchscreen solution is acceptable, therefore physical buttons will not be provided. Since there are no physical buttons, additional virtual buttons can be added to the graphical user interface to perform future functions. Because the touchscreen is capacitive, it provides a brigher and sharper display with a more responsive screen.

1.6.2.1.4 Enclosure & Mounting

The TOUCHit3 features a strengthened polyamide housing with dimensions of approx. 7.28" x 4.13" x 1.42" (185 mm x 105 mm x 36 mm) W x H x D (as illustrated in the drawing below). It is designed to withstand all the required bus environmental and operating conditions and to withstand the tough conditions of the bus environment.

The TOUCHit3 has various mounting accessories available to integrate or to mount to different locations of the different bus types. INIT will provide all necessary hardware and mounting brackets. The mounting location will be decided together with the Agencies so that the bus operator has an unobstructed view. The connector on the back of the device enables power and Ethernet connection with just one cable, making the installation simpler.



TOUCHit3 dimensions drawing

See Section 1.4.1.9.2 for the detailed hardware specifications. The TOUCHit3 being a tough-display, it does not have a lot of functionality.

1.6.2.2 Software

The operating system on the TOUCHit3 is Linux and will provide all system functions needed such as Ethernet communication drivers.

1.6.2.2.1 Operations

On system startup, the TOUCHit3 checks its hardware and boots the operating system. After a successful boot, the driver display application is loaded. As soon as the application is running, a connection to the PROXmobil3 bus validator is established. Fare validation results of transactions performed on the validator are transmitted to the TOUCHit3 to display them to the bus operator. The driver display also updates status information shown on the screen and is ready to send commands to the validator e.g. to enable the Maintenance Mode. If the connection to the PROXmobil3 can't be established, the driver display will show an error status.

1.6.3 INIT's Highly-Configurable Smart Vending Machine

INIT is pleased to propose its state of the art VENDstation Full Featured Vending Machine (FFVM) and VENDmobile Light Featured Vending Machine (LFVM) as the choice Vending Machine (VM) solution for the next generation ORCA project. INIT VENDstation and VENDmobile VM's are the perfect solution to satisfy the contractual requirements as the current design of the VM's align with the specific goals and objectives of the agency, setting the stage for a new era of ticketing convenience for next generation ORCA customers. Both VM models are designed to be simple, low-maintenance, and low-complexity machines utilizing a cost-saving design that meets or exceeds the functionality and common design capabilities specified.

Our highly efficient and user friendly VM's will improve the customer experience and reduce VM waiting times, especially at high priority stations. INIT is an experienced and qualified supplier of VM's, providing

proven and easily configurable options for full cash, limited cash (no change) and cashless configurations, enabling cost effective future enhancements at any time. Because of our commitment to Open Architecture, open APIs and COTS (Commercial off-the-shelf) based solutions, the VM's offer valuable benefits from low initial start-up costs to significant decreases in ongoing operations and maintenance costs.

A big advantage of the INIT VMs are their sustainable design which allows for a lifetime of 12 years as requested in the RFP. All modules of the VMs are exchangeable and can be replaced by successor or alternative models if needed. With this concept ngORCA can be assured that they will receive state of the art Hardware and Software at initial delivery and that during lifetime replacements with newer modules can be performed as needed. The modular approach is described in this section and subsections.

Once installed, the new VMs, with their modular open architecture and open Application Programming Interfaces (APIs), will provide unmatched flexibility to control the VM configurations, implement future enhancements and support third party integration. A direct result of this flexibility is a significant improvement in the VM useful life, and the elimination of ADAextremely flexible open system is highlighted in the table below:

Benefits of the INIT VENDstation and VENDmobile VM System
✓ **Reduced Capital Costs and Ongoing Operations and Maintenance Costs** ▪ Experienced and qualified supplier of VM Systems ▪ Proven Modular Designs in both Cash and Cashless Configurations ▪ Commitment to Open Architecture and COTS based solutions ▪ Experienced Project Staff for cost effective project management
✓ **Provide Integration Flexibility for Cost Effective Future Enhancements** ▪ Modular Open Architecture and Open APIs enables effective Third Party Integration ▪ Configurable, Modular VM and TOM Designs for Simple, Cost Effective Updates ▪ Enhanced Control Over System Configurations ▪ Unrestricted Access to APIs, Keys, Data Formats and Data ▪ Upgradeable and integrated INIT VENDpc2 computer running Windows ver. 10- IoT
✓ **Improved Customer Experience – Reduce Lines for Ticket Purchase** ▪ Install Field Proven, Standard Configuration INIT VMs ▪ Significantly Reduce Transaction Times o Eliminate Confusion with Simplified Purchase Screen Flow o Improved Ticket Issuance Speed ▪ Improved System Monitoring for Minimal Maintenance Response Times

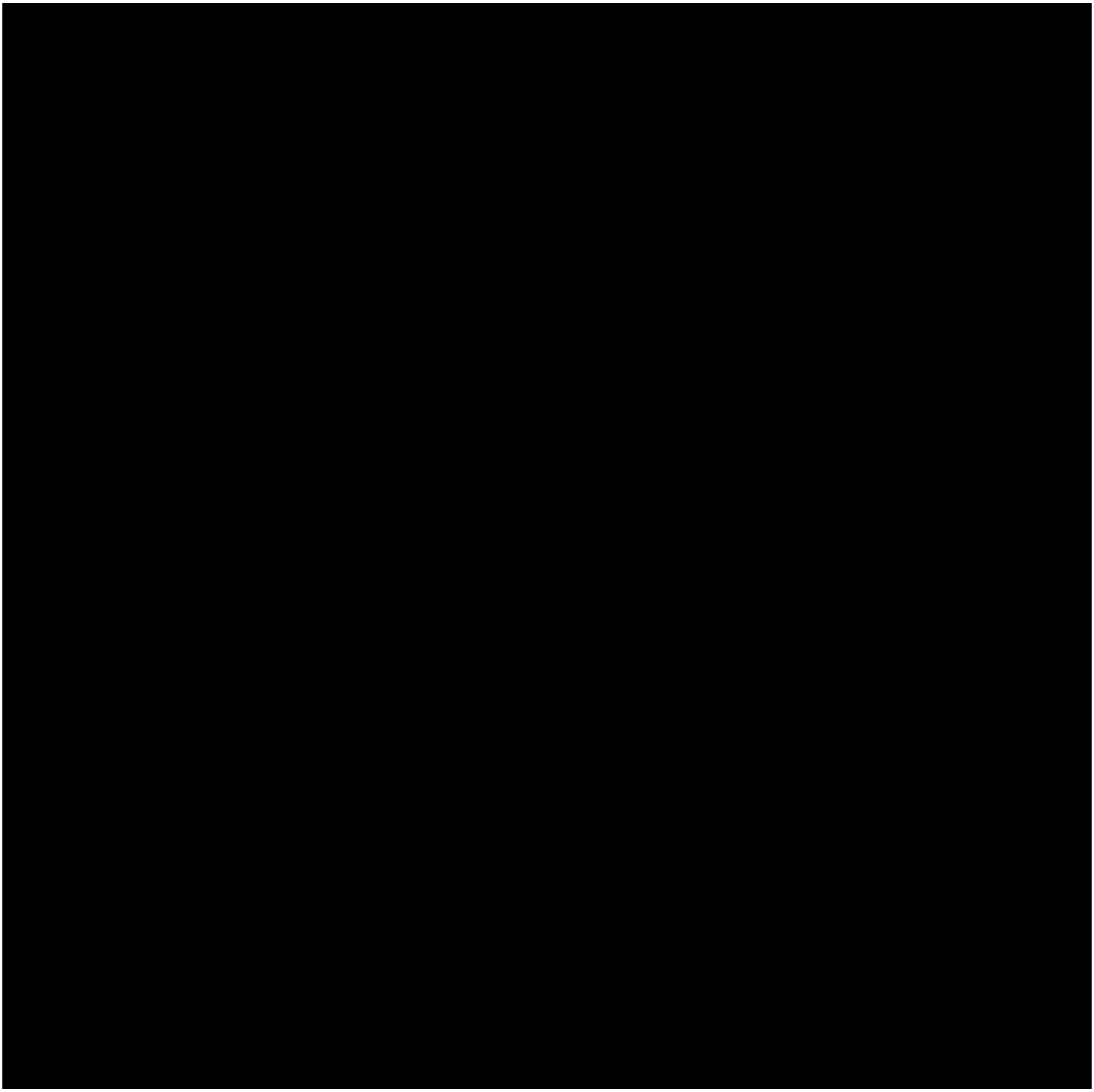
1.6.3.1 General Capabilities

For clarification, the INIT VENDstation and the acronym FFVM are one and the same. Likewise, the INIT VENDmobile and the acronym LFVM are one and the same. When referring to the functionality of a specific Vending Machine, the acronym or the INIT tradename (VENDstation or VENDmobile) will be used. Otherwise, the term VM will refer to both Model Vending Machines as referred in the RFP.

In keeping with the preferred goal of a common platform approach, the internal components of the VM's, where applicable, are essentially the same and can be interchanged between each type of VM seamlessly. The table below details the components between each VM which are interchangeable:

INTERNAL COMPONENTS	FFVM	LFVM
Controller (VENDpc + VENDpc extension)	Same	
Push Buttons	Same	
FEIG closed and open loop card reader	Same	
Coin handling Unit with Escrow but without change	Coin carousels that enable Change	Escrow for refunds, no possibility for change
Bill Handling Unit MEI SCR small version	SAME	
Bank Card Processing Unit - Ingenico iSelf	SAME	
1 x Double printers (2 paper rolls in total)	Printer unit is the same. Paper roll width 300mm. Sheet metal & mounting differs from LFVM.	Printer unit is the same. Paper roll width 130mm. Sheet metal & mounting differs from FFVM.
Smartcard Dispenser	Same	

In addition, INIT's cash and "no change given" VM variants allow the transit agencies to pick the right variant at each station. The logic flow of the transaction for both VM's is the same. The following figures depict the easy three-step process the VM follows during the patron transaction. The only difference is the removal of the Coin recirculation components necessary for issuing change.



1.6.3.2 Hardware

The following chapters focus on the INIT VM's hardware.

1.6.3.2.1 Enclosure

The high security VM housings are made of 2mm thick stainless steel with reinforced corners. The secure, modular VM enclosure is constructed to withstand rugged harsh environmental

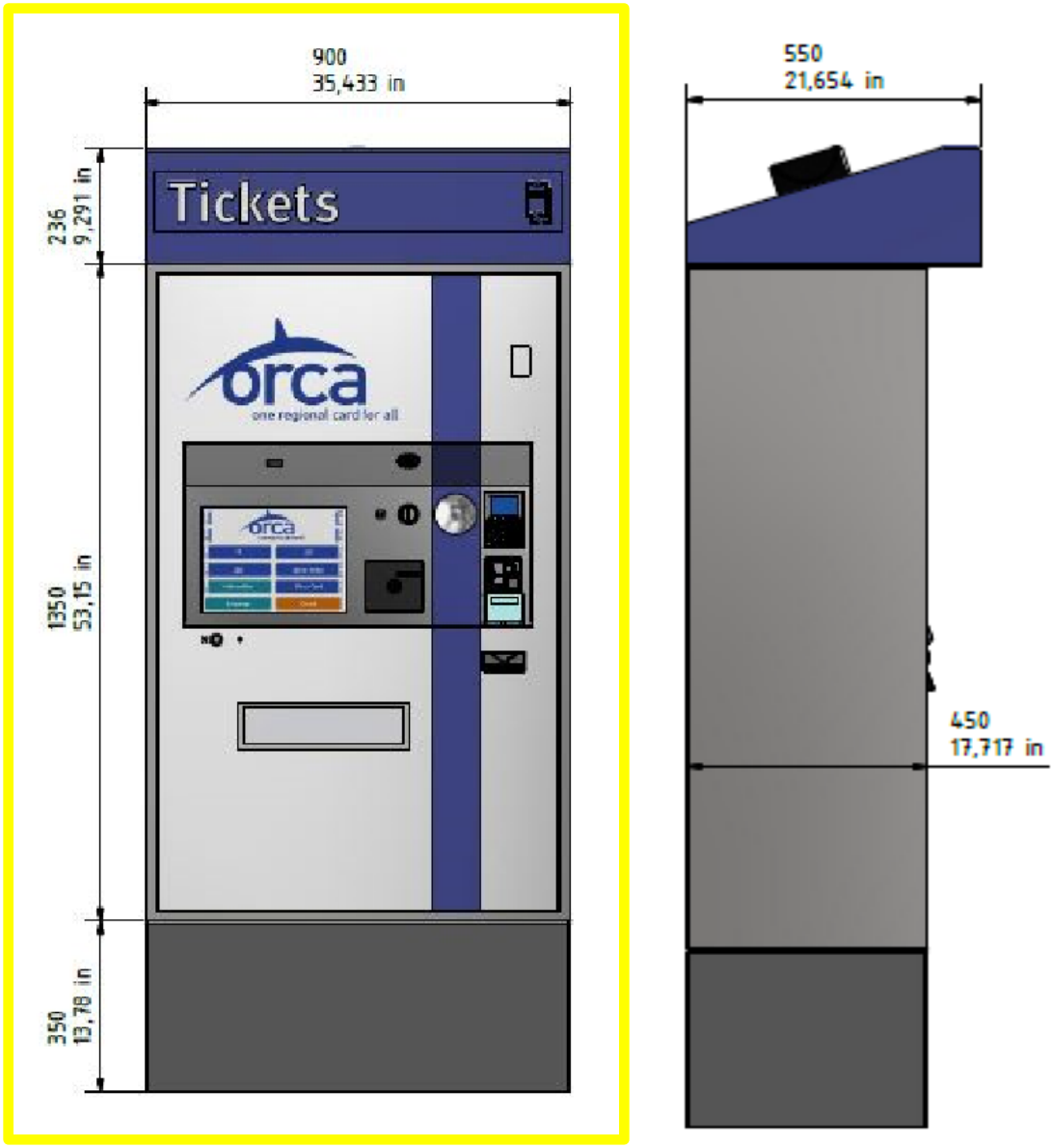
conditions against moisture, dust/grit/sand, humidity, electrical storms, exposure to urban and marine environment, and the range of elevations and altitudes in the operating region, while providing next generation ORCA customers with a convenient customer interface.

The COTS based service proven design supports a high availability, low maintenance model, where the ORCA transit agencies can provide a positive purchase experience to its customers. As detailed in the table below and illustrated in figures, the ergonomics of the user interface front panel and component layout for both VM's provide a smooth and easy to use transaction experience for the customers.

INIT VM Features	next generation ORCA Benefit
Simple, service proven VM design	• Low capital and ongoing operating costs • Proven functionality to allow for timely VM acceptance and expedited replacement of existing malfunctioning VM's.
Modular, COTS based VM Components	• Low risk, low maintenance, low complexity as compared to custom designs • Extremely low maintenance costs • Reduced downtime for improved customer experience • COTs components can be upgraded as newer technology becomes available therefore extending the product lifecycle and avoiding technical obsolescence.
Flexible, Configurable VM	• Flexibility for next generation ORCA authorities based on passenger flow • Cost savings based on flexible configurations

Exterior and Overall Dimensions of the VENDstation (FFMV)

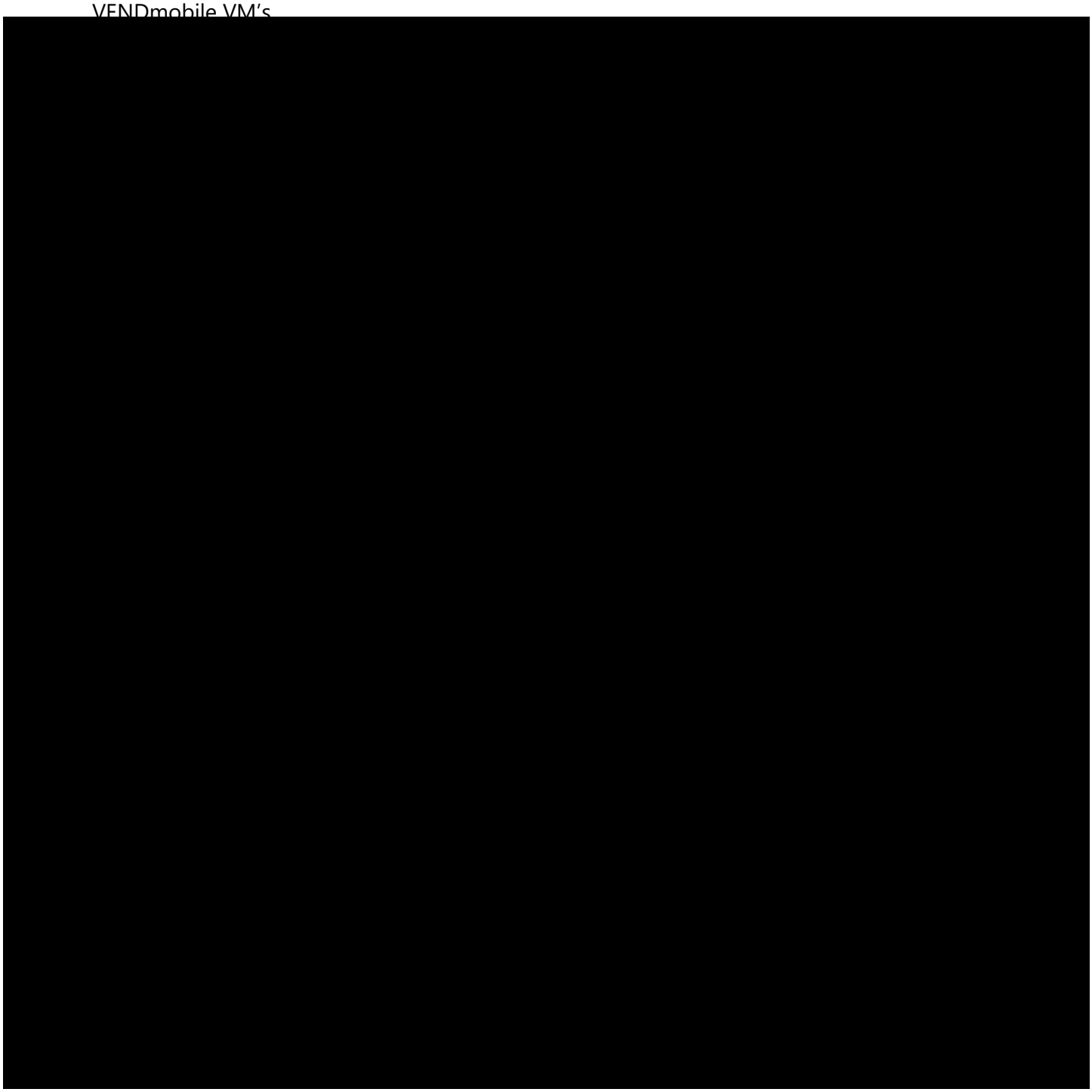
The pedestal and base heights are adaptable to meet ADA requirements as well as variable enclosure requirements. The height of the hood (with the text "tickets") is configurable and can be reduced from a height of 9.3 inches to a height of 2.5 inches in order to meet specific enclosure requirements while still providing overhead lighting for the VM front panel.

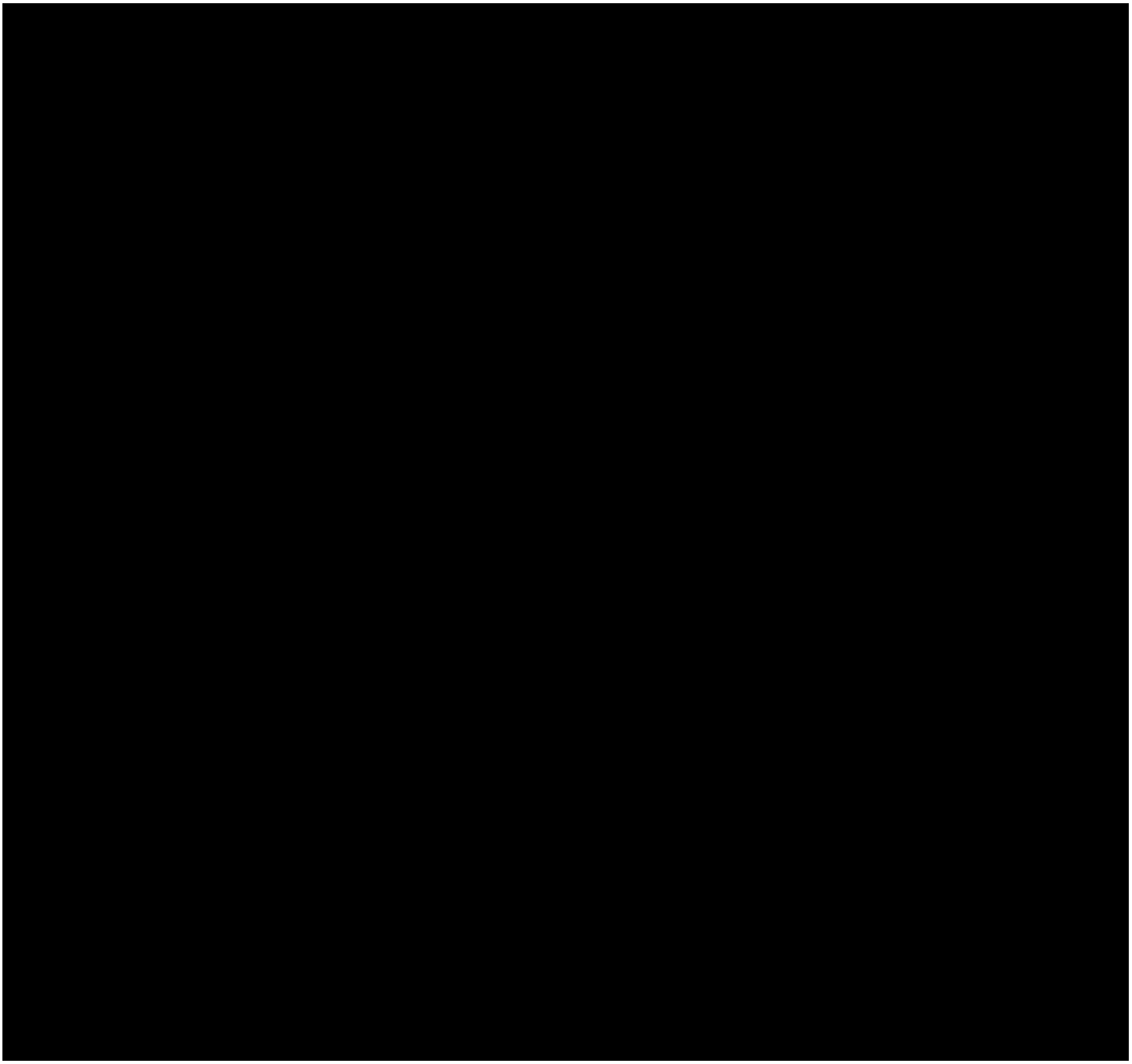


Exterior and Overall Dimensions of the VENDmobile (LFMV)

1.6.3.2.2 Modular Design

INIT's flexible modular design allows the VM's to be configured for each customer's specific requirements. The figures below shows the location of components of the VENDstation and VENDmobile VM's





The following table shows common and unique features and functionality of the INT VM's.

INIT VENDstation & VENDmobile	Features and Options
Pedestal / base	• Standard pedestal made from powder coated stainless steel • FFVM: Standard pedestal made from concrete
Housing	• 2 mm powder coated stainless steel • Anti-graffiti coating (optional) • Reinforced corners • Interior hinged door
Printers	• FFVM Up to 4 thermo printers with 300 dpi resolution • LFVM: Up to 2 thermo printers with 300 dpi resolution • FFVM: Up to 4 paper rolls with up to 300 mm diameter • LFVM: Up to 2 paper rolls with up to 130 mm diameter • Paper width up to 84 mm • Paper weight up to 80-120 g/m^2 • Paper level monitoring (optional) • Paper tracking using 1D barcode reader (optional) • Full and partial cut possible
Card Dispenser	• Up to 500 cards • Card return reject bin for up to 10 cards • Write and read encoding/decoding of ISO14443 proximity cards)
Coin Processing	• Electronic coin shutter prevents non-metallic objects from being inserted. Self-cleaning function • Entire coin path within device monitored by 7 photoelectric sensors • Electronic coin validator

INIT VENDstation & VENDmobile	Features and Options
	• FFVM - Up to 6 change magazines, correctly sorted, with 50 coins per magazine. Escrow function based on "first-in-first-out" process • Self-closing stainless steel cashboxes with a 6,5 l volume • FFVM- Up to 3 "big" hoppers with up to 1100 coins or up to 4 "small" hoppers with up to 250 coins. Hoppers in lockable stainless steel boxes (optional)
Uninterruptible Power Supply (UPS)	• Uninterruptible Power Supply
Bank note handling SCR	• Escrows 15 banknotes • Cashbox: Lockable, removable and durable with 600-note capacity • Security Gate Module: Mechanical security, anti-stringing protection • Acceptor Head: Multi-width (3.27") SC Advance acceptor head • Security and/or stainless steel inlet (o)
Barcode reader	• Allows for quick scanning of mobile ticketing or barcodes on paper tickets (optional).
Security	• Locking o Locks on three sides o Lock bar with nine 6 mm stainless steel hooks o Security lock o Vibration secure door lever o Sensors for monitoring the locked status of the door • Hinge o Stainless steel hinge o Adjustable

INIT VENDstation & VENDmobile	Features and Options
Display	• Horizontally installed 10'' display (LFVM) • Horizontally Installer 15" display (FFVM) • 1024 x 768 resolution • 1000 cd/m², easily readable including under direct sunlight
Touch	• Capacitive touch
Contactless customer cards	• Write and read customer cards
Ticket tray	• 1mm stainless steel with liquid drain • Plastic cover with stop and return spring • Electrically lockable cover (o)
Credit card terminal	• Integrated PIN pad, EMV card reader and contactless card reader with keypad to provide ADA compliance
Cover	• Stainless steel standard cover with logo and lighting • FFVM: Cover with illuminated and changeable title box
Miscellaneous options	• Illuminated arrows for customer direction guidance • Electrical lock cover • Microphone • Camera

Dispensing limited use media is also possible but requires different components depending on the type of the LU media (on roll, stacked, thickness). If LU media needs to be issued this should be decided and specified during the system specification phase. Upgrading the VM after the fact to enable dispensing of LU tickets would add additional effort.

1.6.3.2.3 Display

The VM has a trans-reflective backlit 15" flat panel TFT LCD touch screen display which provides optimal view in bright sun light as well as at night time. The display detects customer selections and is unaffected by rain, temperature and sunlight. All content shown on the display is ADA compliant. User input is given via the touchscreen or through the keypad on the credit card terminal, corresponding to the active regions of the touchscreen. The Glass Covered TFT LCD Touch Screen is secured with a stainless steel back plate to ensure against intrusion through the monitor cut out.

The touchscreen display is the primary customer interface, used to guide the customer through simple and easy to read instructions on how to complete the fare purchase process. To simplify the process, one is consistently allocated to language, while another is dedicated to the CANCEL function. Customer selections are consistently displayed, eliminating confusion in any sequential purchasing process. The display is installed on the front door of the VM, situated so its view is not obstructed and to avoid any parallax effect.

1.6.3.2.4 Bill Handling Unit

The Bill Handling Unit (BHU) is the proven design of the [redacted] unit without bill recycling. The unit includes a bill validator, escrow module and bill vault. The SC product line has redefined expectations for note acceptors by improving acceptance rates, jam rates, security and the cost of operation. The reliability that has resulted in an installed base of more than 1.5 million units worldwide is now the engine that drives a unit engineered to further reduce the costs associated with cash management. New bill designs are easily programmed to add to current bill designs.

[redacted]

The bill validator is equipped with a protective shutter to ensure that foreign matter does not enter the BHU while the machine is not accepting bills. The bill validator will remain closed until a transaction is selected for which cash payments are available. The shutter will automatically open once payment due has been displayed. The specification highlights of the [redacted] are as follows:

- o [redacted]
  - [redacted]
  - [redacted]
  - [redacted]
  - [redacted]

1.6.3.2.5 Coin Handling Unit

The Coin Handling Unit (CHU) is the proven design of the COTS based chassis [redacted] a complete self-locking and self-closing coin handling solution for indoor and outdoor machines. [redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

The coin acceptance is self-cleaning and opens only for metallic objects. Only one coin is accepted at a time. The integrated escrow provides a universal solution for pre-vend coin storage requirements. All inserted coins are safely stored in the escrow prior to the confirmation

of the sales transaction. Any interruption of the vending process results in all coins being returned, reducing the likelihood of coin manipulation and attempts of money laundering.

The VM software determines the amount of coins in coin storage and calculates the weight. When the weight reaches a certain threshold parameter, the device stops accepting coins. The INIT MOBILEsymon system monitoring software monitors the CHU storage and issues pre-assigned notifications to optimize service and maintenance response times.

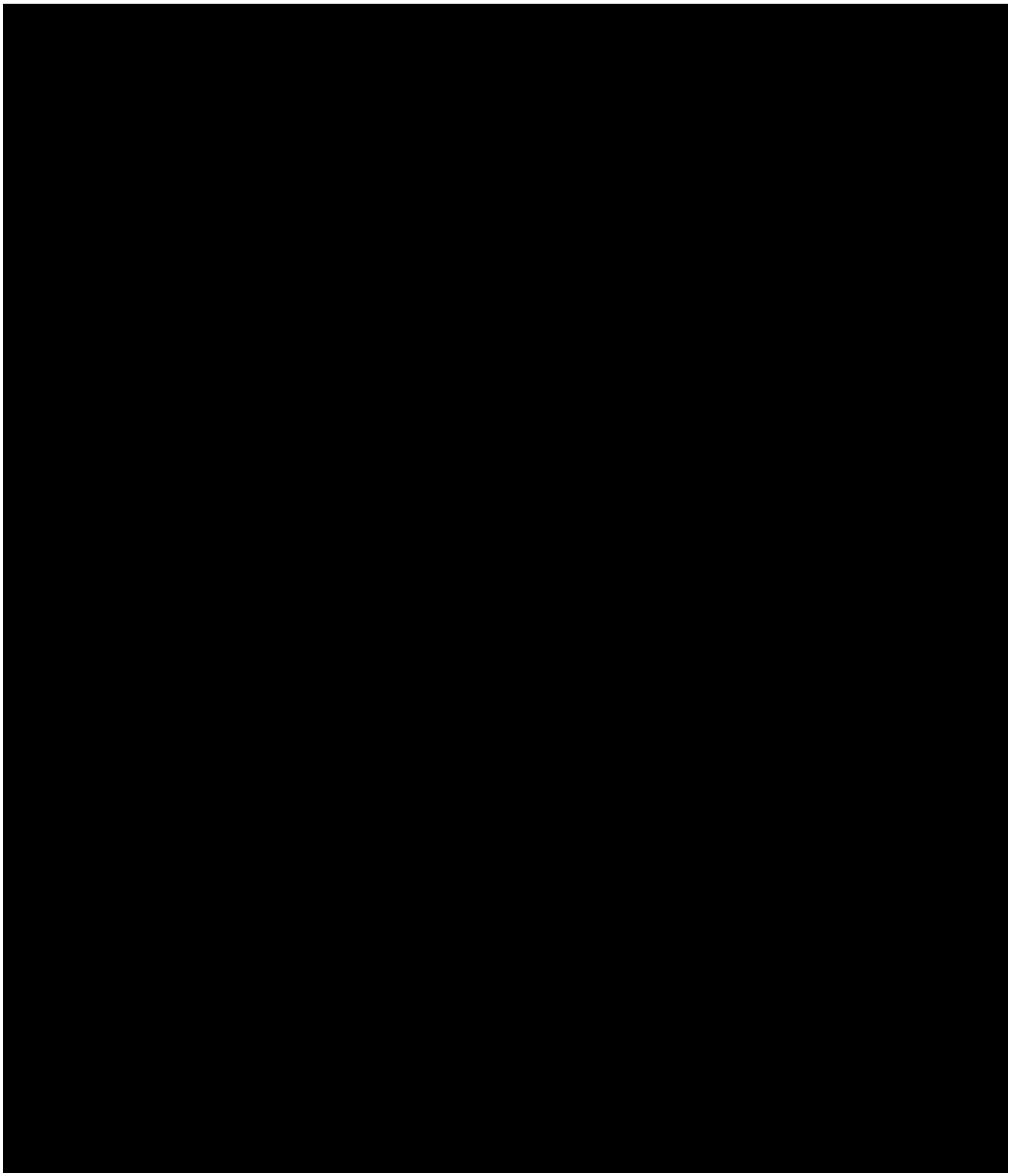
1.6.3.2.6 Bank Card Processing Unit (BCPU)

The VM Bank Card Processing Unit (BPCU) is the COTS based, field proven [redacted] compliant Chip Card reader components shown in the figure below. The BPCU solution consists of the following proven and certified components:

- [redacted]
- [redacted]
- [redacted]

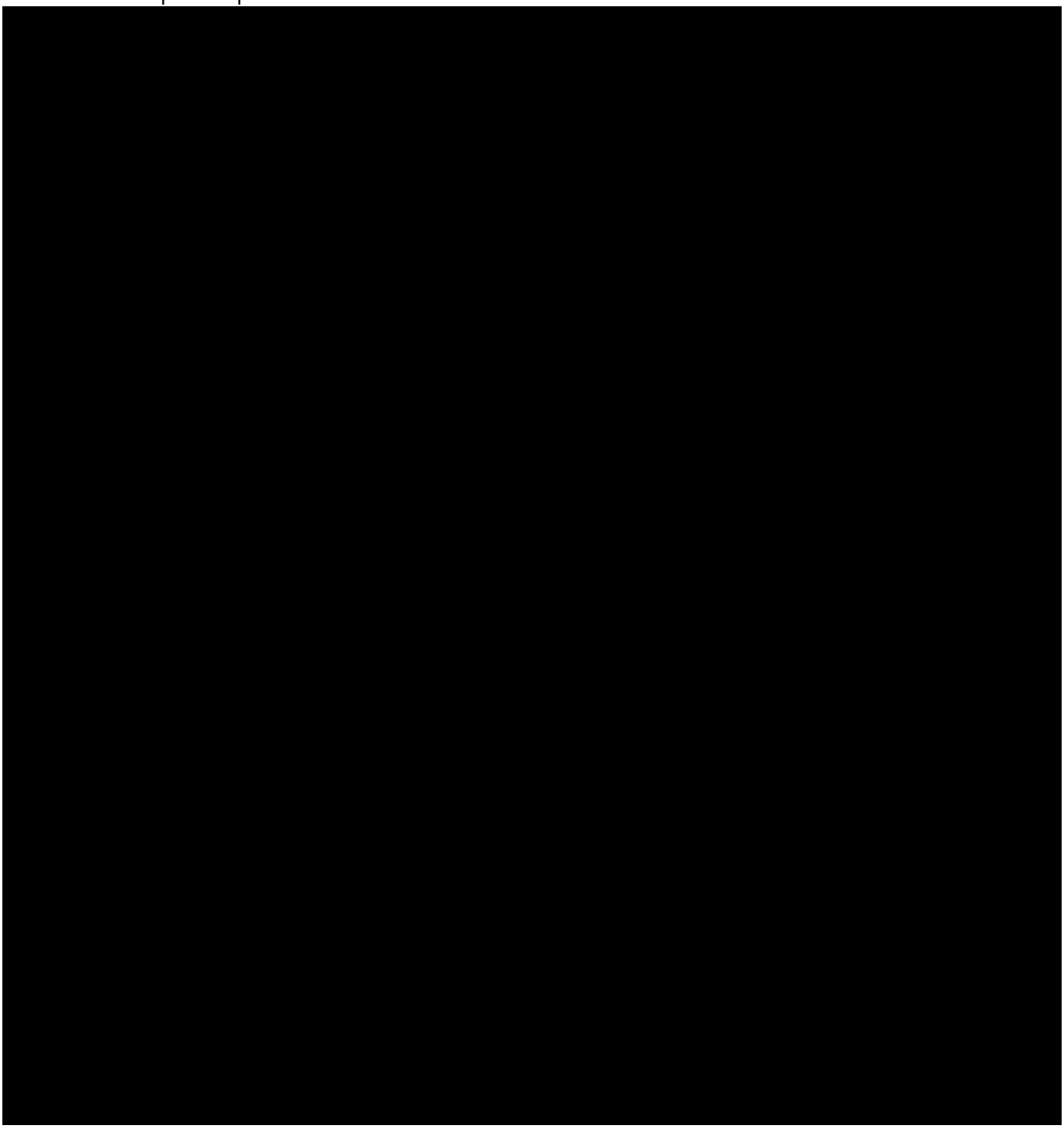
The [redacted] components are installed at ADA compliant locations on the front of the VM's .

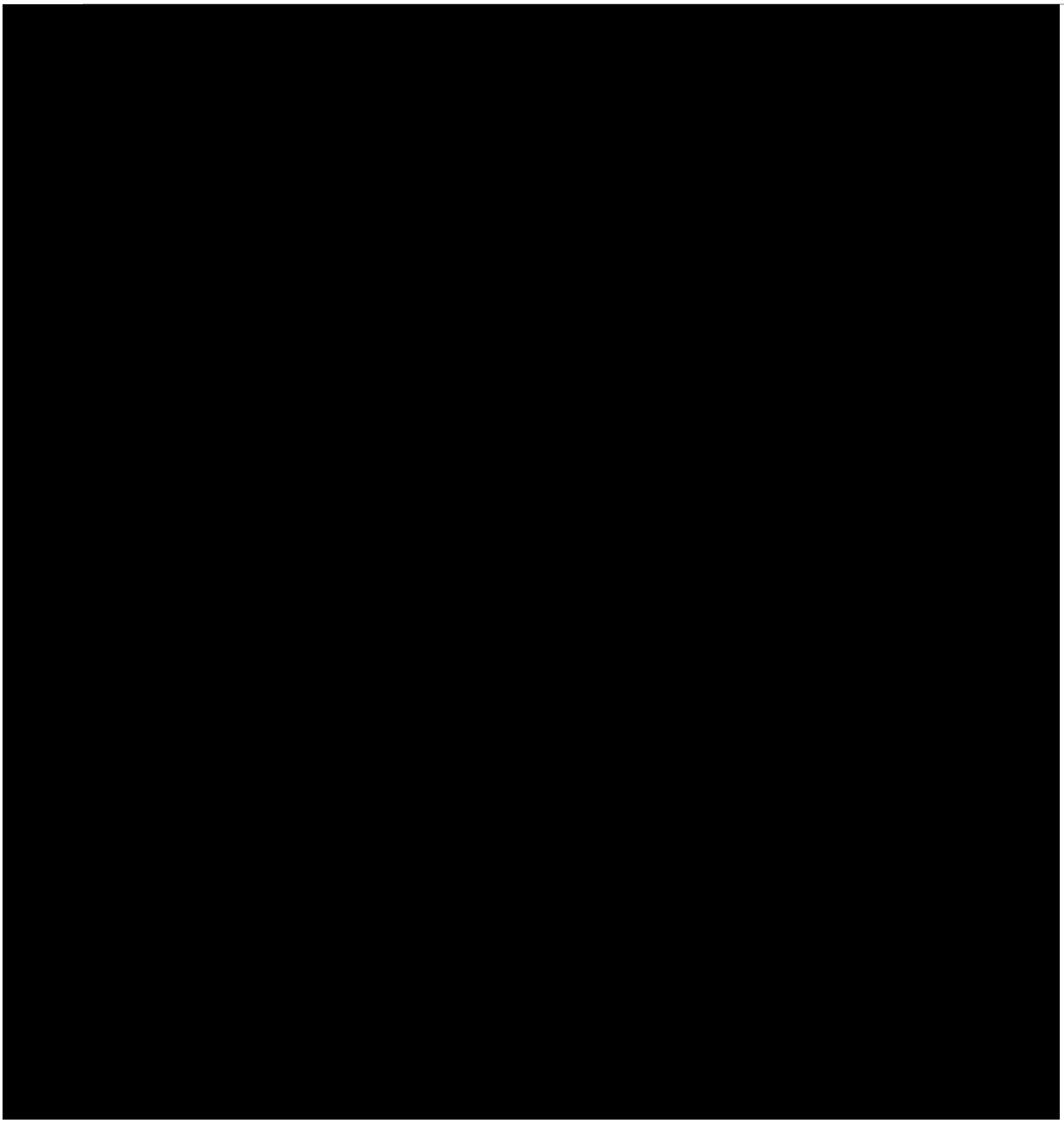
More details on the proposed iSelf terminal:

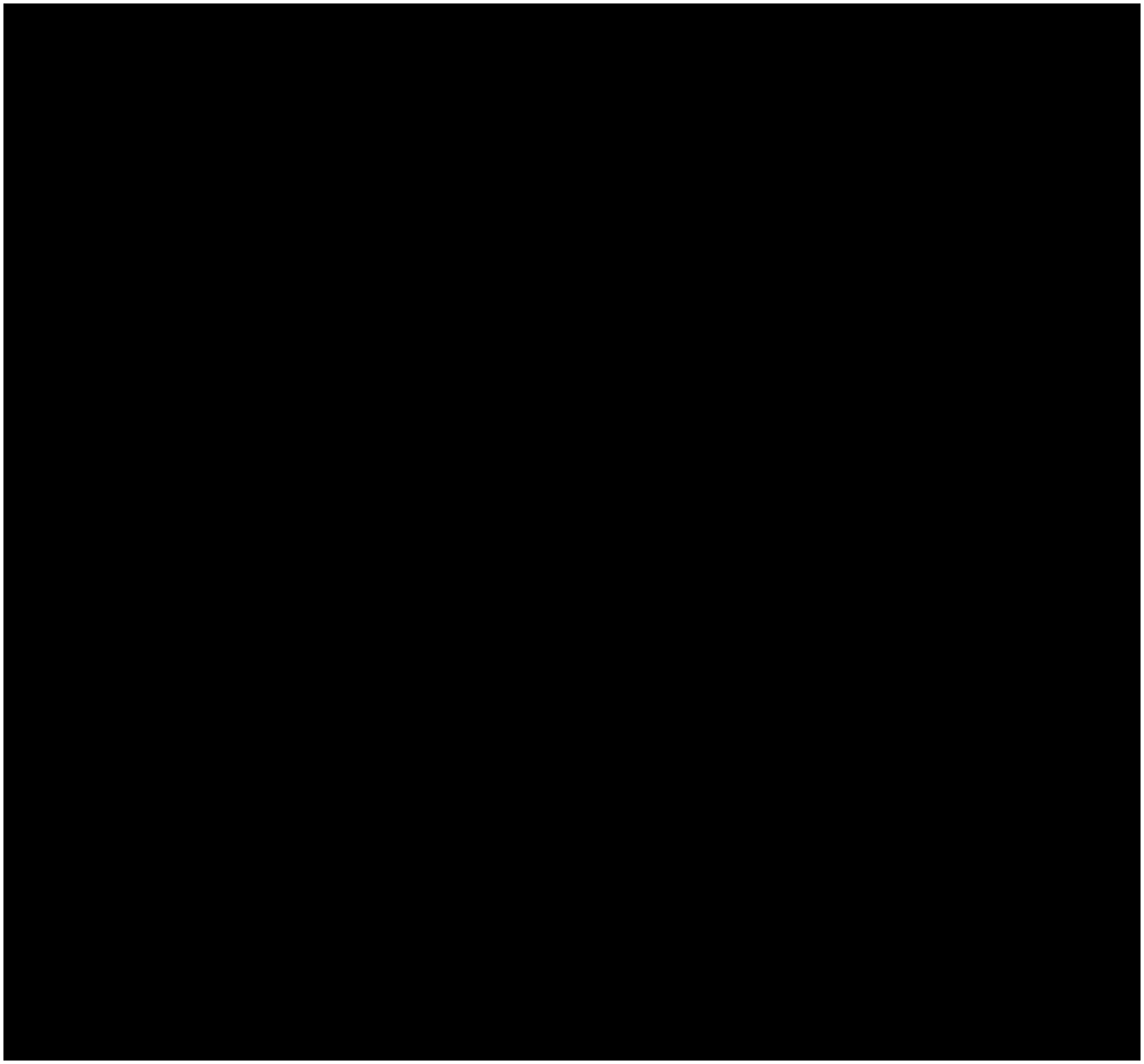


1.6.3.2.7 Smart Card Encoder / Dispenser

Extended Use Smart card encoder dispenser is easily configurable for EU or LU card dispensing and encoding by simply changing card dispensing carriage. As shown in the figure below the unit is setup to dispense EU cards. The encoder head unit remains the same.



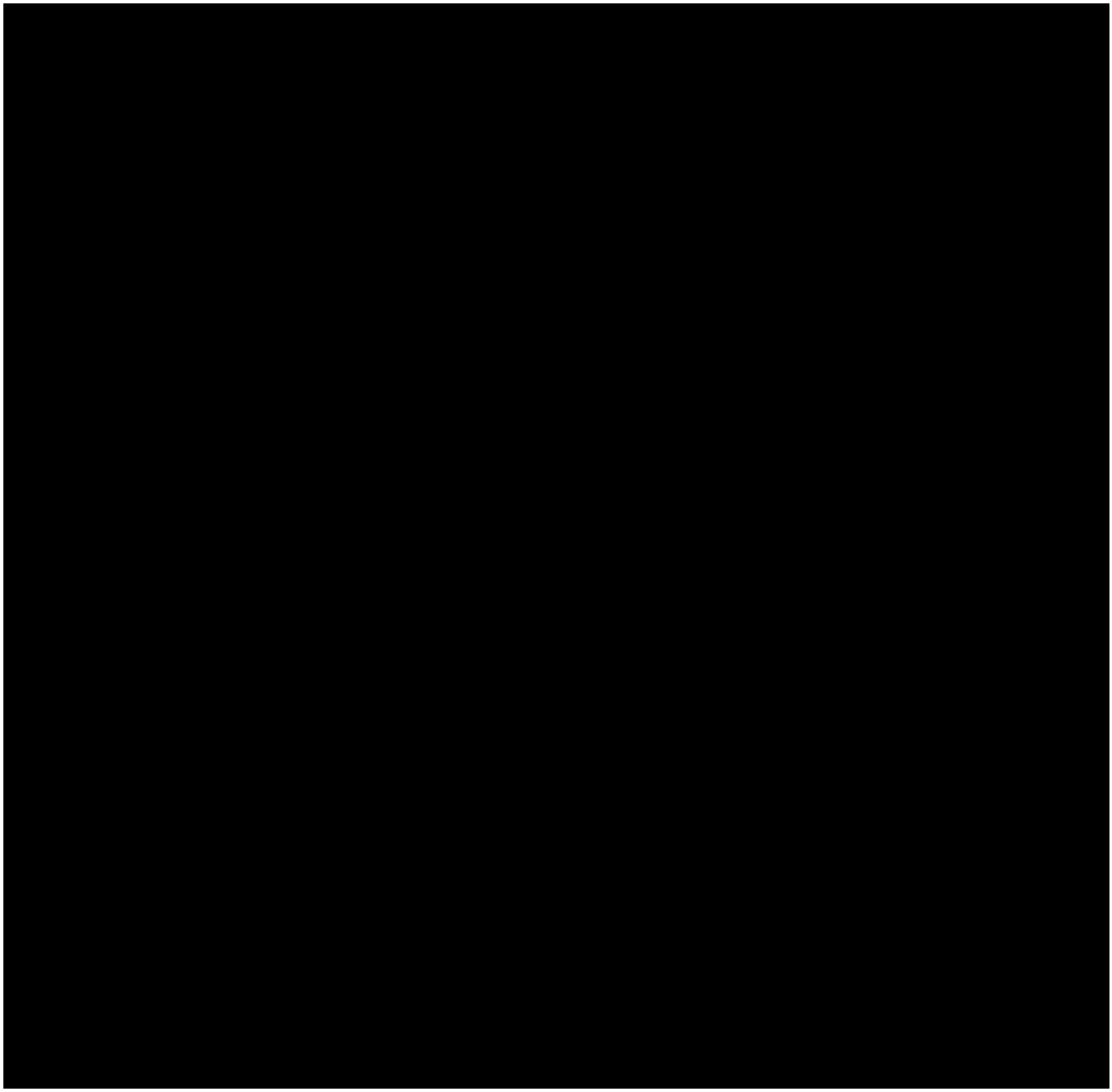




1.6.3.2.8 Smart Card Reader

The COTS [redacted] EMV and PCI certified Smart Card OEM terminal is INIT's choice for smart card contactless ticketing applications. This service proven smart card reader is added to the front of the VM terminal as shown in the figure below and mounts flush the front of the VM.

See next page for details on the reader.



1.6.3.2.9 Receipt Printer

The VM provides high speed and resolution receipt printing with the integrated printer. The paper roll can be up to 11.8in in diameter and thus provides enough paper for long interval paper exchange. After printing the ticket, the integrated cutter cuts the paper and the receipt falls into the output tray. In case multiple receipts need to be printed, the cutter is able to make partial cuts which leave the receipts loosely connected together. The printer is also able to print high resolution 2D barcodes for any possible automatic data evaluation. Highlights and technical specifications of the printer unit:

- High Resolution: 300dpi, High Speed: 7.87in/s

- Max print width 3.2in
- Max paper width: 3.30in
- Cutter: full and partial cut
- Easy paper loading
- Max paper roll diameter: 11.81in
- Paper weight: 1.9 -2.8 lb/ft2

The next generation ORCA VM will be equipped with one EU dispenser and one Paper Media Dispenser. Each paper media dispenser is capable of using two separate paper rolls (ticket stock and/or receipt paper). Each dispenser is equipped with two (2) printers, effectively providing a separate printer for each roll. Each printer unit comprises a printing unit, a cutting unit, paper sensors and a controller. A holder for the paper rolls is installed on the rear wall of each unit. The paper ticket stock roll is tracked with a barcode reader. It is important to note that the individual paper rolls are configurable.

The integrated printing units offer the following features:

- Max. printable paper width: 81.3 mm
- Resolution: 300 dpi
- Maximum Print Speed: 200 mm/s
- Specified lifetime print head: 100 km
- Cutting unit: 1.5 m sections (full and partial cut)

The VM's Paper Stock Rolls and Printers Provide Flexibility to Optimize Configurations at each Location	

The Paper Media Dispensers and Configurable Paper Rolls (Ticket Stock or Receipt Paper)

1.6.3.2.10 Controller (VENDpc)

The control unit consists of 2 parts; [redacted]

[redacted]

1.6.3.2.11 UPS

As uninterruptible Power Supply (

1.6.3.3 Customer Interface

The INIT FFVM and LFVM front panel provide a simple to use and easy to understand for the experienced and occasional rider.

One of the key success factors of VM is to enable the rider to use it quickly and conveniently without additional support from the agency. We achieve this with an overall clear design, including a simple and powerful user interface.

INIT's simple to use intuitive next generation ORCA FFVM Customer Interface

The front panel customer interface includes:

- Touchscreen display, up to 15" diagonal in size with twelve (12) active regions
- Coin slot input
- Bill Handler Input
- Bank Card Processing Unit (contact / contactless)
- ADA Compliant PIN Pad
- Contactless Smart Card Reader
- Audio interface
- Media dispense tray
- Instructional graphics and text
- Information sign(s)

Features of the customer interface include:

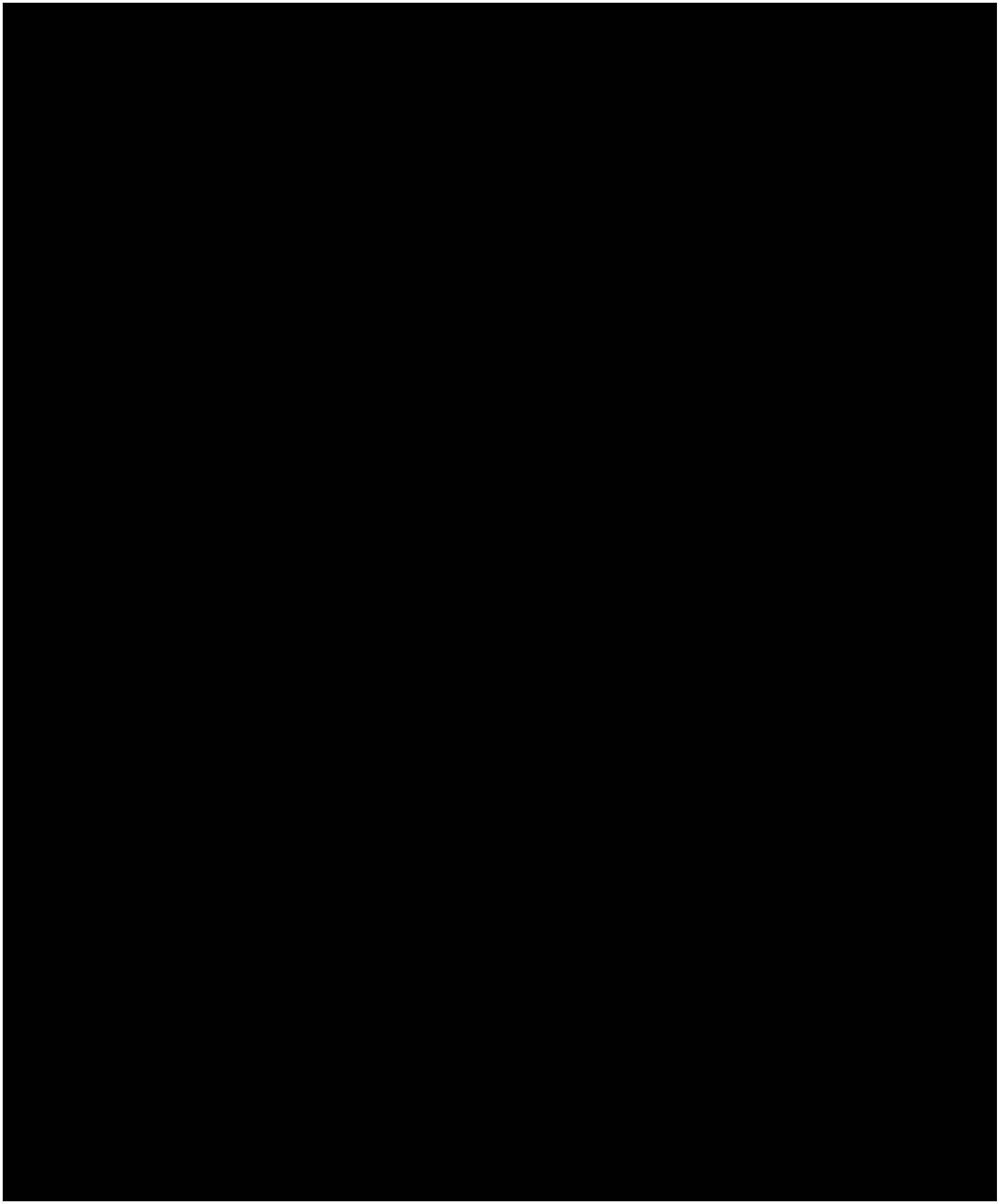
- ADA compliance
- Audio interface with internally mounted speaker
- Media dispense tray for tickets / receipts / change

- Payment options via coins, bills and bank cards

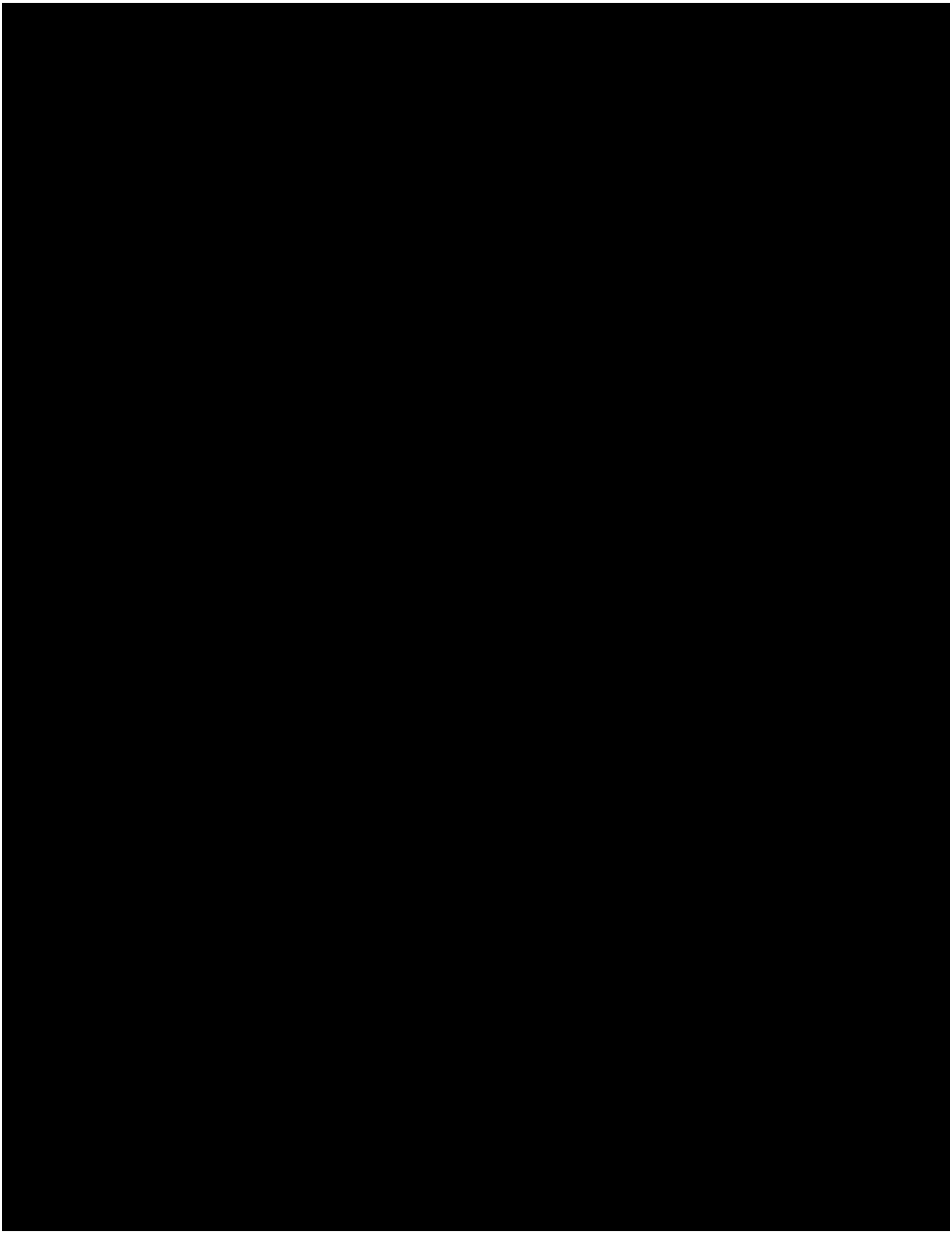
1.6.3.3.1 Screen flow - Simple Patron Purchase Process

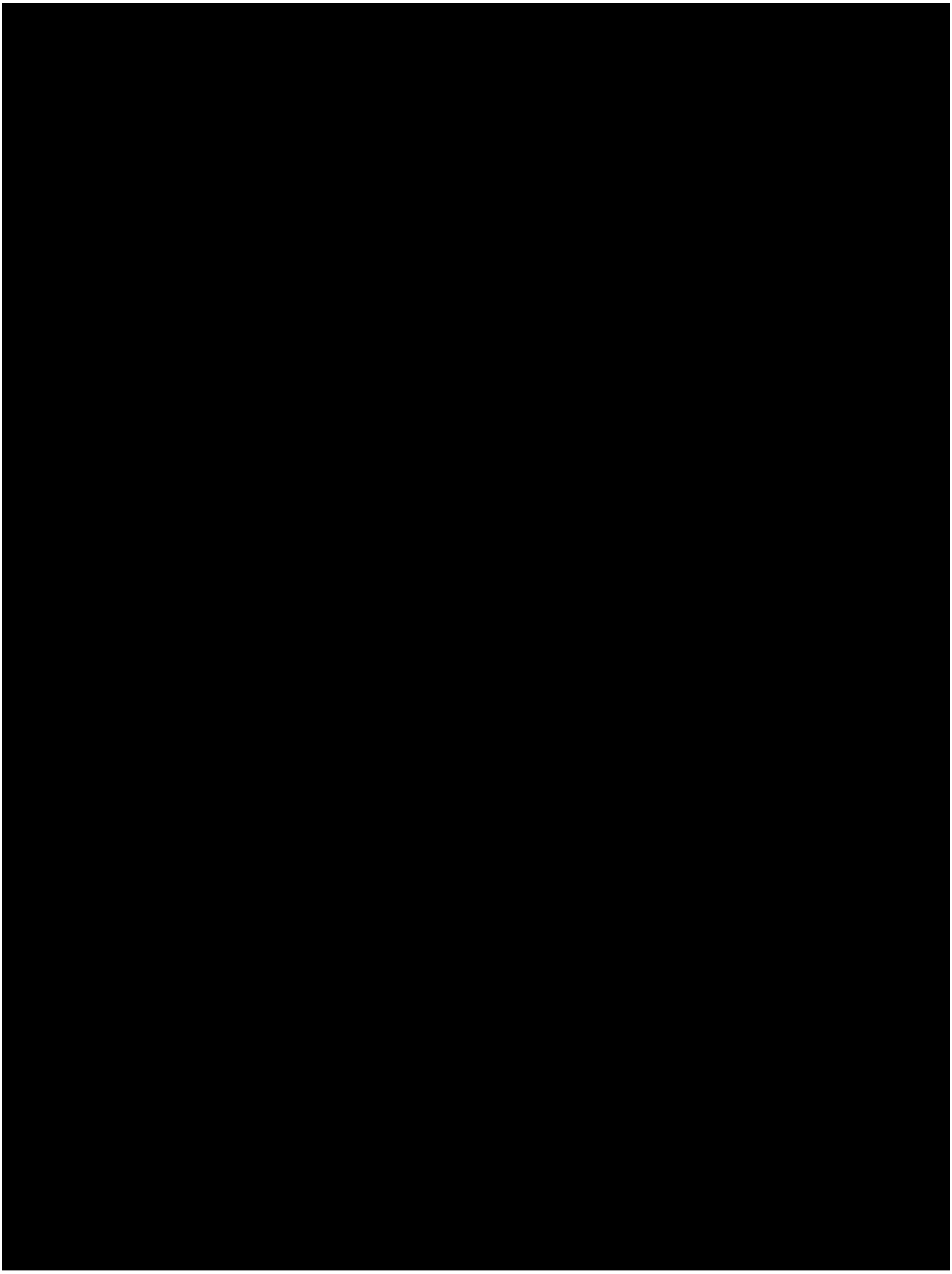
1. The user first presents the fare media (if available) to the card reader located next to the screen.
2. After this, the display shows products or functions available for the presented card (for example available stored value load amounts).
3. After selecting the value load amount, the display prompts the user to enter cash or credit card in section "2. Pay". The user can also select to issue a new card.
4. If 'Credit Card' is selected, the user is prompted to complete the credit card process by entering/tapping the credit card.
5. After payment confirmation, a receipt is issued and dispensed in the receipt/ticket tray. If the user selected to issue a new fare media (extended use card), a new card is issued and dispensed as well.

1.6.3.4 Locks and Physical Security



1.6.3.5 Alarms and Reported Events





[redacted]

1.6.3.6 Communications

The VM's communicates with the central system via Ethernet Interface. Communication via mobile network or WLAN is also possible if Ethernet is not available. The VM provides a SCADA interface for the Rail control discreet signals. The electrical level and function of the signals are to be specified and finalized during the system design phase. The VM provides protected inputs and outputs for this purpose.

1.6.3.6.1 Cellular Modem (Option)

The VM's can be equipped with an industrial mini PCI express card enabling cellular (LTE) communications. The exact card is dependent on the cellular provider being used. INIT offers this optional modular 3G/4G cellular modem, supporting all 3G and 4G frequencies, on all major US carriers, as a backup communications channel. If exercised, INIT provides the modem for the agency-provided 4G/LTE cellular data service. When communicating in the wireless mode, all TVD and back office functions are the same as in the hardwired Ethernet mode.

1.6.3.7 Power Supply FFVM

The FFVM uses a modular COTS [redacted] Switching Power Supply. It is a 320W industrial AC/DC power supply designed to operate in a harsh environment with high dust density, humidity, vibration and altitude. It is housed in a robust aluminum case and fully potted with heat-conducted silicone. I [redacted]

[redacted]

1.6.3.8 Software

This chapter provides details of the software used within the INIT Vending Machines.

1.6.3.8.1 Operating System

The operating system of the VENDstation is Windows© Ver. 10 IoT. It will provide all system drivers needed such as Ethernet communication drivers. Special drivers which are necessary and not part of the standard Windows Ver. 10 IoT are developed and integrated by INIT. During startup of the operating system a self-test is initiated. Errors occurring during the self-test will be written into the Windows event log file. The system partition containing the Windows Ver. 10 IoT Operating System is write protected with the "enhanced write filter" (EWF). This is to avoid system partition damage in the case of unexpected power loss or hard reset.

The VENDstation is equipped with two micro SD memory cards. The sales data is saved on two physically different memory cards to ensure redundancy.

1.6.3.8.2 Vending Machine Application

The VENDstation software is implemented in the programming language C/C++. To access standard functions, like file transfer or serial ports, the resources of the operating system are used. The main functionality of the VENDstation application is:

[redacted]

[redacted]

All functionality is provided in one executable application file. Additional configuration specific files the application software needs are provided in a software archive by INIT. The software archive is distributed via the usual data provision.

1.6.3.8.3 Transaction Records

The VM's generate, store and transmit a unique data record for each transaction performed. The record is stored locally in non-volatile memory until confirmation of receipt and database storage is received from the back office. [redacted] of transaction data is stored to support financial audits. Offline transactions are recorded as such in the transaction record, to support easy identification and tracking. The transaction record details will be finalized during the design review phase of the project. At a minimum, the unique transaction record will include:

- [redacted]

1.6.3.8.4 Audit Registers

The VM's employs audit registers for data tracking, verification and analysis. They store counts and values for specific events in non-volatile memory. The audit records are transmitted to the back office for reconciliation at a configurable time period, usually at the end of each service day.

[redacted]

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1.6.3.9 Operations

This chapter provides details in regards of the device operation of the vending machines.

1.6.3.9.1 Voice Annunciation

The VM is equipped with a headphone jack on the front panel customer interface. When used, it provides brief context-sensitive audio voice messages conveying the information on the screen for disabled customers. The audio tracks the change in transaction status as the customer navigates the screen flow. The voice annunciation supports the multi-lingual capabilities of the VM as finalized during the design review phase of the project.

1.6.3.9.2 Multi-Lingual Capabilities

The VM provides multi-lingual capability through the use of a display selection button. English is the default language and the alternate language selection is active at all times on all screens while the VM is in service. Pressing the button causes the display and audio messages to toggle to the selected language. INIT will implement the required languages and their corresponding audio and text translations.

INIT's proposal is fully compliant with the Voice Annunciation requirements.

1.6.3.9.3 Customer Operations

The VM performs the following minimum customer operations:

- Sell one or more tickets in a single transaction
- Accept specialty codes for promotional products
- Interface with other systems integrated with VM

The final list of customer functions is determined during the design phase of the project and will be worked out in close collaboration with the UI/UX consultants.

The VM displays a progression of simple, intuitive screens to complete a transaction. Available options are determined by the status and configuration of each VM. The information displayed is configurable by authorized agency staff.

Clear instructions guide the customer to the sequence of steps necessary to complete their transaction. English speaking customers complete their purchase in three (3) screens or less, guided by audio tones to provide feedback each time a button or screen is pressed. Sales transactions are generated and sent to the back office for reconciliation. Corporate Quick Card transactions are initiated by the Bank Card Processing Unit reading the customer's card and sending that data to the back office to generate a sales transaction.

To keep the purchase process simple, intuitive and convenient, the following operational features are provided:

- Idle Mode
    - Screen saver activated after programmable idle period
    - Screen saver terminates automatically when transaction initiation detected
- Degraded Mode
    - Transactions are stored locally until communications restored
- Offline Mode
    - TVD takes cash payments for fare products designated for offline sale
    - Send data generated in offline mode when communications restored
- Payment Features
    - Automatic detection of form of payment
    - Insert coins and bills in any sequence
    - Credit or Debit prompt, with PIN required for Debit
    - Bank card authorization prior to ticket issuing
    - If bank communications down – VM enters "cash only" mode
    - Cancel transaction any time before full payment or authorization
    - Failure during transaction automatically cancels with screen notification
    - Cash returned and Credit/debit reversed for cancelled transactions

  - Adjustable time-out period for no input between transaction steps
  - Time from full payment / authorization to media issuance less than three seconds
  - Time between successive media issuance less than two seconds
  - VM readiness less than three seconds after completed or cancelled transaction

- Receipt features
  - Receipts are provided (configurable)
    - Upon customer request
    - Automatically for transactions above a configurable dollar value
    - Optionally for transactions below the configurable value
    - For every transaction
    - Never (when receipt stock is empty)
    - Within three seconds of completed transaction
  - Print format
    - Indication that not a valid ticket
    - Machine number
    - Date
    - Time
    - Purchase station name or location
    - Transaction amount
    - Machine unique sequence number
    - Additional info for bank card transactions

1.6.4 INIT's User-Friendly Customer Service Terminal

INIT will provide a COTS PC-based Customer Service Terminal (CST) with peripherals to support the Customer Service Offices (CSOs), remote use in the field, and the ORCA Agencies mail center.

1.6.4.1 Hardware

The following table defines the Customer Service Terminal (CST) hardware components and quantities for the different applications.

INIT's COTS Full Featured Customer Service Terminal PC and Peripherals Overview & Quantities:

QTY (Estimated)	CSO	Customer Outreach	Mail Center	Model Number
	15	12	14	
Computer	15	12	14	HP EliteBook x360 1030 G2
Docking Station	15		14	HP Elite USB-C
Keyboard/Mouse	15	Integrated	14	Logitech MK520 Wireless Keyboard and Mouse Combo
Touchscreen Monitor	15	Integrated	14	HP Elite Display E220T
Closed Loop Media Processor	15		n/a	INIT PROXmobil3 validators
Closed Loop Media Processor	n/a	12	n/a	New INIT Portable Feig Reader
Image Capture	15	12	n/a	Logitech 4K Pro Webcam
Document Capture Desktop	15	n/a	14	Epson DS-1630 Flatbed Color Document Scanner
Document Capture Mobile	n/a	12	n/a	Epson WorkForce DS-40 Color Portable Scanner
Secure Cash Storage	15	Agency Provided	Agency Provided	MS-Cash Drawer (J-423-USB-M-B)
Bank Card Processing	15	12	14	Ingenico Mercury iPP350, v4.x, PIN Pad/Reader/SCR/Contactless
Receipt Printing (Desktop)	15	n/a	14	Epson TM-T20II Direct Thermal Printer
Receipt Printing (Mobile)	n/a	12	n/a	Brother RuggedJet RJ4030CA
Customer Display	15	n/a	n/a	Hewlett-Packard LV3000 Smart Buy Logic Controls Pole Display 7" Video with USB Connector
EU Printer (400 card)	n/a	n/a	2	HID Fargo HDP8500

EU Printer (200 card)	15	n/a	n/a	HID Fargo HDP5600
EU Printer (100 card)	n/a	12	n/a	HID Fargo DTC1250e
Cellular Communications	n/a	12	n/a	TBD
Uninterruptible Power Supply Desktop	15	n/a	14	APC Back UPS Pro BX1500M
USB Hub (10 Port)	15	12	14	TripLite USB Hub

INIT's COTS Full Featured CST PC and Peripherals Overview & Quantities

If an end of life statement is issued for a specific component before FDR, INIT will replace the specified component with a newer version after agency approval. The final list of components will be determined during FDR. Drawings of components, device firmware/OS and other details will be submitted as part of FDR.

1.6.4.1.1 Customer Service Terminal Computer

The recommended hardware to support deployment types in a customer service office, special location or a mail center, is a high performance, dockable laptop with the required peripherals integrated or added to create a fully functional customer service terminal. INIT is proposing a Windows 10 Professional, HP EliteBook x360 1030 G2. The EliteBook model provides a small, ultra-light, sturdy and flexible machine usable in any of the Orca Agencies' deployment intentions. Equipped with an Intel Core i5 processor, 8GB of RAM, 256GB Solid State Drive, and 13.3' Full HD touch screen, the EliteBook's small form factor and long battery life will provide flexibility and endurance and enjoyment for customer service representatives use. The proposed laptop has passed the test procedures of the MIL-STD-810G standard. This includes drop, functional shock, vibration category 4, vibration category 24, dust, humidity, altitude, high temperature, low temperature, temperature shock, sand, explosive atmosphere and freeze/thaw. INIT recommends using the same hardware model across all three customer service locations to leverage the benefits of a homogeneity across deployment, management, maintenance and overall system lifecycle. The agencies will also benefit from the flexibility and simplicity of asset re-deployments if a system is ever needed to be used for more then one purpose. If the ORCA agencies prefer a different primary computing platform, INIT is open to exploring other Windows-based alternatives that the agencies prefer.

1.6.4.1.2 Customer Service Terminal - Dock

HP Elite USB C docks will be used to facilitate easy connections to the required peripherals detailed below. Multiple USB ports, display connections and a wired network port are available in the driver-free dock. A USB-C dock leverages the latest docking technology and is the recommended docking solution for any mobile computing platform. As such, INIT believes the dock is useful in each customer service terminal location, including mobile, to provide an easier process for connecting the variety of peripherals needed without adding significant weight or cost.

1.6.4.1.3 Customer Service Terminal External Monitor

The Agencies indicated that in some deployment options, an external display may be desired to be added to the customer service terminal. INIT is proposing an HP EliteDisplay E220t 21.5-inch Touch Monitor. Reflecting the desires of the high definition, integrated touch screen on the HP EliteBook, the proposed 21.5 inch display boasts the same high definition and touch capabilities.

1.6.4.1.4 Customer Service Terminal – Keyboard and Pointing Device

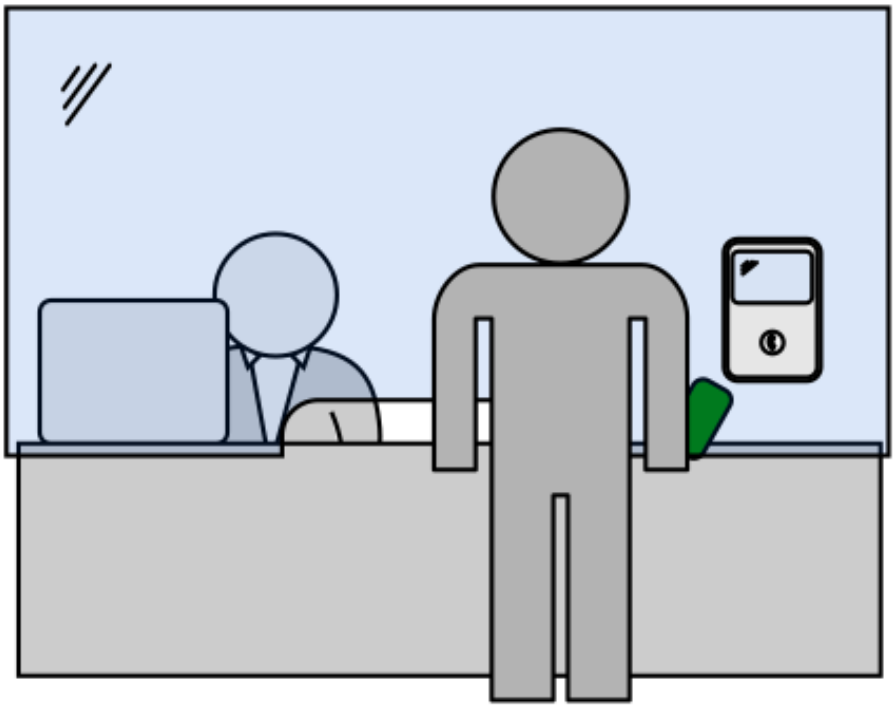
For traditional installations within the Mail Center and Customer Service Office, an external, wireless keyboard and mouse combination will be provided. INIT proposes the Logitech MK520 Mouse and Keyboard combination. The keyboard and pointing device will connect to the Customer Service Terminal via Wireless USB interface.

1.6.4.1.5 Customer Service Terminal - Closed Loop Media Processor

INIT proposes to use a PROXmobil3 validator as the Closed Loop Media Processor in the Customer Service and Mail Center environment. The validator can either be mounted on a desktop stand, against a wall or behind glass.

The major advantage in using a validator instead of a standard USB card reader is the ability to read virtual cards and Open Payment cards in a PCI compliant way. Additionally, riders will be familiar with the intuitive card tapping method through their ridership experience on vehicles and at platforms. The familiarity will re-inforce process, branding, user experience and design consistency.

For use within the mobile environment, INIT proposes to design a smaller form factor validator without a screen but using the same secure element and functionality of the PROXmobil3 validator. The newly designed enclosure dimensions for the secure element will be finalzed during design review; however, the agencies should expect a device approximately 1/3 smaller then the PROXmobil3. Similar ancillary benefits of using a full PROXmobil3 can be achieved using similar design and branding decisions.



Service Center Closed Loop Reader

1.6.4.1.6 Customer Service Terminal – Image Capture

For traditional installations within the Mail Center and Customer Service office, an external webcam for image capture is provided. While the agencies indicated that the integrated webcam will be used for special events installations, INIT recommends including the image capture device for all installation types to maintain standardization and quality and has included webcam's for all customer service terminals in the price. The use of the integrated image capture device will create variability in both the process and the quality of the images. The Logitech 4K Pro webcam has the quality, size, and flexibility to be used across all three proposed implementations of the customer service terminal. For fixed locations, the web camera can be attached to the top of a standard LCD monitor or be used with an unpriced camera tripod. For mobile uses, the camera comes with a carrying pouch, can be attached to the top of a laptop screen or could be used with an unpriced camera tripod.

1.6.4.1.7 Customer Service Terminal – Document Capture

For the purpose of document capture, INIT proposes the Epson DS-1630 Flatbed Color Document Scanner. With both flatbed and document feeding capabilities, the Epson scanner can scan in both color and black and white as well as either simplex or duplex at 25 and 10 pages per minute, respectively. (sing. The document capture device will connect via USB interface.

Epson DS-1630 Scanner

1.6.4.1.8 Customer Service Terminal – Portable Document Capture

For document capture in the mobile environment, INIT proposes the Epson DS-40 Color Portable Scanner. This hand-held, 1.1 pound scanner is designed for quick scanning of small documents in either color or black and white, with scanning quality similar to it's larger, desk-bound counterparts.. It will connect to the mobile customer service terminal via USB interface but can be battery powered. At 11.7" wide by 1.7" high and 2.7" deep, this is one of the smallest portable document scanner on the market. An alternative would be to use the HP EliteBook's camera.

Epson DS-40 Scanner

1.6.4.1.9 Customer Service Terminal – Secure Cash Storage

A secure cash storage device will be connected to the customer service terminal via USB. The MS-Cash Drawer USB Standard Duty Cash Drawer will be controlled by the Customer Service Terminal software.

1.6.4.1.10 Customer Service Terminal – Customer Display

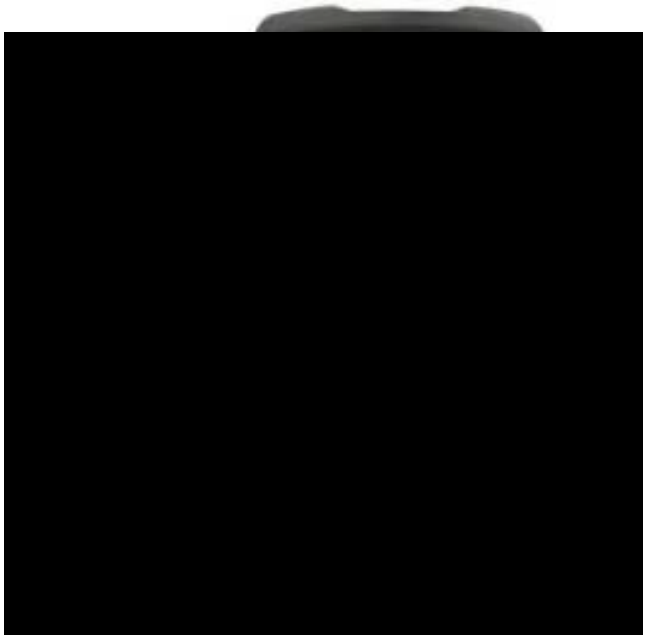
In order to provide a customer friendly visual display, INIT has included an HP LV3000 Pole Display which provides a 7 inch, customer facing screen that connects to the Customer Service Terminal via USB.

Customer Display

1.6.4.1.11 Customer Service Terminal – Bank Card Processing

For Bank Card processing, INIT will provide the [redacted] Payment Terminal. The [redacted] is a PCI certified, technically advanced smart terminal that supports EMV, Chip and Pin, Magstripe and contactless media. The [redacted] is an ideal smart terminal to standardize on for both fixed and mobile payment solutions providing industry standard capabilities, in an attractive housing, with 15 key back-lit keypad and color LCD display.

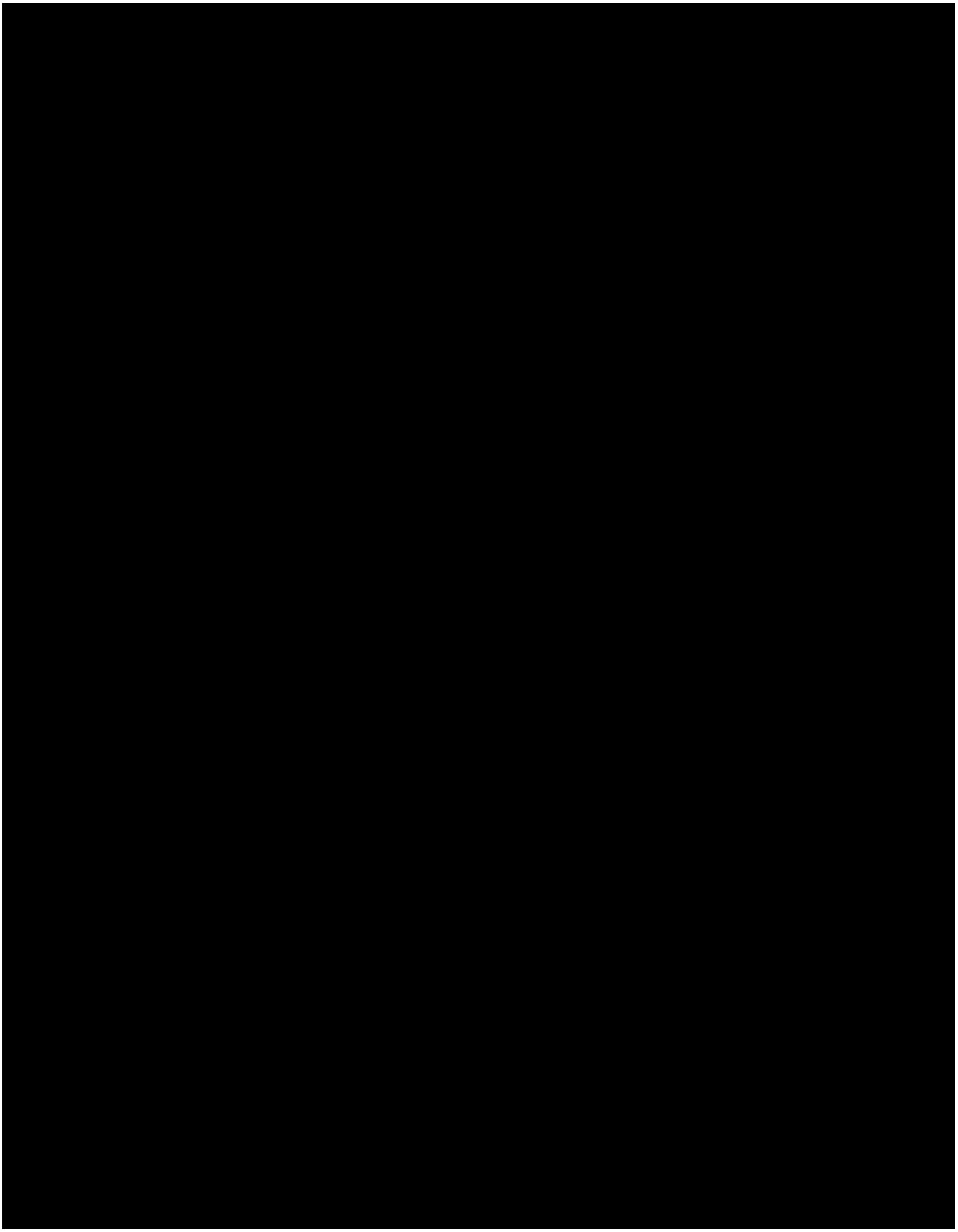
EOL of the [redacted] was announced September 30, 2017. The [redacted] will be replaced with [redacted] This timing is fortuitous as ngORCA will enjoy a bank card processing unit that meets PCI-PTS v4.x specifications , other inprovemens and a long life expectancy.

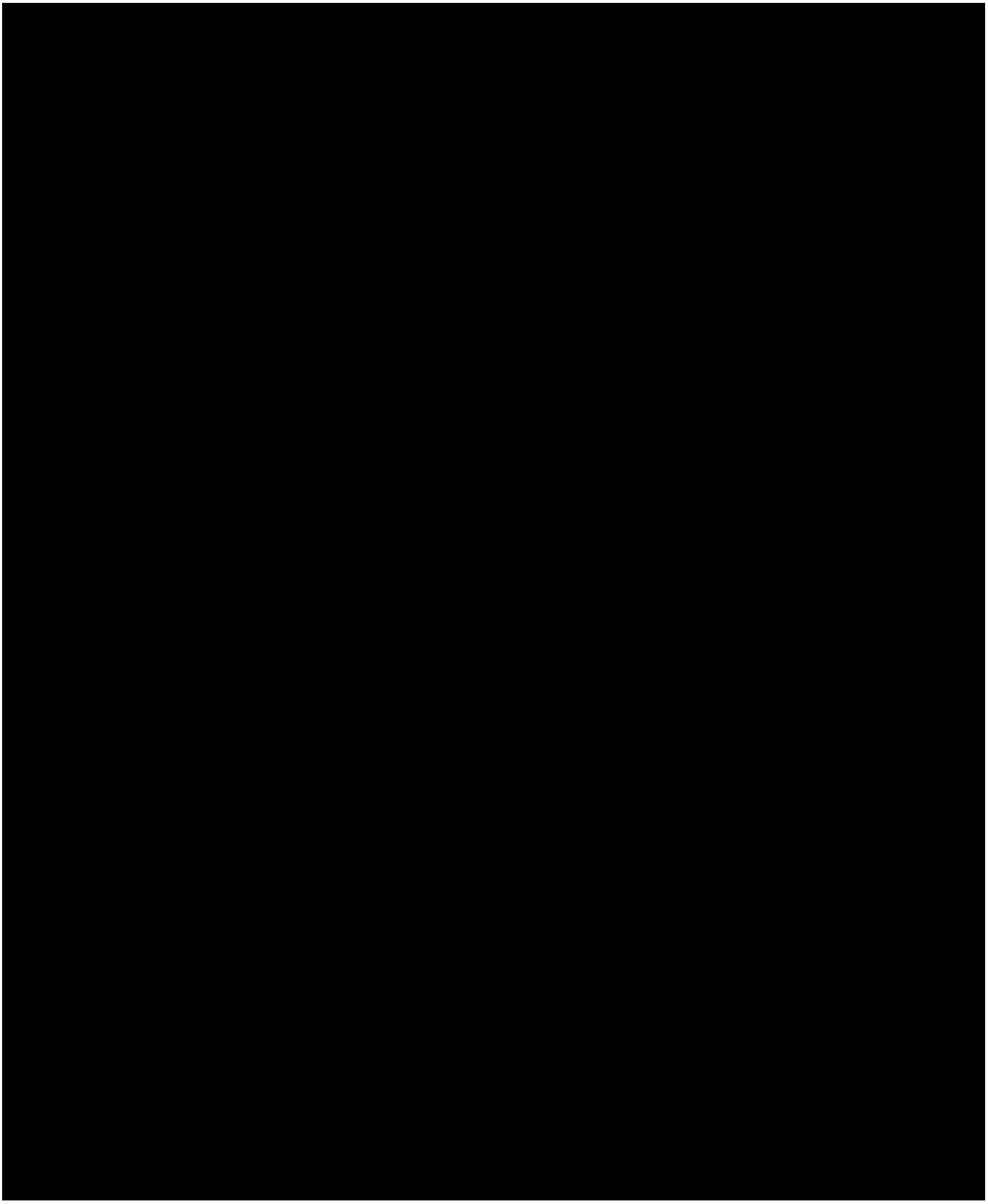


Bank Card Processing Unit

1.6.4.1.12 Customer Service Terminal – Receipt Printing

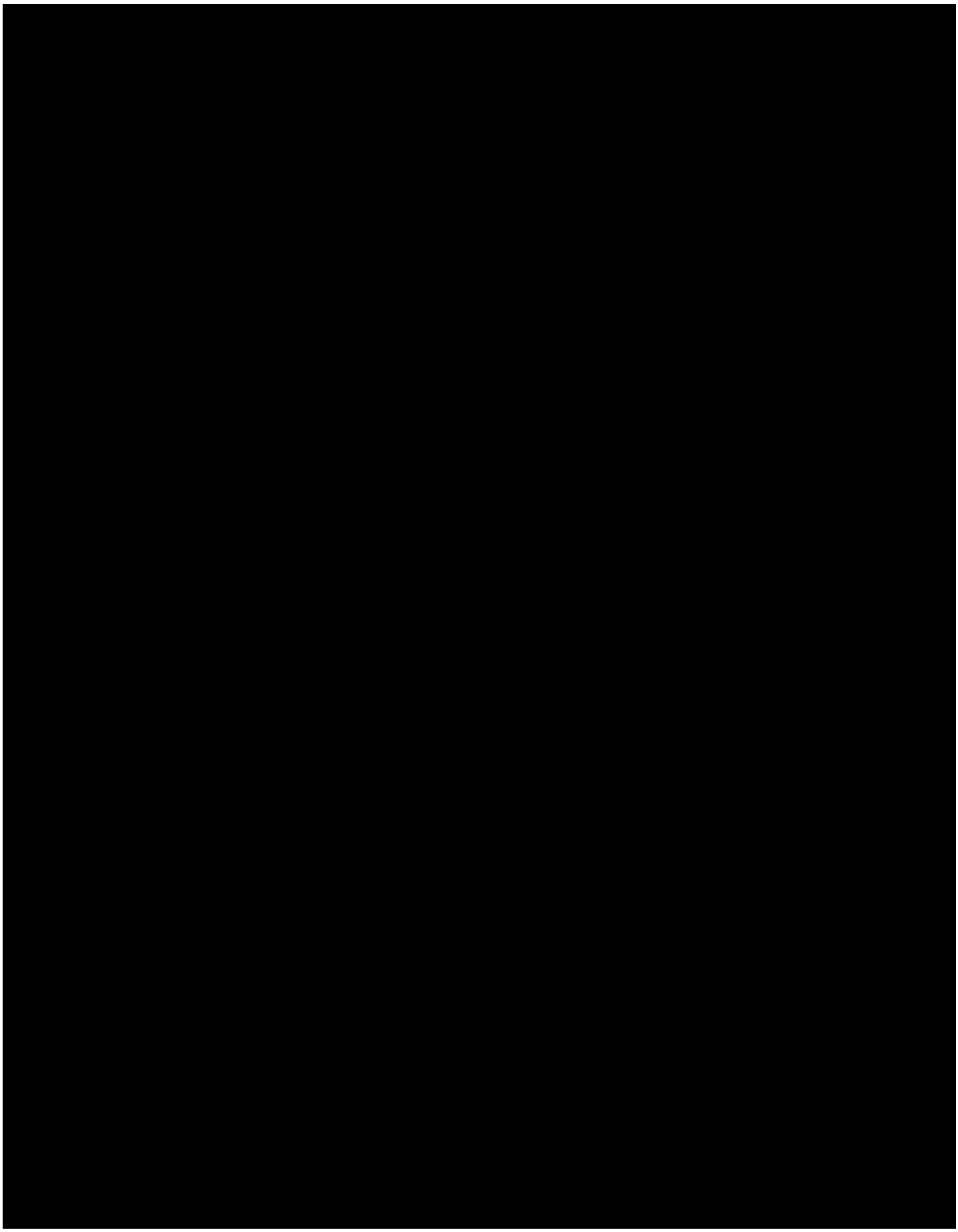
The [redacted] Receipt Printer is included as part of the Customer Service Terminal peripheral for receipt printing and check validation for traditional customer service office and mail center deployments. The [redacted] a high-performance multifunction printer with fast receipt printing, drop-in validation for deposit slips, checks, cashier checks and batch tickets, high-resolution graphics, superior slip handling, the highest reliability in its class and the industry's leading MICR accuracy.

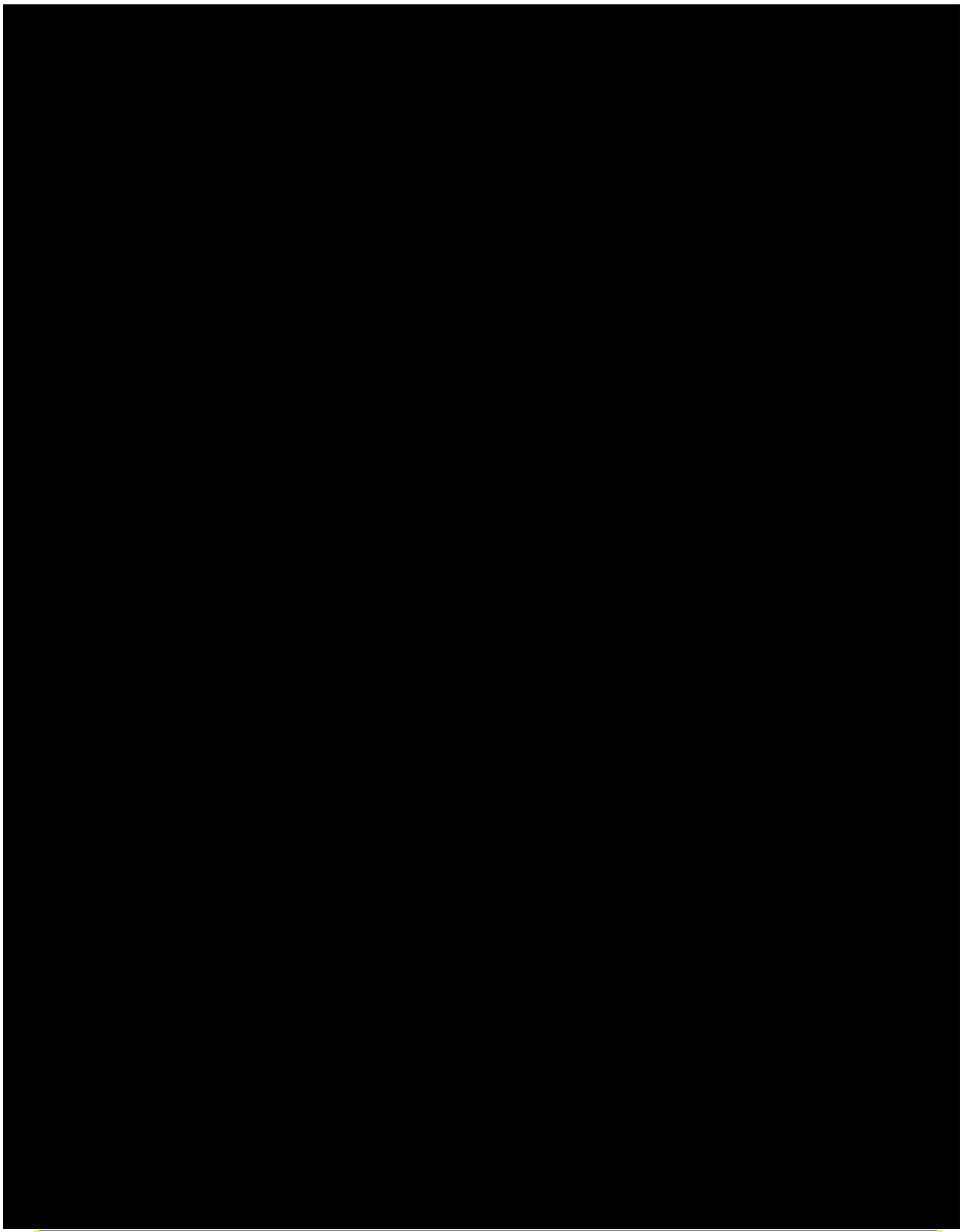


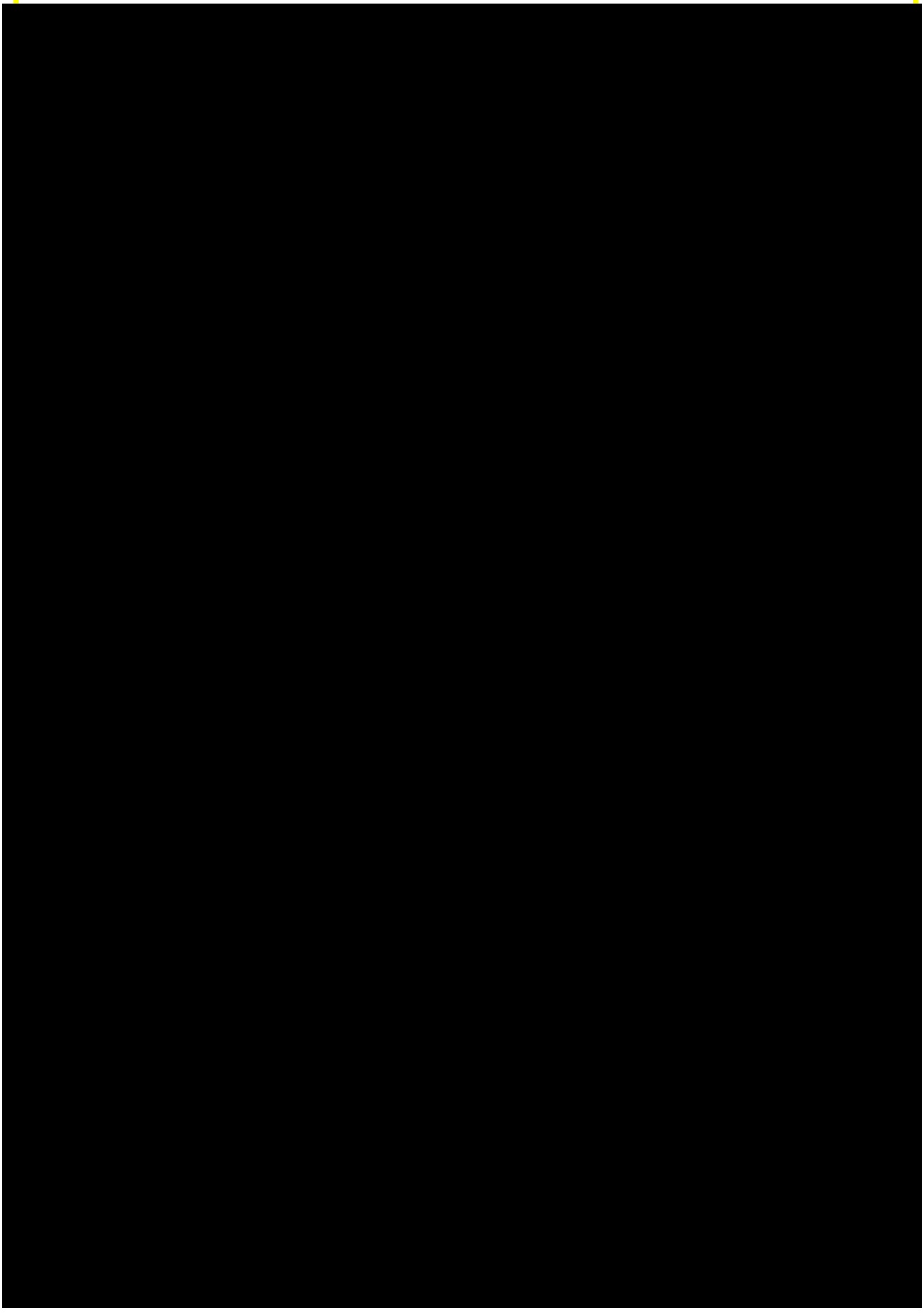


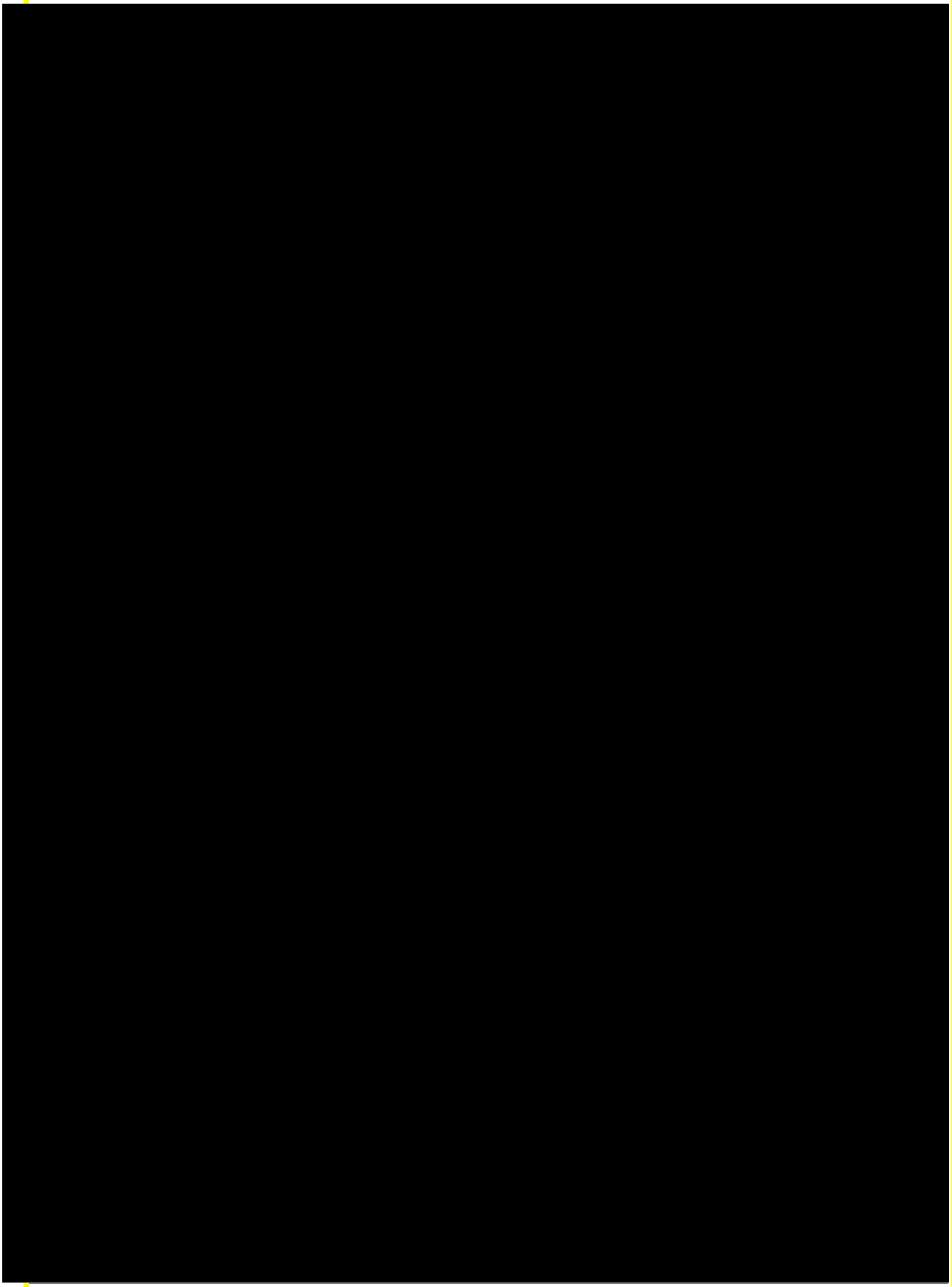
1.6.4.1.13 Customer Service Terminal – Mobile Receipt Printing

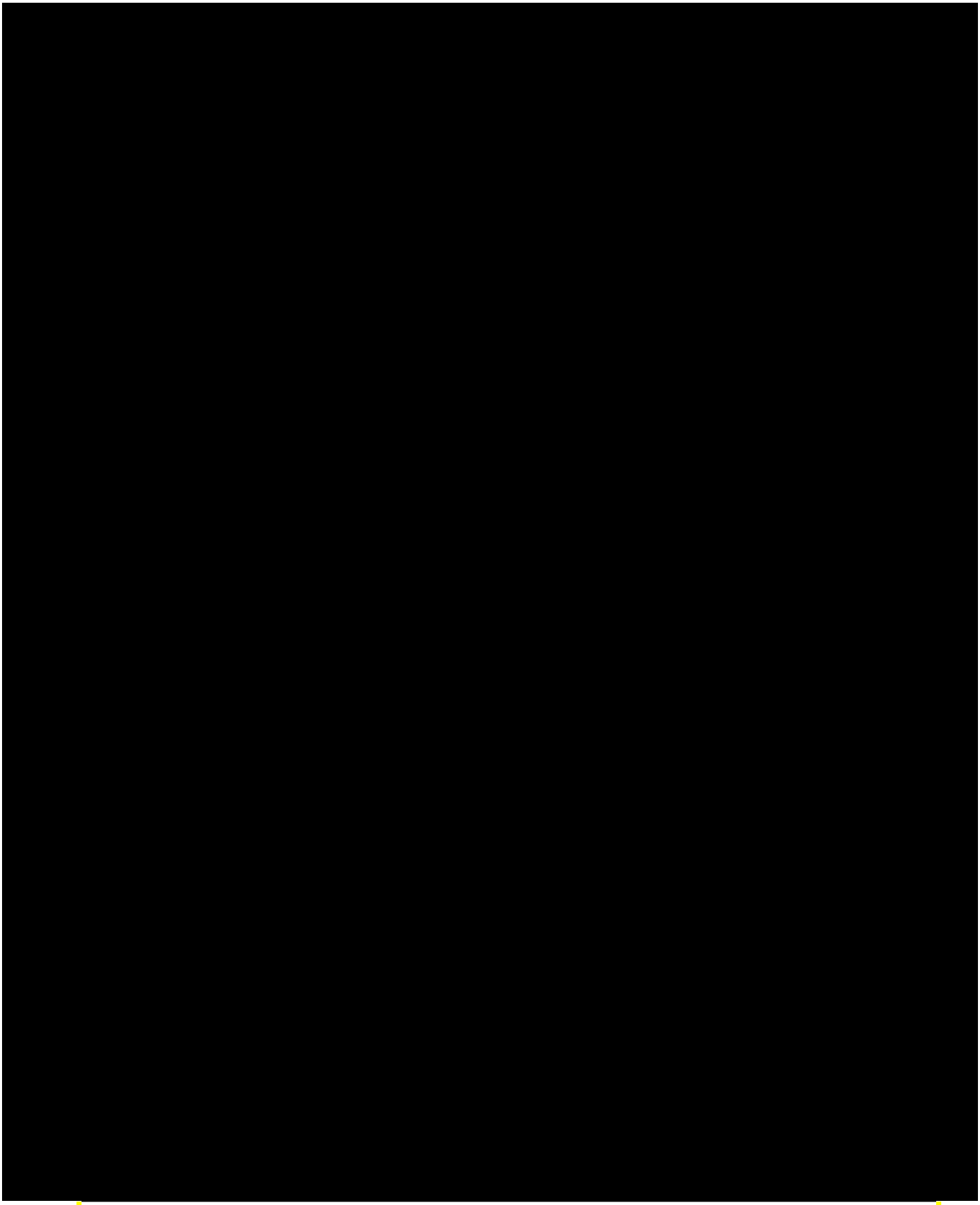
The agencies indicated that a ruggedized, mobile receipt printer capable of being carried on a belt or carrying case would be an ideal solution for the special events. To address this desire, INIT has included the IP54 [redacted] with power adapter/charger and carrying case. The direct-thermal technology receipt printer has broad system compatibility, bluetooth support, external battery and carrying case accessories.

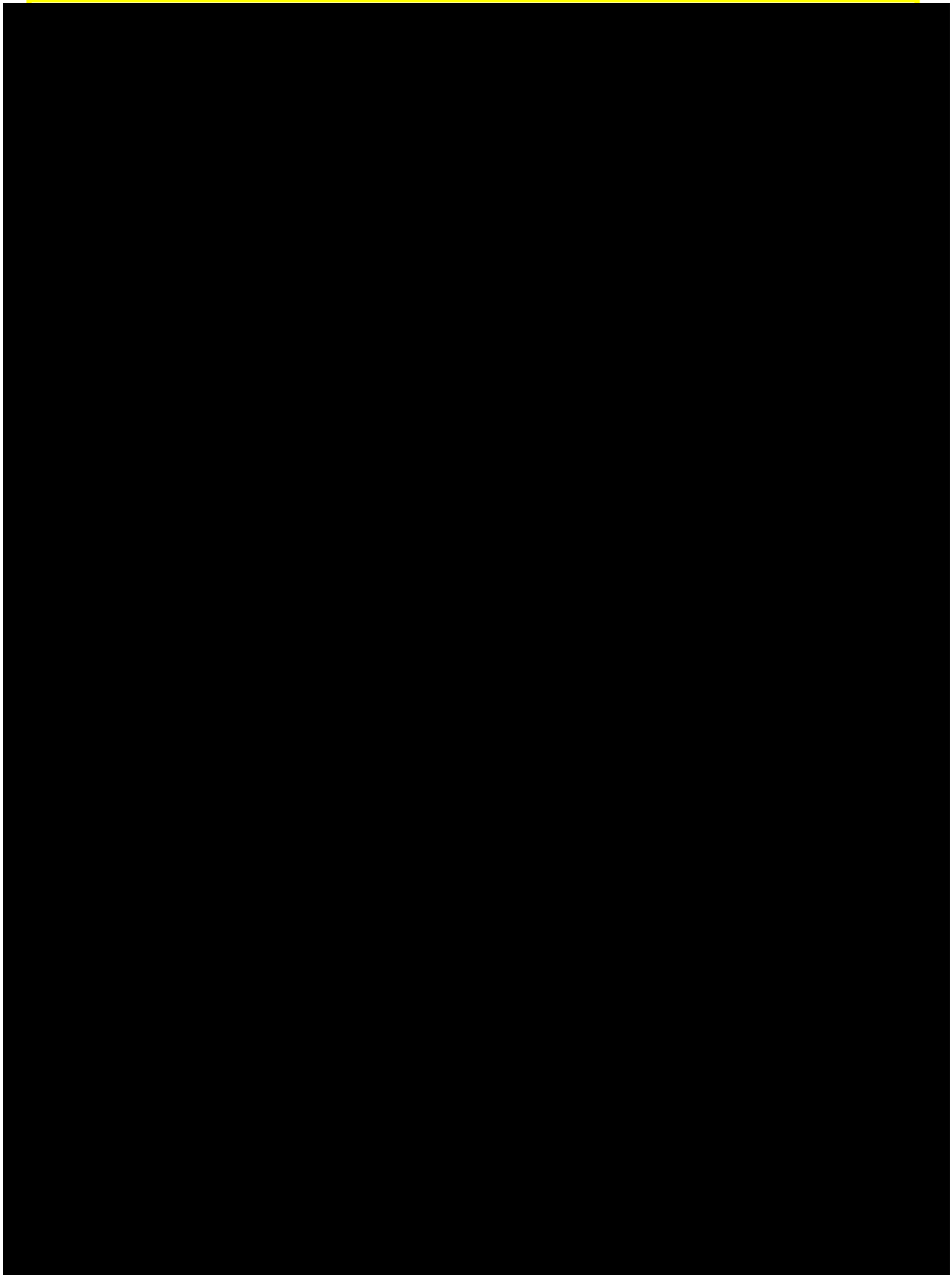












1.6.4.1.14 EU Smart Card Printing/Encoding

The ORCA agencies has asked for a EU card reader's with a hopper of 250 cards. INIT is not fully complying with this requirement yet feel we are offer a solution more suited to the three different use cases required, the Mail centers, Customer Service Offices and outreach programs.

The brand selected is Fargo. We have selected Fargo printers for three reasons. First, we have experience with these printers and they have served our customers and INIT well. Second, in discussions with the two distributors we are working with, both highly recommend Fargo printers for their quality and reliability. Third, by standardizing on FARGO, the agencies will enjoy one source for consumable that are compatable with all three printers offered.

For the Mail Centers, we have chosen the The HID FARGO HDP8500 ID Card Printer and Encoder. This is a "production" quality printer designed for heavy use. It's 400 card hopper will allow more cards to be printed without reloading the hoppers for improved efficiency.

For the CSO's, we are offer the HID FARGO HDP5600 ID Card Printer and Encoder. This printer, although does not meet the 250 card hopper requirement, is lower cost and will serve the agencies well. We have calculated 5 minutes to issue a card then in a 7.5 hour day, they would issue 90 cards. Assuming that 5 minutes is aggressive and even with longer hours there is no way a customer service representative 200 cards a day making a 250 card hopper no more efficient than the 200 card hopper. We envision the procedure would be to reload at the beginning of each day.

For your outreach program, the size and weight of the HDP5600 is an issue so we have selected the HID FARGO DTC1250e as a smaller and lighter card printer. This printer comes in at 7.5 pounds, more than half the weight of the HDP5600. It's dimensions are 13.7" x 8.8" x 7.9" slightly smaller than the HDP5600. Carrying cases are available.

For comparison, a "portable" card printer is available from Pronto. The Magicard Pronto printer offers easy-to-use, hand-fed card printing for on-demand printing. However, this printer weighs more (9.7 lbs) than the HDP5600 and is only slightly smaller at 8.4'' x 9.1'' x 10.6'. INIT stands behind our choice of the HDP5600.

Please see the sections below for more detailed descriptions of each printer offered.

1.6.4.1.14.1 Customer Service Terminal - CSO – EU Smart Card Printing/Encoding

The [redacted] Card Printer and Encoder is a cost-effective and reliable solution that features a high resolution 600 dpi printing option for superior text and image quality and a 200 card hopper. The reverse transfer technology provides full bleed capability.. As requested in the price sheet, INIT has included a 1:1 printer to CSO ratio for a total of 15 devices. Some cost savings opportunities may exist through deployment in a one-to-many configuration using an unpriced print server.

[redacted]

1.6.4.1.14.2 Customer Service Terminal – Mail Center – EU Smart Card Printing/Encoding

The [redacted] Card Printer and Encoder is the larger size 'sibling' to the previously identified HDP5600. With similar feature sets to the [redacted] a higher transaction rate and larger card hopper of 400 cards. As requested in the price sheet, INIT has included a total of 14 printers for use in the Mail Center locations; however, recommends evaluating this requirement for several reasons. Cost savings can be achieved if there is the

capability of sharing a single printer among several Mail Center terminals. Further, HID has recommended handling large volume requirements with multiple smaller [redacted] instead of single large-volume models. Standardizing on one type of printer would ease deployment and maintenance costs, standardize parts and components, and simplify replacement if and when necessary.

[redacted]

1.6.4.1.14.3 Customer Service Terminal - Mobile – EU Smart Card Printing/Encoding

INIT has include the [redacted] as a smaller card printer to be used for the mobile CST operations based on the agencies note about desiring a more compact option for mobile usage. When card-printers are reduced to a certain size, the extent of the technology and capability are also reduced. While INIT considers the [redacted] superior printer in it's class based on speed, quality and ease of use, it is a different class of printer then the proposed solutions for both CSO and Mail Center. As such, there is an expected difference in speed and quality when leveraging this class of device, and INIT recommends the agency confirm its desire to prioritize size over product consistency. The [redacted] is a single side, 300dpi, edge-to-edge printer with a 100 card hopper. INIT has included 12 of these devices as identified in the price sheet.

[redacted]

1.6.4.1.15 Customer Service Terminal – Uninterruptible Power Supply

[redacted] will be provided for the Customer Service Operations and Mail Room deployments as required by the RFP. While the UPS can provide protection and limited uptime for some of the Customer Service Terminals and its peripherals, the built-in battery of the HP EliteBook laptops may make additional UPS' unnecessary.

1.6.4.1.16 Customer Service Terminal – USB HUB

[redacted] included to ensure enough USB connections and power for the variety of USB devices, printers, and peripherals included for the Customer Service Terminal.

1.6.4.1.17 Customer Service Terminal – Communications

Communications to the Customer Service Terminal will be through either the wired or wireless interface of the HP EliteBook laptop.

1.6.4.2 Software and Operations

INIT's VarioCSW is comprehensive for in-person customer support and as a POS. INIT proposes the VarioCSW to be used for Customer Service Offices (CSOs), remote field applications, and the mail centers for order fulfillment. The call center will use the Salesforce CRM application.

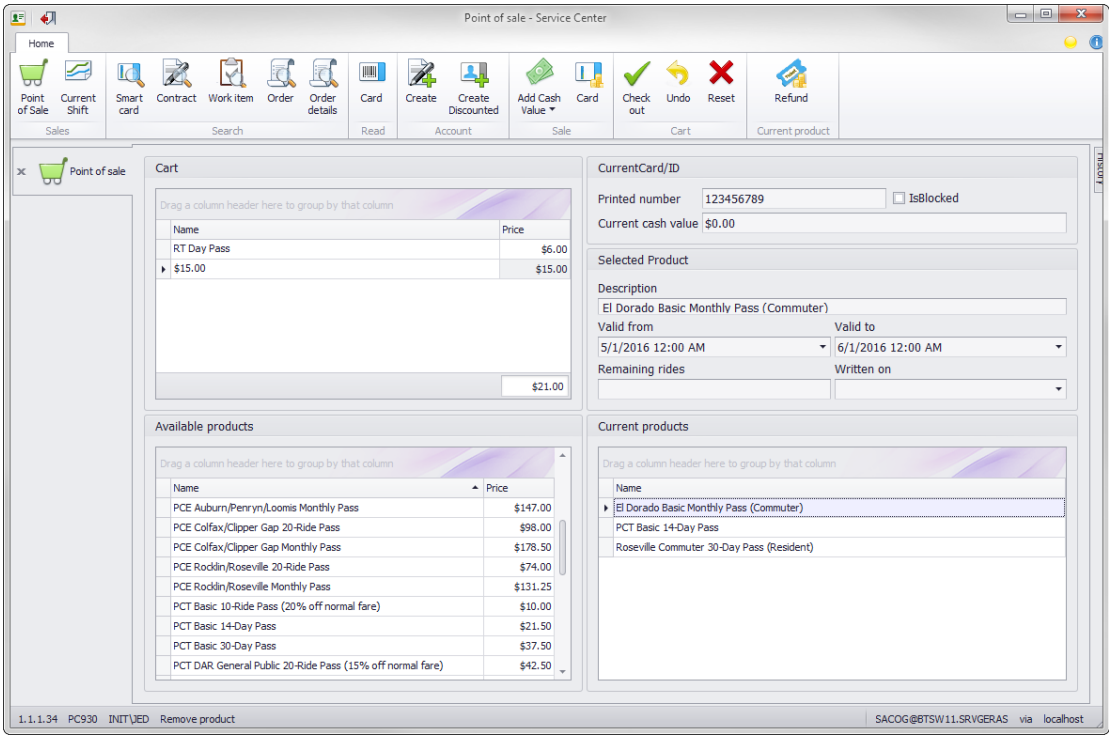
1.6.4.2.1 VarioCSW Overview

The core functionality includes:

- Selling all supported fare media to customers
- Loading and selling products and stored to transit accounts
- Query transit accounts based on diverse criteria (active, inactive, blocked, fare category etc.)
- Register and unregister transit accounts to/from customer accounts
- Generate transit account stored value adjustments
- View transit accounts transaction history
- View sales transaction and adjustment history
- Read and edit account information
- Generate fare payment cancellations/reversals
- Transfer value between transit accounts
- Blocking and un-blocking transit accounts (fare media)

- Viewing transaction and product loading history
- Configure/Add auto-load function for transit accounts and set the funding sources
- Generate sales transaction refunds
- Reading smartcards and display account information
- Replacement of closed loop fare media (associate the new card with the background customer account)
- Refunding transit accounts (refund maybe pending for a configurable number of days to allow all transaction to be processed)
- Processing smartcard orders (from the website or call center)
- Printing smartcards (with personalization)
- Adding or removing smartcard products or values

The screenshot below shows the main view of the VarioCSW POS software.



Point of Sale View of the CSW

In addition to selling ORCA products, VarioCSW has the capability to sell non-ORCA products like paper-based ticket books and other merchandise. Those products would need to be setup in the Tariff Management application before they can be sold.

The non-ORCA products can be serialized or non-serialized. If serialized products are sold the serial number may be entered during the sales process. This serial number is then attached to the sales details so that it can be used for further reporting

To provide an attractive looking POS interface for ngORCA, Anthro-Tech will review the current design and make suggestions for improvements.

1.6.4.2.2 Anti-Virus

The customer service terminal will be configured with ESET Endpoint Protection providing anti-virus, anti-malware, network access protection, botnet protection, and exploit blockers. Updates, configurations and monitoring is managed centrally by the ESET Remote Administrator deployed in the back office.

1.6.4.2.3 Security

1.6.4.2.4 User Interface

The MOBILEvario CSW is not a web portal, but a native application which uses MOBILEvario's APIs via HTTPS instead of direct database access. This means that the applications communication with the background system is web based, but the application itself runs natively on the workstation. This enables the workstation to be connected to diverse hardware such as cash drawers, barcode readers, payment terminals and cameras and printers.

The VarioCSW is a native application so that it can use the attached hardware (payment terminal, camera, scanner, card printer, ticket printer, card reader etc.) Applications running in web browsers do not have access to the PC's filesystem or hardware interfaces due to security issues. This is a fundamental restriction or feature of web browsers. Otherwise, a web page could steal one's personal files, install viruses or do other kind of harm. VarioCSW however uses the best of the both worlds, it uses the MOBILEvarios web based open architecture APIs and runs natively in order to access the hardware and assure the security of the device.

The CSW has two main views, the Point of Sale view to be used at the front counter to sell cards, products and cash value and the Call Center view to support customer service in a call center environment.

If the front-office service person requires access to more advanced CRM capability, they can use a button in the CSW user interface. CSW will have a button for a quick access to the corresponing user account in the Salesforce interface.

VarioCSW requires an online connection to the MOBILEvario APIs in order to sell products.

1.6.4.2.4.1 Point of Sale

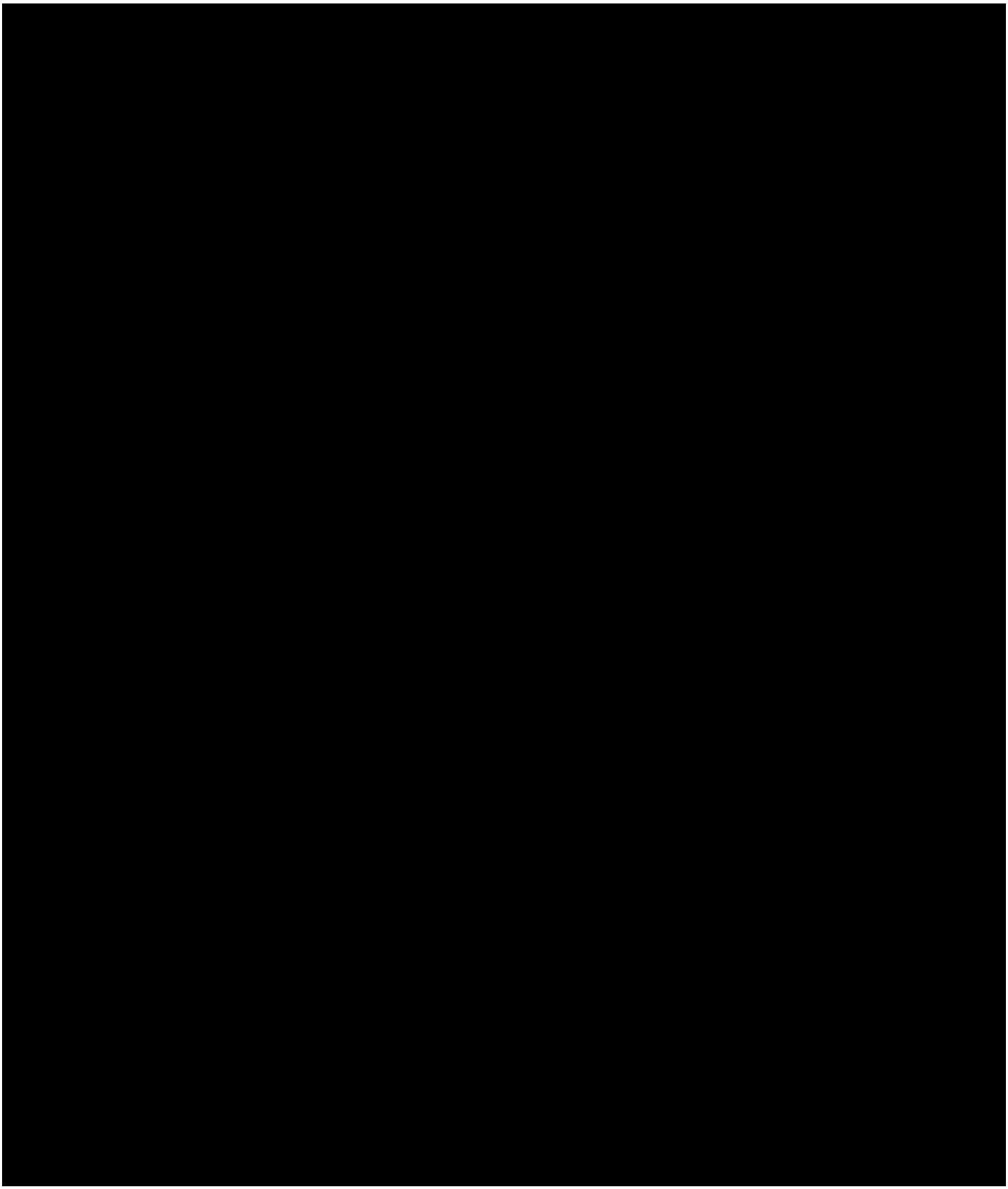
The Point of Sale view is designed to quickly sell products, passes and cash value loads in a customer service counter environment.

The point of Sales window is the main interface to perform sales to the customer in a fast and efficient manner. The Sale area consists of the Cart and the Available Products. The Available Products display a list of all items, which can be sold in the current context. Selecting an item will add the item into the Cart. The Cart collects all items of the current sale, so that they can be processed on block. The 'check out' completes the current sale. The Cash up dialog is displayed and further selections are provided to complete the payment (e.g. select split payments). Once the payment is completed, a receipt will be printed.

1.6.4.2.5 VarioCSW for Customer Support

Salesforce is used in the Call Centers and other necessary locations for customer support. VarioCSW also contains a Call Center View, but this is not relevant for ngORCA. Salesforce is described in chapter 1.8.3.

1.6.5 INIT's Product Development Philosophy and Roadmap



[redacted]

1.7 INIT's User Friendly and Intuitive Website and Mobile Applications

Specifically for Website and Mobile Application (Scope of Work Section 5):

a. Provide your proposed subcontractor's development methodology for the following items:

i. Customer account website

ii. Content management system

iii. Customer mobile app

iv. Agency mobile apps

b. Provide previously designed website URLs and credentials to websites developed by the proposed provider.

c. Describe how the proposed UI/UX solution provider will design a common user experience across multiple platforms.

d. Provide a draft licensing agreement(s) for items in this section.

For the externally sourced applications, INIT is proposing:

- [redacted]
  - [redacted]
- [redacted]
  - [redacted]
- [redacted]
  - [redacted]

1.7.1 Marathon's Proven AFC Websites

[redacted]

1.7.1.1 [redacted] AFC Website Development Methodology

[redacted]

[redacted]

- Defined Requirements and expectations
- Defined Work Plans, with estimated hours, costs, and Phase milestones

- Defined Deliverables, by Phase
- Defined client Review and Acceptance procedures
- Scope Control through a defined Change Management procedure
- Defined Risk Management procedures
- Regularly scheduled Project Status Review Meetings with the INIT project manager and Agencies
- Written Weekly Project Status Reports, stating project actual performance versus the plan, identified risks and remediation plans, pending Change Requests, and Open Issues impacting the project
- Consistent emphasis on client Involvement throughout the project – client involvement is an essential component in all of Marathon's work. Marathon takes great care to ensure that important stakeholders are involved in the project and their input is included
- Effective Knowledge Transfer to client's staff

1.7.1.1.1 Management Plan

A [redacted] web portal project consists of the following phases: Analysis, Design, Development, Testing, and Deployment. Quality is built into each phase of a web portal project through close client collaboration, approved deliverables, and testing. Below is a description of each phase and how it contributes to producing a superb solution.

1.7.1.1.1.1 Analysis

In the Analysis phase [redacted] will work closely with INIT, INIT's UI/UX partner (Anthro-Tech), and the Agencies to validate the web portal requirements. The result of this analysis will include the detail output as defined by Anthro-Tech and a detailed Requirement Specification for which Marathon will define the build against. This document records the feature requests and how the web portal meets those requirements. This is accomplished in the following sections:

- **Requirements** – this section records each requirement that pertains to the web portal. Each requirement is mapped to a web portal feature or page that satisfies the requirement
- **Pages** – this section documents the global web portal features and each page required to meet client's requirements. Each page description includes a set of "ability to" statements and a list of use cases required to implement those "ability to" statements. Also, each item in this section is linked to a Test Case that ensures every "ability to" statement is met

- **Use Cases** – this section documents each use case. The use case is a process flow that includes how the web portal interacts with the INIT MOBILEvario application and Agencies' chosen payment gateway

Finally, the Requirement Specification remains a working document throughout project execution and is kept up to date so there is always a clear understanding on what the web portal will include.

1.7.1.1.1.2 Design

INIT's UI/UX partner, Anthro-Tech, will guide the Agencies through a user-centered design process. As an output for this process and efforts, Marathon will produce the following design deliverables specific to the web portal:

- Style Tiles
- Site Map
- Wireframe / Mock-ups for each page

1.7.1.1.1.3 Development

[redacted]Development phase combines the work done in Analysis and Design to build out the web portal pages. Specifically, the Marathon Developer's use the UX/UI-approved Design Mock-ups and Requirement Specification to guide their work. Page development goes as follows:

1. Application set-up:
    a. Set-up Umbraco content management system
    b. Set-up Development environment. Use the web portal base to save implementation time
2. Page Building:
    a. Create pages in accordance with approved designs and requirement specification
    b. Customize web portal base to meet unique client requirements
3. Internal Testing – there are four steps of internal testing:
    a. Design –validate page matches approved design
    b. Cross-Browser and Device – validate page works according to design
    c. Functional – validate the page meets the functional requirements

d. ADA – validate the page meets WCAG 2.0 level AA standards for accessibility compliance

4. Rework and Issue Resolution – correct issues identified in Internal Testing

1.7.1.1.1.4 Testing

This Testing phase corresponds to the web portal Factory Acceptance Test (FAT). In this phase INIT and the Agencies will use the Marathon Test Plan and Test Cases to validate the application meets the requirements. FAT process includes the following:

1. Build Test Plan and Test Cases. Map Test Cases to client requirements via the Requirement Specification
2. Setup the Test Environment and Deploy Applications
3. Review testing process with INIT and the Agencies
4. Commence Testing:
   a. Marathon, INIT, and the Agencies execute Test Cases and record issues
   b. INIT, the Agencies, and Marathon review and triage issues. Categorize the issues into the groups fix, defer, and new requirement
   c. Marathon resolves assigned issues and updates application
   d. INIT and the Agencies verify issues are resolved
5. FAT is complete when all Test Cases have been executed and passed. A Test Case is passed when all assigned issues are resolved and approved by the Agencies

The above process is completed for each page and system required to deliver the portal requirements.

1.7.1.1.1.5 Deployment

After FAT there are several more phases of deployment and testing before the overall transit solution is deemed ready for the public. These testing phases are integration tests that include the INIT systems and the web portal. Also, these tests may include the introduction of end-users/customers in the later phases as defined as part of the user-centered design approach with Anthro-Tech. But each of these tests mirror the same process described in the Testing Phase.

During this stage, Marathon will plan the test cases, configure the environment, deploy the application, run the tests, record any issues, and correct issues and update the software.

1.7.1.2 [redacted] Live AFC Websites

[redacted] has designed, developed, and deployed the fare collection portals listed below with URLs and user credentials. Each Agency was delivered both a customer web portal and an institution web portal.

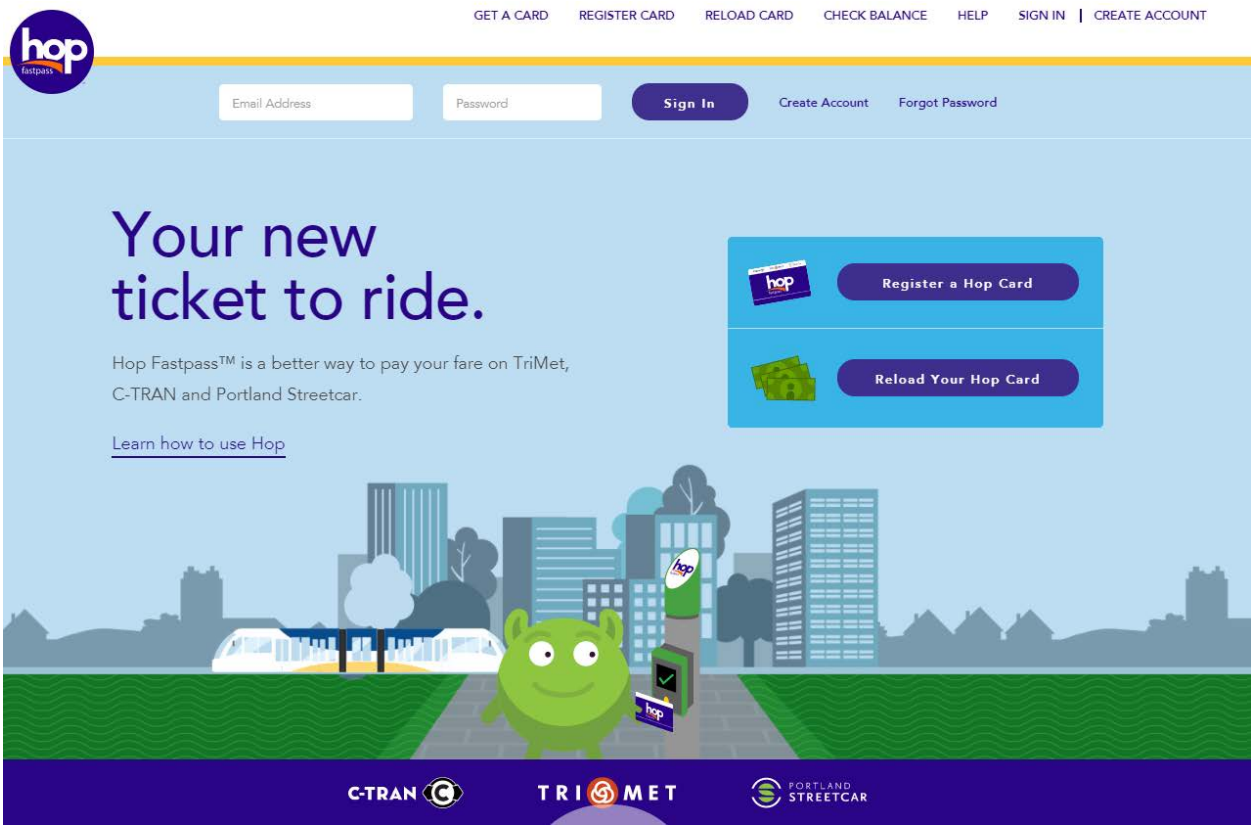
To provide the agencies with greater control and flexibility in editing and managing the content of their websites, the portals were developed using the Umbraco Content Management System (CMS). The following information summarizes the key capabilities of Umbraco.

- Security
    - Built on the Microsoft.NET and SQL Server Platform, a global standard for application development
    - Granular user permissions - You have full control over your users permissions to content and actions, removing the risk of user-based errors
    - Umbraco core team uses parameterized queries to prevent SQL injection
    - Every 6 months the Umbraco core team utilizes a security firm to do a penetration test
    - Any 3rd party security/penetration test reports are handled seriously by the Umbraco core team
- Usability
    - Powerful editing capabilities – editors are empowered to do more with intuitive editing tools, media management, responsive views and approval workflows to send content live
    - Media Management – your editors become designers with robust media capabilities of file management, easy drag-drop media insertion and responsive cropping, right inside the Umbraco back office
- Flexibility
    - Painless Integration – use the fully extensive API to seamlessly integrate Umbraco with any 3rd party service
    - The admin is built using AngularJS making it easy to customize. This means it doesn't require any .NET code. All the libraries are included so only code required for the control and custom HTML need to be written
    - Fully customizable data-types give complete control over the structuring of page types

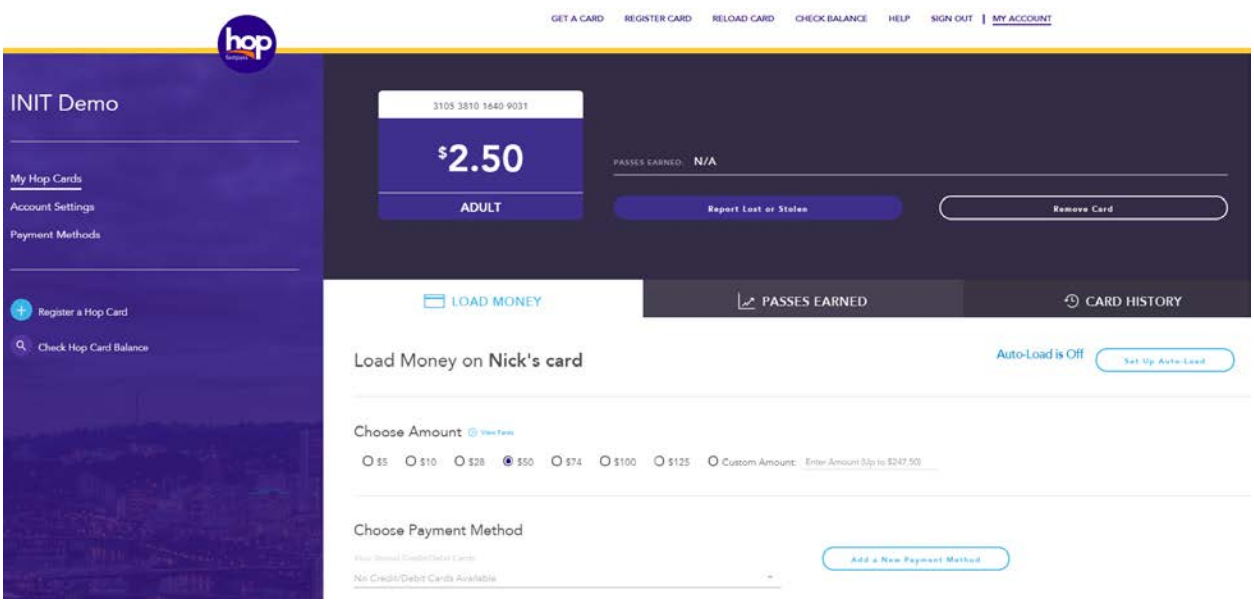
- Scalability
    - [redacted] both traditional and cloud architectures
    - [redacted] can be used for small, simple websites to large enterprise sites
    - Can be configured within a load balanced environment

Further, the websites were built to be ADA and Section 508 compliant. The web portals meet the Web Content Accessibility Guidelines (WCAG) to ensure the content of the websites are accessible to all site visitors including those with disabilities. The target for the web portals is WCAG 2.0 level AA standards for accessibility compliance. This means web portals will be compliant with the World Wide Web Consortium (W3C) Level A and Level AA standards. Validating the standards were met was accomplished by performing iterative internal testing using accessibility auditing tools for automated testing during development. Further, manual testing was performed to ensure a thorough accessibility review.

The web portals are built on a reusable code base that enables Marathon to deliver a robust solution in less time. The features described in the *INIT Customer Fare Collection Web Portal Technical Description* and the *INIT Institution Fare Collection Web Portal Technical Description* represents the core application which can be extended to meet additional client requirements.



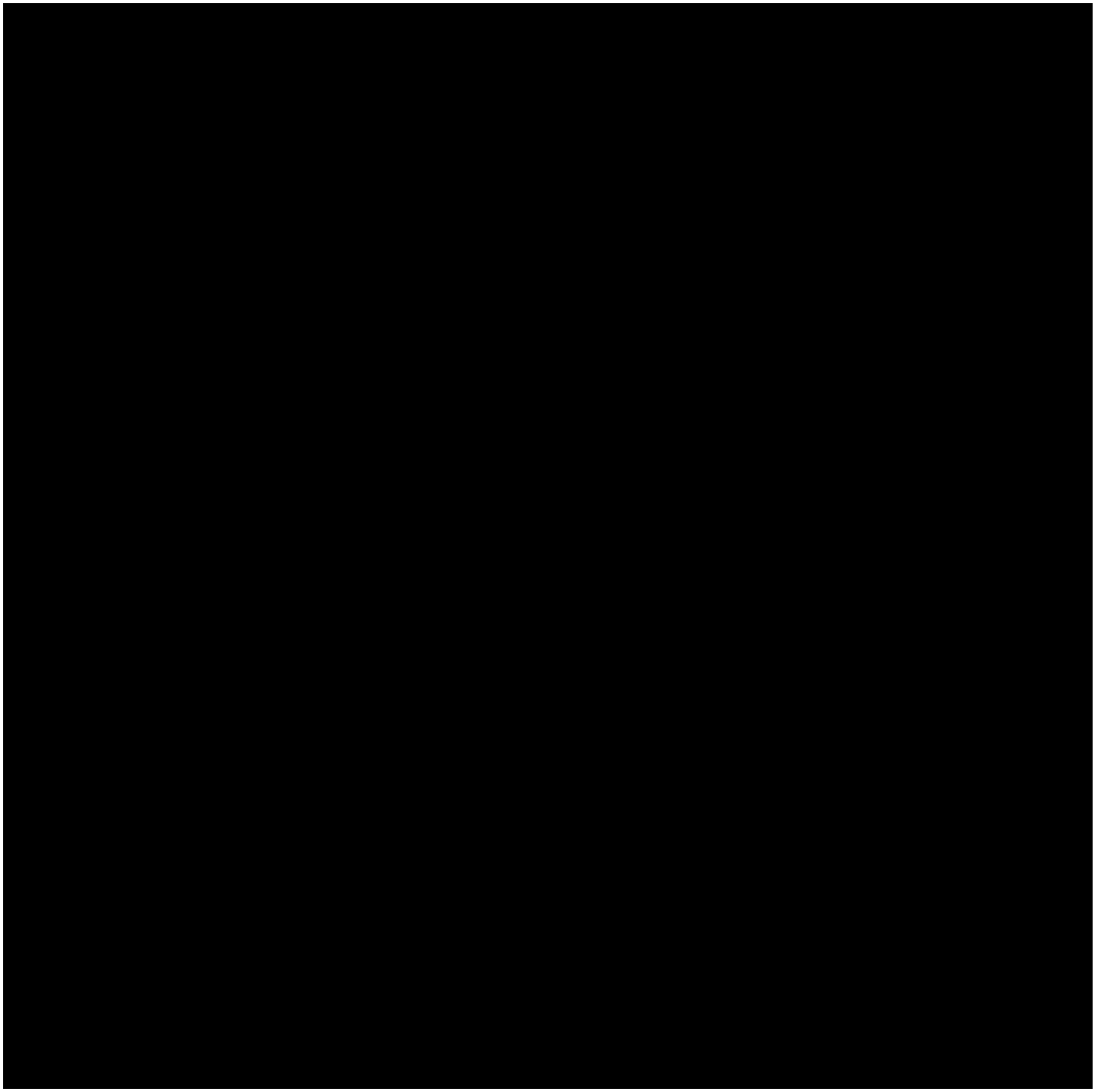
Example HOP Fastpass website – Home Page



Example HOP Fastpass website – Account overview

Fare Collection Portals

1. Portland, OR
   Customer Website: https://myhopcard.com/
   Institution Website: Please contact INIT or TriMet for a demo of the institutional website



2. Grand Rapids, MI
   Customer Website:
   - Username:
   - Password:
   -

3. Tampa, FL
   Customer Website:

4. Honolulu, HI
   Customer Website:
   -

- [redacted]

Institution Website: [redacted]

[redacted]!

1.7.2 Bytemark's Proven Mobile AFC Apps

Founded in 2011, Bytemark is an international provider of fare collection technology employing over 90 talented individuals globally located in offices in New York, Seattle, Toronto, the UK, Australia, and India. Bytemark's core offering is a comprehensive suite of products that digitize transit passes, tickets and fare media in a variety of innovative ways. Purchase of these fare products by transit riders is simple and instantaneous by means of web-based and smartphone-based purchasing experiences. Agencies are provided with powerful fare validation solutions, and cloud-based access to a full-suite management portal to manage and report on their operation.

1.7.2.1 Core Services and Products Produced

1.7.2.1.1 Mobile Applications

We build *native* apps for iOS and Android operating systems. Unlike other providers, we do not use port code using an automated development environment ensuring that our apps are enhanced for the user experience.

- Feature Rich: Purchase, Activation, Profile Management, Information Tools
- Off-the-shelf base package capable of customization
- Agency specific branding

1.7.2.1.2 Focused on the User Experience

Systems defined with a refined purchase process and intuitive User Interface that makes purchasing as simple as possible. User sign-in and registration are facilitated through social sign-ins that allows users to sign-in with existing accounts from Facebook and Google+. Payment card credentials (such as credit, debit, stored value) are registered once by the user and securely stored on account for future use. Following strict security policies, account numbers are never stored on the device itself.

1.7.2.1.3 Accessibility Features

Mobile applications designed with accessibility in mind that comply with industry standards. Native accessibility features, and where supported, that include voice-over compliance on all screens and instructions in place of visual tutorials. Support for legally blind users is also incorporated into the solution and offers the most user-friendly experience possible.

1.7.2.1.4 Scalable Cloud Architecture

Our cloud hosted solution provides clients with security, flexibility. and scalability.

- Amazon Web Services (AWS)
- Multiple Data Centers
- Geographic Redundancy

1.7.2.1.5 Security & PCI Compliance

We understand that security is of the utmost important to the agency and its customers. That's why our system is a PCI Level 1 certified provider and a Visa and MasterCard network approved merchant services provider.

- PCI Level 1 Certified
- Any data that is considered personal or proprietary is encrypted with military-strength cryptography when stored or transmitted.

1.7.2.2 Proven and Ready

Bytemark's mobile ticketing technology and applications are proven solutions, with mobile ticketing systems operating in:

- King County Metro - Seattle, WA
- Sound Transit – Seattle, WA
- Seattle Streetcar – Seattle, WA
- King County Water Taxi – Seattle, WA
- Seattle Monorail – Seattle, WA
- New York Waterway - New York, NY
- NYC Ferry – New York, NY
- Capital Metropolitan Transportation Authority - Austin, TX
- Northern Indiana Commuter Transportation District - Chicago, IL
- Massachusetts Department of Transportation - Boston, MA
- Metrolinx - Union Pearson Express - Toronto, ON
- York Region Transit - York, ON
- Hillsborough Regional Transit Authority – Tampa Bay, FL

- One Ticket – Edinburgh, Scotland
- Sacramento Regional Transit – Sacramento, CA
- Metropolitan Atlanta Rapid Transit Authority – Atlanta, GA
- Des Moines Area Regional Transit Authority – Des Moines, IA

Along with our existing deployments, Bytemark and its subsidiaries are currently developing / deploying mobile ticketing systems for:

- The Rapid – Grand Rapids, MI
- Rhode Island Public Transit Authority (RIPTA) – Providence, RI
- Rotterdamse Elektrische Tram (RET) – Rotterdam, Netherlands
- Warsaw Public Transport (ZTM) – Warsaw, Poland
- San Mateo County Transit District (SamTrans) – San Mateo, CA
- Nashville MTA — Nashville, TN
- Delaware Transit Corporation (DTC) —Wilmington, DE

1.7.2.3 Regional and Multi-Agency Solutions

Bytemark has extensive experience offering multi-agency shared mobile applications. In Seattle we are working with five individual agencies (King County Metro, Sound Transit, Seattle Streetcar, King County Water Taxi, and Seattle Monorail) participating in one unified mobile application. Each agency receives their own daily settlement in their bank account. Back offices are separate to allow each agency to manage their products, branding, and reporting.

Bytemark also provides an integrated mobile application in the State of Massachusetts for private bus operators in partnership with MassDOT. The BusPlus program incentives private bus operators to provide new regional transportation services to increase intercity and commuter transportation options available across the Commonwealth and New England.

The proposed mobile solution will take advantage of all the same ABT features as the physical ngORCA card. All transfers and revenue share will be handled by MobileVario.

1.7.2.4 Collaboration & Integration with INIT

Starting in 2013, Bytemark and INIT have delivered a series of joint fare-collection solutions. Most recently, INIT and Bytemark have collaborated on projects such as The Rapid mobile app in Grand Rapids, MI and also similarly with The Flamingo Fares app with Hillsborough Area Regional Transit Authority (HART) out of Tampa, FL to provide an account management app. In both projects Bytemark utilizes INIT's account-based system (MOBILEvario) as the ticketing and customer account backend. Additionally, these projects also utilized INIT's MOBILEvario to deliver tokenized fare media to the Bytemark mobile app that is represented as a QR code or

NFC payload. Through these deployments, Bytemark has successfully realized in-depth and service-proven integrations with INIT utilizing the MOBILEvario central back office and open API's. Through these efforts, together we have brought to market a proven solution of Bytemark mobile validation via INIT validators.

We believe our organizational and operational partnership has strengthened the mobile offering of both Bytemark and INIT. With over four (4) years of collaboration we have the capability to provide a best-in-class mobile ticketing application that integrates seamlessly with INIT's powerful back office. Bytemark and INIT have been contracted for the following joint deployments:

- Capital Metropolitan Transportation Authority — Austin, TX
- NYC Ferry —New York, NY
- The Rapid — Grand Rapids, MI
- Hillsborough Area Regional Transit Authority —Tampa Bay, FL
- Rhode Island Public Transit Authority — Providence, RI
- Nashville MTA — Nashville, TN

A. The proposal emphasizes experience with visual ticketing rather than the NFC mobile credential as stated in the SOW. The proposal fails to demonstrate an understanding of the relevant capabilities.

We understand that visual validation will not be utilized as part of this solution.

As noted in our revised submission, the NFC payload will be provisioned from the Init MOBILEvario Back Office and provisioned directly to the respective mobile wallet.

B. Concern that the proposal states the proposed solutions are in service as of today, i.e. Flamingo Fares Tampa Bay and The Rapid mobile app. The proof of concept approach cited on pg. 197 is not supported by Apple and will not be acceptable for the next gen ORCA program.

FlaminGo Fares is a multipart project. To clarify further, the first stage, a "fast track" standalone app was delivered by Bytemark and is live.

The Rapid Mobile app is stated as "In Development" under **Duration of Contract** on the previously provided Bytemark References.

ORCA is correct that the proof of concept approach cited as part of our previous NFC experience is not currently supported by Apple. We provided this not as a proposed solution but

under our Experience demonstrating our commitment to innovating on iOS. At the time, Apple provided us with the SDKs validate NFC Loyalty Cards on test validators. We couldn't have created this without Apple's assistance but ultimately, they decided against this approach for the transit market.

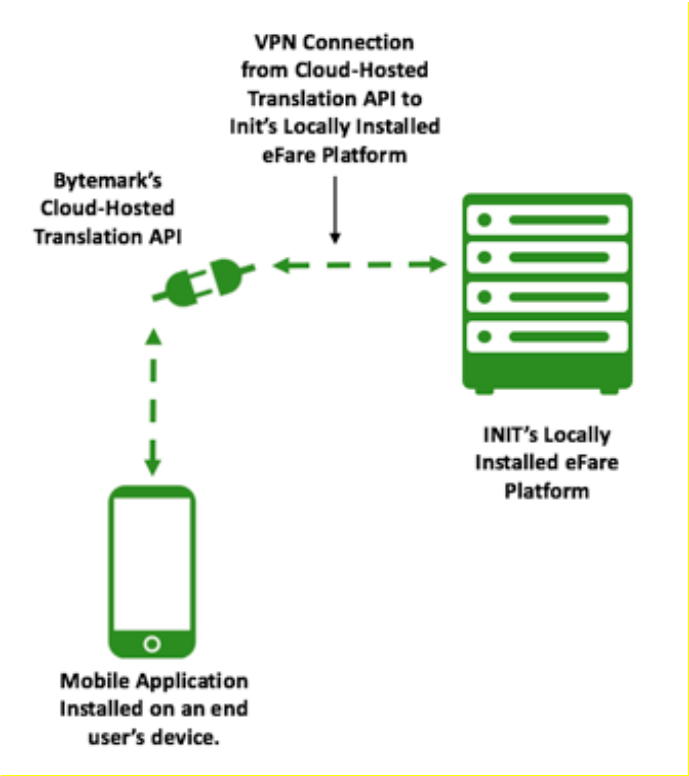
1.7.2.5 Unified Solution for ORCA

To provide ngORCA with a robust Customer Mobile App, the proposed solution is an integrated Bytemark and INIT deployment. The INIT MOBILEvario Back Office will provide the customer account management features, and the Bytemark developed mobile app will interface with INIT's MOBILEvario API's to enable these functions in the mobile app user interface. The required features will include a user's ability to manage account information, password and password reset, reloading of fare media, purchasing fare products and new fare media, provisioning NFC credentials, etc.

D. Proposal needs detailed information about the mechanics for use of the proposed mobile credential using Android (Google Pay) and iOS (Apple Pay). It appears that this section was authored by Bytemark, and it appears that there is a lack of understanding of the SOW Capability 5.2-13.

We recognize the feedback regarding account management and NFC provisioning. To clarify, the mobile application utilizes APIs from the Init MOBILEvario Back Office and is in essence, the INIT mobile solution provided by Bytemark. In the event the Region would like to procure the mobile app solution separately, significant development would need to be completed to replicate this existing integrated experience.

The following is a description and diagram that details of the path of communication between the mobile application and Init's platform. The Bytemark translation API communicates directly with the local installation of Init's platform via secure VPN connection. The VPN connection is maintained by both Bytemark and the party responsible for the upkeep of the onsite network environment.



For ngORCA, the INIT back office will be responsible for the delivery of account-based fare media to NFC-capable devices. For Google Pay, a "Save to Google Pay" button will be implemented in the mobile app to initiate the provisioning of fare media to the Google Pay app. The app will receive all information from the INIT back office to allow the user to sign into their Google account, authorize the provisioning of the transit card to their device, and have the fare media appear in their Google Pay app. When made available by Apple, we will deploy a unified approach for Apple Pay integration.

The Bytemark and INIT integration is completely built around an Account Based Ticketing (ABT) platform. The customer solution provides a passenger with the ability to manage multiple fare media accounts simultaneously. Whether it's adding funds or purchasing a product, changes are reflected in the ABT system immediately. Unlike an NFC top-up system, the passenger doesn't even need to have the physical ORCA card on them. For instance, a parent could manage their children's' accounts remotely without providing the children with their credit card number. The Customer App is completely cross-platform and does not rely on NFC hardware or software compatibility for managing physical media.

1.7.2.5.1 Experience with NFC Validation and Contactless Technology

Beginning in 2013, Bytemark has worked with NFC and Bluetooth technology as a method for fare validation. These solutions have encompassed both mobile generated fare media and custom validation solutions.

2013 - Bytemark delivered a proof-of-concept to Capital Metro Transit Authority in Austin, TX to present an NFC ticket in the CapMetro app and have it read by Bytemark's Merchant Mobile Handheld Validator. Android Host Card Emulation was used to emulate the ticket as a MiFare DESFire virtual card on only an Android device. Bytemark's Merchant Mobile Handheld Validator was integrated with a ISO/IEC 14443 Grabba attachment to read smartcards and NFC devices.

2014 to Present - Bytemark's Merchant Mobile Handheld Validator is currently used in the field today by CMTA to read and validate MiFare Classic cards. The Fare Enforcement App that we deployed validates third party fare media from GenFare including MiFare Classic contactless cards as well as existing magstripe tickets.

2017 - Bytemark developed a proof-of-concept utilizing the NFC Value Added Service (VAS) Protocol to create NFC tickets on an Apple iOS device. The VAS protocol is a standard for NFC virtual loyalty cards. A virtual card was stored in Apple Wallet and brought to the foreground upon coming in near contact with a NFC reader. A validator was developed in-house with a Feig reader to read the NFC virtual loyalty card and display the validation results. The proof-of-concept was implemented for exploratory and demonstration purposes.

1.7.2.5.2 Bluetooth Validation for FutureRailway-UK Rail and Safety Standards Board (RSSB)

Bytemark subsidiary, ByteToken developed a Bluetooth LE validation system as a proof of concept for the UK FutureRailway group with funding from the Rail Safety and Standards Board (RSSB). ByteToken delivered their AirGate solution, a hands-free validation system built for gated and ungated environments.

AirGate comprises the following components:

- BLE Beacons
- Antennas
- 3D Camera
- Controller Module

The BLE beacons and associated antenna array locate the position of the user relative to the gate line, a 3D camera tracks the user as they approach, and a controller application manages the interface between the software components of the system, as well as the fare gate. These components can be configured to suit the requirements of the environment in which they've been placed.

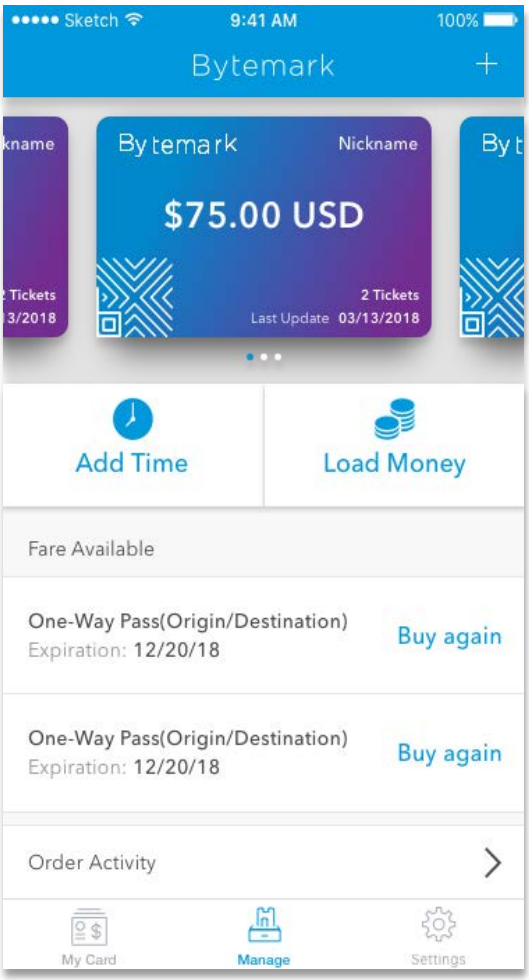
To produce the prototype, ByteToken partnered with Thales, leading international fare gate manufacturer, who upgraded their latest smart fare gate, the Dreamgate PG600, to support the AirGate Bluetooth functionality.

AirGate is easy to use. A passenger, simply downloads the ByteToken mobile app and uses this to purchase their travel rights, which are then stored on the mobile app. As they approach the fare gate to enter the transport network the app will, without user intervention, communicate with AirGate. Once the AirGate software has determined that the user has valid travel rights, a signal will be sent to the appropriate fare gate to open. This enables a hands-free approach to checking-in and out of the transport network, increasing user throughput as they no longer need to locate and present their ticket.

1.7.2.5.3 Customer Mobile Application (Account Management)

The Bytemark/INIT integrated app is a mobile application available for Android and iPhone that allows users with INIT e-fare customer accounts to use their mobile device as a virtual smart card that can be validated using an INIT PROXmobil scanner. Within the app, users can also manage their customer accounts by adding fare products or stored value to their mobile fare medium. In addition, customers can view and update the same account information through the customer website.

All data accessed by the Bytemark/INIT integrated mobile application is retrieved from and managed by INIT's platform.



Bytemark is uniquely positioned to develop and deploy a mobile ticketing application for ngORCA. Bytemark has worked directly with Sound Transit and King County Metro since 2016 as a mobile ticketing provider. Over 60,000 users have purchased passes on the *Transit Go Ticket* mobile application.

1.7.2.5.3.1 UX/UI Integration

Bytemark will work with INIT and INIT's UX/UI partner, Anthro-Tech, to develop a customized solution for ngORCA which meets the functional technical needs while also complimenting the common user interface elements that may arise. As Anthro-Tech will ensure a common user experience across all customer facing interfaces (Mobile App, Website, etc.), Bytemark will work through the functional requirements in an integral manner. Upon launch, customers will instantly recognize ORCA branding and feel comfortable knowing they are using the official ORCA app(s).

1.7.2.5.3.2 Native App Development

Bytemark is proud to offer native apps for iOS and Android operating systems. Native apps take advantage of operating system specific features and functions. Automated dev environments can accelerate the initial development of apps, but they use a lowest common denominator approach to app development, only supporting features that are on both iOS and Android and rarely support taking advantage of device capabilities that require native SDKs to access. Apps created in an automated dev environment will always be slower as they do not access libraries of the OS directly.

The security of native apps exceeds apps created by automated development environments. Non-native apps are more susceptible to "man in the middle" attacks and are easier to reverse engineer. When a major iOS or Android upgrade or security patch is released, automated dev environment tools need to be updated first before apps built with those tools can be updated or patched.

1.7.2.5.4 Mobile Application Functions

C. It is unclear what the proposed account management functions are, and how they would work for the customer. The proposed account management solution does not appear to meet the capabilities.

The proposed solution is to provide a unified account between the mobile app, web, and account-based cards. All accounts are managed on the unified MOBILEvario Back Office. In addition to using virtual fare media, all account management functions available via the consumer web site are available in the app.

The following is a list of a features functions end users will be able to perform through the integrated mobile application. These account management features are offered in the app via API's with the INIT MOBILEvario system.

Function	Notes
[redacted]	

[redacted]

1.7.2.5.4.1 Virtual Card Provisioning

[redacted]

1.7.2.5.4.2 Virtual Card Management

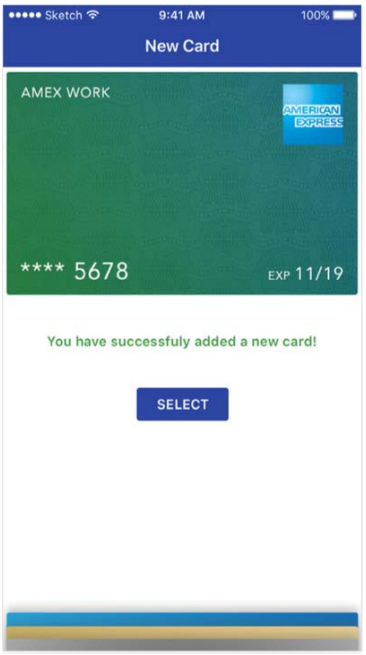
[redacted]

E. Proposed iOS solution references ""in the future"" and ""if applicable"" which is concerning since the SOW anticipates this functionality to be available at integration."

1.7.2.5.4.3 Registering & Linking Physical Fare Media

1.7.2.5.4.4 Purchase Process

A user can complete their purchase using a personal credit/debit card or by linking to a mobile "wallet". Once a customer enters a credit card it can be saved with a nickname such as "My Debit Card" or "Work AMEX" for easy reference for the user.Users will be able to purchase multiple fare products from multiple agencies in a single transaction. The user will also be able to add value to their virtual or physical fare media.



1.7.2.5.4.5 Split Purchases

For customers that may need to spread their monthly pass over multiple payment methods, we include the option to split a payment. The app interface allows customers to easily allocate funds across multiple payment methods.

1.7.2.5.4.6 Autoload & Subscriptions

Users will be able to create product or value-based Autoload for repurchasing fares or adding value. Products such as monthly pass can be re-purchased automatically the day after expiration. The customer is sent a confirmation email before the purchase to give them adequate time to modify or cancel the Autoload. The INIT system allows the user to designate primary and secondary funding sources.

1.7.2.5.4.7 Notifications

Notifications may be displayed in multiple ways within the mobile app. The app's home screen may be configured to display important travel alerts and notifications.

Notifications can be used to raise consumers' awareness to any changes in the operator's regular operations and suggest alternative routes if necessary. Providing riders with notifications allows them to make the best decision and ease their experience when problems occur.

Restrictions to notifications can be tied to in-app, email, or customers may elect to opt-out completely. Also available are notifications for operator or relevant area news as well as special offers (if available).

1.7.2.5.4.8 More Information' Feature

More information allows the agency to include links to additional services and agency websites. Common links agencies include:

- Contact Us
- Customer Support information
- Call Center Hours
- Lost and Found Information
- Mobile App Tutorial
- FAQ's
- Terms of Service
- Rider Surveys
- Agency Website
- Route Maps, Schedules, Trip Planning Tools (can also be integrated more fully into the app)

- Agency Social Media

1.7.2.5.4.9 Settings and Profile Management

Within the settings screen users are given full access to their profile and are provided the information tools they need to successfully use the mobile ticketing application. Settings are customizable on an agency-by-agency basis.

Users have full access to their account and profile details. Users can update their profile directly in the mobile application. This includes: changing and resetting password, adding payment methods, modifying notification settings, purchase history, and account sign-out options.

Customers will have the ability to reset their password. On the log-in screen the customer may select the Forgot Password button. A reset password link will be emailed to the address on the account with instructions. Customers can also contact Customer Service representatives for assistance. User's will also be able to report their fare media lost or stolen. Reporting their fare media lost or stolen will then deactivate that fare media and allow the user to transfer the balance.

1.7.2.5.4.10 Order History

For customer's records, reference and quick reordering of past trips, a full history can be displayed in the mobile app. The customer can tap any entry to view the complete record for the transaction or to quickly repeat the purchase. A downloadable record will be made available to users.

1.7.2.5.4.11 Initiating Customer Service Requests

Multiple methods of contacting customer service will be provided within the mobile application. A direct phone number will be provided and a pre-defined customer request form which stipulates the reason for the inquiry, the inquiry itself, and the customer's contact information. Customer service inquiries can be stored in MOBILEvario and for the purposes of this bid populate the ORCA Salesforce CRM.

The INIT system allows users to initiate an opt-out refund. This process can be automated or at the discretion of the agency. Optionally, it can require administrative approval prior to refunds being issued.

1.7.2.5.4.12 Passenger Information Tools

The integration of real-time passenger information tools is vital to the customer experience and is a primary driver of mobile ticketing adoption. The application may take advantage of operator-provided web services including real time bus locations and schedule listings. Other information that can be incorporated includes: next departing bus information, delays, and alerts

that go beyond the typical trip planner to bring the most relevant information to a user as soon as they enter the application.

We can integrate schedule information for trip planning purposes in a format that customers have become accustomed to with Google Maps and similar planning tools. By overlaying route and station information on an interactive map, customers can see an overview of the transit system, or zoom in on specific routes and stations. By choosing origin and destination customers can even see the next departure times for that route. Geolocation is utilized if the user chooses to share their location. Location data is used to find the nearest station and to show real time bus locations if provided.

Additionally, the app can be configured to link to multiple third-party trip planning tools, which can be defined by ngORCA. We will work to make those tools configurable, so the user can choose a preferred planner.

1.7.2.5.4.13 Language Support

The mobile apps will undergo an internationalization process and be built to support multiple languages. We do ask clients to provide translations of their own content such as FAQs or supplemental information. The language in the application will match the language default on the mobile OS. If the language is not supported, the app will default to English.

Content supplied directly from the back office, such as fare products would need to be translated by the INIT system. Although, we do not recommend translating fare product titles.

1.7.2.5.5 Accessibility – ADA Compliance

We believe it is important to highlight Accessibility features as part of the Core System for our passenger facing solutions. Bytemark is committed to developing transportation software that can be utilized by all segments of the international communities we serve. There are 100s of millions of aging adults and persons living with disabilities globally, and transportation is essential to increased productivity and independent living.

Bytemark's Accessibility guidelines are based on Section 508 of the Rehabilitation Act of 1973 as amended 1998, and the World Wide Web Consortium's (W3C) Web Content Accessibility Guidelines version 2.0 guidelines at the AA level (WCAG 2.0 AA). Additionally, we conform to international guidelines, such as the European Accessibility Act and Accessibility for Ontarians with Disabilities Act; while also upholding US State and Local Electronic Information Technology ("EIT") mandates for vendors contracting in business with government funded agencies.

ADA Federal Compliance

- New Federal compliance requirements for mobile applications are in effect as of January 17, 2017
- Federal compliance requirements for mobile applications will be enforced starting January 18, 2018

From inclusive product design and usability features, to our developers utilizing the latest techniques for the Web and Mobile Accessible coding, with thorough review and Quality Assurance testing, Bytemark has defined a multi-step Accessibility implementation for all our products.

1.7.2.5.5.1 Highlights of Bytemark's Accessibility commitment

Operating system (OS) based implementation for screen reader usage for our iOS and Android applications.

- Color and Contrast
- Dynamic text and responsiveness
- Language and Content
- Navigation, Focus and Error Handling
    - Interface designed for consistency across screens
    - No Focus Traps
    - System auto-reads non-actionable yet important info: Expiration Date/Time
    - Labels have been substituted for text on screen

Web Accessibility formulary including specialized components for specialized products using AngularJS and WordPress.

- Animation functionality and compliance for our proprietary V3 tickets
- Development of a Corporate Accessibility policy integrated with the Corporate Product Roadmap
- Comprehensive Quality Assurance manual and automated testing
- Developing user testing and research sessions; as well as full participation with the Accessibility community and professional sectors worldwide.
- In an enduring commitment to corporate responsibility and sustainability, Bytemark is poised as the industry leader in these initiatives.

1.7.2.5.6 System Security

Bytemark was formed out of a former consulting company focused on mobile payments. From that experience, we have focused on three tenants:

- Secure customer data
- Secure payments
- Secure tickets

Bytemark's focus on secure ticketing is demonstrated by our patent portfolio which focuses on securing tickets via visual, electronic, and contactless methods. Our issued patent on visual ticketing encompasses 34 claims for validating a computerized ticket.

1.7.2.5.6.1 Restricted Access

Only a limited group of administrators with our company can access production environments on a need-to-know basis. All individuals with such access undergo background checks, must be thoroughly trusted, and must acknowledge in writing the importance of securing the system's data, why the data needs to be secured, and the ramifications of any leak, compromise, or breach.

1.7.2.5.6.2 Mobile Payment Security

No personal information—particularly payment card information—is stored within the mobile applications. Bytemark's proven methods of protecting Personally Identifiable Information (PII) ensure that the card payment information and other personally identifiable data is handled in a secure manner and may not be compromised during processing or during storage. All communication between the mobile applications and the back office are secured over SSL channels and is monitored at all times for security breaches or unusual activity.

1.7.2.5.6.3 In-app Error Tracking

Mobile application monitoring software, Crashlytics, is used to send alerts to our development teams about potential issues that arise in production. Crashlytics is used by numerous top mobile app development companies to monitor when crashes occur as well as what the root cause of the crash. Crashlytics provides deep and actionable insights, even the exact line of code the app crashed on. We use Crashlytics real-time analytics to quickly address issues as they arise.

Crash Reporting — It will record every single crash and its stack trace

Crash Logs — when a user causes a crash in-app, all the information about the crash is sent to Crashlytics's servers and provided to our developers

Crashes are monitored and their cause recorded. If a specific crash occurs for a large subset of users the issue can be addressed before it becomes something users have a large-scale complaint about.

Crashlytics is part of the mobile toolset we use to constantly monitor how users are using the app. Bytemark engages in an extensive QA and customer feedback process to monitor User Experience flow, customer retention, repeat usage, where customers stop using the app and whether the customer encounters a technical issue that is specific to them or part of what could be a subset of usage problems.

This data is quickly translated by our support team to our developers for analysis, repair and submission to the QA team. We aim to deliver constant improvements on our consumer facing apps and the backend infrastructure as the feedback is provided to us. Bytemark's platform is dynamic and constantly improving based on new customer requests, the latest security threats and improvements in technology solutions for the end user. System improvements are paid for by recurring maintenance & support costs, new feature requests and customizations will be considered a change order.

On the whole, Bytemark constantly strives to improve our platform in meaningful ways that ensure our customers have software that does encounter issues of obsolescence. With software delivered to consumer devices that are changing every few months with new mobile operating systems and new functionality, it is insufficient to deliver a piece of software and assume its function for the next 5-10 years with only minimal or minor updates – as has been common in ticket vending.

Bytemark's platform is dynamic and always improving as part of our administrative responsibilities because we feel mobile-driven ticketing solutions will drive the transportation industry over the next decade. This can only happen with a platform that is routinely reviewed and updated to meet evolving consumer market expectations of what an app does on their mobile device.

1.7.2.5.7 Hosting & Uptime

The Bytemark Platform is a PCI/ISO-compliant, three tiered, load balanced, and auto-scaling system. These segments are divided by functionality, with redundancy across data centers. Amazon Web Services (AWS) provides us with an unprecedented toolbox to provide scalability not only locally but globally through Amazon's network operations centers spread around the world. Scaling procedures and network architecture is reviewed bi-monthly to identify performance bottlenecks and to ensure that load is being distributed effectively.

A key component of the AWS platforms that we utilize are load balancers. Load balancers can automatically distribute incoming traffic across our multiple API pool of server instances. They scale automatically to provide the amount of load balancing capacity needed in response to the actual incoming app traffic. Load balancers also provide fault tolerance by automatically rerouting traffic away from unhealthy server instances in the event of software instability or issues on the underlying hardware. The load balancers will restore traffic back to those instances

automatically when they come back online. Multiple API instances can be allocated based on the amount of incoming traffic as well.

1.7.2.5.8 Bytemark's Project Management Methodology

The Project Manager, and lead technical resource have the overall authority and responsibility for managing and executing this project per the appropriate parameters. Project Management Body of Knowledge (PMBOK) methodology is heavily employed throughout the project lifecycle. This includes full implementation of the practices of: risk management, project scheduling, issue identification, status reporting, change control, resource planning, communication planning and other industry practices to successfully bring projects to completion.

The project team will consist of our personnel from the development group, PMO and testing group. The project manager will work with all resources to perform project planning. All project and subsidiary management plans will be reviewed and approved by the project sponsor. The project sponsor will also make all funding decisions. Any delegation of approval authority to the project manager and systems architect should be done in writing and be signed by both the project sponsor and project manager. Tool usage will range from traditional task tracking software, Gantt chart creation, Risk Register creation and monitoring software.

A dedicated Project Manager will be responsible for providing timely project updates, reports and serve as central contact person for all project related activity. All project related documentation will be readily available to the Agency and their partners. Documents will be stored in a secure but shared workspace and will have appropriate versioning. Documents will be produced in widely accessible format.

1.7.2.5.8.1 Project Kickoff

Prior to an onsite kickoff meeting, Bytemark in partnership with INIT and Anthro-Tech will conduct onboarding evaluation to aid in jumpstarting the project. The onboarding evaluation is meant to gather basic information that will be discussed during the onsite assessment. Key members of the Bytemark staff shall kickoff the project by meeting with key stakeholders. The focus of this meeting will be to review the scope of the project as well as to provide Bytemark with the agency's long-term vision and goals. We will review the onboarding evaluation and complete any outstanding items with the appropriate agency departments. A successful project kickoff is one of the most vital stages of the project and it is important all stakeholders are available and participate.

Bytemark in partnership with INIT will also go through a fit-gap analysis to determine where business requirements align with existing platform functionality. The RFP scope and the compliance matrix shall serve as the basis of the fit-gap review to determine what components need to be customized to meet the ORCA's needs. Efforts will be made to make alternative

recommendations where necessary to meet business requirements utilizing existing functionality or features.

1.7.2.5.8.2 System Implementation Plan

An implementation plan will be put in place during the Startup Phase of the project, here is a high-level sample implementation plan:

Upon Notice to Proceed, Bytemark will begin preparations for the project including planning out staffing levels and incorporating ORCA's anticipated development into our project development cycle.

1) Before kickoff, Bytemark will conduct an onboarding evaluation to aid in jumpstarting the project
2) Bytemark will conduct a project Kick Off Meeting with the project's key stakeholders. At this time, we will review the scope of the Project as well as review long-term goals for the agency. Together we shall review the onboarding document and complete any outstanding items
3) Bytemark will work with Anthro-Tech and stakeholders in the design process
4) Bytemark will quickly take the information provided during the design phase to create prototypes and testable features
5) Bytemark will develop an iOS and Android apps with appropriate branding, interface requirements, and functionality
6) Bytemark will conduct system integration with INIT's MOBILEvario system
7) Bytemark, in partnership with INIT will train agency staff on all facets of the system required to fully test mobile functionality
8) Bytemark will coordinate with ORCA staff to carry out internal testing of the apps
9) Bytemark will work with ORCA staff to coordinate public testing of the apps (if required)
10) Bytemark will launch the apps to the public

Throughout the project, Bytemark will gather feedback from all stakeholders to refine processes and our systems.

1.7.2.5.8.3 Approach to Completing Work on Time

The project Coordinator is responsible for resource management across the portfolio of projects. The Project Coordinator and Project Manager will work together to ensure that the appropriate resources will be assigned accordingly to the project, in order to meet agreed deadlines and deliverables.

The common adage that everything takes longer than you think rings especially true for large projects with multiple vendors. There will always be a wide range of goals and to pursue all of them will take considerable resources by us *and* inside the agency – project management, QA,

stakeholders input and so on. It is easy to underestimate internal resources that are required that may pull staff away from their already burdened schedules.

With the release of a mobile ticketing app, the agency will have a very powerful and flexible tool for engaging with passengers that internal staff will be excited to tap into. There will be internal pressure to advance individual agendas to add features and modifications to the base contract. One lesson is to focus on the original scope to ensure that it is completed on time and within budget. Shifting priorities and seemingly "minor" change orders can stack up and disrupt the original schedule.

1.7.2.5.8.4 Change Management Plan

The following steps comprise Bytemark, Inc.'s change control process for all projects and will be utilized on the project:

- Identify the need for a change (Any Stakeholder)
- Requestor will submit a formal change request in writing to the project manager
- Log change in the change request register (Project Manager)
- The project manager will maintain a log of all change requests for the duration of the project
- Conduct an evaluation of the change (Project Manager, Project Team, Requestor)
- The project manager will conduct an evaluation of the impact of the change to cost, risk, schedule, and scope
- Submit change request to Project Sponsor
- If a change is approved by the Project Sponsor, the project manager will update and re-baseline project documentation as necessary as well as ensure any changes are communicated to the team and stakeholders

Bytemark shall perform, but is not limited to, the following technical services under change orders or task requests:

- Provide requested training of agency personnel
- We will submit a customized training plan for any specific training a task order will indicate a necessity for
- Extensions to functionality
- Assistance in the selection of alternative components and or software to those originally provided for the Platform
- Modifications to the look and feel of the customer application

1.7.2.5.8.5 Risk Management

An emphasis on Risk and Roadblock Management provides assurance that our organization can create and implement an effective plan to prevent losses or reduce the impact if a loss occurs. A good risk and roadblock management plan includes strategies and techniques for recognizing and correcting these threats, solutions for both preventing and solving bad situations, and indicates financial opportunities. Issues and potential roadblock are evaluated, mitigated against and plans communicated.

The Project Manager will determine what action should be taken for each risk as it is brought to attention through weekly team meetings and database reports. The Agency Project Manager shall determine whether to keep the risk, delegate responsibility, or transfer the risk responsibility up the project organization chain. The Project Manager, if necessary, may transfer a risk(s) to external organization if that organization is best suited to handle the risk.

1.7.2.5.8.6 Quality Management / Test Plan

All members of our project team will play a role in quality management that is executed in conjunction with Test Planning. It is imperative that the team ensures that work is completed at an adequate level of quality from individual work packages to the final project deliverable. The following are the quality roles and responsibilities for the project:

- The Project Manager is responsible for approving all quality standards for the project. The Project Manager will review all project tasks and deliverables to ensure compliance with established and approved quality standards. The Project Sponsor will sign off on the final acceptance of the project deliverable.
- The Project Manager will work with the project's quality specialists to establish acceptable quality standards. The Project Manager is also responsible for communicating and tracking all quality standards to the project team and stakeholders.
- The Quality Specialists are responsible for working with the Project Manager to develop and implement the Test Plan, which informs Quality Assurance. Quality Specialists will recommend tools and methodologies for tracking quality and standards to establish acceptable quality levels. The Quality Specialists will create and maintain reports from QA testing that will be delivered to project stakeholders.
- All stakeholders will be responsible for assisting the Project Manager and Quality Specialists in the establishment of acceptable quality standards. They will also work to ensure that all quality standards are met and communicate any concerns regarding quality to the Project Manager.

Quality control for the project will utilize tools and methodologies for ensuring that all project deliverables comply with approved quality standards. The Quality Specialists will assist the

Project Manager in verifying that all quality standards are met for each deliverable. If any changes are proposed and approved by the Project Sponsor, the Project Manager is responsible for communicating the changes to the project team and updating all project plans and documentation.

1.7.2.5.8.7 Resources & Ability to Deliver for Next Generation ORCA

Bytemark has continued its commitment to servicing clients in the Puget Sound Region and the West Coast more broadly by establishing a satellite office in Seattle. We have recently hired a full-time project manager who is based in Seattle (Adela Sebestova, resume attached). Max Letaconnoux, who managed the *Transit Go Ticket* mobile application deployment and is the lead Project Manager for all Bytemark INIT integrations will continue to manage the project for Next Generation ORCA. Adela will provide onsite support as needed.

1.7.2.5.9 Additional Project References

Additional references for our *Transit Go Ticket* mobile app deployment and ability to deliver solutions for ORCA:

[redacted] Manager, Customer Communications & Services. King County Metro Transit Division

Email: [redacted]

Phone: [redacted]

[redacted]: Business & Finance Officer. King County Metro Transit Division

Email: [redacted]

Phone: [redacted]

[redacted]: Transit Chief - Customer Services & Fare Media Sales. King County Metro Transit Division

Email: [redacted]

Phone: [redacted]

[redacted] Director IBI Group. Lead consultant for TGT Project.

Email: [redacted]

[redacted]

1.7.2.5.10 [redacted], Seattle Based Project Manager

[redacted]

1.7.2.6 Commitment to Innovation – Bytemark & Siemens Mobility

Siemens AG is a global powerhouse focusing on the areas of electrification, automation and digitalization. Siemens has approximately 348,000 employees in more than 200 countries. In fiscal 2016, it generated revenues of $88.1 billion. Siemens' Mobility Division develops new intelligent mobility solutions to increase the availability of infrastructure, optimize throughput and improve passenger experience.

As of November 2017, Bytemark is a Siemens Mobility company. The Siemens Mobility team provides us with a tremendous group of industry experts in the fields of fare collection, real time information systems, and transit management software

Bytemark has won the following industry awards:

- Ticketing Technology of the Year in 2017 from Transport Ticketing Global
- Best Ticketing Solution of 2016 by Juniper Research
- 2014 Best of Texas award in the Best Mobile/Wireless Project Category for its mobile ticketing deployment for Austin's Capital Metropolitan Transportation Authority.

1.7.2.6.1 Technical Flexibility

Bytemark's mobility solutions strive to be a technology & system agnostic solution that can integrate into existing fare collection and transit ITS systems. One of our greatest strengths is our experience integrating with a diverse set of vendors including Trapeze, Genfare, Xerox-Conduent, INIT, Kapsch, and Thales. No other mobile ticketing company has integrated with as many third-party fare collection vendors as Bytemark.

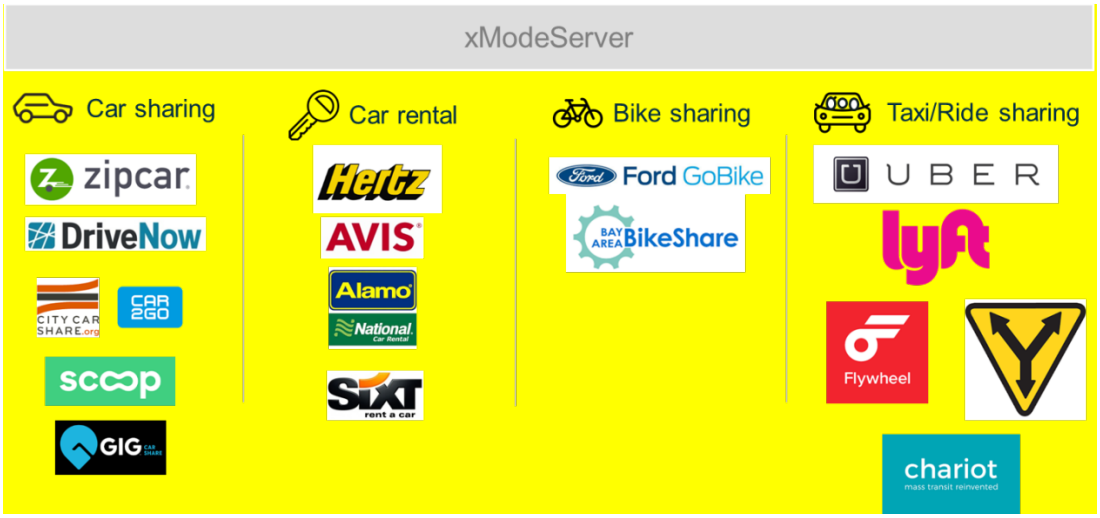
1.7.2.6.2 Siemens Mobility Deployments in North America: Bytemark and HaCon

HaCon creates and develops high-quality software solutions for traffic, transport and logistics. HaCon has established itself as a leading player for planning, scheduling and information solution and was acquired by Siemens in 2017. They have over 30 years of experience and a dedicated team of 270+ IT and transport planning specialists. In 2015, the Massachusetts Institute of Technology (MIT) honored HaCon as one of the "50 Smartest Companies" worldwide. HaCon's timetable information system helps millions of passengers stay up to date on their connections. Combining different means of public and private transport, HaCon's journey planners handle over 100 million requests per day, providing multimodal transport information in more than 25 countries.

Bytemark and HaCon have deployed combined mobile ticketing and trip planning solutions to clients since 2016. Together we have provided our clients best of breed mobility solutions that offer seamless intermodal trip planning and ticketing. Bytemark and HaCon have developed or are developing joint solutions for Austin's Capital Metro (CMTA), New York City Ferry, Des Moines Area Regional Transit (DART), and San Mateo County Transit District (SamTrans).

1.7.2.6.3 Integrations with Third Party Mobility Provider

The Siemens Mobility Platform has already successfully integrated with a large number of shared mobility providers, like Uber and Car2Go, see picture below:



Services can be integrated for:

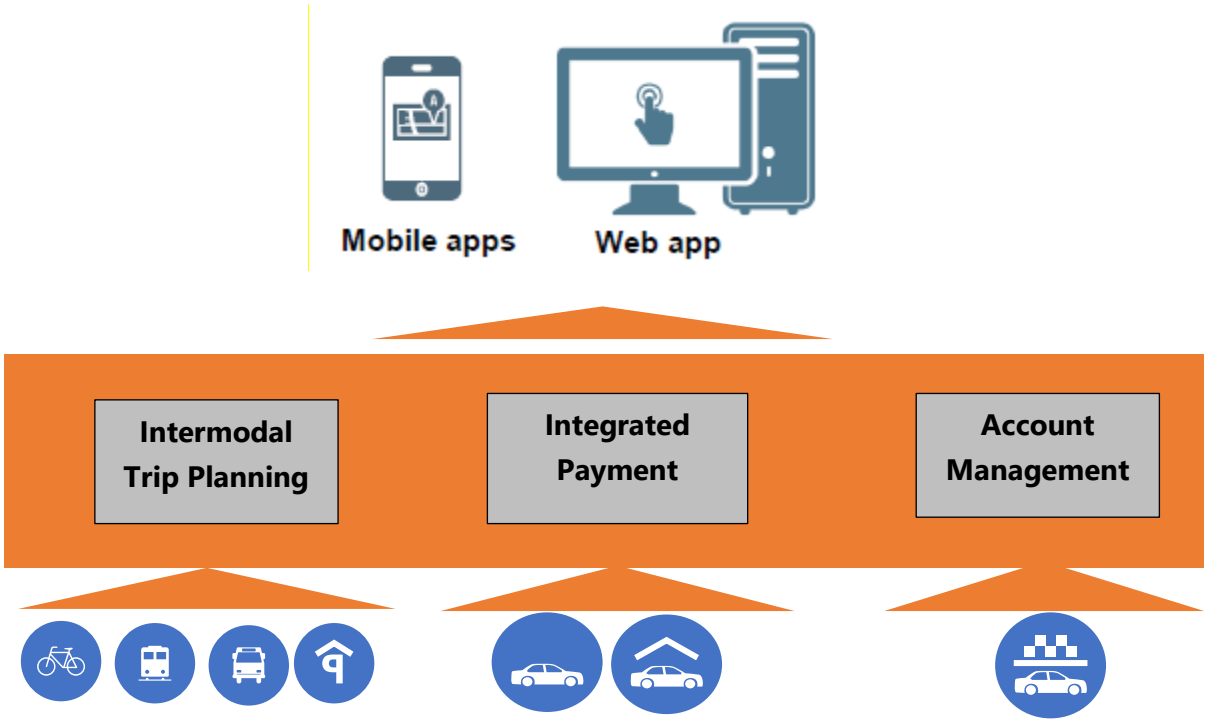
- Fare information and ticketing
- Estimated fare calculations
- Advanced mobility services like routing for walking, bike or car and car/bike sharing, carpooling or Park & Ride

1.7.2.6.4 Mobility as a Service Architecture

The Mobility Platform consists of three primary systems.

- Intermodal Trip Planning
- Integrated Payments
- Account Management

Bytemark and HaCon are delivering a transit centric MaaS Platform. The difficulty in any such MaaS offering is not so much in the technical implementation but in brokering agreements between disparate vendors. Mobility providers will all offer payment and account management systems with preference for their own services. Intermodal trip planning is the most technically challenging but easiest to get buy-in from multiple providers.

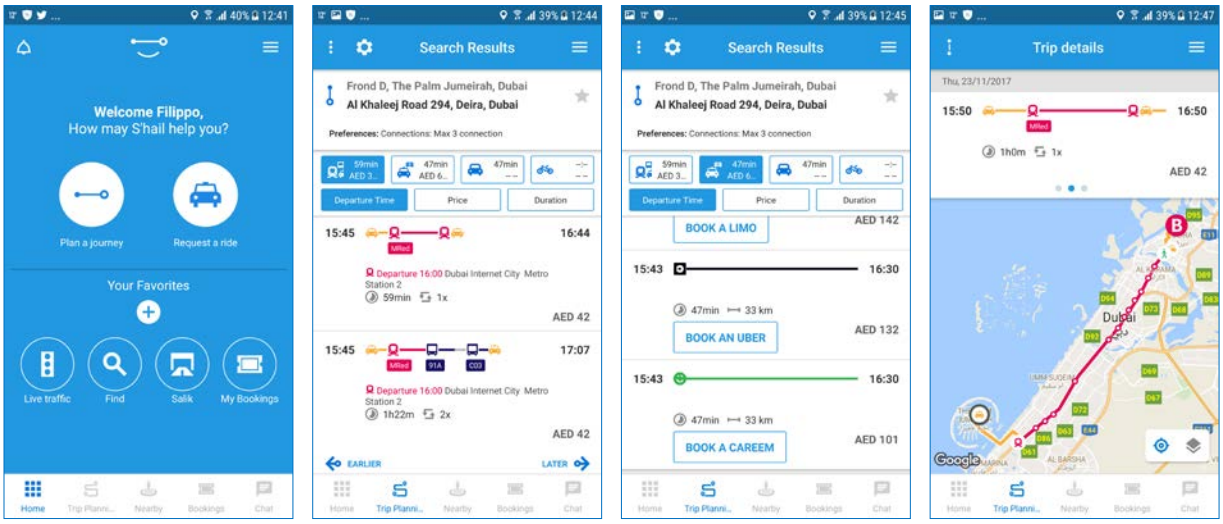


In both Dubai and Switzerland Siemens Mobility has deployed advanced integrated mobility solutions. Please see case-studies on the following pages for more information.

1.7.2.6.4.1 Siemens Mobility – Global Innovation: S'hail – Dubai

The S'hail app for Dubai offers multiple modes of travel including bus, train, taxi, Uber, Careem. Routing options are provided for a large network a transit types:

- 79 metros
- 3000 buses
- 9500 taxis
- 11 trams
- 5 ferries
- 1 mono rail



We provided the intermodal trip planner, payment and tarrif engine for Dubai's transit network, Roads and Transport Authority.

The S'hail app features:

- Unbiased, objective routing options
- Intermodal routing: taxis are used in combination with metro and buses to cover first / last mile
- Direct interface with travelers
- Direct access to a large base of mobility data

1.7.2.6.4.2 Siemens Mobility – Global Innovation: Swiss SBB

We have delivered an integrated mobility application for Swiss Federal Railways (SBB). The mobile application provides a front-end that allows users to trip-plan and book services from transit, bikeshare, and car share services.

Integrated, Intermodal App

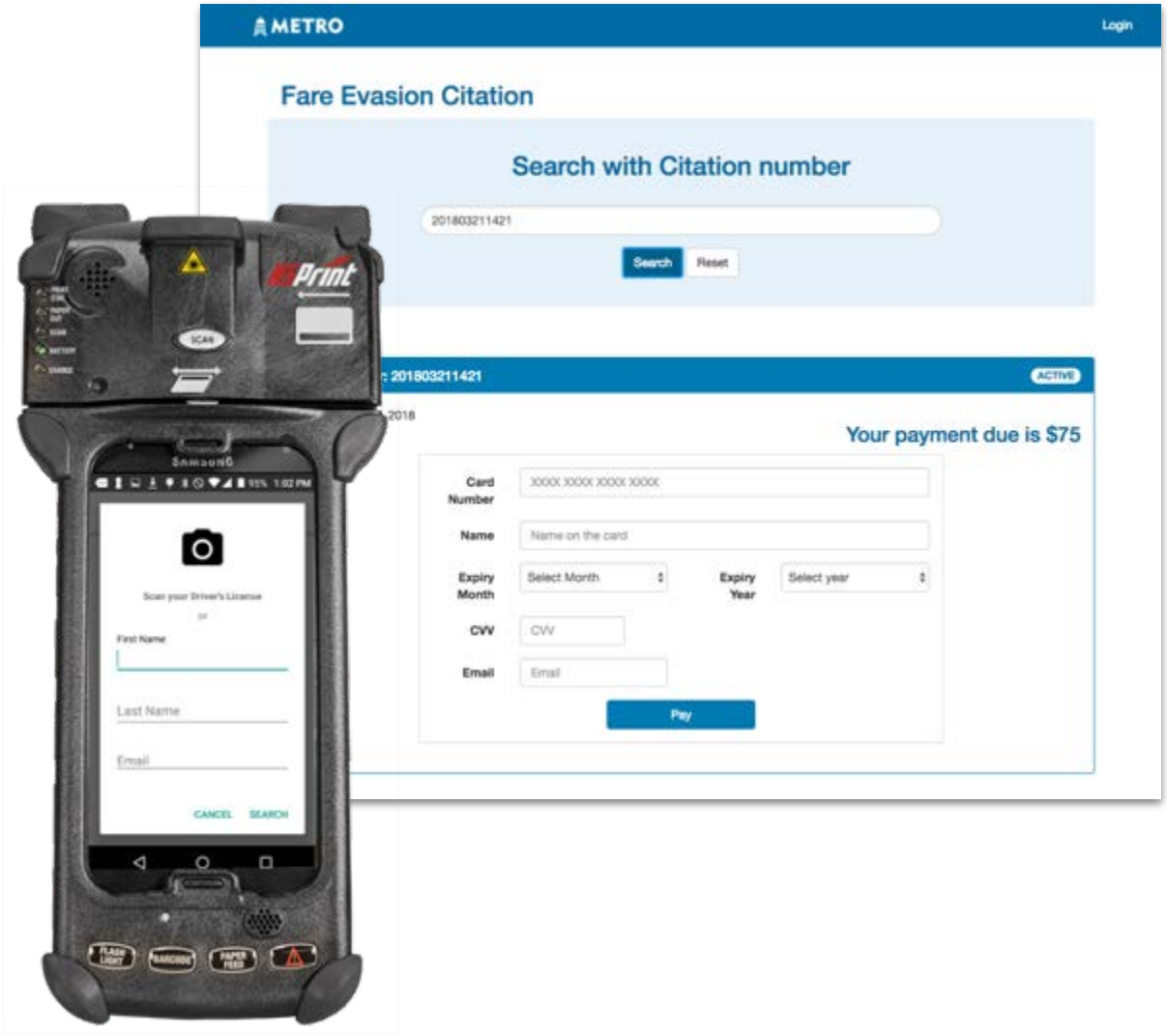
- ***Transit (Train, bus, metro, trams) Plan Data, accessibility, occupancy, booking confirmation***
- ***P+Rail: location, prices, booking confirmation***

- ***Car-sharing Availability, locations, car type, price, booking***
- ***Taxi Availability, price***
- ***Bike-sharing Location, availability, price***

1.7.2.6.5 Bytemark – New Products

1.7.2.6.5.1 Fare Evasion Enhancements

- Web portal for paying citations
- Validate City of Austin, Travis County, and Austin Community College tickets, and UT Austin IDs
- New handheld hardware with printer
- Magstripe, barcode, and Smartcard validation
- Back office enhancements



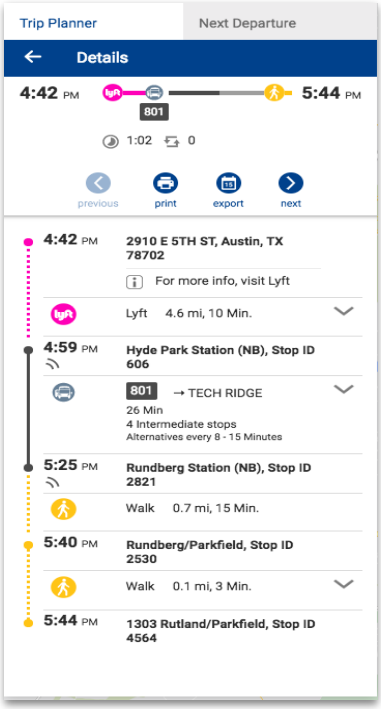
1.7.2.6.5.2 Merchant Mobile: Point-of-Sale

- Bytemark Merchant Mobile POS features:
  - Order entry
  - Payment acceptance

- Advanced Mobile Payment 8200
  - Chip cards
  - Apple Pay and Google Pay
  - Contactless
  - Magstripe cards
  - PA-DSS certified
  - EMV certified
  - Built-in Printer
  - Smartcard reader
  - Barcode scanning

1.7.2.6.5.3 Multi-Modal Trip Planner Enhancements

- **Multi-Modal** trip planner that combines ridehail, bus, train, and bikeshares
- **Uber** and **Lyft** trip planning
- **Tier 2 Hacon Support** located in Austin



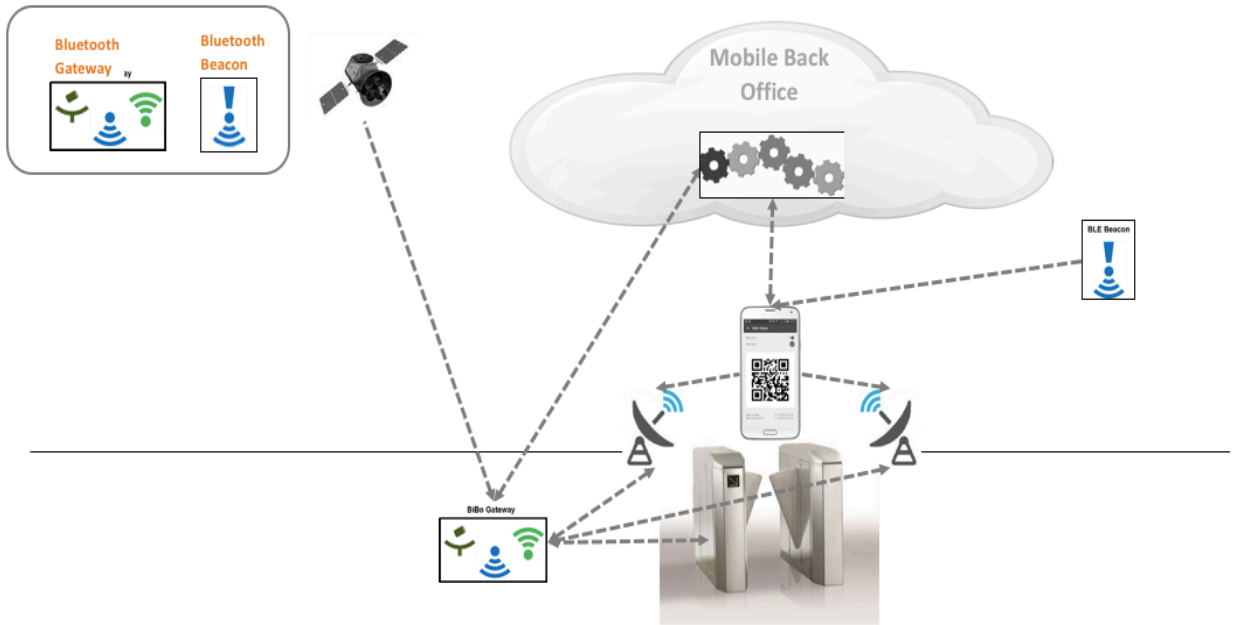
1.7.2.6.5.4 Airgate: Hands-Free Faregate

Bytemark's Walk-In Walk-Out solution is "hands-free" validation through existing ticket barriers rather than doing away with the barrier altogether. The "AirGate" solution radically simplifies the validation process by automation. Bluetooth beacons wake up the customer device and app as they enter the station, presenting valid tickets to the screen for activation or the purchase screen in the case they don't have any valid tickets.

Bluetooth antennae in front of and above the ticket barrier then monitor the approaching customer and data exchanges determine whether the customer has a valid ticket or not. A 3D imaging camera also determines whether they are the only person in the gate lane or not.

Once the customer has arrived in front of the flap barrier the "AirGate" system sends a command signal to the gate for it to remain in the open position for the customer or to close in the case of an invalid customer. This can also operate in reverse where the barrier is normally closed if desired.

- Walk-in Walk-out validation system
- Keep your phone in your pocket
- Uses Bluetooth for location tracking
- Bolt-on system
- Winner of "Ticketing Technology of the Year" at the 2018 Transport Ticketing Global Awards in London



1.7.3 [redacted] Mobile AFC Apps

[redacted]

INIT will approach the design of the apps in partnership with Anthro-Tech and the efforts undertaken to define and establish a common UI/UX interface for ngORCA.

Both agency apps (Inspection and Validation) will use the Android OS. The apps will be managed using a Mobile Device Management system (see chapter 1.8.1.9.12).

The NFC capability of the Android phones that are used for the inspection and validation app will be used to read the closed loop cards and the Google virtual cards. If there is a use to read 2d barcodes (fallback scenario for Apple virtual cards), [redacted] uses commercial 2d barcode libraries to enable a state of the art experience when scanning barcodes.

[redacted]

- [redacted]
- [redacted]
- [redacted]

1.7.4 INIT's Agency Focused, Cost-Effective Licensing Agreements

The mobile applications and websites supplied by these subcontractors will be licensed to Sound Transit in the same manner as other INIT supplied software. described in the ORCA Commercials & Legal Items "INTELLECTUAL PROPERTY PROVISIONS" section of Systems General Conditions.

1.8 INIT's Back office: Open-Architecture and Interchangeable Modular Applications

Specifically for Back Office (Scope of Work Section 6):

a. Describe in detail each component of the proposed back office including details such as:

i. *System hardware*

ii. *Interfaces*

iii. *Operating system*

iv. *Databases*

v. *Applications software*

vi. *Supported functionality*

b. *Identify any proprietary hardware, interfaces or software utilized, indicate whether industry standard equivalents are available, and if so, describe the benefits justifying use of the proprietary product.*

c. *Considering the information provided in Scope of Work Section 6.3, explain in detail the reasoning for choosing the proposed CRM solution including why other solutions were not proposed. For example, if you are proposing a CRM solution that does not leverage another agency's existing CRM application, explain why the agency's existing CRM software was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions.*

d. *Considering the information provided in Scope of Work Section 6.7, explain in detail the reasoning for choosing the proposed financial management solution including why other solutions were not proposed. For example, if you are proposing a financial management solution that does not leverage another agency's existing financial management application, explain why the agency's existing financial management application was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions.*

e. *Describe in detail the proposed systems for providing the full range of services including:*

i. *Monitoring and management of field devices*

ii. *Authorization of payments, debit and credit networks*

iii. *Data collection from devices*

iv. *Timely and accurate transaction processing*

v. *Clearing and settlement between participants*

vi. *Third-party billing and funds collection*

vii. *Financial reconciliation*

viii. *System management and monitoring*

ix. *Indicate which applications and functions are already operational, and which have to be developed. Also, indicate which applications have been purchased from industry vendors and which have been or will be developed on a proprietary basis.*

f. *Describe the proposed reporting system and the types of reports that will be provided to meet the system needs including KPIs, device health, and asset inventory reporting.*

g. *Describe how the agencies will be able to generate custom reports using provided data and*

standard report generator tools.

INIT's back office system is comprised of MOBILEvario (which provides the fare collection specific functions), and Commercial-Off-The-Shelf (COTS) systems – such as, the Customer Relationship Management (CRM) and Financial Management Application (FMA). This section related to the back office generally follows the order of the Scope of Work Section 6, Back Office Applications.

The information requested above in 8.e.i-ix is addressed in the associated subsystem (for instance, subsection i, "Monitoring and Management of Field Devices", is included in the System Manager section (i.e., Section 1.8.5).

1.8.1 System Hardware

The proposed Fare Collection System requires a robust network and information technology infrastructure to provide system availability and performance expected by consumers. The infrastructure and systems proposed below meet or exceed functional requirements while considering agency provided constraints and assumptions. While INIT is confident that the hardware and software proposed below meet requirements; INIT recognizes the rapid pace of technological advances between initial concept and design review may introduce desirable modifications. Further, the duration of the contract ensures technological advancement whose impact and inclusion cannot be estimated. INIT intends to provide the current available technologies, software and components within the offered price framework that meet the system requirements. Further changes and modifications may be necessary due to product obsolescence, incorrect assumptions, or additional constraints added by the agency. Iterative, collaborative design modifications can be made with the input of the ORCA agencies' during design specification and review phase.

1.8.1.1 Concept of Operations

The next generation ORCA information technology back office design consists of a highly available server, network and storage infrastructure built on enterprise class hardware located in two separate data centers in the Downtown Seattle and Tukwila area and a third, out-of-region data backup location. INIT recommends locating both operating datacenters within the ORCA operating region to provide extremely low-latency options between all agency networks and the back office infrastructure. Further benefits extend to consumers as response times dependent on latency-variable cellular networks. With two local datacenters connected by a low-latency network, INIT recommends a hybrid approach to business continuity and disaster recovery by combining load balancing, data replication, and failover capabilities into a resilient and flexible infrastructure.

The proposed back office servers are configured in a highly available virtual cluster providing high availability, performance and redundancy. The capacity and capability of the server and storage infrastructure is duplicated at the secondary site. Redundant networking load balancers, gateways and switches allow for the highly available, stretched cluster between these two separate datacenters. This allows for the parallel operations of external back office applications such as customer facing websites, vehicle facing services and other API services. Standalone systems and databases operate at a single datacenter with fluid migration or failover to the secondary datacenter. Connectivity between the agencies networks and the back office locations can be accomplished through a variety of wide area connection options including carrier grade options [redacted].

While a multi-datacenter strategy provides premium disaster avoidance and resilience, additional data protection is required to ensure against data loss in the unfortunate and rare event of a regional disaster. This is accomplished through backup technology built specifically to support a virtual infrastructure and move it to a secondary, geographically different location. This strategy supports the data-protection 3-2-1 rule ensuring, 3 copies of the data, 2 different storage types and 1 offsite copy. Data and virtual machine image backups will be performed at one of the Seattle locations, compressed, de-duplicated and copied to the primary site and replicated to the secondary site after being compressed and de-duplicated. This level of data protection ensures recoverability following a disaster which requires recovery or data discovery from a previous point in time.

All hardware and software required includes support and warranty throughout the duration of the contract and hardware refresh and/or upgrades have been included at regular intervals throughout the duration of the expected operational period.

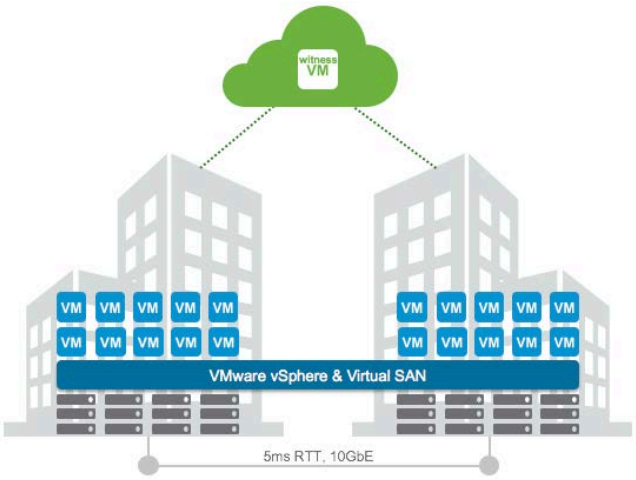
1.8.1.2 Servers

The physical servers providing the compute resources of the multi-site, virtual cluster supporting all back office operations are Dell PowerEdge R740, with dual Intel Xeon Gold 5118, 12 core processors and 256GB of RAM. VMware will be installed and run from 2 redundant, 64GB SD Cards. Further enterprise class redundancy extends to dual, hot-plug power supplies, redundant storage controllers, and redundant network connections. The specific number of host servers and their final configurations will be determined during design review based on resource requirements and available technology available during the implementation phase.

The physical servers providing the compute resources for the testing facility environment and out-of-region data backup locations are Dell PowerEdge R730xd, with dual Intel Xeon, 8 core processors and 128 GB of RAM. VMware will be installed and run from local storage comprised of a combination of SSD and NL-SAS drives providing enough capacity to run all virtual machines or store the off-site data.

1.8.1.3 Storage

Enterprise class storage using industry standard RAID and Hot Spare drive capacities is configured in a stretched storage configuration across both datacenters. A stretched storage cluster is implemented in specific hosting scenarios when downtime is not acceptable and application owners look to infrastructure solutions to provide disaster avoidance and recoverability generally unavailable at any other technology layer. While specific storage consideration and design will not occur until design review, stretched cluster, replication and redundancy configurations provided by hardware such as the HPE 3PAR 8200 or VMware vSAN technology will be used to create the highly available back-end storage, accessible from either primary or secondary datacenters. Using tiered storage strategies combining solid state drives (SSD) and near-line SAS (NL-SAS) drives, the stretched storage solution provides the right performance and reliability of the back-end storage, to whichever virtual machine or application needs it, wherever that service happens to be running. Capacities are configured in a way that a failure of a drive, server, array, or site, will not impact the availability of the customer facing back office, and will automatically triage any affected stand-alone virtual machines to surviving resource hosts. This effectively creates a self-healing storage strategy capable of automatically responding to and triaging traditional availability-limiting events.



Storage

1.8.1.4 Network

Enterprise class networking services for data and storage networking is provided by Cisco Nexus 3000 10GB switches deployed in high available pairs in both back office datacenters. The Cisco Nexus 3K device family are high-performance, high-density 10Gbe data center switches running Cisco's NX-OS providing both layer 2 and layer 3 switching and routing capabilities at ultra-low latencies. As dedicated and fully managed devices, the Nexus switches provide single-tenant

networking with enterprise class features enabling the multi-site routing and failover between the datacenters.

1.8.1.5 Firewall

Firewall and gateway security is provided by a highly available pair of Cisco ASA 5515X firewalls. Cisco, the leading manufacturer of enterprise-class networking equipment, has extended the ASA firewall product line beyond traditional layer 3 firewalling, introducing next generation features such as integrated intrusion prevention capabilities. Each datacenter site receives a pair of CISCO ASA devices configured in an active/standby configuration.

1.8.1.7 Operating System

INIT's back office infrastructure servers leverage Microsoft Windows Server 2016. Windows Server offers a proven enterprise class datacenter platform that can scale to run the largest workloads. Windows Server will provide the operating system, file management, security, directory services, and DNS services to the INIT applications and supporting infrastructure. INIT licenses Windows Datacenter Server allowing for unlimited virtual machines and virtual machine migrations throughout the infrastructure.

1.8.1.8 Databases

INIT's back office infrastructure is built on enterprise class database technology from Oracle (Oracle Enterprise Edition) which provides services for the storage, organization and retrieval of data. Oracle is a premier relational database system underlying critical databases around the world. INIT implements Oracle within a virtualized environment which provides improved capacity, availability, flexibility, scalability and recoverability for the system.

Capacity and Performance - Database capacities are scalable and flexible and provided by the underlying enterprise-class storage which is designed for high-performance and high availability through redundant drives and storage processors.

Security – [redacted]

High Availability – [redacted]

Flexibility – Implementing Oracle within the virtual environment allows for high flexibility of resource allocation as well as creating either permanent, temporary or ad-hoc test environments from production resources. The Shareplex solution can also be used to provide improved flexibility of data access by facilitating transaction level data replication to test environments, data warehouse environments, or other non-production, database instances.

Scalability – Implementing Oracle within the virtual environment allows INIT to scale database size and performance based on observed need. Allocating additional resources is both simplistic and quick, allowing for efficient allocation of resources on demand instead of allocating and dedicating unused resources up front.

Recoverability - In addition to the high availability and recoverability provided by Quest Shareplex, a virtualized Oracle instance also allows for quick and efficient backup and recovery. Leveraging virtualization specific backup technologies, the Oracle database is capable of being backed-up on an aggressive schedule to a separate off-site storage location. These quick, non-production impacting backups provide an additional layer of protection ensuring that any catastrophic loss of system will have a minimal impact to data loss.

1.8.1.9 Back Office Applications Software

The following chapter focuses on the back-office application software.

1.8.1.9.1 Microsoft Windows Server

Servers will be equipped with Microsoft Windows Server 2016. Windows Server offers a proven enterprise class datacenter platform that can scale to run the largest workloads. Windows Server will provide the operating system, file management, security, directory services, and DNS services to the INIT applications and supporting infrastructure.

1.8.1.9.2 [redacted]

[redacted]

1.8.1.9.3 VMware vSphere Enterprise Plus 6.5

VMware is a leader in virtualized infrastructure solutions and has been widely adopted across both large and small IT infrastructures. VMware abstracts server hardware resources and makes them shareable among the virtual machines that comprise the Fare Collection system. This helps decrease application downtime through efficient scheduling of resources, capacity optimization, workload isolation, and data protection. VMware is a key component of providing highly available, resilient, self-healing private cloud architecture.

VMware's High Availability (HA) clustering reduces the cost and complexity of traditional clustering solutions while providing cost-effective failover protection against hardware and operating system outages. HA is used to reactively, but automatically restart a failed VM on a surviving host. VMware's vMotion live workload migration tool allows moving an entire virtual machine from one physical machine to another without downtime. This seamless migration transfers the virtual machines active memory and precise execution state between physical hosts.

VMware vCenter provides centralized management of virtualized resources including hosts, storage and networks. It provides unified management of all hosts and VMs from a single console and aggregates performance monitoring of clusters, hosts, and VMs. The management console provides key performance indicators, predictive analytics, performance management and capacity analysis. vCenter is a key component of VMware's core feature set and its management features are available through a web browser. INIT intends to deploy vCenter Server with VMware's purpose built VCSA appliance in a High Availability configuration.

1.8.1.9.4 [redacted]

[redacted]

1.8.1.9.5

1.8.1.9.6

[redacted]

1.8.1.9.7 [redacted]

[redacted]

1.8.1.9.8 Solarwinds Network Performance Manager (NPM)

SolarWinds NPM is an essential component of the monitoring infrastructure. NPM provides network mapping, management, performance metrics and fault management for the network devices and connectivity required for system service delivery. Additional capacity forecasting and trend reporting provide actionable, proactive information allowing engineers to prevent network issues from impacting service delivery. Integrated with both SAM and DPA, SolarWinds NPM is critical to the ongoing operation of the Fare Collection system infrastructure.

1.8.1.9.9 Solarwinds Server Application Manager (SAM)

SolarWinds SAM is the primary server monitoring, analysis and fault management software for the ongoing support and optimization of the virtual machines. SAM monitors availability, response time, CPU, memory, and disk usage and includes capacity planning and metrics to assure proactive notification of potential capacity problems. SolarWinds SAM is part of SolarWinds Orion and integrates with both NPM and DPA.

1.8.1.9.10 Solarwinds Database Performance Analyzer (DPA)

SolarWinds DPA for Oracle provides a database performance monitoring and management tool used for visibility into the supporting system databases. Insight into database response time, system health, trend analysis and specific analysis of concerns of running virtualized databases, DPA provides INIT IT and Development staff the tools necessary to optimize and ensure the

databases are running effectively. SolarWinds DPA is part of SolarWinds Orion and integrates with both NPM and SAM.

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[redacted]

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1.8.2 MOBILEvario – INIT's Service-proven AFC-specific Back Office Applications

MOBILEvario is a powerful back office system, which is (among other features) an accounting and payment administration system.

MOBILEvario covers the traditional administration applications for revenue management (sales control and the keeping of accounts), fare management (products and matrices), seller media, user accounts, clearing house functions, personnel administration, various reports and access control.

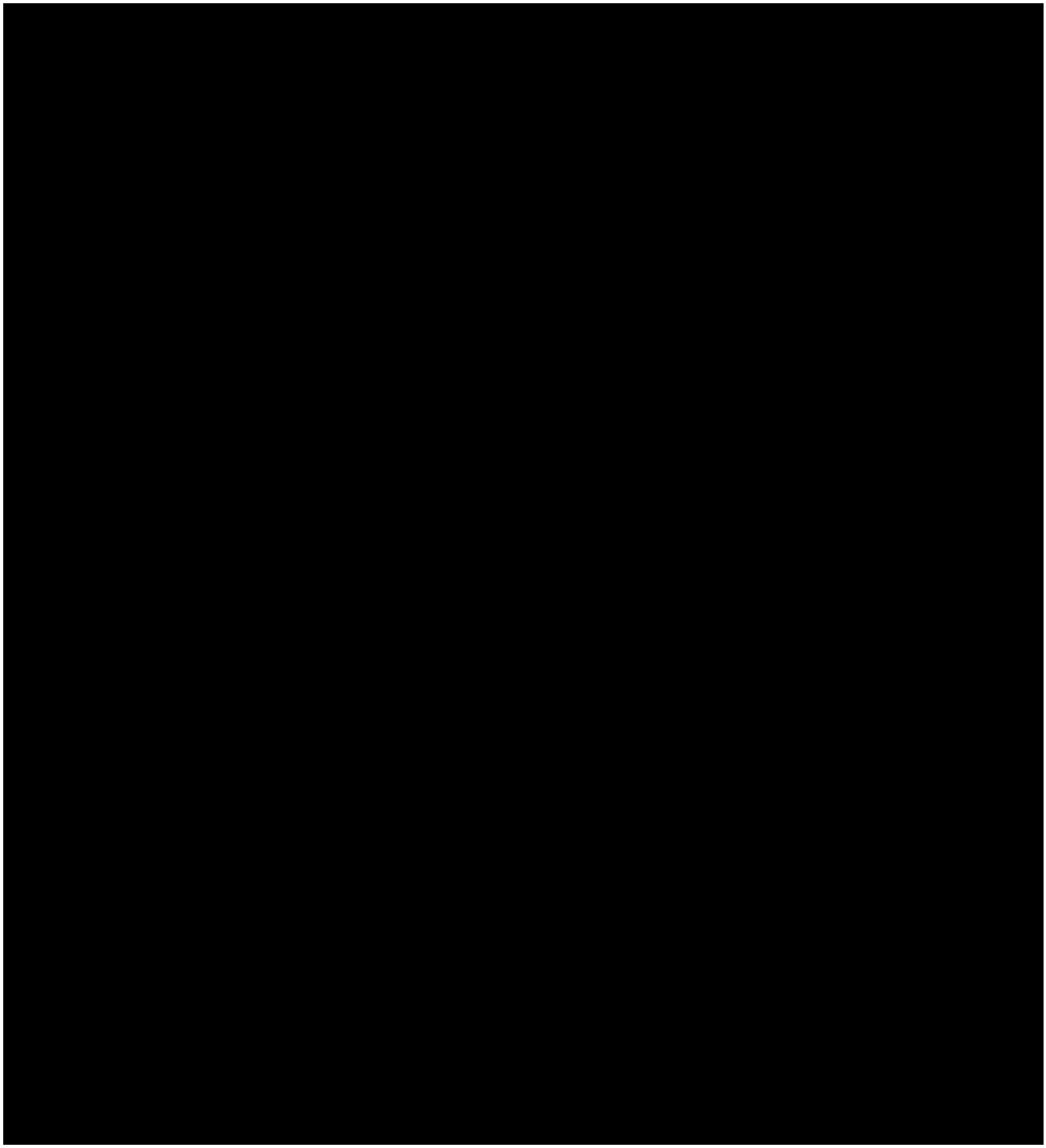
All tabular representations can be exported in a variety of formats so that the ORCA Agencies can use this data in additional third-party software packages.

The modular architecture of the system results in future orientation and flexibility, resulting in investment certainty.

The following figure shows the main components of MOBILEvario central system on a very general level.

1.8.2.1 INIT's Service-proven Open Architecture APIs for Communications with the Back Office

A core aspect of INIT's account based systems is the use of Application Programming Interfaces (API). The RESTful (Representational State Transfer) APIs provide an open architecture that supports vendor independence and streamlines integration with other payment channels. The APIs provide functionality for any 3rd party devices and networks to sell and validate fares. The client devices or customer interfaces all use INIT's APIs to sell and validate fares.



OVS and API Server are both REST API Servers that together provide the ATP functionality. OVS is optimized for fast response times to serve hat validators, while the API server provides the more higher-level APIs to manage transit and customer accounts.

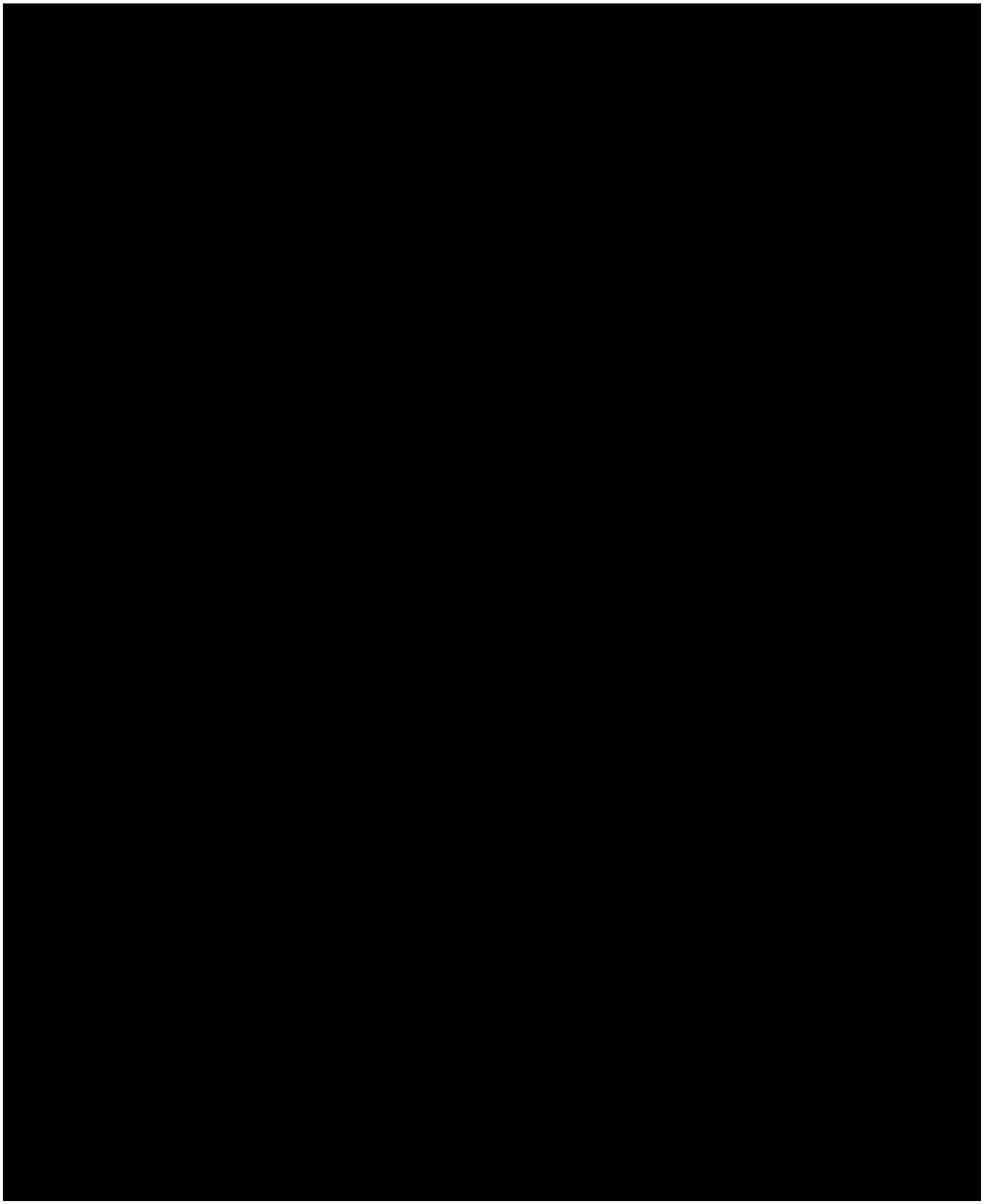
Testing facilities allow the next generation ORCA team or Third Party Vendors to design and test their solutions. This protects Agencies' valuable investment for many years to come as it allows them to enhance the system autonomously.

The APIs provide a standard and easily understandable interface to the proposed system. These APIs demonstrate the open architecture of the system. The APIs provide the next generation ORCA Agencies full flexibility to integrate 3rd party sales and fare validation solutions if desired in the future. The following table lists some of the main APIs of MOBILEvario.

Specification	Description
Product API	API is tasked with product related operations. This API is mainly used to block certain products or set-up and auto-load for a product
Fare Distribution API	(or Sales API) API for selling fare products and adding stored value on transit accounts. All sales clients that add products or stored value to the transit accounts use this API. This includes Website, CRM, CST, Retail Sales Network, etc.
Fare Payment API	(or Validation API) API used by platform and vehicle validators for real-time fare validation and stored value usage
Fare Inspection API	API used by fare inspection devices to check if a given fare media has a valid transit product
Transit Account Management API	API used by POS devices, web portals and CRM system to list transactions do value adjustments etc.
Customer Account Management API	API used by web portals and CRM system to manage registered users
Cardholder API	API used to query and modify data maintained on cardholders
Device Management API	API for remotely managing and monitoring devices in the City system

1.8.2.2 Online Validation (Account-based Transaction Processing)

[redacted]



[redacted]

1.8.2.3 Fare Table Management

With MOBILEvario's Tariff Management Application, the next generation ORCA project would have a very strong tariff management tool that fulfills all current and future project needs. One of the core principles when designing INITs backend application is to provide the customer with full configurability of the product that is purchased. Tariff Management is the best example for this principle. With Tariff Management the region will be able to manage all fare products, all transfer rules, capping pots, accounting rules and many other business rules of the system. Changing those parameters is easy and does not require any system changes.

INIT evaluated the business rules of the current ORCA system and only sees minor adjustments needed to the current Tariff Management implementation. Those minor adjustment are related to the PugetPass product.

Our engineering team already evaluated what changes are needed to implement the PugetPass in the INIT system. PugetPass products will be managed the same way than all other products, with the difference that there will be an extra attribute that will hold the 'PugetPass value' (e.g. $1.50). When the product is used, the system will allow all rides that are valued lower than the 'PugetPass value'. For fare payments with a higher dollar amount than the 'PugetPass value' the system will automatically charge the respective upcharge / extra charge. INIT is familiar with upcharges and uses this in several projects.

Other ORCA specific programs like the Business Passport program can be implemented without any development modifications of the system.

[redacted]

INIT is very familiar with complex tariff structures like the ORCA tariff. INIT implemented multiple projects with 8+ agencies and very complex tariff structures (e.g. complete state of Bavaria, Sacramento).

All products can be configured to be only available on a specific route or only during specific times (e.g. peak fares).

1.8.2.3.1 Overview of functionality

To ensure the next generation ORCA project can utilize all business rules necessary to support enforcement of each unique fare policy, the Fare Management (FM) module creates, edits, and manages all products and fare data. The FM module includes but is not limited to the following functions:

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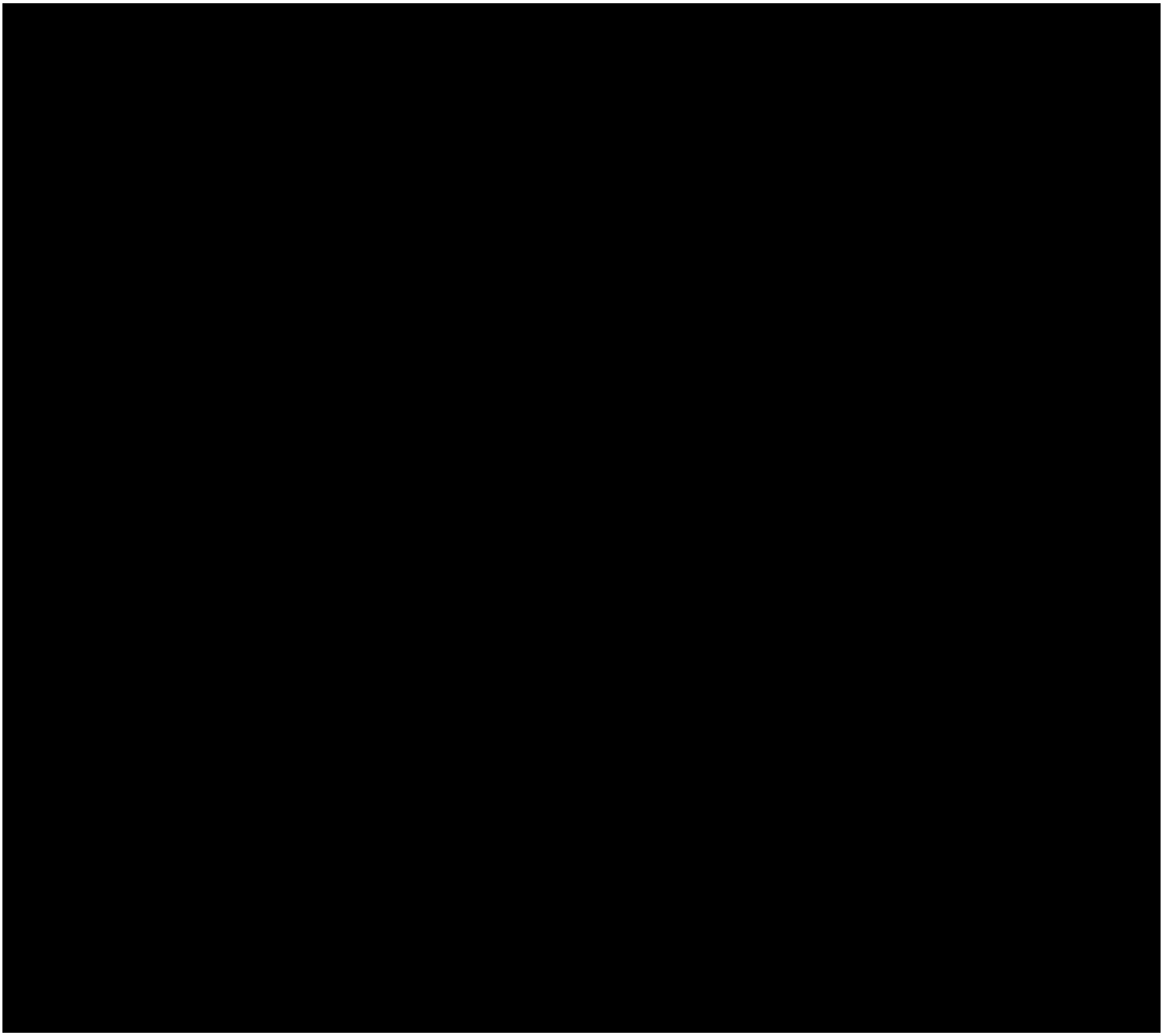
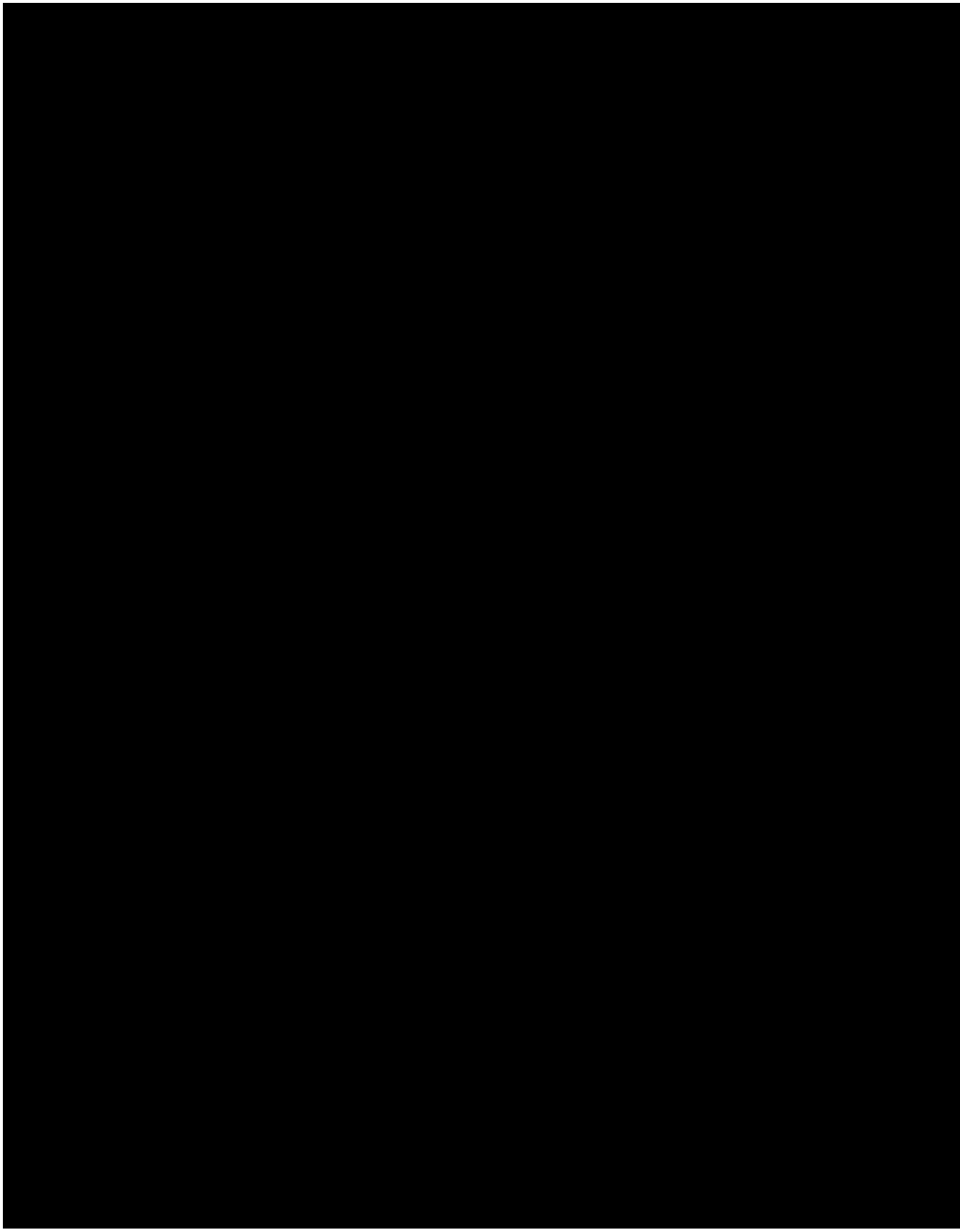
1.8.2.3.2 Example for a Configuration Change



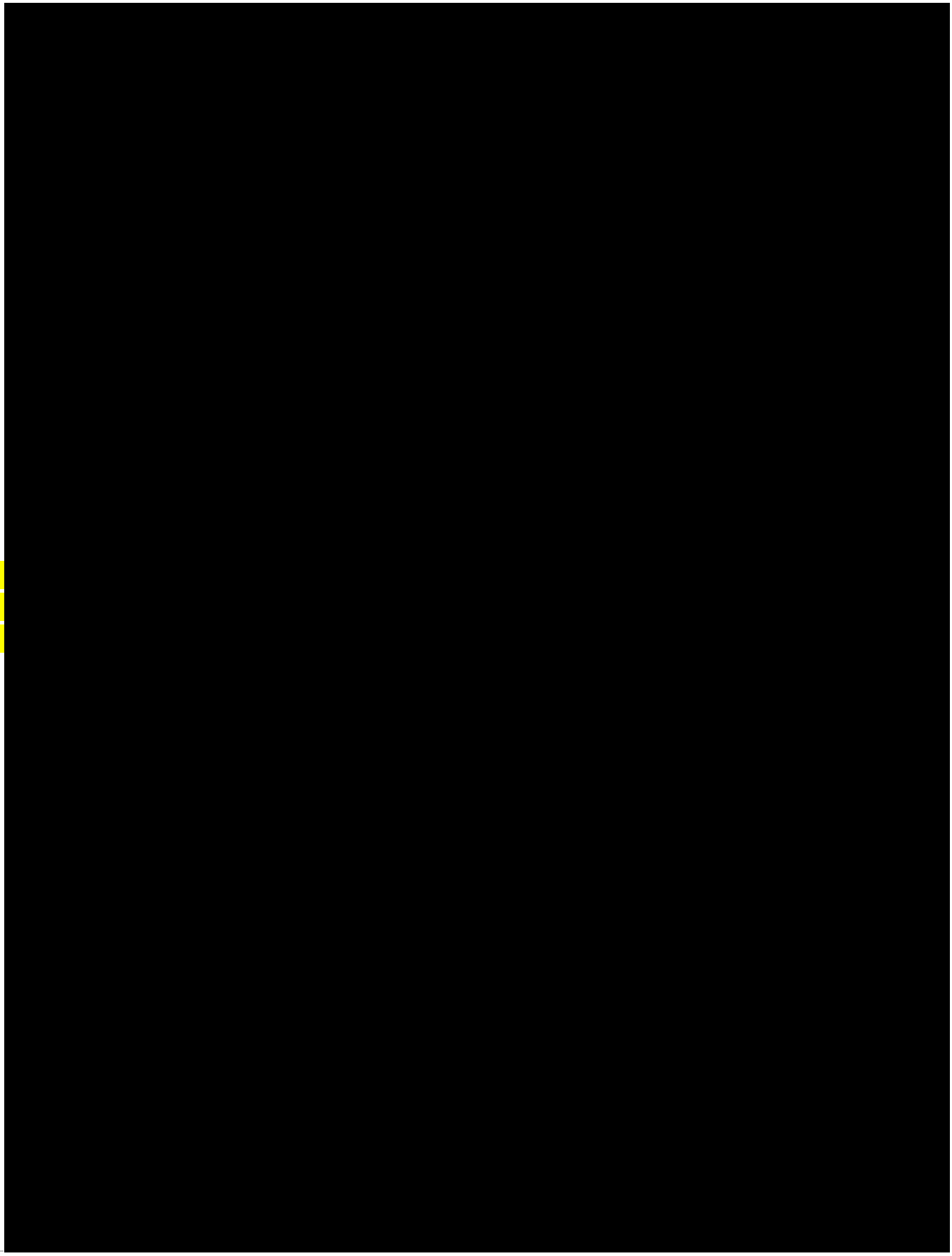
1.8.2.3.3 Matrix Editor (MX)



1.8.2.4 System Administration

The MOBILEvario Admin Tool is used to administrate all central and general settings of the MOBILEvario system. Generally, the main functions of the Admin Tool are:

- User Administration (defining users, groups and their access rights)
- System Parameter configuration (configuring the values of the operational and policy parameters of the system)



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1.8.2.5 Revenue Management

MOBILEvario Revenue Management provides a user interface to filter, group and list transactions based on sales channel, device, sales person etc. While Revenue Management is not an accounting tool, it is a very useful module for troubleshooting and producing ad-hoc reports and data exports from the production database. It is an invaluable tool when performing validity checks.

With Revenue Management, it is possible to review sales data and perform statistical evaluations in real time. The sales data originates from the integrated distribution channels: Web sites, Validators, Mobile App, etc. Individual transactions and summary data are readily accessible by channel, vehicle, and even by the specific processing devices. Results can be printed or exported for use in other applications as needed.

Revenue Management provides Sales control and Debtor (Distribution channel) Account Management. This is essential for tracking accounts and collections for 3rd party sales channels like a local convenience store. You can define maximum credit allowances for each entity and track their performance. Here you can also block sales should they not honor their responsibilities (e.g. bad debtors).

The sales control module provides various functions to display and control sales data for each agency.

All sales records include the sales channel as well as values, date/time, locations and other pertinent information for reporting and analytical needs. Sales Accounting is handled by MOBILEvario's accounting module.

Each agency only has access to the sales data provided by their service or sales points. A set of specific users may be granted access rights to see all transactions in the system. We would expect this to be an oversight committee of the next generation ORCA project.

1.8.2.6 System Parameter Management/Configuration Management

All device parameters are managed in the MOBILEvario Parameter Management tool on a regional or agency specific level. Those parameters are e.g. the passback time of the validators or specific parameters like the time until the device shuts down once the vehicle is turned off.

MOBILEvario Parameter Management is a web-based tool and enables modifying predefined system parameters and thresholds as well as assigning and transmitting them to the necessary devices.

1.8.2.7 Master Data Management

1.8.2.8 Sales Personnel Management

Master Data Management is needed to import bus stop/line names and numbers. Sales Personnel Management (aka. Debtor Management) is not relevant for ngORCA.

Removed chapter 1.8.2.8 Sales Personnel Managementl details.

1.8.2.9 Form Designer

The MOBILEvario Form Designer enables configuring the layout of forms for smartcards, customer emails and reports. Following screenshot shows the main elements of the user interface:

(1) Toolbar and window name, indicating the currently opened form and the name of the application, (2) Tab bar, (3) Form list, (4) Report explorer and field list, (5) Toolbox, (6) Variable work area, (7) Property grid, (8) Group and sort.

The form designer enables you to configure e-mails and smartcards which are available as predefined templates. The following predefined templates are available:

Template	Use	Description
Account related mail	E-mail	
Autoload related mail	E-mail	

Template	Use	Description
		[redacted]
Cardholder related mail	E-mail	
Contract related mail	E-mail	
Default receipt	Sales receipt	
New card	Customer cards	
New report	Any	
Order related mail	E-mail	
Smartcard related mail	E-mail	

1.8.2.10 Revenue Processing System

Card/FareMedia Inventory management is described in chapter 1.8.6

The following chapter focuses on the Revenue Processing System.

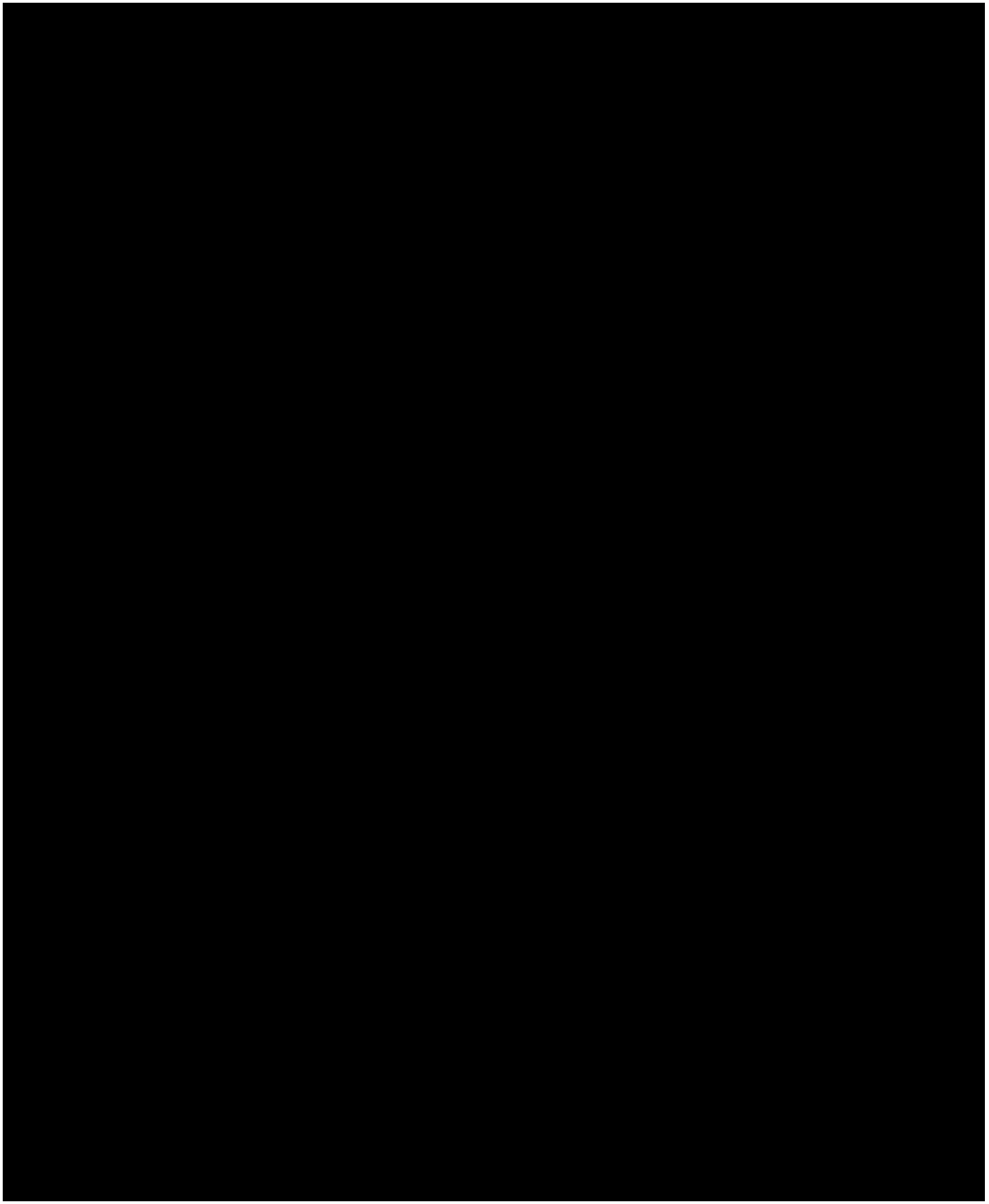
1.8.2.10.1 Revenue Recognition and Apportionment

The following diagram provides a high level overview of the steps and accounts involved in the revenue management and reconciliation process:

1.

transactions are processed. We recommend manual verification before the transactions are cleared.

[redacted]



[redacted]

1.8.2.10.2 ngORCA Revenue Apportionment

INIT will adapt the current ORCA revenue apportionment rules to the process described above. The revenue recognition and apportionment will be a daily procedure that will run after the operation day. Revenue for the stored value usage is recognized and apportioned on daily basis. Revenue for the Passes is recognized and apportioned after the product expiry. This applies for both, calendar month based and "active from purchase/first-tap" based passes.

[redacted]

[redacted]

1.8.3 Customer-Service Focused CRM

Considering the information provided in Scope of Work Section 6.3, explain in detail the reasoning for choosing the proposed CRM solution including why other solutions were not proposed. For example, if you are proposing a CRM solution that does not leverage another agency's existing CRM application, explain why the agency's existing CRM software was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions.

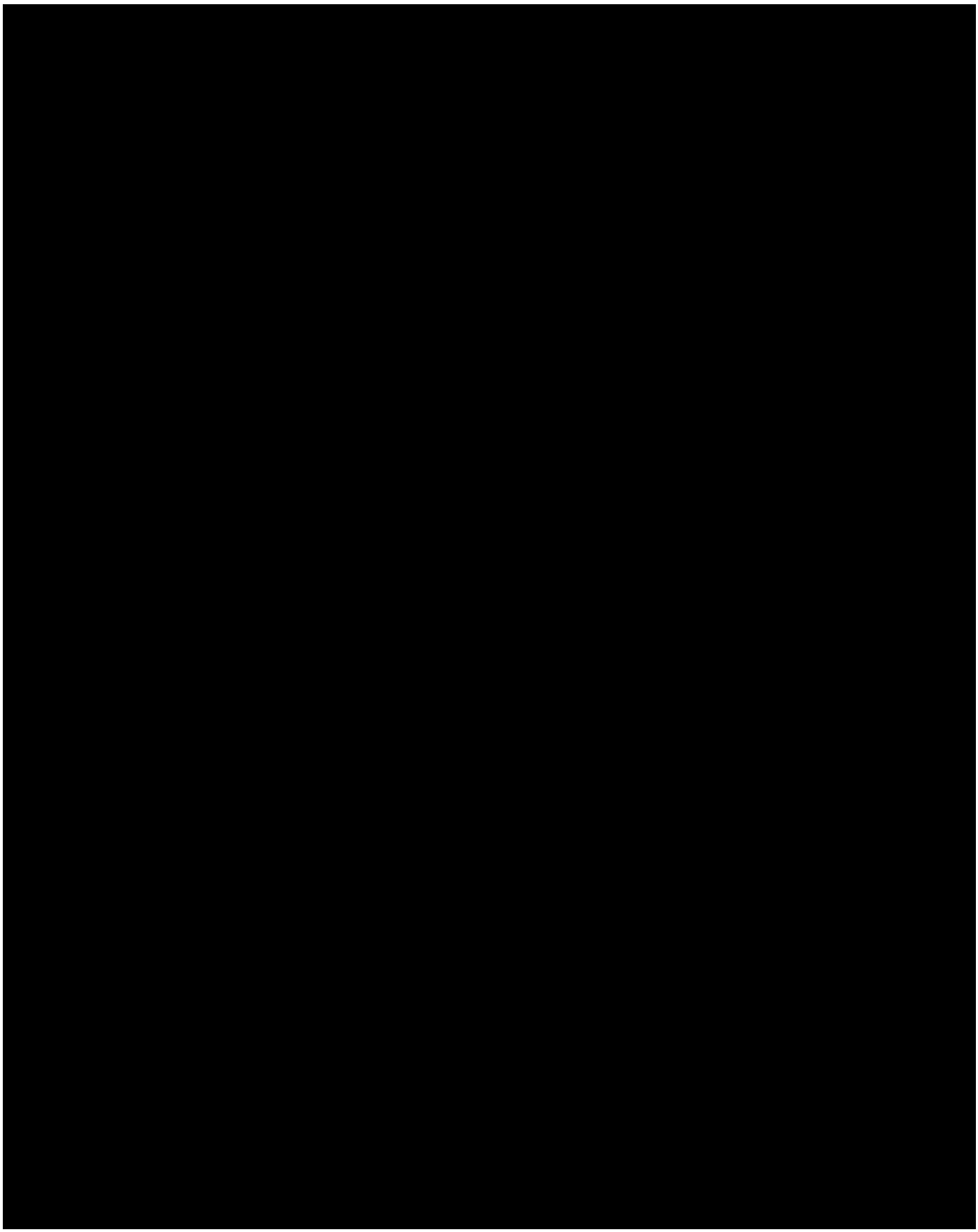
INIT evaluated the following COTS CRM solutions for next generation ORCA:

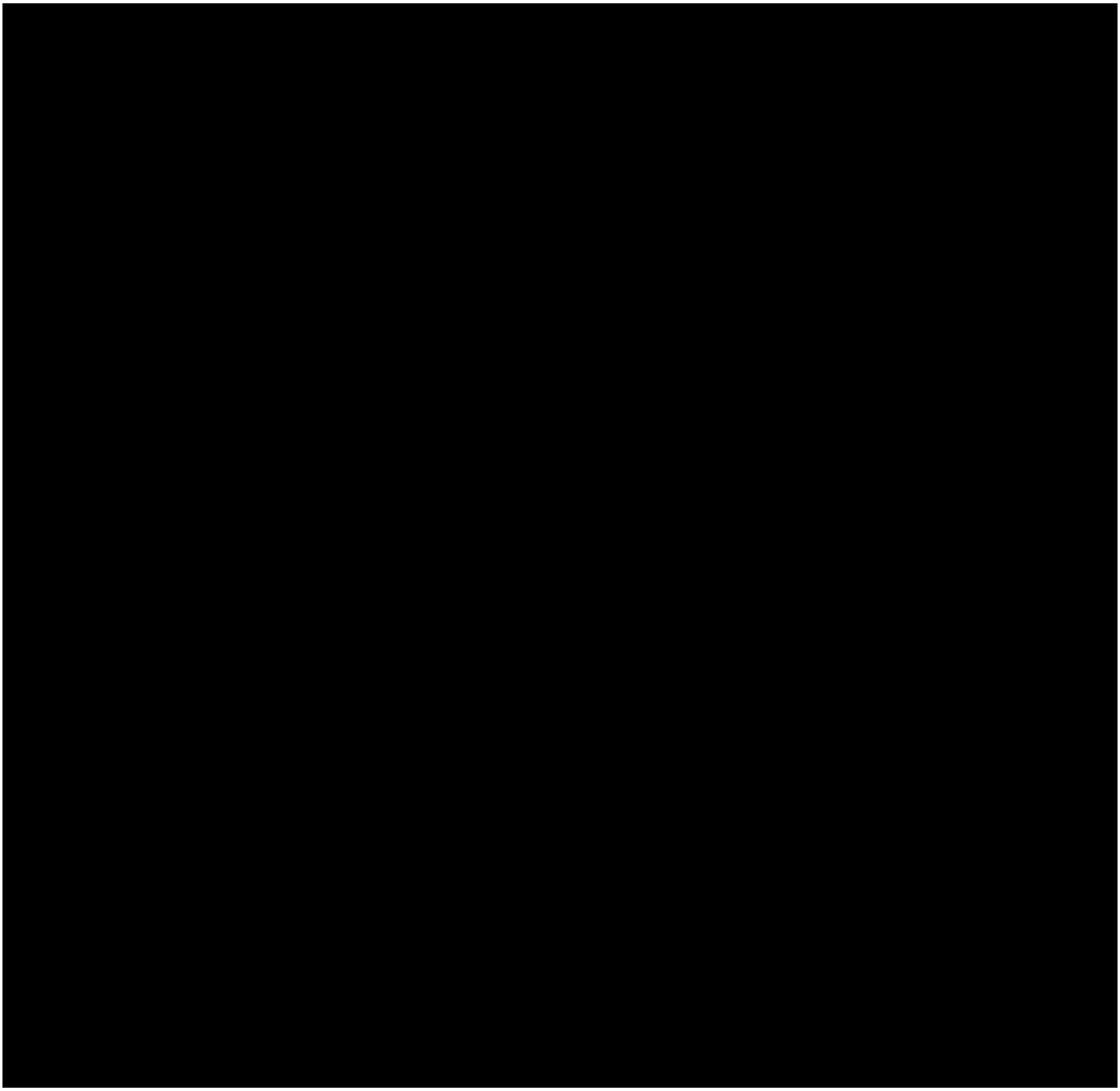
- [redacted]

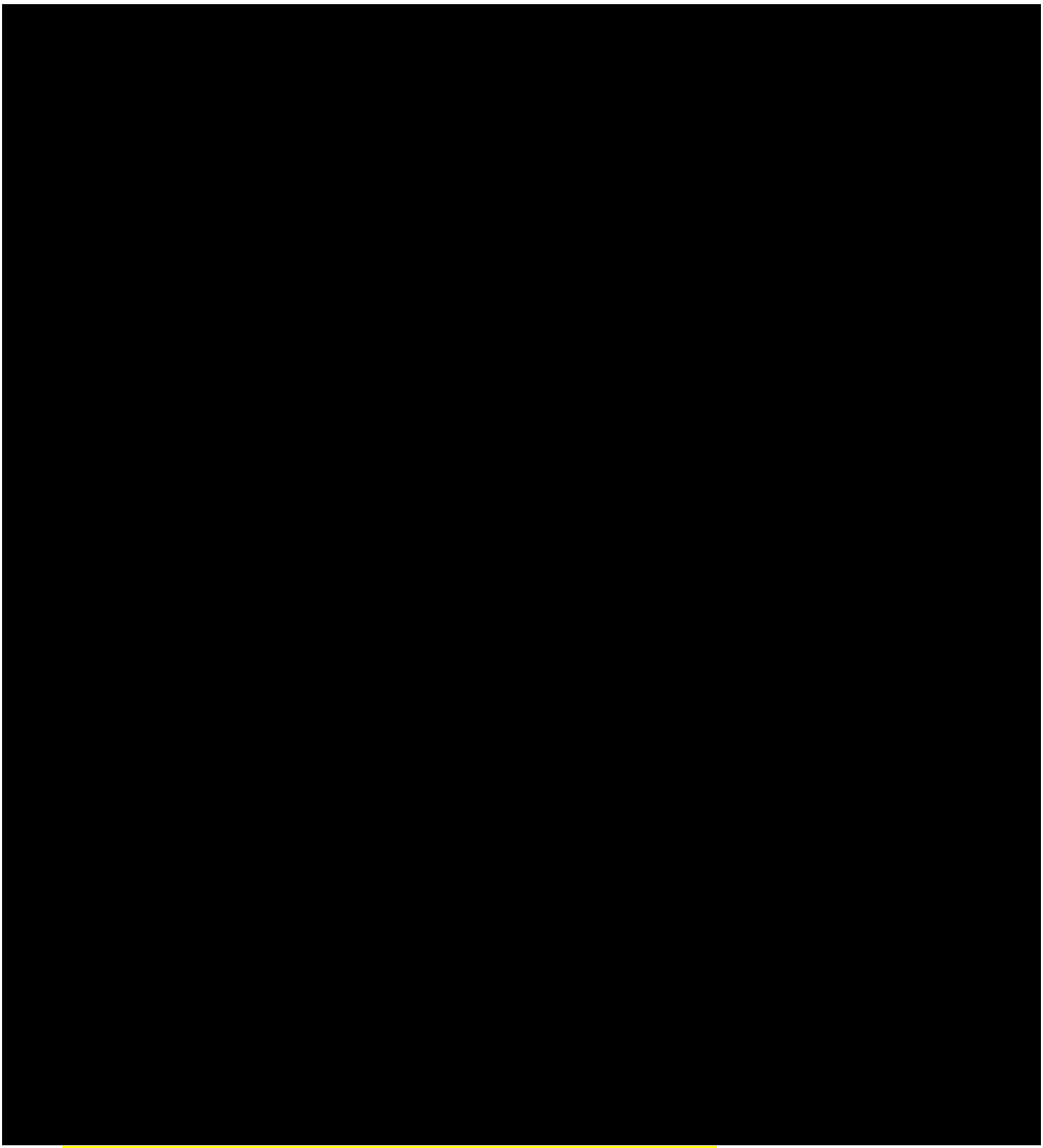
INIT recommends, and has included as part of its main offer, the use of a cloud based, Software as a Service (SaaS) [redacted] solution because it fully meets the requirements in the Scope of Work Section 6.3 and is rated number one by several independent software research firms – including, Gartner, Forester, and Software Advice, which states that:

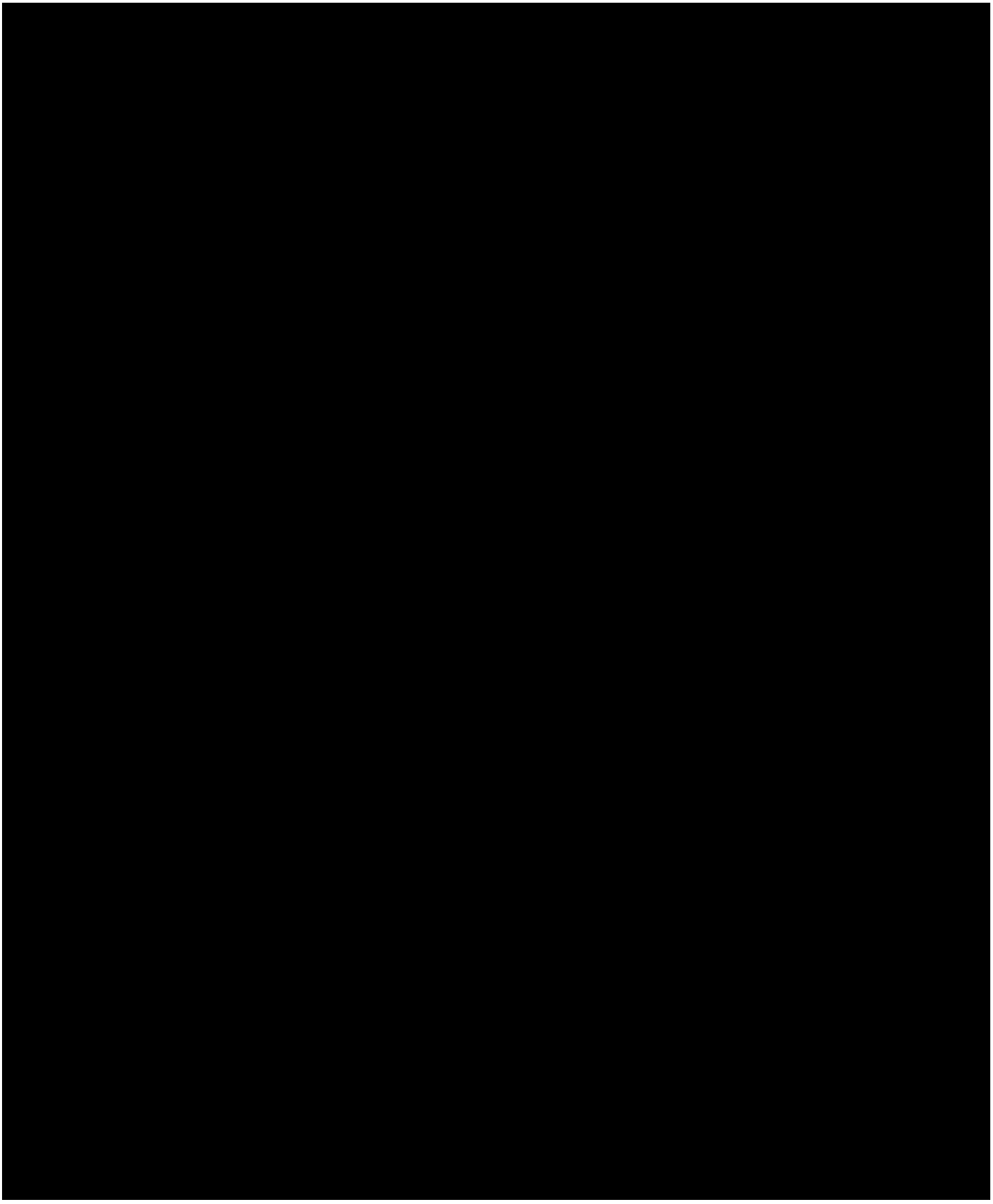
- [redacted] is more highly recommended by customers (79% vs. 51%)
- Customers rate S[redacted] ease of use higher than Dynamics
- Customers rate [redacted] customer support higher than Dynamics

[redacted]









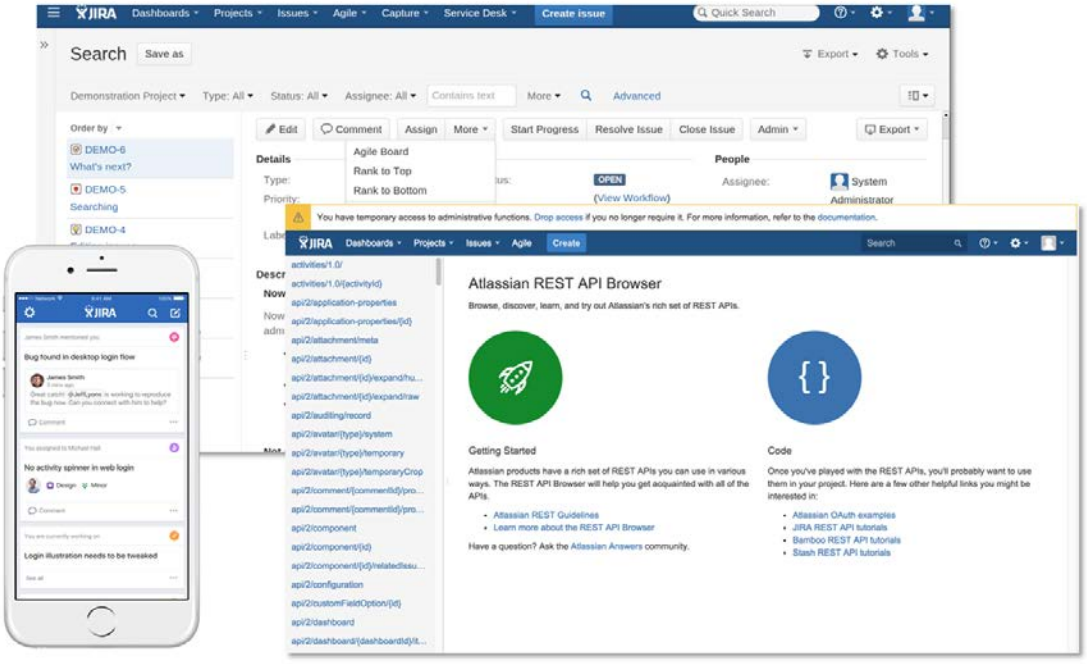
[redacted]

1.8.4 Asset Incident Management (AIM) Application

[redacted]

1.8.4.1 Incident Management (JIRA)

INIT proposes to use JIRA for the incident management application for its status as industry leader in incident management and its wide adoption in world-class companies across many industries. Jira is currently implemented company-wide at INIT for issue management. INIT also successfully uses Jira in projects where customers can issue tickets directly in their project specific Jira instances. The key to effective incident management is a process that records, categorizes, prioritizes, responds and resolves. JIRA provides the framework for capturing the details required for each step of the process as well as the workflow to move the process along effectively. Combined with good documentation and automated inventory and status', JIRA combines the people, process and technology required to manage the inevitable incidents.



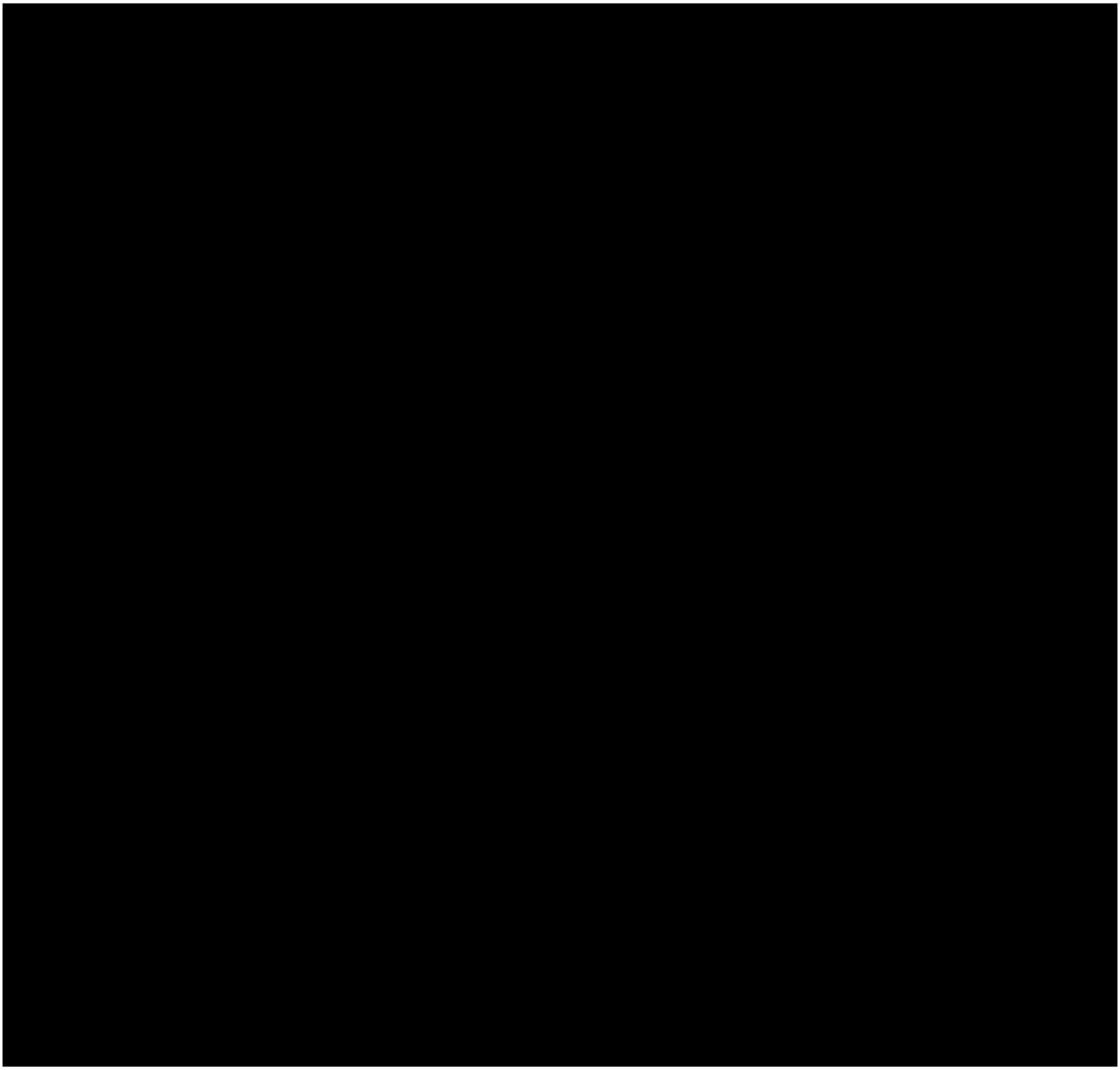
Incident Management

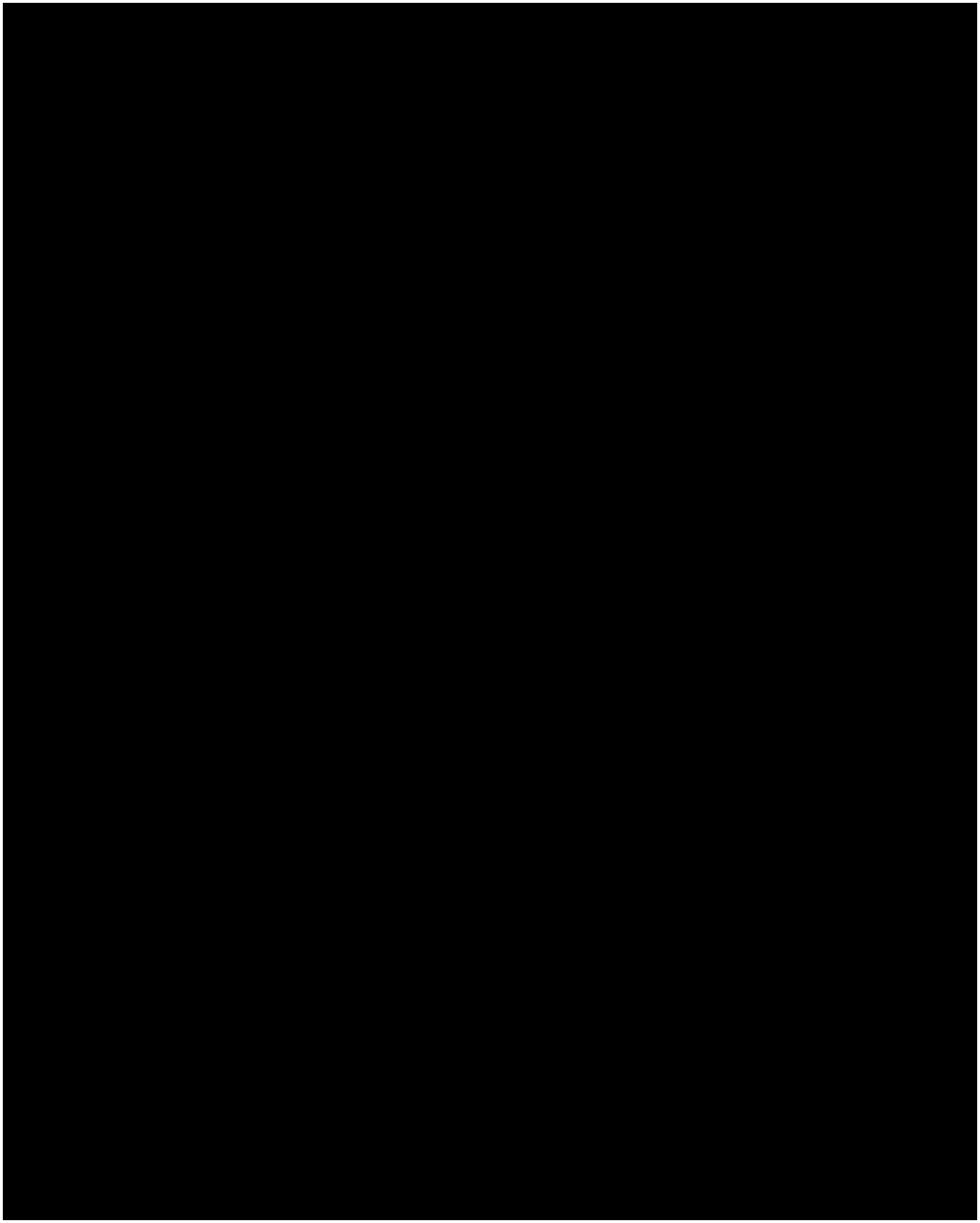
Together with the Insight asset management software, the two modules also provide an asset incident management with superior usability and scalability. Benefits for the next generation ORCA system:

- Industry standard incident management system with proven track record
- Large customer base with excellent references including many public transport agencies
- Excellent open API support - perfect addition to INITs open architecture model.
- Low risk solution since INIT is already deploying Jira internally and externally
- Excellent configurability for workflows
- Easily understandable user interface with drag'n'drop functionality for workflows.
- Many extension modules available in the Atlassian market place ("app store")
- Mobile clients available in Android and Apple stores

1.8.4.2 Asset Management [redacted]

[redacted]





[redacted]

1.8.5 System Manager - Automatic System Monitoring

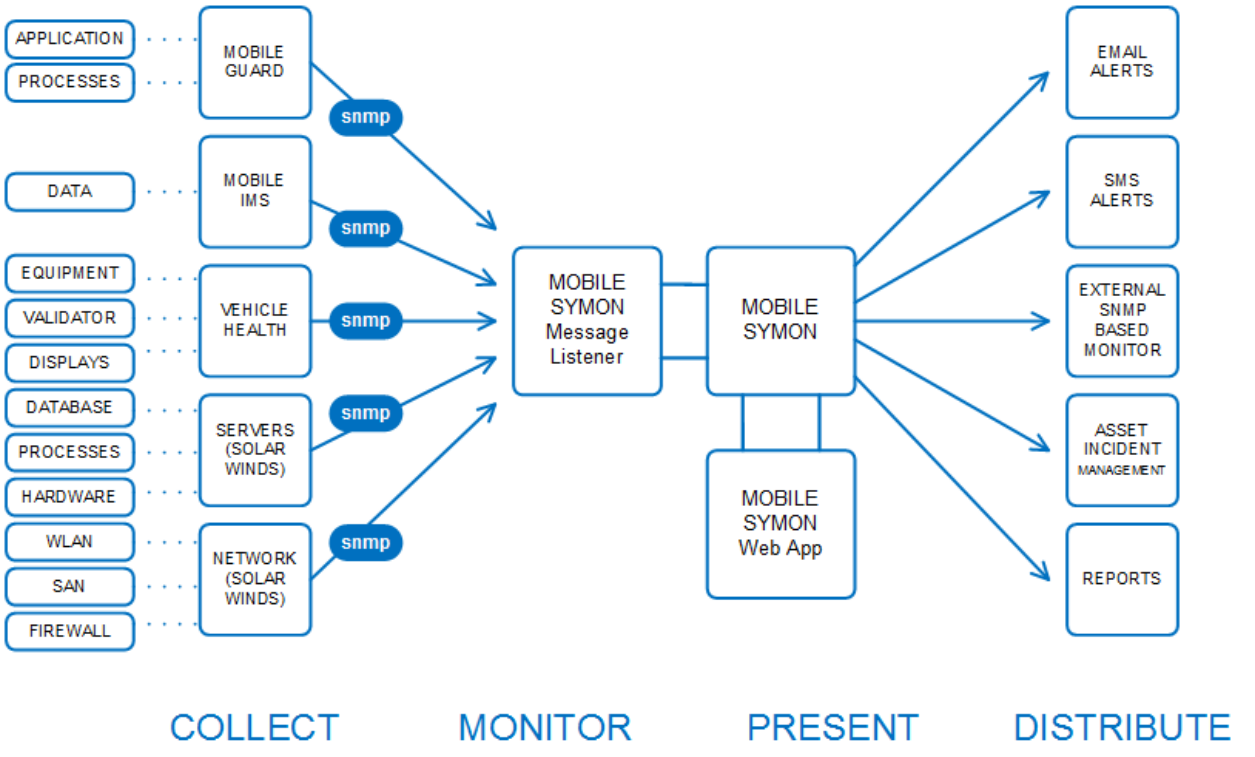
INIT's System Manager, MOBILEsymon is a service proven web-based, systems monitoring application which provides system monitoring, dashboards, reporting, and alarms for system assets and performance tracking. MOBILEsymon is a sophisticated monitoring system which provides real time status information and alerts for the AFC system including:

- Backend hardware
- Backend software and databases
- Wayside Validators
- Vehicle hardware
- Frontend software system components

MOBILEsymon works in conjunction with other system monitoring tools including INIT's MOBILEguard process monitor and SolarWinds Network Performance Monitor to provide a single pane of glass for asset status. MOBILEsymon collects, monitors, presents and distributes the consolidated data to next generation ORCA agencies. By defining alarm conditions and actions, the responsible persons will be notified of potential system issues via established email or optional SMS distribution groups so that corrective actions may be taken. In addition to the web-based dashboards, MOBILEsymon can also distribute information to several external sources including existing customer-owned network management systems and with the Asset Incident Management system through API integration.

As shown in the diagram below, MOBILEsymon acts as both a receiver and distributor of information including from MOBILEguard. Both MOBILEguard and MOBILEsymon have configurable alerts. Other monitoring systems such as SolarWinds can also forward SNMP based information for inclusion in MOBILEsymon which can distribute it to a variety of endpoints. Distributing to an existing monitoring system already in use by the Region should not pose any significant difficulties; however, the technology, methodology and network connectivity required may add additional efforts or costs.

INIT's brower base MOBILEsymon was first deployed in 2012 enjoyed by twenty (20) of our customers.



MOBILEsymon

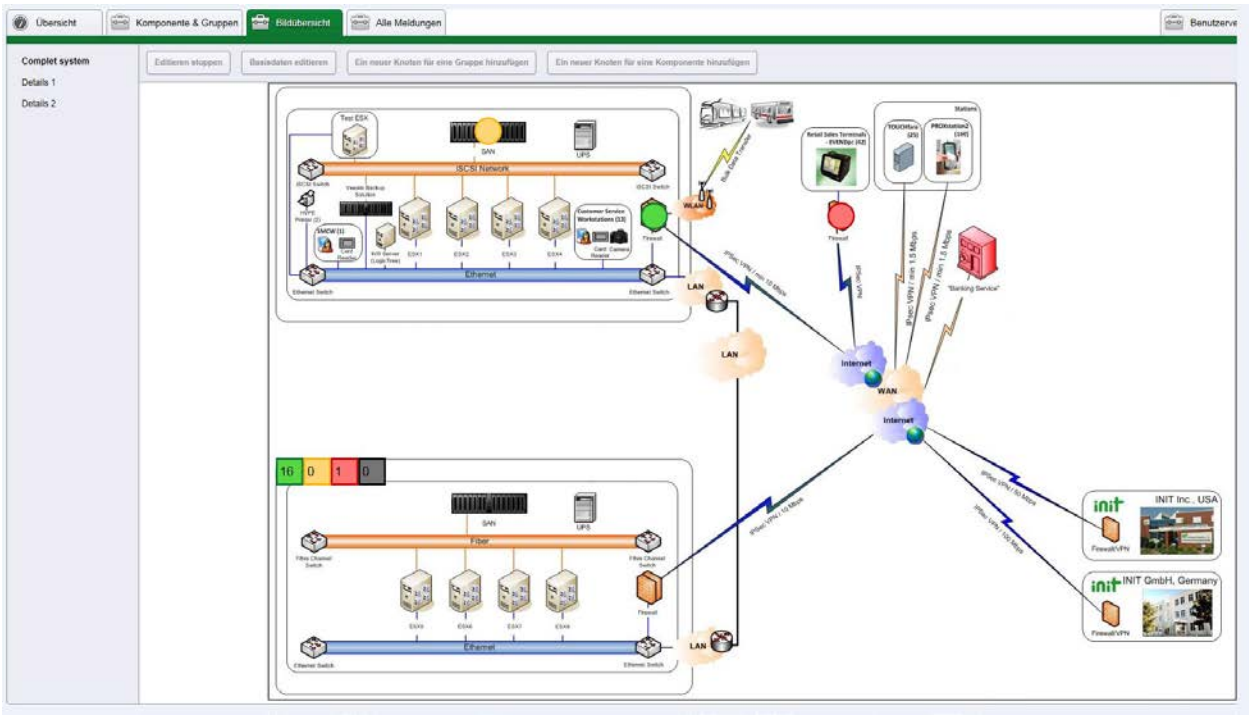
1.8.5.1 Dashboard

The dashboard is a configurable page which gives an overview of the monitored systems status, messages and status changes. Available are a System and a User dashboard.

System dashboard Provides an overview of system groups. The system dashboard can only be adjusted by the administrator.

User dashboard Each user can create several dashboards for his/her responsibility area. For each group different widgets can be added and their position changed. The system can be configured to only alert certain users.

MOBILEsymon dashboard with intuitive KPI's



MOBILEsymon's graphical dashboard shows VM status at a glance

1.8.5.2 Automatic alerts

To manage issues in real-time, a user configures automatic notification about status changes to be sent via e-mail and/or ORCA provided SMS service. The user assigns alerts to be issued when certain conditions are met. If the condition is satisfied, the action(s) will be carried out.

1.8.5.3 Components & Groups View

In the Components & Groups view, the user can access all visible components. Components can be combined into groups and one component can be part of several groups.

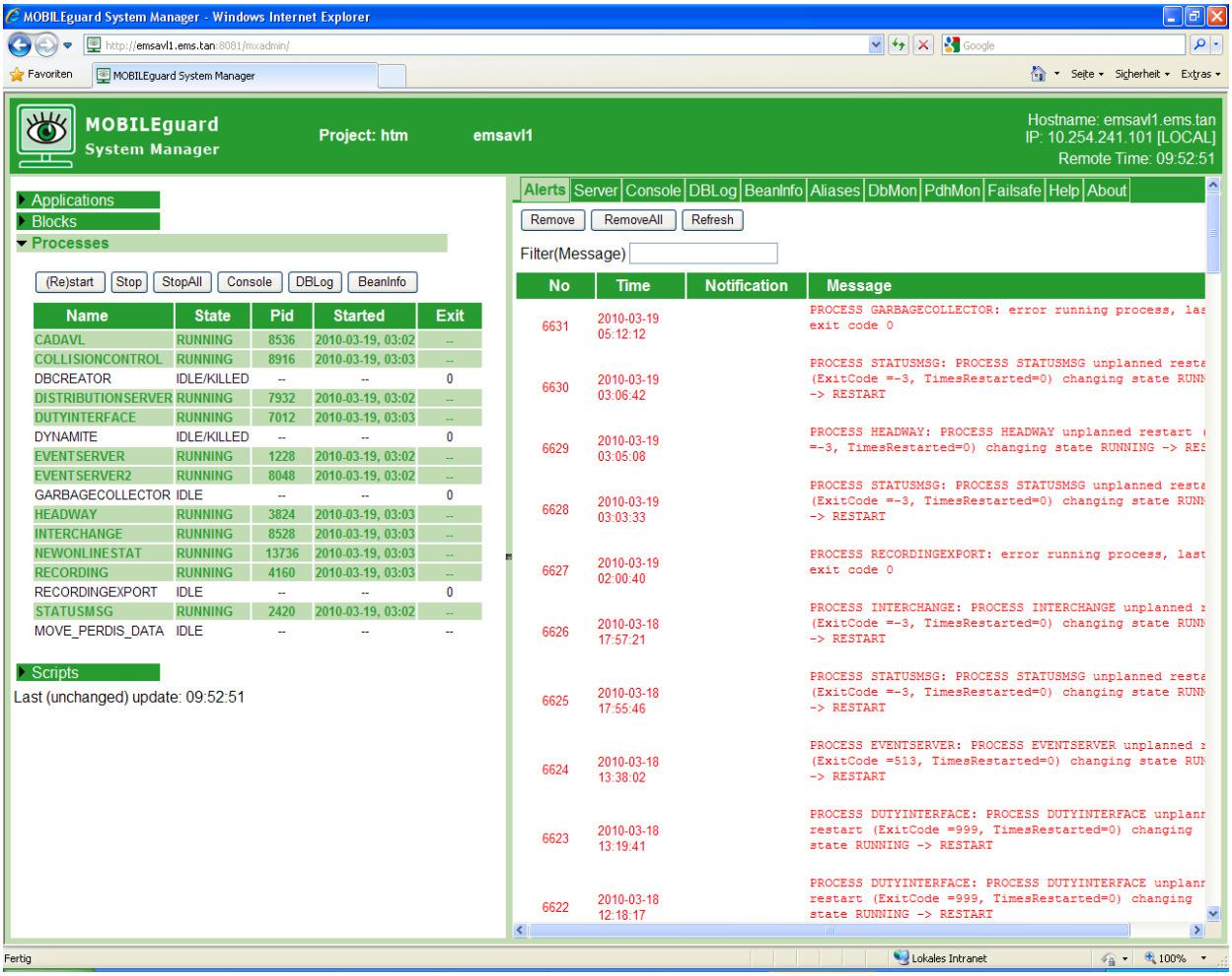
1.8.5.4 MOBILEguard

MOBILEguard monitors and controls the ITCS databases, the ITCS processes, the hosts and the file systems. The application is accessed via a standard web browser making it available to any user with user privileges. MOBILEguard is based on the Java JMX (Java Management Extension) and can therefore be managed through all JMX enabled tools or accessed via RMI (Remote Method Invocation).

MOBILEguard includes the following features:

Database monitoring	The online databases are constantly monitored. In case a database requires more space, a volume is automatically added and an alarm is generated. In the case of database problems, an alarm is generated.
Process control	Java applications are monitored, started and stopped automatically. If problems are detected, an alarm is generated. In the case of a crash, the Java machine is automatically restarted. Online monitoring of live data communication is possible with the ability to manually restart an

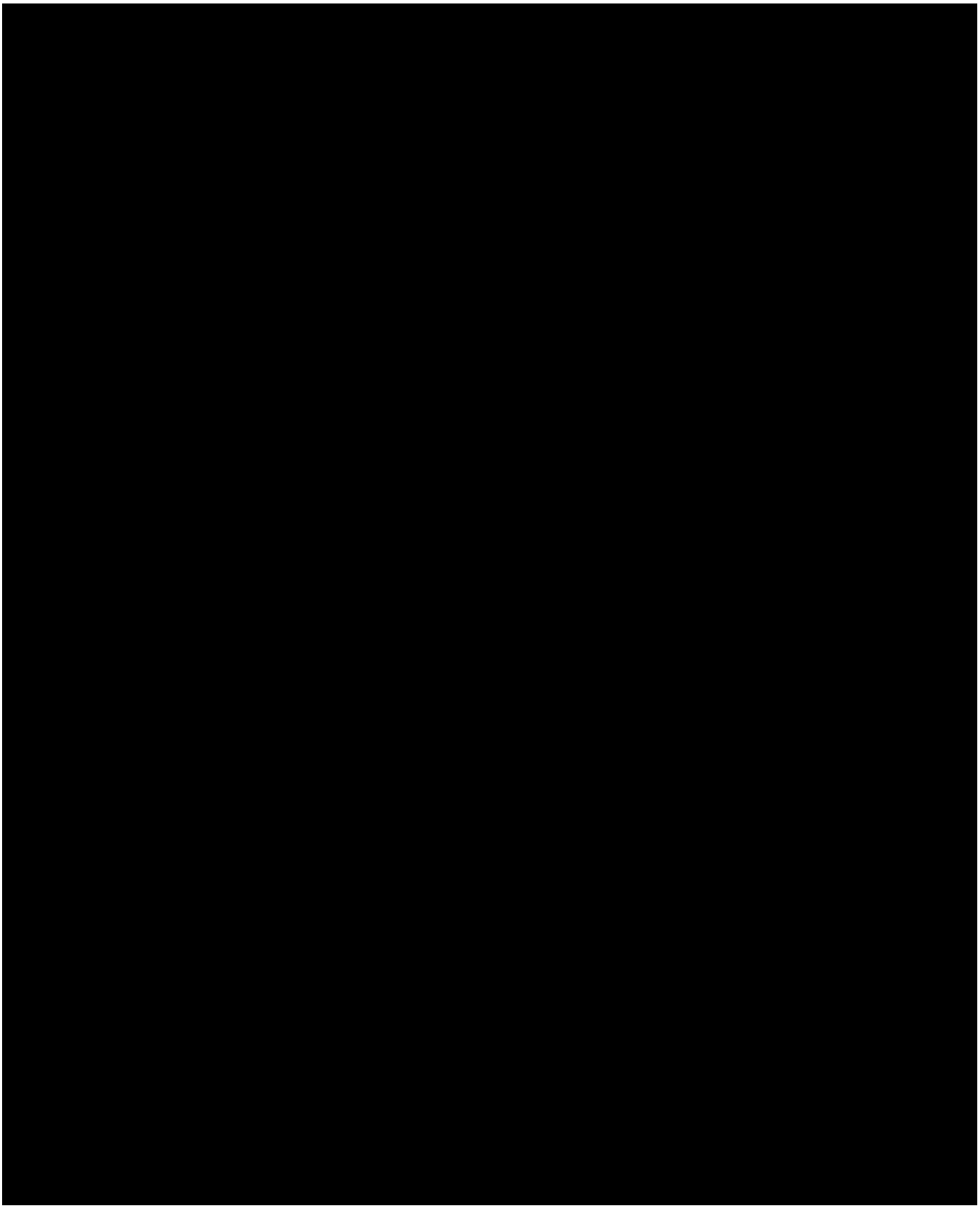
	application.
Host monitoring	Using Peer To Peer technology, MOBILEguard will automatically check the heartbeat of all other services encountered in the network. If a service fails, e.g., a server is down, an alarm is generated. An alarm is generated when the server returns.
File System monitoring	Specified storage devices are monitored. In case a device is not accessible or in case a device may become full, an alarm is generated. Predefined directories are checked for file activity. If log files are not written to within a defined period, an alarm is generated. Old log files and database backups are automatically deleted according to ORCA defined requirements.
Alarm management	Using Peer-2-Peer technology, alarms can be distributed to all MOBILEguard services on the network. Alarms can be configured to be forwarded via e-mail, SMS as well as being sent to MOBILEsymon.



MOBILEguard's Dashboard

1.8.6 Fare Media Management Application

The MOBILEvario suite has a web-based module called Card Inventory Management. This module has a proven track record, having worked very effectively on all of our AFC systems. The tool provides full inventory functionality to control all fare media inventory.



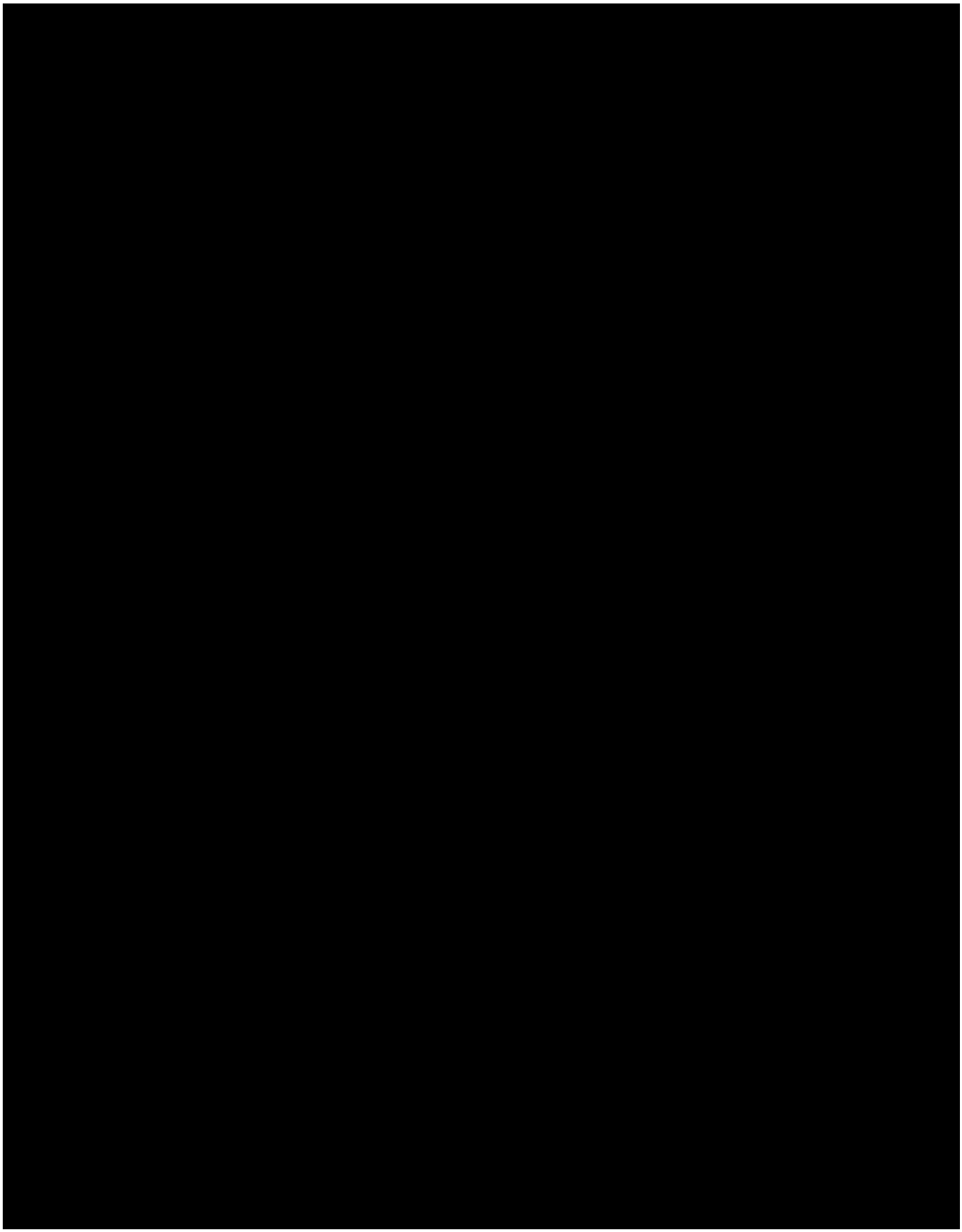
1.8.7 Best Value Financial Management Application

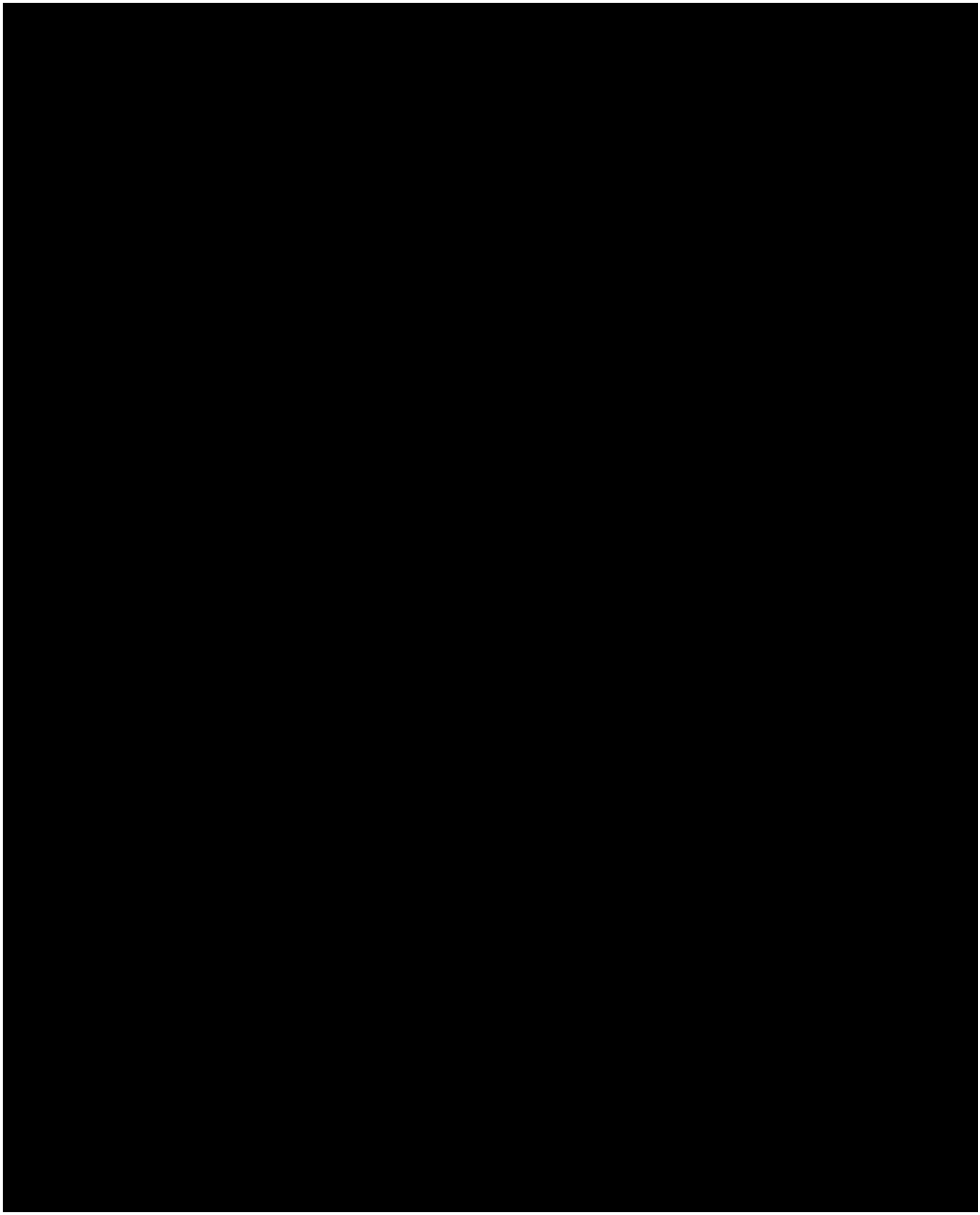
Considering the information provided in Scope of Work Section 6.7, explain in detail the reasoning for choosing the proposed financial management solution including why other solutions were not proposed. For example, if you are proposing a financial management solution that does not leverage another agency's existing financial management application, explain why the agency's existing financial management application was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions.

INIT evaluated three COTS applications for the Financial Management Application for next generation ORCA system:

1. [redacted]

[redacted]





1.8.7.1 Financial Modules / General Ledger

The General Ledger is the core accounting application that receives the following transactions from the INIT MOBILEvario revenue system:

- Sales transactions (typically Fare Products (deferred revenue) or rider optional product sales
- Payment transactions from the full range of payment sources including Cash, Credit/Debit cards and other electronic payment methods
- Earned Revenue entries (daily transactions where deferred d revenue is converted to earned revenue)
- Reconciliation transactions where credit/debit card transactions or retail network transactions are reconciled and amounts are moved from "Credit card receivables" or "Cash in Transit" accounts to "Cash in Bank" accounts as the money is actually received

1.8.7.2 Accounts Receivable & Order Entry / Billing Module

These modules are used for Institutional customers who provide full or partial transit subsidies to their employees or patrons and who require an invoice (monthly or annually) for the institutional products they purchase. The Accounts Receivable module will additionally prepare monthly statements of outstanding balances and will monitor credit limits established for each institutional customer.

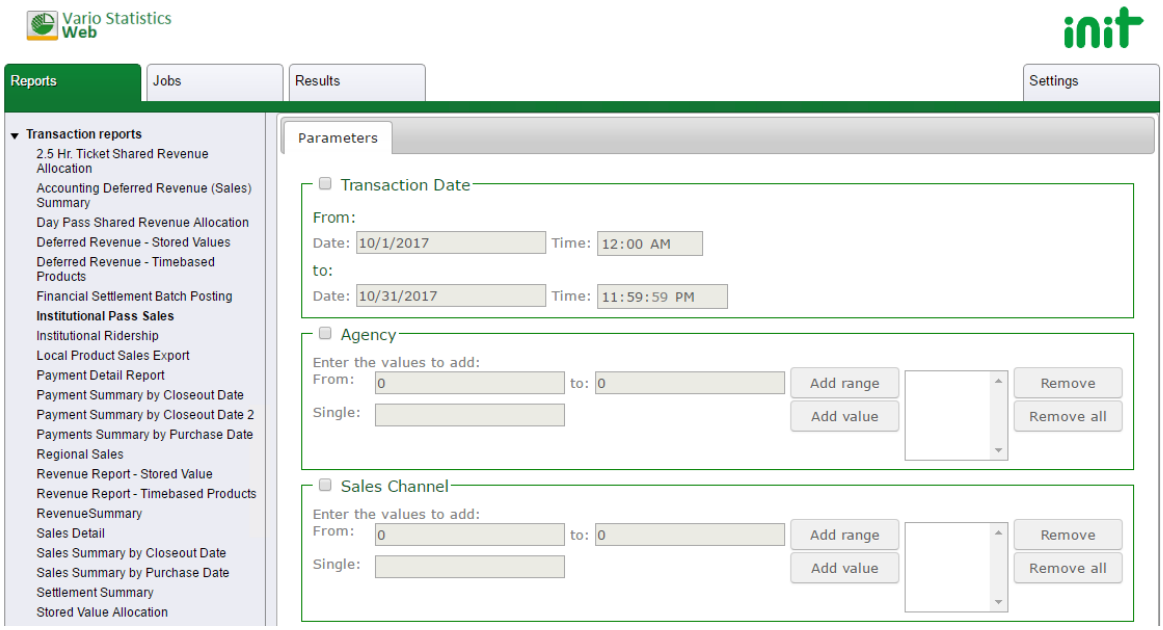
[redacted]

1.8.7.5 Payment Reconciliation

1.8.7.6 Financial Reporting and Query Module - VASAweb System Reporting

INIT's tool to provide access to customized and canned reports is called VASAweb. The web-based tool makes it easy to run, schedule, view and download reports in all standard formats like Microsoft Excel.

Customized filters can be applied to all reports so that they can be run for a specific date range or for a specific agency. The underlying technology for VASAweb is Crystal Reports. All Crystal Reports can be integrated into VASAweb.



VASAweb Reporting tool

1.8.8 Central Payment Application

As part of the MOBILEvario product suite, INIT is providing a central payment application to process all credit card and ACH payments. The central payment application is using APIs to connect to all devices that need to initiate payments. The central payment application is used for all internal payment initiations (e.g. for autoloads) too.

The most important factor when designing the central payment application is to keep PCI scope in mind. INIT has a unique approach to keep the PCI scope of the system as low as possible. To achieve this, credit card information is encrypted on the device side or is directly entered on the banks server (hosted page solution). In addition, credit card information is never stored in the system.

1.8.8.1 Payment Gateway

In order to provide reliable, flexible and versatile 100% PCI compliant payments, INIT recommends use of the CreditCall payment gateway. The credit call gateway provides the P2P encryption and tokenization and serves as the payment interface for both card not present (CNP) and card present (CP) payments.

With CreditCall as a Payment Gateway, INIT could implement Open Payment functionality on the validators in Phase 1, without additional costs.

INIT's understanding is that the Payment Gateway and all transaction costs are not part of this scope of work. INIT will provide a Central Payment Application that connects to a Payment

Gateway. INIT prefers to use CreditCall as the Payment Gateway, but the INIT Central Payment Application could work with other Payment Gateways too.

1.8.9 Configuration & Change Management Application

INIT proposes Atlassian's JIRA Service Desk with Bitbucket, which is a COTS SaaS solution, for the next generation ORCA Configuration and Change Management Application. The use of this solution offers significant advantages, for example:

- Utilization of the system administration applications (i.e., Asset Incident Management, issue management, and configuration and change management) on a single Atlassian platform, with a single user interface / user experience and easily shared data
- INIT is very experienced using Jira. INIT currently uses JIRA for issue management and change management on all its customer projects (well over 100)

The Atlassian IT Service Desk template comes with a change management workflow. This workflow ensures that change requests are recorded, assessed, approved, and implement in a tracked way. We recommend starting with our default workflow and adapt it to the project's business needs. The IT Service Desk template connects certain requests to a change workflow. We set up the workflow to complement the following change management process. Use the workflow to transition change request records alongside these ITIL recommended activities:

- Reviews
- Planning
- Approvals
- Implementations

The JIRA service desk provides a default change management workflow that can then be adapted to the ORCA requirements during the system design phase.

1.8.10 Performance Reporting

INIT utilizes Crystal Reports for its underlying reporting platform. INIT will provide following canned KPI reports on a monthly basis starting at SAT:

- Device reliability
- Device accuracy
- Device availability
- Back office accuracy

- Back office availability
- Server authorization rate
- Maintenance response times

The reports will include tables and graphical charts showing the current and historical performance of each device or system under measurement. The reports will include a calculation of credits to be assessed in the current month based on current and prior performance. The System will allow the Agencies to run, view and download reports. Additionally, INIT has budgeted 100 hours for agency-specific modification of canned reports.

---

i For next gen ORCA, the definition of 'users' of the system is inclusive of both Agency operators and administrators as well as patrons/customers so this would include public transit riders, business customers who manage public transportation benefits, agency operators and administrators, bus drivers, fare inspectors and other people who are interfacing with next gen ORCA systems.

INIT's Proven Methodology and Approach to Implementation and Operation and Maintenance Services

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

Resubmittal June 8, 2018

The Future of Mobility

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The sections listed below contain trade secret information that provides a business advantage to INIT over competitors. These sections are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

CONFIDENTIAL SECTIONS:

2.2 The INIT Team Organizational Chart

2.3 INIT's Highly Qualified and Experienced Key Personnel

2.4 INIT's Key Personnel are Available and Accessible

2.5.2 Implementation Services

2.6 INIT's Proven Transition Methodology and Approach

2.7 Operational knowledge transfer and excellence through effective O&M manuals

2.8 INIT's Experienced and Proven Risk Management Approach

2.9 Discuss any special considerations or challenges

2.10 An Achievable Project Schedule

2.12 INIT's Partnership with ROOT for Effective Operation and Maintenance

2.14 INIT's Sample Disaster Recovery Plan

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2 Methodology & Approach to Implementation and Operations & Maintenance

As a global leader in transportation innovation and technology, we believe you will find INIT's combination of service-proven implementation, technology and user experience design, as well as our industry leading secure, open, extensible system architecture to be advantageous in meeting the needs of ngORCA. Equally important is our success in creating and delivering an experienced, collaborative, and agile project management methodology; ensuring that our team's focus on the critical factors of overall project success are always at the forefront.

With legacy ORCA nearing end-of-life, schedule and focus on the core requirements are essential in order to deliver a modernized, customer-focused, secure system with cost-efficiencies as well as minimal disruption of the current operation Puget Sound riders have come to enjoy and expect. As the System Integrator (SI) for several of our fare collection projects, we believe INIT is equipped to do just that.

The pace with which technology moves in today's competitive environments is often faster than people do or are prepared for. As such, in addition to our Research and Development group, we have built into our Project Teams the capacity to build a robust focus on helping our customers translate technological visions into real-time benefits for their patrons.

Changes in technology are inevitable; this is why we have built-in flexibility as part of our overall system architecture with user experience at the forefront. INIT's vast experience in partnering and collaborating with technology experts and vendors in their given field(s) and integrating them as part of the overall solution further expands the capacity for us to accommodate changes that arise. We will work with the Agencies to identify areas in which configuration or implementation changes are the most cost-effective with an eye specific to risk mitigation.

With over 30 years of experience in driving transit innovations, it is clear that both transit and technology are our passion. Pointedly, rather than wait for technology to change and drive our business, we seek to be part of that passion and drive and deliver the change with our customer in a manner that is mutually beneficial for the customer and their patrons.

INIT is poised to deliver for ngORCA an innovative, seamless, extensible, and accessible customer-centric solution.

2.1 INIT's Capability Conformance - Matrix Tab 1

INIT's Capability Conformance Matrix can be found in the Appendix.

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2.2 INIT's Evolving Maturity to Deliver Complex Projects

INIT has made numerous strategic and tactical changes to our business over the past few years in an effort to increase our ability to meet the evolving needs of our customers. We acknowledge a past that was reflective of a company transitioning from a startup mentality to a mature organization. Now in our 35th year of business, INIT can demonstrate significantly increased capacity, capabilities, and consistency in our products and projects. Much of this stems from INIT's evolution from being a single-source ITS provider to that of a true Systems Integrator, acknowledging the fact that all of our Customers have requirements for multiple solutions which require seamless integration to perform effectively across the enterprise. Some of these changes include:

- Establishing Seattle as a Regional office with Senior Management presence
- Adding significantly to our PM capabilities and capacities
- All INIT PMs are either PMI certified (PMP or CAPM), or on a path to earn it
- Dedicating lead System Engineers to projects, so that technical leadership is both committed and consistent
- Adding to our Systems Engineering teams, including a new college hire program
- Adding sales staff in the region, so that we can respond more quickly to customer change requests
- Hiring staff with backgrounds in system integration and complex deployments
- Hiring an INIT training manager and engaging 3rd party training firms to bring a more sophisticated training strategy
- Internal knowledge sharing groups specific to fare collection projects
- Adding Executive Project Sponsors in Karlsruhe to ensure projects have resources and priority to meet schedule, budget, and quality requirements
- Providing for consistency of staff, with a goal of maintaining PM and SE consistency throughout a project

These strategic changes have allowed INIT to better handle ever evolving projects, including multiple projects of the same type (CAD/AVL, Fare Collection, APC, etc.). In fact, it makes it a strength of ours as we can leverage lessons, resources, and experience across the company. Over the past year, we were able to publicly launch two fare collection systems as well as continue development on three more. This is certainly proof that these changes have had a positive effect on INIT and our Projects.

Several additional changes are planned which will benefit the ngORCA project:

- Establishing a Seattle Development Center so that software development activities can be done in the region including coordination with our Karlsruhe Development Teams (see next section regarding Dublin, Ireland)
- Adding the role of Technical Writer to INIT's Project Team

Overall, we are an evolving organization working on ways to gain effectiveness and efficiency while maintaining a commitment to meet our customer's expectations. This evolution will never truly be complete and will reflect the changing needs of public transit worldwide.

2.3 Planning for Future Projects

INIT's success in recent fare collection projects has brought about the need to grow our technical and project management capacities. Currently, INIT is recruiting for additional senior level resources as well as some college hires to train under them. We expect to add a significant number of resources nationwide, and while they aren't planned to directly be on this project, we do expect them to impact our overall efficiency and effectiveness, as well as mitigate the risk of losing a key project team member from the ngORCA team.

We have also recently opened an INIT Development Center in Dublin, Ireland with its own management and development team. The goal is to grow this group to approximately 20 full time developers focused mainly on our core fare collection products and projects. This center should be open and functioning in June 2018. We are likewise very excited to use this project to start our Seattle Development center. This will leverage our current expertise in fare collection systems as well as the region's rich and innovative talent pool in software development.

2.4 The INIT Team Organizational Chart

INIT's approach to project oversight is very similar to the ORCA organizational structure. We have identified INIT Executive Sponsors and an internal Steering Committee. Our hope is to form

an integrated group of Executive Sponsors and a Steering Committee working toward common goals.

The Sponsors and Committee shall maintain a broad and consistent oversight of the Project. The Steering Committee shall ensure that the project retains the required visibility and attention throughout its duration. The Committee shall be apprised by the other Project Team members on a regular basis of the project's status—and shall intervene only when a matter is escalated to them directly, or when they see causation or action required to maintain the overall expectations of the project.

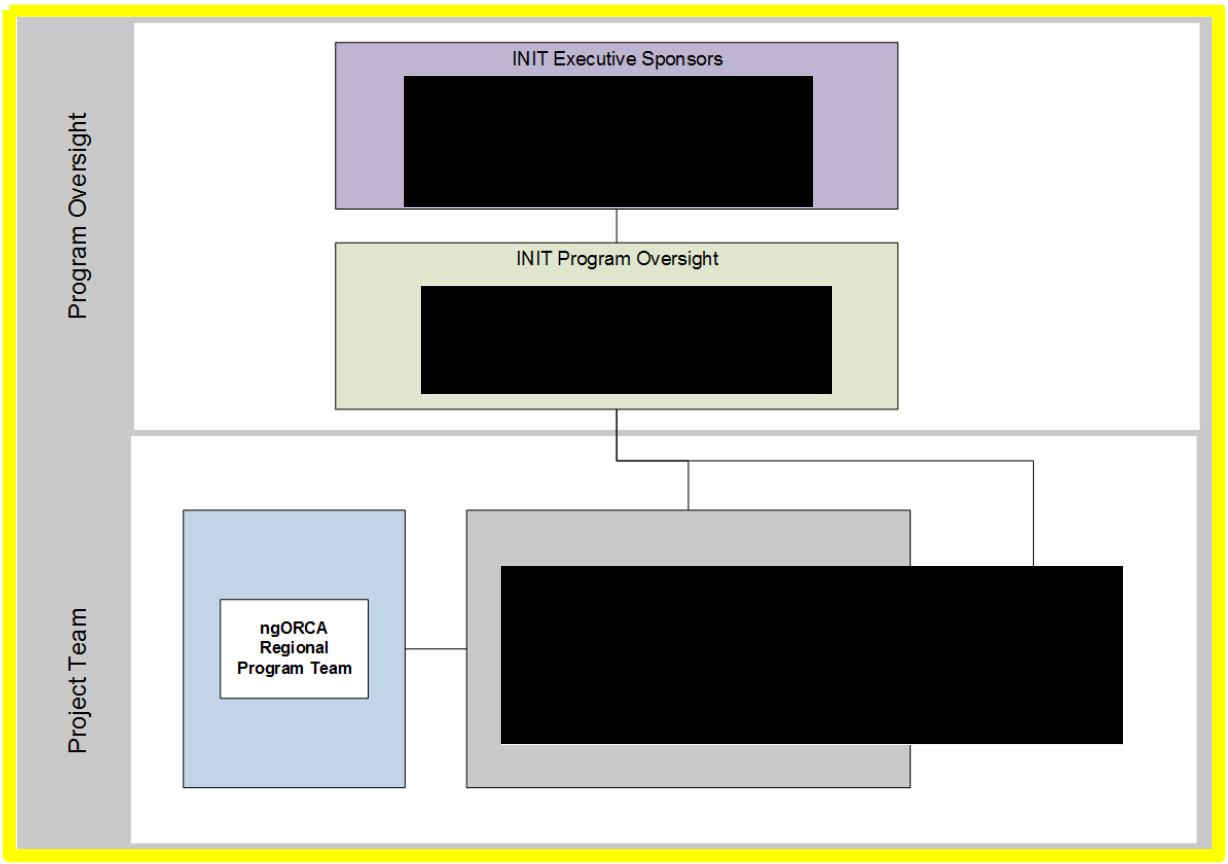

Figure – INIT Program and Project Teams

The INIT Project Management Team, comprised of INIT's Project Manager and Lead Engineer, are proactive, determined and innovative professionals who align the principles of Project Management set forth by the Project Management Institute (PMI), while ensuring the on-time delivery of INIT's high-quality projects.

INIT will be responsible for assigning all necessary resources to meet its obligations under the ngORCA contract. As a central component of this effort, INIT has assigned to the Project a team of highly qualified personnel having the management skills and technical expertise to work with

the ngORCA team in a professional and highly responsive manner. INIT shall provide the team with the lines of communication and authority required to ensure that INIT's obligations are completed expeditiously using its most qualified personnel. As this is a project driven by schedule constraints, legacy system approaching end-of-life and new stations and locations opening, INIT's Project Manager will be the primary advocate internally with INIT. Additionally, the Project Manager will have monthly project reviews with the INIT sponsor with which schedule will be of the utmost importance. At any point should risk to schedule become apparent the sponsor will alert and escalate to the INIT Executive Board.

The following organization chart has been developed to provide the ngORCA team with a comprehensive overview of the INIT organization, project controls, planning methods, and schedule.

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2.5 INIT's Highly Qualified and Experienced Key Personnel

Table 2-1 - INIT's Highly Qualified and Experienced Key Personnel

Name	Description of Key Individuals' level of involvement in the project	% on this project	% of time in Seattle	% of working hours onsite
[redacted]				

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Name	Description of Key Individuals' level of involvement in the project	% on this project	% of time in Seattle	% of working hours onsite
[redacted]				

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Name	Description of Key Individuals' level of involvement in the project	% on this project	% of time in Seattle	% of working hours onsite
[redacted]				

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2.6 INIT's Key Personnel are Available and Accessible

Table 2-1 lists INIT's highly qualified personnel assigned to the ngORCA project and details their percentage commitment and expected time in Seattle. This team is empowered with both the authority and the open lines of communication necessary to collaborate with ORCA's Project Team to ensure that obligations are met without negative impact to the Agencies or their customers.

Regarding the definitions in Table 1-1, percentage on the project relates to total hours per year dedicated to project activities. "Percentage of time" in Seattle is the estimated percentage time the resource will physically be in Seattle. What is not detailed is the percentage of project time the resource will be at a Sound Transit location or INIT's offices (a short 5-minute walk away from each other). Ideally, we will be able to have a project office located in Sound Transit's offices so that the combined ST regional and INIT teams can work most collaboratively. We have attempted to show this in column titled "% of time onsite". However, we understand that may not be an option due to space considerations. In any regard, INIT is highly flexible and looking forward to working in a way that is most collaborative, most effective, and most efficient.

In addition to the Project Team, INIT proposes an Executive Steering Committee be assigned to the Project. This Committee is comprised of Executives, the Customer and INIT. The Committee maintains a broad and consistent oversight of the project and ensures that the project receives visibility and attention throughout its duration. The Steering Committee is informed on a regular basis of the project's status and intervenes when necessary to maintain the velocity and expectations of the project.

2.7 INIT's Experienced Methodology and Approach to Implementation Services

2.7.1 Explanation of Section Numbering

In this section we provide our response detailing INIT's methodology and approach to the Implementation Services specified in the ngORCA Scope of Work (SOW), Section 2. For ease of comparative review and evaluation, in order to maintain a one-to-one numbering sequence between this section 2.5 and the SOW Section 2, we have advanced the section numbers in this document. In so doing please note INIT's first sub-section reference below of 2.5.2.1 has the third and fourth integer corresponding with the SOW Section 2.1. For the sections that follow, the third and fourth integers will increase accordingly so that they map to the SOW sections that follow (e.g. 2.5.2.2 equates to SOW Section 2.2 Design Review & Approvals).

2.7.2 Implementation Services

2.7.2.1 Project Management

Nothing is more important to INIT than having satisfied customers. We achieve this by working in close cooperation with our customers and partners; strictly adhering to our ethics. Our corporate culture is linked to our ethical guidelines which we proudly publish on our website. These ethical guidelines build the framework of our daily actions and commitment to quality.

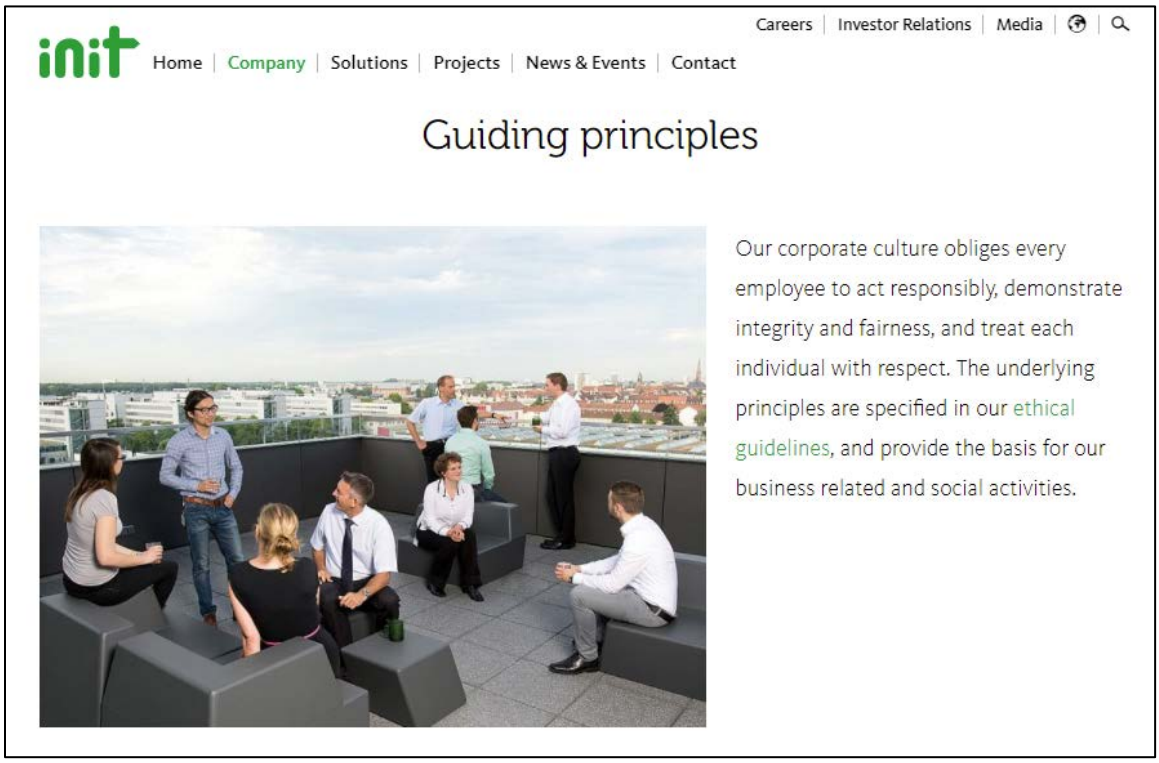

Figure 2-1: INIT Corporate Website

INIT's methodology and approach to planning, execution, tracking, and reporting of all tasks will begin with a sound Project Management Plan (PMP). The PMP will include the baseline for setting up, carrying out, monitoring, and delivering all the elements associated with project deliverables. This methodology, based upon the Project Management Body of Knowledge (PMBOK) augmented with INIT's years of experience deploying complex AFC systems has proven to be successful in our past performance on other projects. The Project Management Plan, also identifies and designates critical communications between various project partners, including essential customer, contractor (prime and subcontractor), as well as any external communication links. Our PMP includes a collection of formal detailed documents, clear communications channels, task lists, target start and end dates, budget overview, and a list of required resources. It also introduces our risk management methodology, which helps to identify the potential

challenges, and threats, by recognizing, exposing, and mitigating risks impeding successful timely execution of the project. Our approach will also convey to ngORCA transit agencies that we clearly understand the Agencies goals, objectives, and requirements as set forth in the RFP.

2.7.2.1.1 Project Manager & Lead Engineer

INIT is a proven industry leader in designing and delivering high-quality solutions for our public transit partners and INIT's Project Management Methodology is integral part of our success. The INIT Project Management Team, comprised of proactive, determined and innovative professionals, align the principles of Project Management set forth by the Project Management Institute (PMI), while ensuring the on-time delivery of INIT's high-quality projects.

INIT's Project Executive, [redacted] INIT's West Coast Regional Director and possesses over twenty years of systems experience–including significant experience on system implementation and large-scale system migrations. [redacted] has overseen two successful fare collection launches while with INIT and with that, understands how to support the Project Team and navigate the internal INIT teams to support with any escalation. Specific to ngORCA, [redacted] will support [redacted] in the overall schedule advocacy. [redacted] is also located in Seattle and will be there for the entire duration of the Project, from the Project Kick-off through Final Acceptance.

INIT's Lead Engineer, [redacted] is a Senior Systems Engineer with eight (8) years of electronic fare collection experience. [redacted] was recently the Lead Engineer for INIT on our [redacted] the proposed ORCA system is based on. These systems involve multiple points of open integration with third party systems and devices. [redacted] will be responsible for all technical aspects of the project and have all INIT's project engineers report directly to him.

INIT's Lead Project Manager, [redacted], is a Senior Project Manager at INIT with ten (10) years of fare collection experience. Prior to her time with INIT, [redacted] was able to gain insight and knowledge of the Agency's working group and also the legacy ORCA system during its initial implementation.

During her tenure with [redacted]

2.7.2.1.2 Project Meetings

INIT understands the importance of effective communication and realizes that it is a key factor in successful project delivery for large-scale complex projects such as ngORCA. As such, we strongly agree with ORCA's requirement for regular project meetings and frequent and direct communications. To conduct project meetings efficiently, INIT provides an agenda prior to each meeting and meeting minutes (including action items) following each meeting.

As part of the initial planning for ngORCA, INIT proposes the following meetings as critical to successful and engaged communication:

- Project Kick-off
- Weekly coordination / status meeting
- Monthly progress review meeting
- Phase transition / planning meeting
- Ad-hoc technical and administrative meetings

While in total, the quantity of meetings planned for this project may seem high, it is important to note that the target audience for each will vary. Taking this approach ensures that stakeholders across the spectrum have appropriate engagement and status knowledge opportunities based on their level of engagement with the project. As you'll see, some meetings are meant at a higher level which are designed more for informative purposes, while others are meant to be decision drivers or detail level discussions. However, meetings in general are typically open to a broad range of stakeholders which allows flexibility for optional attendance (e.g. an Agency CEO may not be required for weekly project meetings but may want them in their calendar to attend and listen in on occasion). Provided below is additional information about each meeting as well as to whom the intended audience is proposed.

Project Kick-off

Target Audience: Project Teams and Key Stakeholders

Attendees: INIT Core Project Team, ngORCA Core Project Team, Consultant Team and Key Stakeholders

INIT will conduct the ngORCA Project Kick-off meeting no later than 14 calendar days after Notice to Proceed (NTP). Additionally, in parallel to the planning and coordination of the ngORCA Project Kick-off, INIT will launch an Internal Project Kick-off with all INIT Project Team members (including all key project management and engineering personnel) to outline the project plan, begin scheduling internal technical and planning meetings, validate task assignments, and so forth so as to ensure preparation for adherence to the near-term project deliverables for a timely and effective start.

The ngORCA Project Kick-off with the ORCA's key stakeholders will set the stage for project communications, ensuring an understanding of the scope and schedule of the project, and the expectations and responsibilities of all parties.

The meeting will occur once and at a time and location mutually agreeable by the parties. The content of the meeting will include at minimum, the following agenda items:

- Introduction of key ORCA and INIT personnel
- Review of the project roles and responsibilities
- Review of INIT's scope of work

- Presentation of the draft project baseline schedule and near terms planning activities
- Identification of risks and project concerns
- Propose initial meeting dates and time for recurring meetings

Weekly Coordination and Status Meeting

Target Audience: Project Teams

Attendees: INIT Project Manager and Lead System Engineer, ngORCA Core Project Team, Consultant Team

Optional: Key Stakeholders, INIT SMEs

Effective project communications are enabled by Weekly Coordination and Status Meetings. These meetings facilitate the coordination of project activities, provide status of project schedule and other deliverables that are due or may become due, as well as provide a forum for decisions that must be made prior to the next Monthly Progress Review Meeting.

INIT will prepare and submit an agenda two (2) business days prior to the meeting. INIT's lead project staff (e.g. Project Manager and System Engineer) will be in attendance in person while other designated personnel may attend (either in person or remotely based on location) based on the pre-determined need outlined in the agenda.

INIT will document minutes during the meeting and submit to ORCA via email for review three (3) business days following each meeting for review and notation of any changes needed.

Meeting agenda, minutes, and action logs will be saved to the collaboration site for ease of access.

Monthly Progress Review Meeting

Target Audience: Executive / Steering Committee, Key Stakeholders

Attendees: INIT Project Manager and Lead System Engineer, ngORCA Core Project Team, ngORCA Leadership Team(s)

Optional: Key Stakeholders, INIT SMEs, INIT Leadership

INIT will conduct an executive-level in-person Monthly Progress Review Meeting at a designated ORCA location through the lifecycle of the project. If required, additional video or teleconference meetings can be scheduled.

In preparation for this review INIT will submit the agenda and a Monthly Progress Report five (5) business days prior to the meeting. This report will provide a high-level overview of progress of the overall project from the previous calendar month.

Content will include such items as:

- Minutes of prior meetings
- Project schedule updates
- CDRL content, submittal list and schedule
- Action item log and Master Issues List
- Progress and issues arising since last meeting
- Sequence of critical work and manufacturing schedule
- Budget, milestone and invoice status
- Corrective actions to maintain schedule
- Assessment, review and update of:
    - Engineering, manufacturing and quality control
    - Safety Assurance Program
    - Risk Plan and Risk Register
- Other priorities that require immediate attention

INIT will document minutes (including action items) for all monthly Progress Review Meetings and submit to ORCA three (3) business days following each meeting.

Phase Transition Planning Meeting

Target Audience: Project Management Teams

Attendees: INIT Project Manager and Lead System Engineer, ngORCA Project Manager, Consultant Team, ngORCA SME/Technical Team

Optional: INIT SMEs, ngORCA Core Project Team, ngORCA SMEs

In the project schedule INIT has detailed several key milestones which represent various phases of the overall program delivery. As preparation for the next phase (e.g. design to development, project to operations) INIT will coordinate and schedule transition meetings to evaluate and discuss the key deliverables, schedule, and other information specific to the pending work.

This is a project level in-person, small group meeting with key personnel from both INIT and the Agencies who are critical to the planning and oversight of the upcoming activities.

Ad-hoc Technical and Administrative Meetings

Target Audience: TBC by Host

Attendees: INIT Project Manager, Lead System Engineer, or topic SME, Agency SME(s)

Optional: TBD by Host

To facilitate ongoing discussions to address various elements of the project delivery, additional ad-hoc meetings may be necessary to mitigate schedule impacts or to discuss technical matters between subject matter experts. The nature of these meetings is defined by scheduling party and may result in a 1:1 attendance up to a large group or audience.

2.7.2.1.3 Project Management Plan

The Project Management Plan will serve as the key document to plan, execute and control the project. It will provide the following elements:

- Organization chart identifying key project personnel and contact information
- Master program schedule, identifying key program milestones and activities
- Schedule for all project design and manufacturing elements that require agency approval
- Project meeting schedule
- Methodology to control program schedule, scope, cost, and risk
- Project risk management processes and risk register, including identified project risks and actions required to mitigate them
- Transition and change management processes and procedures
- Safety processes and procedures
- Quality assurance processes and procedures to ensure that the requirements of the contract are being met
- Subcontractor management and communications
- Document and Master Issues List (MIL) control processes and procedures, including version and traceability controls
- Configuration management processes and procedures for all submittals and subsequent revisions

The content of the Project Management Plan as well as its responsibilities are ultimately owned and led by the Project Manager. However, the Lead System Engineer and INIT Project Team will be collectively responsible for ensuring adherence to the guidelines or processes defined and agreed.

For example, the Project Manager will organize and facilitate the scope of work and commercial agreements for the INIT subcontractors. In so doing the Project Manager has taken the necessary steps to align the scope of the ngORCA work with that of the subcontract (as applicable) as well as any relevant commercial terms that are appropriate (e.g. Agency approval, prevailing wage, security, etc.). Following that the Project Manager will engage the INIT SME and

coordinate handover for execution of the project plan as defined in the subcontractor's scope of work. The Project Manager and INIT SME will communicate regularly on status, progress, risk, etc. Should no concerns arise, and the work is carried out according the project plan then no intervention is undertaken by the Project Manager. However, in the event issues arise the Project Manager is informed, and the appropriate escalation path is undertaken based on the nature of the issue.

As project work is carried out the INIT SMEs and Core Project Team will routinely monitor and manage the scope and processes. All issues or concerns will be escalated to the project leadership team for decision making or issue resolution.

The INIT Core Project Team will have routine weekly internal meetings to track and manage the execution of the work and the Project Manager will validate these efforts are carried out according to the processes and methods as defined in the Project Management Plan. Additionally, the Project Manager will report to the Executive Steering Committee once per quarter to report and track the same.

2.7.2.1.3.1 Master Schedule

The proposed preliminary master program schedule, covers all project activities and milestones for the duration of the contract includes:

- Work item description
- The work item sequence, showing successor and predecessor relationships
- Work item duration
- Critical path of work completion

During the project initiation and delivery, Amy Gardner, the INIT Project Manager, will be the schedule advocate for the project. Additionally, due to the time critical nature of this project, Amy will work closely with the INIT Executive Sponsors to ensure timely escalation for risk mitigation should the need arise. [redacted], Regional Director of Western Operations, will champion the schedule from the executive leadership side.

If INIT is the successful proposer, INIT will add the narrative explanation of the work involved and the basis for estimated time duration as part of the PMP.

The preliminary master program schedule indicates tasks that ORCA is responsible for, and the version that would be submitted as part of the PMP would identify the task breakdown between INIT and the subcontractors.

The detailed master program schedule is created and maintained in Gantt format using Microsoft Project. To provide a solid project plan, INIT has, in some cases, added slack as

provision for additional challenges or unforeseen events. INIT has also assumed that all design submittals require resubmittal, should ORCA add additional design changes after receiving the initial design packages or further clarification become required.

INIT has included an electronic version of the preliminary master program schedule on the USB flash drive delivered with each proposal. The initial version is shown in *Section 2.12 An Achievable Project Schedule* below.

2.7.2.1.3.2 Scope Management

The Scope Management Plan as part of the PMP and ensures scope is both well-defined and in line with the contracts requirements. This plan will be the foundation for all necessary change management discussions and change orders.

The content of the Scope Management Plan will provide the process description for the scope verification, and scope control of the ngORCA Project. The plan documents the scope management approach, roles and responsibilities as they pertain to project scope, scope definition, verification and control measures, scope change control and the project's work breakdown structure.

INIT utilizes Scope Management as a set of processes to ensure the Project Team identifies and performs all of the tasks required to complete the project as defined in the Contract and the Technical Specifications while excluding work that is out of scope and updating the scope baseline as an output of the Change Management Plan. The Scope Management Plan details how the project scope is defined, developed, and verified. The plan clearly defines who is responsible for managing the project's scope and acts as a guide for managing and controlling the scope.

Project scope management typically includes a five-step process of requirements collection, scope definition, creation of a work breakdown structure (WBS), scope verification, and scope control. INIT understands that the Agencies completed the requirements collection and scope definition as part of this RFP. Upon Contract award and Notice to Proceed, INIT would then responsibility for the remaining steps which include 1) creation of a Work Breakdown Structure (WBS), 2) scope verification; and 3) scope control.

2.7.2.1.3.3 Requirements Traceability Matrix

As part of the Scope Management Plan, INIT will develop and include a Requirements Traceability Matrix (RTM). Historically, the RTM has been a Microsoft Excel spreadsheet created and maintained by INIT. In using Excel, INIT has been able to easily modify or edit content based on the stage of the project as well as share it with multiple parties without the concern of

custom-software or access rights and privileges. However, in consideration of the size and complexity of the ngORCA project, INIT will look to use a cloud-based online software tool such as Visure Requirement.

From their website, Visure is known for:

Process-Driven Requirements Engineering

Visure Requirements becomes the process backbone representing all requirement-related artefacts.

Visure Requirements becomes the process backbone, managing all requirement related information (like requirements, tests, change requests, risks, etc.), their relationships and their interactions with the users. It helps standardize and enforce the defined processes across the organization, formalize a common requirements specification structure and handle changes throughout the lifecycle.

Requirements lifecycle coverage

Your Requirements Management Process in one single tool.

Visure Requirements is a state-of-the-art Requirements Engineering tool specifically designed to provide an integral support to the complete Requirement process including Requirements capture, analysis, specification, validation and verification, traceability, management and reuse.

User orientation

Simplify and help users focus on what they should be doing!

Visure Requirements is a fully customizable tool that allows administrators providing users with views to perform each of their specific tasks like: traceability, impact analysis, requirements creation, validation, specification, etc. User will be accessing only to the information they need to work with and with the options they need.

Administrators are able to configure the available menus, toolbars, columns, buttons, etc.

Collaboration

Several Roles working at the same time over the same elements.

Visure Requirements is meant to be a multiuser tool allowing several users to work with the very same set of requirements at the same time keeping traces and reports about every change with a complete versioning system.

Integrations

Visure Requirements allows users to keep using their own tools, while keeping

everything centralized.

Visure Requirements provides a versatile Integration Platform which can be used to integrate with third party, commercial or proprietary, tools to extend the change impact analysis features to elements out of the scope of Visure Requirements.

Reusability

From simple requirements reuse to product families support!

Through Visure Requirements reusability, that allows sharing requirements and other artefacts like tests or uses cases along with their traces through different projects[j1] , users are able to easily create product families -that share a core of common requirements-, set of standards requirements or even full features along with their tests and use cases. Additionally, reusability is far beyond copy paste as it is possible to keep a reference to the original project, and being updated through the changes performed in the original elements (if needed).

The RTM serves as a cross-reference, which links each requirement and deliverable with the applicable System Design Document(s) / ORCA Program Document and test procedures. The RTM is updated throughout the project and utilized during design, implementation, test and project close out.

Please note the Visure Data Sheet as follows:

www.visuresolutions.com

visure requirements

Requirements Lifecycle Management

Need to take control of your requirements specifications?

Pressure increases to deliver quality products on time and within budget. Software and systems development is experiencing an exponential growth in complexity while processes are becoming more iterative to reduce time-to-market and cost but at the same time guarantee the highest level of quality.

One tool for the complete requirements lifecycle

Visure Requirements is a flexible and complete requirements engineering solution to help organizations increase the quality of their products and collaborate more effectively by supporting requirements capture, analysis, specification, validation and verification, management and reuse.

Benefits

Systems Engineers:
"I can take control of my requirements specification, providing a better response to changes, and reuse existing assets."

Product and Project Managers:
"Visure Requirements allows me to reduce development time and provide a faster delivery while reducing rework."

Quality Managers:
"Managing test cases and tracking coverage improves the quality of our deliverables."

Flexible process support

Visure Requirements becomes the process backbone, managing all requirement related information, their relationships and their interactions with the users. It helps standardize and enforce the defined processes across the organization, formalize a common requirements specification structure and handle changes throughout the lifecycle.

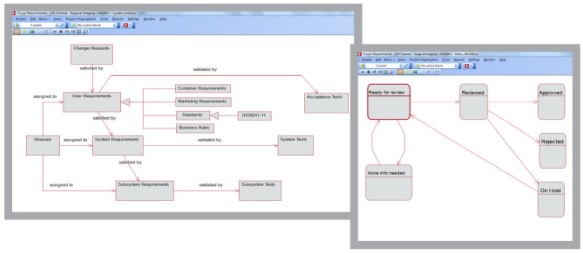

Image 1: Graphical requirements structure

Structure

Multidimensional structures in Visure Requirements allow organizing requirements tailored to various project needs. Whether it is based on project phases, requirement types, requirements documents, reuse approaches, etc: in a single source of truth each who can define multiple ways of organizing requirements and combine those structures into one meta-model.

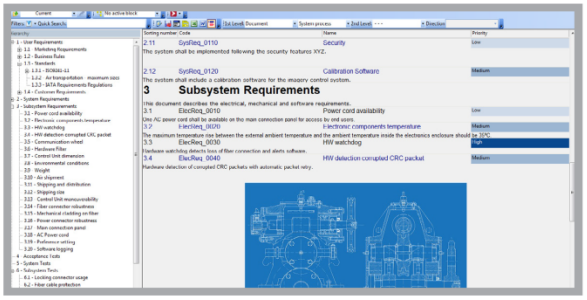

Image 2: Requirements document view

Quality

Visure Requirements helps avoid pitfalls and mitigate risks each step of the way, from writing better requirements and prioritizing needs to providing the industry's best change impact analysis capabilities.

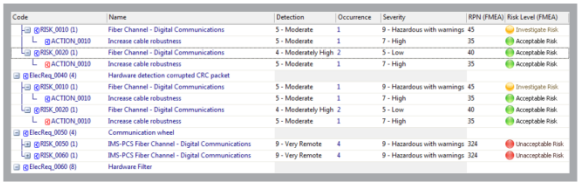

Image 3: Risk Mitigation

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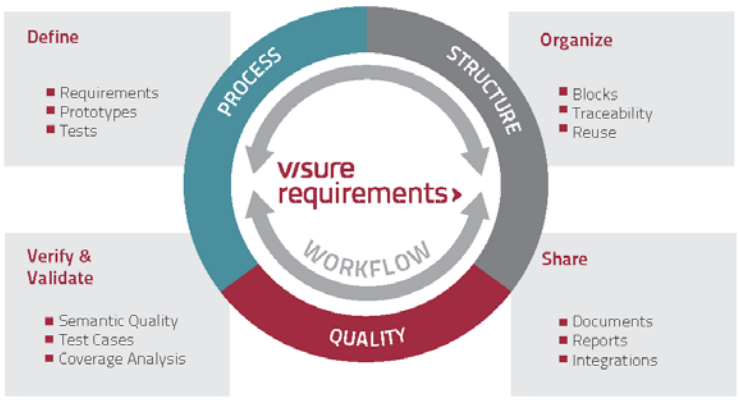
Requirements Lifecycle Management

Visure Requirements allows to define the Project structure composed of all manner of atifacts: Glossaries, Change Requests, Requirements, Test Cases and the relations between them.



Feature list

Requirements Elicitation	Manual and automatic requirements capture from different sources
Requirements Capture	Modeling of the Problem Domain model to understand the problem
Requirements Management	User oriented management for attributes, workflows, traceability, filters and views
Requirements Traceability	Complete traceability end-to-end
Semantic Analysis	Perform a semantic analysis over the requirements
Verification and Acceptance Tests	Definition of acceptance tests and fit-criteria
Report Generation	Powerful reporting of project information dashboards
Product lines and variants support	Establish a variant and product line management process
Reusability Support	Support the simple reuse of non-functional requirements and tests as well as complex processes for Product families and variants
Requirements Version Control	Complete Version Management for all requirements-related information
Project Management	Project and product organization
Integrations with other Tools	Interoperability with most popular design, test, project, user management tools, and open APIs and PluginSDK for customization

Quotes

Banco Espírito Santo
- Paula Brandão

"Thanks to the quality of Visure Requirements, ESI has automated its Requirements with the objective of facilitating the everyday life of its employees."

KUKA Laboratories GmbH
- Dipl.-Ing. Sascha Kolb

"With versatile products such as KUKA robots, there are many demands from different sources, e.g. externally from customers, in the areas of industrial manufacturing and medical technology, laws, standards and guidelines, and internal demands with respect to the development of such strategies and risk analysis. This diversity requires a systematic review and bundling of technical requirements for the product as well as the processes involved. Visure Requirements is a powerful tool that supports this."

Contact

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INIT utilizes a RTM to map the requirements specified in the contract to specific deliverables. It provides bi-directional traceability between the contract and design documentation, allowing users to determine the origin of each requirement and track that each contract requirement has been fulfilled. It is accomplished by examining the ORCA contract for all requirements and entering them into a Requirements Traceability Matrix (RTM) template. The Project Team then reviews and assigns the responsibility of each requirement and distributes the RTM to appropriate parties. By completing the RTM, the goal is to:

- Fully understand the requirements
- Improve the quality of the product currently being developed
- Ensure that all requirements will be met
- Facilitate change management, especially changes that may impact cost and/or schedule

All Changes will also be added to the RTM and the work carried out as part of the Change Management Plan processes.

2.7.2.1.3.4 Cost Management

The Cost Management Plan is part of the PMP and describes the framework, tools and processes INIT uses to monitor and control the project budget and manage costs throughout the project lifecycle as well as outlining the process for approving changes that affect cost and identify who has the authority to approve those changes. It will also outline the format and metrics for how project costs are measured, reported, and controlled.

There are several factors that will comprise the overall project budget as well as performance metrics to evaluate progress; these will be further elaborated as part of the Cost Management Plan. In general, the Program Manager will be responsible for managing and reporting on the budget for the duration of the project.

Costs will be managed based on the Control Accounts outlined as part of the Work Breakdown Structure (WBS). INIT will utilize Earned Value Management calculations as the means and methods to measure, report, and control project costs. As a general approach, the following calculations are preferred:

- Schedule Variance (SV)
- Cost Variance (CV)
- Schedule Performance Index (SPI)
- Cost Performance Index (CPI)

Cost and schedule variances will be tracked and monitored for adherence to stated thresholds.

2.7.2.1.3.5 Risk Management

INIT will provide a PMP that includes a risk management plan to control project costs, maintain project schedule, and improve project performance.

The Risk Management Plan is an integral part of risk management for the overall project. Effective project planning requires identification and assessment of risks, and the actions necessary to mitigate the risks. As part of the Risk Management Plan, INIT will undertake the requisite planning activities involved in establishing the infrastructure to support effective risk management. The primary activities are:

- Establish the risk management organization and assign roles and responsibilities
- Evaluate the capability and availability of project staff to perform risk assessment to determine whether additional resources are required
- Plan an initial assessment and periodic monitoring/audits. The periodic audits are proactively aligned with key project checkpoints where audits uncover the highest severity risks

The Project Team (INIT and ORCA personnel) works closely to identify members of the Risk and Issue Management team that is responsible for risk management. The teams will be identified by key functional areas. In some cases INIT may have more than one resource per functional area or circumstances where one resource is vital to multiple areas. The key INIT personnel that will lead these teams are as follows:

- Project

[redacted]

- Design

[redacted]

- Installation
    - Back Office – David Page, David Steigleiter
    - Front Office – Jim Stamateou

Table 2-2 provides risk management roles and responsibilities that will be updated with ORCA during the development of the project management plan.

Table 2-2 - Risk Management Roles and Responsibilities

Role Names	Role Definitions
Project Manager	• Drives the risk management process for the entire project with early start • Participates in risk identification, mitigation, and tracking progress • Accepts or rejects the level of risk for the project • Updates the risk register
Project Team	• Performs the risk management process for the project • All members of Project Team will be encouraged to convey any risks they identify
Risk Identification Process Team	• Provides input to the process for identifying risks • Includes representatives of all affected groups involved in the project (including the Project Team, Steering Committee, Joint Management Committee, organization management, etc.), as well as any others expected to have insight into risks for this project (such as Internal Audit, and/or external reviewers)

To facilitate documenting and tracking risks, INIT will establish and update the ngORCA Risk Register. The Risk Register is a pre-formatted form designed for the identification and tracking of project risks. All project risks are cumulatively recorded and tracked using this form. On this form, a risk will have an assignee who is responsible for defining the actions necessary to manage the risk. Accordingly, the assignee will be responsible for the required actions as defined or agreed in the risk register.

Risks can be identified at any time and reported by any member of the Risk Management Team, the Project Teams, or stakeholder groups throughout the project lifecycle. Additionally, for the ngORCA project, the INIT Project Manager will regularly review the project as an additional project risk mitigation effort; identifying potential risk factors and providing counter-measures to deal with identified risks. These additional reviews are performed on a weekly basis, and jointly with ORCA and the Risk and Issue Management Team monthly. Identified risks and counter-measures are noted within the associated meeting minutes and recorded in the project's risk register.

2.7.2.1.3.6 Change Management

The Change Management Plan is part of the PMP and will describe how INIT and the Agencies will manage and control changes to the existing system baseline. This plan will describe how a Request for Change (RFC) is initiated, approved, and processed.

INIT utilizes a formal change control system as part of its overall quality and control processes. In so doing, changes are introduced, discussed, and approved in a controlled and coordinated manner prior to implementation. This method and approach reduces risk, ensures planned changes are fully scoped with an assessment and impact analysis thereby limiting the introduction of defects or faults within the system or unnecessarily causing impact to the project schedule.

While any Project Team member can make a suggestion for a change, a formal Request for Change must be submitted by the Agency designee so that INIT is clear on the intent and build the requisite proposal. Once a formal request has been made, INIT will be responsible for managing and administering the change control activities including updating the change log and keeping the Agencies up to do on progress. These activities will encompass formal control and approval of changes to documentation, drawings and diagrams, hardware, or software; all requested changes will be managed in a central configuration management database.

2.7.2.1.3.7 Safety Assurance

INIT's Project Management Plan will include the Safety Assurance Plan. This plan identifies all safety processes and procedures to identify safety risks, the responsible party for managing the risks, and all corresponding mitigation plans.

INIT's Safety Engineer [redacted] will oversee the project delivery from a safety perspective. The Safety Engineer documents, reviews and approves all system safety analyses to insure hazards are adequately identified and their impact is eliminated or controlled. Jim will validate that INIT's staff and its subcontractors have received the requisite training applicable to needs of the project and that the training is in conformance with the applicable standards, rules, codes, and regulations. In effort to ensure compliance the Safety Engineer will perform periodic audits and report the findings to the Program Manager.

2.7.2.1.3.8 Quality Assurance & Control

To ensure a high level of quality on a consistent basis, INIT has implemented a certified Quality Management System that adheres to the ISO 9001 global standard. INIT has maintained an active ISO 9001 certification since 1997. INIT is responsible for the quality of its products and work, as well as that of its subcontractors. Issues with quality experienced at a project level are tracked and managed by the INIT Project Manager. Items specific to manufacturer concerns or OEM products are escalated through the INIT Logistics and Procurement manager.

The dedication of the INIT team in providing quality products and exemplary customer service is fully supported by the company's Mission, Business Principles, Quality Principles and Quality Strategy as follows:

Mission

We support transit companies in their task to shift the growth in traffic to public means of transport. Innovative solutions make bus and rail more efficient, user friendly and thus more competitive compared to individual transport.

Business Principles

- Our products meet the highest quality standards and offer long-lasting value
- Our company satisfies real needs
- Quality is the responsibility of all employees
- Quality management is a prime responsibility of our Management Team
- Honesty and reliability are an integral part of our company and a deeply rooted tradition
- Protecting the environment is a priority for us

Quality Principles

- Our performance fills our customers with enthusiasm
- Our products and services offer high levels of performance and impeccable quality
- The benefit to the public transit agency and its passengers is our focus
- Our capable and creative employees master the transit industry challenges of the 21st century through their own capabilities and continuous job training
- Continually increase market share through successful implementations and satisfied customers

Quality Strategy

We reach higher levels of quality through:

- Including a Quality Control Engineer, [redacted], to provide reviews and analysis outside of the Project Team itself. He will report to [redacted] for the project, and manage items such as systemic reviews, failure analysis reports, etc. These will be reported on during normal project reviews and when issues arise that need additional analysis.
- Close cooperation and constant communication with customers and partners
- Standardization of services and products
- Continuous efficiency control and improvement of processes

- Individual quality objectives for our employees
- Promoting training and further education of employees
- Excellent working environment and the latest tools
- Appreciation of special efforts

INIT understands the importance of quality in all aspects of the project. Ultimately it is the quality of INIT's products and services that will allow ORCA to perform the critical functions that are essential to day-to-day operations of the ORCA service. Upon request, INIT will gladly provide a more detailed description of our Quality Assurance and Management Process, including a thorough explanation of INIT's ISO process.

2.7.2.1.3.9 Subcontractor Management

INIT reviews subcontractor's performance history, quality control processes, safety controls, financials and references to ensure subcontractors will be able to meet performance criteria and deliver per schedule. Where special skills or processes are required, INIT reviews subcontractor training and certification records to ensure their personnel are qualified to perform these functions.

The PMP includes a Subcontractor Management Plan that identifies all subcontractors and the tasks they have been tasked to perform. As with the general content of the PMP, it is the responsibility of the Project Manager to monitor and control the Subcontract Management Plan. Further, the Subcontractor Management Plan provides an overview of INIT's approach to working with suppliers and subcontractors. All subcontractors on the ngORCA project are subject to the reporting and performance criteria outlined in this program.

This plan also includes the procedures for organizing and communicating with subcontractors, including the sections of the technical specification in their scope of work they are performing. They are also contracted with the expectation of adhering to the project schedule in the context of the overall project implementation. INIT's subcontractors are available for all required meetings, as indicated in their schedule, and other meetings that may require their attendance.

The Subcontractor Management Plan will also detail the associated Disadvantaged Business Enterprises (DBEs), the tasks they have been selected to perform, and the revenues associated with that DBE throughout the project lifecycle.

As noted above, INIT will ensure subcontractors are informed of all applicable requirements in the specification and that appropriate engineering and project management tools are utilized for coordination and communication. Any plans, specifications, drawings, schedules and documents relevant to any subcontractor's portion of the work will be shared. The proprietary

nature of any Agency or INIT intellectual property will be protected by a requirement for a Non-Disclosure Agreement whenever appropriate.

The following communications and reports will be required of all subcontractors:

- Provide at weekly and/or monthly status reports as agreed;
- Provide frequent updates, as agreed in writing, during critical project phases such as equipment installations or testing;
- Attend safety orientations, pre-job meetings or kick-off meetings provided by INIT prior to any work beginning; and
- When appropriate, participate in ad-hoc technical or troubleshooting meetings and discussions.

The Subcontractor Management Plan will also include the process and procedures, including risk mitigation or recovery strategies, required to replace subcontractors should it become necessary at any point during the life of the project.

Establishment and Negotiation of third-party software licensing:

2.7.2.1.3.10 Communications Management & Document Control

This Communications Management and Document Control Plan is part of the PMP and will describe the framework for controlling project communications for the ngORCA project as well as outlining the document repository and system used to file all project documents that are formal in nature.

Communications is one of the most critical aspects of a project. To ensure a high quality of communication throughout the delivery of this project, INIT subscribes to a general list of goals as follows:

- Easy exchange of information through informal communications
- Documentation of formal communication (major issues, resolutions and/or agreements)
- High quality, reliable tracking, and easy access to high quality, reliable tracking, and easy access to formal and informal project documents

Communications will be of the highest priority in executing this project. Project communications includes meetings, reporting, tracking action items, issue resolution and so forth. The purpose of Communication Management is to identify the types and frequency of communications specific stakeholders should receive and who should respond as well as how said communications should be delivered. As the ngORCA project is comprised of varying levels of stakeholders, establishing a clear and effective plan will be central to ensuring appropriate, measured, and timely response as well as successfully distributing project information and status.

At the onset of the Project, INIT suggests the following methods for communications:

- **Monthly Reports** - an executive level report will be provided on a monthly basis from the start of and through the conclusion of the project. This report will include high level progress information for the previous months activities, risks, contract / scope modifications, and schedule.
- **Meeting Minutes** - detailed minutes and actions will be drafted using Microsoft Word and Excel for each scheduled/planned meeting with the Project Team (e.g. weekly meetings, design reviews, etc.) and distributed to attendees; additionally, for ad-hoc meetings, minutes will be recorded and provided to meeting attendees, format may vary based on the nature of the meeting.
- **Email** – regular communications are maintained by email and exercised by the Project Team; first paths of escalation are also provided by email for informative purposes
- **Letter Correspondence** – formal communications are reserved for purposes of specific approval, informative matters, escalation, or other similar matters (e.g. approval of a new subcontractor)

Communication Management will include, but not be limited to, processing, design reviews, team meetings, submittals, correspondence, sharing of critical project management plan components, such as risk, QA/QC, scope control and the general involvement of ORCA review/approval persons. The processes of Communication Management that will be deployed include the following:

- **Communication Planning** – Identify the stakeholders, determine the information and communication needs, expectations and resolve the issues

- **Project Structure** – Published project organization structure, responsibilities and escalation paths
- **Status Reporting** – Collecting and distributing status reporting information available to project stakeholders in a timely manner
- **Meetings** – Planning and publish project meeting schedules with the ORCA, Subcontractors, INIT and other stakeholders

As part of the Document Control process, INIT will set up and administer a collaboration website as a project resource for document storage and sharing including sub folders to address the various needs of the project (e.g. design reviews, operation manuals, installation guides, etc.). During the design review INIT will create a Document Control Sheet (DCS) using Microsoft Excel. This sheet will be used to track the creation and submission of all required documents (e.g. CDRLs) throughout the project lifecycle. This sheet will include the ID#, document title, version number, last approved iteration / date (e.g. FDR), owner, and other pertinent information as it becomes available (e.g. comment regarding additional update needed pending a future Change Order).

The DCS is managed and maintained by the INIT Project Manager and Lead Engineer. As noted in the section below INIT will also track and manage a Master Issues List (MIL). The MIL will be created for each design or iterative phase of the project using Microsoft Excel. When comments are received, they are allocated to the associated SME for review and are addressed based on the phase of the project lifecycle. If for example, comments are received as part of a formal design review, such a Final Design Review (FDR), INIT's responses and suggestions for addressing the comments are collated from each SME by the Project Manager. Responses and suggestions are then peer reviewed by an appropriate technical or subject-specific resource prior to finalization. Thereafter, the vetted responses and suggestions are then resubmitted to the Agencies in accordance with the procedure and process as defined by the design review CDRL.

Due to the magnitude of this effort, INIT enlists the support and engagement of the SMEs, an appropriate peer review, and Project Management oversight. INIT will often hold internal workshops to further discuss and evaluate the nature of the comment.

Comments or questions are documented in MIL so that they can be tracked from initiation to closure. Comments may only be closed via Agency confirmation. Further, where applicable the change control and scope control processes may overlap as a result of the discussions or actions identified in the MIL. During this time INIT's Project Manager may add items to the Change Control tracking sheet in order to address the MIL; however, based on the outcome of the MIL

and the specific actions, an item could then be removed from the Change Control Tracking sheet (e.g. change in scope opted to not be pursued).

Additionally, the MIL will be maintained on the collaboration site so that all Agencies can access it at any time. Further, the Agencies can, collectively or individually, also add items during the project meeting(s) or by emailing the project manager.

2.7.2.1.3.11 Master Issues List

The INIT Project Team maintains a log of all identified items that require action through the time of project completion. The Master Issue List (MIL) is used as a status tool for all project meetings. No action item shall be assigned to ORCA without prior notification and concurrence. Each action item in the log contains:

- Item Number
- Action Required
- Description
- Assigned Responsible Party (individual and firm)
- Origin Reference (correspondence number, meeting, conference call, etc.)
- Requesting Party
- Date Opened
- Original Due Date
- Current Due Date
- Status (Open / closed / in progress / deferred, etc.)
- Date Closed
- Progress Notes and History of Activity

The MIL will be updated by INIT, and made available on an unlimited basis, via our issue tracking tools with read/write access for Agency designees.

2.7.2.1.4 Change Control

INIT's change control process will follow our Change Control Plan as defined in the PMP which includes all INIT and subcontractor-supplied equipment and software.

During the design phases INIT will detail and document the low-level requirements necessary to carry out the work associated. In some instances, an iterative and agile approach can be

undertaken to as to ensure the lowest level of detail is clear as well as time allocated for usability testing and validation to be incorporated where applicable.

Based on the maturity of the design and schedule dependencies, INIT will make suggestions for design freeze to the Agencies for consideration. Upon mutual agreement and clear understanding of all dependent factors a date or dates will be selected to reflect a point in time when the system design is substantially complete, and the Change Control process initiated.

2.7.2.1.4.1 Change Control Process

The Change Control Plan will identify how INIT will receive, record, document, and monitor changes to the scope baseline. Included will be procedures for identifying, documenting, requesting and approving a change. Those steps are outlined at a high level as follows:

- Initiating request by ORCA or INIT designee
- Receipt and acknowledgement by INIT
- INIT adds request to issue management system and assigns to INIT Lead Engineer
- Technical clarification, schedule and impact assessment by INIT
- Scope evaluation, configuration items affected or needing to be updated, and level of effort estimations by INIT
- Issue request updated and assigned to INIT sales
- INIT sales builds detailed proposal and submits for review
- ORCA review, decision to either move forward with change or discard
- If approved, ORCA issues a change order which is executed by both parties; if discarded, INIT closes request in issue management system and maintains the proposal as part of the project documents on the collaboration site
- If change order issued, INIT creates a new issue ticket to track the work and then updates the scope, schedule, and cost baselines as well as the Requirements Traceability Matrix and any system test documentation
- Work is carried out in accordance with the agreed change and monitored and tracked in the issue management system

The regional test facility will be made available to facilitate agency validation testing. However, if the change is requested prior to certain integration phases of the project, validation testing will be carried out in accordance with the relevant test cycle. Once integration testing is underway and the regional test facility online, all changes will be validated in the regional test facility. INIT suggests that the Agency designee validate the change once INIT has performed the pre-

validation testing and is able to ensure the change works as expected. Following Agency validation, the change is then progressed through the change control process to the deployment operations process. If said process is in the production deployment phase, the work is validated in production as well.

At a high level, implementing a change and tracking through the issue management tool INIT will utilize the following status flows (note, the status can move through each step at varying intervals based on the dependent factors present):

Status	Description
New	The ticket was created and processing must be confirmed by INIT
Investigating	The processing of the ticket has been started
Need Information	Agencies to provide additional information or take some type of action before the ticket can be processed further by INIT
Deferred	Handling of the ticket was postponed
Resolved	A solution has been provided and INIT considers the issue closed
Closed	The solution was delivered and the Agencies agree the issue is closed
Review Required	Review team to discuss the issue and help resolve/reconcile any differences in opinions as to the issue or solution being delivered or address any open questions stipulated
Ready for Delivery	A solution is ready to be delivered to the ORCA designated system
Approved for Test System	Customer agrees with the solution and approves the delivery to the ORCA regional test facility
Resolved in Test System	A solution has been delivered to the ORCA regional test facility
Approved for Production	The Agencies have tested the solution and approve delivery to the production system (if applicable)

As noted above, only the Agency designee can close work items in the issue tracking system. Changes introduced by a subcontractor will also follow the above workflow; however, additional documentation may be required for test validation.

The test system deployment process will differ from the production system deployment process as the production deployment exposes the system and its users to more risk just by its very nature. In light of that, INIT proposes, as part of this plan, the introduction of a Change Control Board (CCB) comprised of a short list of INIT and Agency representatives. This is a subset of the

Project Team comprised of, at a minimum, the ngORCA Program Manager, INIT's lead PM, and INIT's Lead Engineer. The goal of this group is to consider changes without the entire Project Team and consider issues related to schedule, cost, and quality. It is the expectation that there will be really good ideas that are considered as part of this project but not envisioned at the start and we want to track them as ideas to be considered after the system is live. Generally speaking, key stakeholders should be involved; however, a clear structure of representatives and designation should be discussed and agreed as part of the design review. In all cases, changes must be mutually agreed to by Sound Transit and INIT.

As part of the Weekly Progress and Status Review Meetings, the INIT Project Manager will keep and maintain a change control log for changes requested, irrespective of their formality. As part of that, INIT will disseminate detailed status updates and next steps for formal requests in process. Additionally, as part of the monthly progress report INIT will also summarize the requests for change and change order status including noting those recently approved.

2.7.2.1.4.2 Hardware & Software Versioning

Version Control is critical to the success of the project. INIT's Version Control plan as defined in our Project Management Plan will maintain version number, revision history, author/developer, and reason for the change.

All software and project documents will be assigned a unique transmittal number, which INIT will assign consecutively while maintaining a correspondence index.

All database scripts added to the database will have a clear versioning number assigned so that any database changes are trackable.

Different hardware versions are clearly defined on the serial number label on every device.

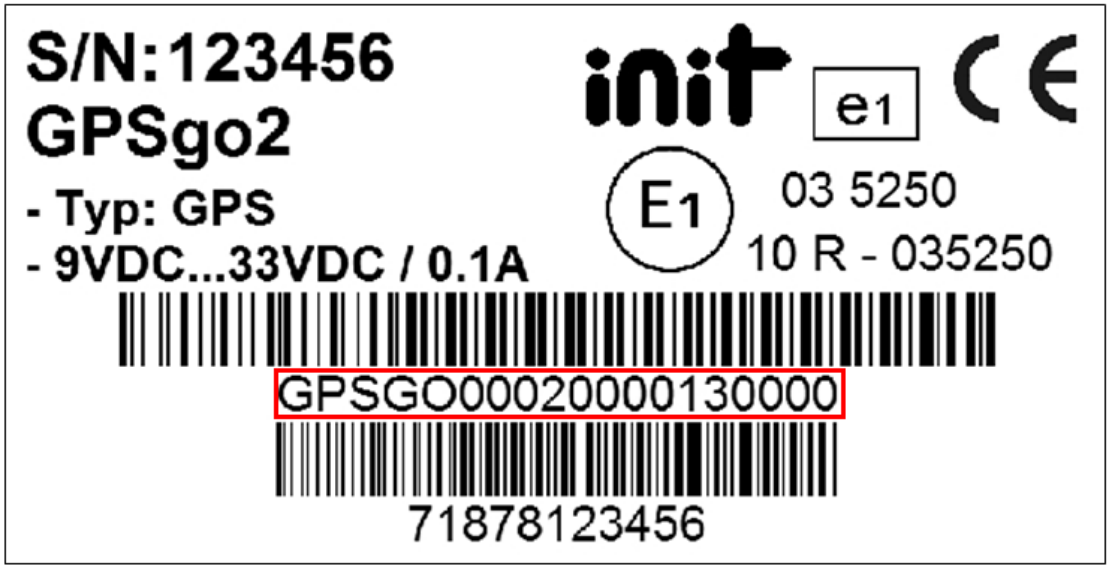


Figure 2-2: Serial number label with hardware version highlighted

2.7.2.1.4.3 Component Identification

The ngORCA system implementation will include deployment of several thousand units of equipment to meet the system interface needs at each Agency as well as to address region-wide equipment and with that installation, support, and maintenance needs spanning the Puget Sound region. To ensure successful tracking and identification of each unit of equipment, INIT will development an Equipment and Component Identification and Labeling Plan.

Each item of equipment, regardless of the manufacturer will be labeled at minimum with the supplier's name, part number, and serial number. Note however that INIT does not supply Electronic Serial Numbers (ESNs) for its equipment. Because there will be multiple suppliers and Original Equipment Manufacturers (OEM), the label itself will vary in appearance.

Every device will be labeled in duplicate. One label will be visible from outside and easily accessible for auditing purposes and one label will be hidden (e.g. on the back of the validator between the device and the mounting plate).

Coordination and tracking of each item of equipment is managed with AIM. For importing the data into AIM, the Agencies will be supplied with a MS Excel spreadsheet outlining the equipment being delivered. Additionally, the Agencies will receive an updated MS Excel spreadsheet together with the delivery of additional or spare components.

In the event a device requires repair, replacement, or analysis, these identifiers will be used in the ngORCA AIM System to ensure appropriate tracking and history information is maintained.

For units of equipment where production runs are performed simultaneously, the label will provide a sequential series of serial numbers. If production runs are broken out there will be similar number styles or format; however, a break in the number sequence will likely occur. As an example, if unit X has a run of five devices they could be identified using the following serial number pattern: X1231, X1232, X1233, X1234, and X1235. If at a later date another two (2) devices are ordered, the sequence could be adjusted to the following: X3231 and X3232. The differentiating element in this hypothetical example is the second integer, changing from a one (1) to a three (3) to account for the gap in the manufacturing run.

2.7.2.1.4.4 Issue Management

JIRA is a flexible and scalable Issue Tracking System provided by Atlassian. Starting with the first project delivery, the JIRA Ticket Tracking System will be set up and accessible for the member agencies to enter any occurring issues. Issues can be reported by email/ phone and will be entered into the JIRA Ticket Tracking System by INIT personnel OR directly into the JIRA system by the agencies. The JIRA Ticket Tracking System generates a specific ticket number, in which issues are tracked to completion.

When a project is completed, the project moves into a maintenance support phase, in which issues are handled by the helpdesk. The JIRA Ticket Tracking System will also be used during this maintenance support phase.

As an integral part of customer support and our Quality Management system, INIT uses JIRA as our issue tracking system for the reporting, investigation, and remediation of incidents as described below.

All issues are assigned to a person responsible for managing corrective action who will then involve the appropriate team members. JIRA workflows tailored to the identified issue help manage the process by defining and tracking the issue through its various steps to resolution. Typical workflows include gathering information, identifying root cause, and creating a plan with action due dates. All activities are captured in JIRA and email alerts are sent automatically to stakeholders.

Overviews of all project issues and the associated corrective actions are clearly indicated on various dashboards in JIRA to track progress.

After System Acceptance, the project moves into the warranty and support phase where the JIRA Ticket Tracking System will also be used.

2.7.2.1.4.4.1 Create an Issue

The "Create Issue" dialog is shown below. In this example, a new feature has been requested. The workflow associated with this new feature will include approvals, estimates, design reviews, incorporation into the traceability matrix, documentation updates, quality gates, agency approval and more. This form will be customized to the ngORCA members' preferences.

2.7.2.1.4.4.2 Issue Tracking Workflow

A sample Issue Tracking Workflow is shown below. The ngORCA actual workflows will be customized to meet your needs. After the issue is created and assigned to a team leader, it

undergoes an information gathering process. The result may be that the root cause is identified and the team begins to work on the resolution. In the testing phase or even once considered resolved, it may be determined that more information, engineering and testing is required. It is even possible that circumstances in the field warrant the issue to be reopened. Less critical issues may be postponed but will remain in the system to be tracked until resolved. Whatever the path, JIRA tracks the progress with reports identifying how long an issue has been open and what activities have occurred. ngORCA stakeholders will have access to the system to track and monitor progress.

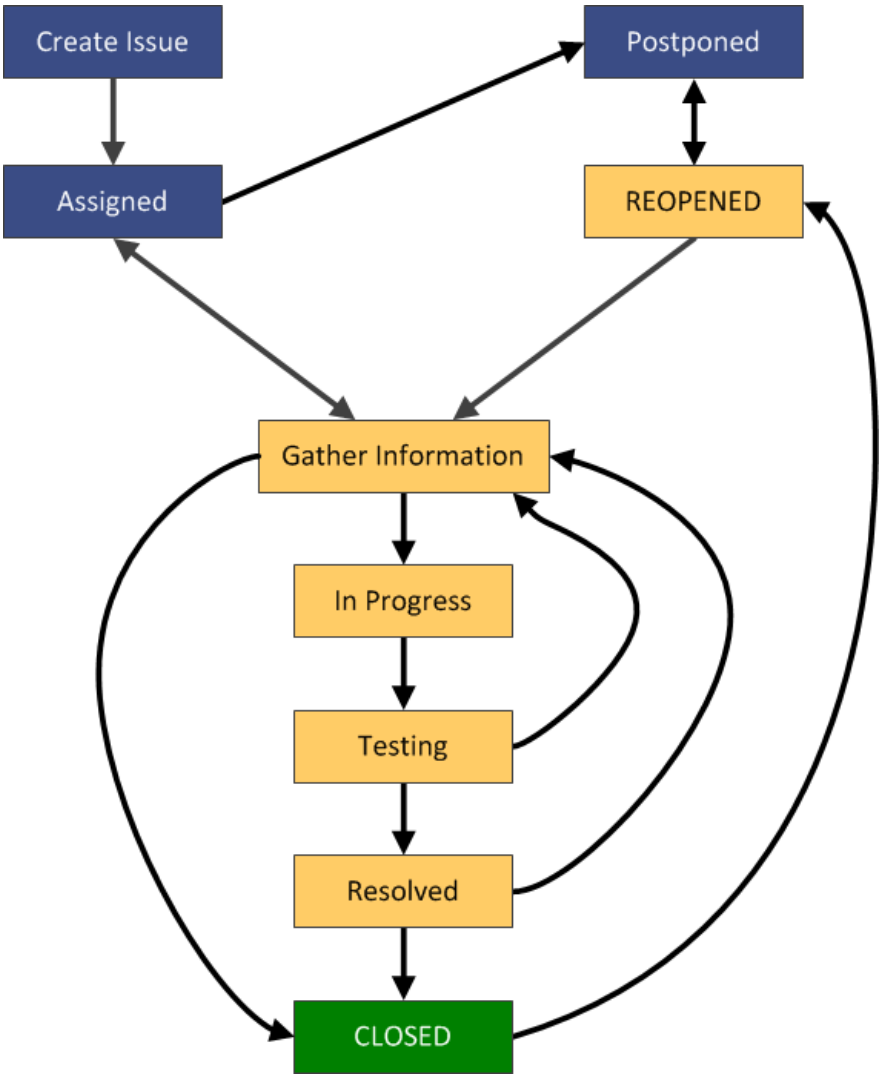


Figure 2-4: Example JIRA Workflow

2.7.2.1.4.4.3 JIRA Issue Details

Shown below is a typical issue dashboard. This issue was a concern about how the backend system will react during the Disaster Recovery system, System Check. As you can see, this was a subtask of the Disaster Recovery (DR) system check and assigned to the TOND team.

Users can add comments, change the issue, add drawings, attach documents and more.

Figure 2-5: Issue Details - Top half

Below, the activity tabs show [redacted] made a comment as he researched the issue. The switchover worked just fine and the issue was closed.

More features are shown in this section broken out from the right side of the screen.

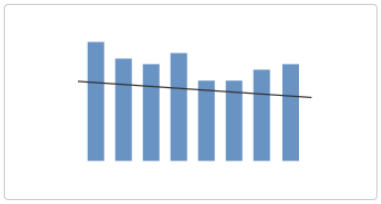
Starting at the top you can see how the data can be exported as XML, WORD and printable format.

Created by [redacted] assigned to Raja, this issue has 2 watchers. The two individuals signed up as watchers and receive emails whenever activity occurs. Authorized ORCA personnel, can click on the field and add themselves as watchers. They can also review the history and contribute with comments.

The date the issue was created, last updated and resolved is also provided.

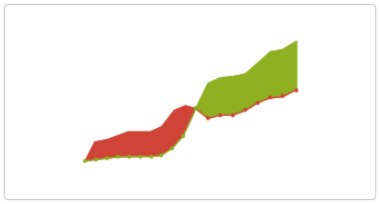
2.7.2.1.4.4.4 Reports

JIRA provides built in reports useful for analyzing trends and status.



Average Age Report

Shows the average age of unresolved issues for a project or filter. This helps you see whether your backlog is being kept up to date.



Created vs. Resolved Issues Report

Maps created issues versus resolved issues over a period of time. This can help you understand whether your overall backlog is growing or shrinking.

Pie Chart Report

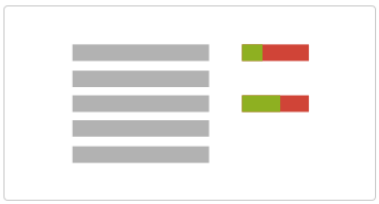
Shows a pie chart of issues for a project/filter grouped by a specified field. This helps you see the breakdown of a set of issues, at a glance.

Recently Created Issues Report

Shows the number of issues created over a period of time for a project/filter, and how many were resolved. This helps you understand if your team is keeping up with incoming work.

Resolution Time Report

Shows the length of time taken to resolve a set of issues for a project/filter. This helps you identify trends and incidents that you can investigate further.



Single Level Group By Report

Shows issues grouped by a particular field for a filter. This helps you group search results by a field and see the overall status of each group.

As seen below, the ngORCA JIRA Issue Tracking system can include the reports listed. Custom reports can be easily defined and saved. All reports are exportable to spreadsheet compatible files, PDF and printable.

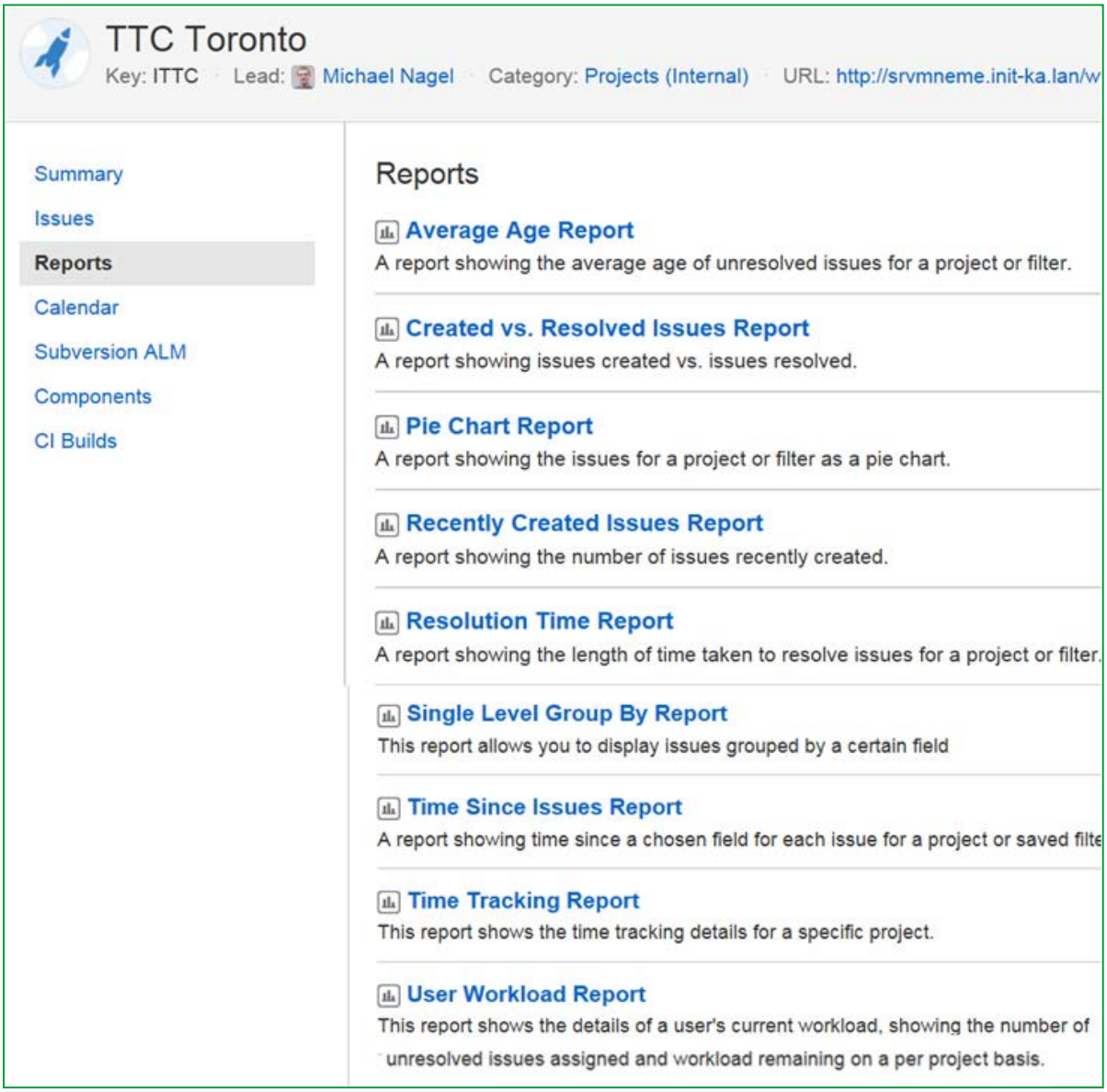


Figure 2-7: JIRA Report List

2.7.2.2 Design Reviews & Approvals

INIT's project management and technical team possess extensive experience in the design of complex, large-scale account-based fare collection systems. Additionally, INIT has partnered with a UX/UI firm to help ensure oversight and implementation of common design practices and guiding principles for key user interface elements.

While time-intensive for many stakeholders, INIT has found that a comprehensive design review process is one of the keys to mitigating overall project risk. As part of this process we will address all functional and technical requirements, review possible scope changes or other

considerations, identify unknown risks, and maintain a clear path of the schedule's requirements and dependencies.

The first phase of the ngORCA project is comprised of three specific design reviews: Conceptual (CDR), Preliminary (PDR), and Final (FDR). These formal design reviews will include the review of System Design Documentation, hardware samples, and functional software demonstrations of INIT's existing comparative systems or prototypes. While these appear to be laid out linearly, the various components of the system where these designs apply will proceed at their own individual pace. This will allow for some items to develop over time along with the design of UI/UX.

To appropriately progress the design of the system and to limit risk to the overall project schedule, INIT proposes to allow the documentation to run in parallel paths. For the purposes of simplicity at the start, INIT proposes to submit its design documentation in two packages; the first will be inclusive of system design documents that are further progressed based on INIT's existing implementations that are in similar scope to ngORCA whereas the second package is meant to allow for additional time for newer areas of the proposed system or for the occurrence of information gathering sessions (e.g. installation, training, etc.) with the Agencies for inclusion in the reference documentation.

At each stage the Agencies will formally approve INIT's proposed design before moving to the next phase of its evolution; however, due to the parsing of the system design packages, different documents may progress sooner than others. In so doing, INIT will validate that the ngORCA system elements are on track to meeting the technical, functional, and operational adequacy requirements of design and that the approach undertaken will sufficiently track against the requirements of the Scope Baseline as stated for delivery in the project schedule. Additionally, by progressing design that can be achieved in earlier stages, development efforts may also be initiated without additional or unnecessary risk.

In addition to submitting all the specified materials during the design phases, INIT will also submit a Requirements Traceability Matrix (RTM). The RTM will outline how the design is addressed in each of the specified requirements. The RTM will also serve as a risk mitigation tool by ensuring that all the requirements addressed during the design phase are documented and made part of each next phase of the project lifecycle.

2.7.2.2.1 General Requirements

Managing a balance of cost, risk, change, and schedule can be quite challenging. However, addressing and engaging in a thorough and robust design process ensures that all such factors are transparent, known, and documented.

The Design Review Plan will be written with the intention of meeting both the design needs of each particular phase(s) of the project as well as taking into consideration the relative maturity of the subject of the specific document area and the design phase it is being reviewed. In some instances, certain elements will be more advanced than others whereas some may require more clarification in a given design phase then initially planned.

Regardless, in order to successfully move through the design review phase INIT's plan will focus on both quality and efficiency so as to best maximize the project schedule while also adhering to the technical, functional, and program requirements as set forth in the SOW.

The first iteration of the Design Review Plan will be provided within 30 days of NTP and, outline in more detail the format for how the various design review stages will occur. As part of that, INIT will define which documents will include subsequent demonstrations or prototype reviews as part of the stated design review phase.

For tracking and management purposes INIT will provide and maintain a document control tracking sheet. This sheet will outline the design review package for each phase (which is to be submitted not less than 21 calendar days prior to any review meeting); denote the requisite documents, their submission / review / approval state, and the state of approval in the specific design phase. Where applicable INIT will also provide estimates on the level of completion of the document in order to be considered for design approval and also needed for work initiation. Additionally, following review the Agencies will then in turn provide INIT with the first iteration of the design review MIL, documenting any questions, comments, concerns, or requests for clarification.

One of the key documents to be addressed as part of this process is the first iteration of the ORCA Business Rules as this document details the relevant fare structures, revenue sharing and apportionment tied to system launch. The final fare structure configuration will be documented and approved within 120 days of integration testing of the applicable components.

Starting at NTP, as part of each design review stage INIT proposes the parties plan and engage in a series of in-person requirements gathering and design meetings with a frequency appropriate to the subject and resources associated. In some instances, routine SME meetings will be established and carried out through the design phases. INIT proposes the following groups are initiated at a minimum following NTP and discussed as part of the kick-off:

- Training
- Field Services / Equipment Installation
- UI/UX
- Transition
- Inspection and Testing

Additionally, INIT also proposes that the parties engage in in-person design review workshops per phase at the Agency's meeting location. To foster the iterative design needed for the schedule, INIT proposes a series of workshops across the design phase to accommodate functional area needs and personnel schedules which may take 3-6 weeks per phase. As part of this design review, INIT supports all stakeholder groups' participation. The specific structure of the workshops will be detailed further in the design review plan.

For a period of 1-2 week's within the design workshop window, INIT will bring additional technical resources (e.g. hardware and software engineers) from other locations outside of our Seattle office, to participate (including vendors where applicable) and engage in "deep-dive" discussions. Taking this approach also extends the capacity for direct small group discussions, brainstorming and other technical clarification methods, as well as address design concerns or considerations in real-time.

As a sample format for CDR, please consider the following high level approach:

- Week 1: Equipment installation, IT Architecture, Transition
- Week 2: UI/UX and Training
- Week 3: Back Office Applications, Testing and Transition
- Week 4: Back Office Applications, Integration

From that high level approach we would then begin to list the relevenant CDRLs within each week and see how the overall load and resourcing works out; what vendors are needed, which Agency personnel are required, and what additional technical resources from external INIT locations. For example, for week 2 might require INIT IT resources from Chesapeake, VA while week's 4 and 5 may require our back office development SMEs. Based on those needs we would coordinate travel and schedules accordingly.

INIT believes that a combination of these design approach discussions will ensure frequent and routine engagement where possible while also providing the Agencies with direct access to our engineers for critical decision making and clarification. Where possible, INIT can also supplement the in-person/on-site meetings with follow on tele/web-conferencing as needed or required.

During each phase INIT will strive to ensure feedback is heard, logged, and addressed by all those impacted. In so doing we believe we can both mitigate the need for rework as an outcome of unclear and/or undocumented requirements or business needs and as such avoid missing detail that might otherwise not be known until implementation - which becomes more costly as time in the project has progressed. It is expected that each document will undergo various iterations within each design phase. If the design document packages are revised as required they will be resubmitted within 14 days of completion of the design review meetings.

Those discussions points, issues identified, and decisions made will be documented and addressed during the specified design meetings where possible in the MIL. Residual issues will continue to be tracked in the MIL and actively worked until resolved during future iterations of the design review process. The Agencies will be responsible for final closure of all logged issues in the MIL. Following successful closure of identified issues, the review package can be made available for Agency approval.

2.7.2.2.2 Conceptual Design Review

The Conceptual Design Review (CDR) will meet the objectives outlined in the RFP of familiarizing the ORCA agencies with the proposed system design. As CDR occurs in the very early stages of the project, certain documents will require the design review workshop in order to detail certain sections of the submittal documents. Such sections will be referenced with placeholders.

Following the submission of CDR, the Agencies will have 21 calendar days to review and comment on each specific document prior to the occurrence of the design workshop. Agency comments will be tracked in the Master Issues List (MIL) which is uploaded to the ngORCA project collaboration site where the Agencies can review at their convenience. In so doing the Agencies can further guide as appropriate the progress and structure of the design approach.

INIT and the Agencies will participate in CDR workshops, at Agency-designated facilities. During these workshops INIT will have onsite relevant subject matter experts (SMEs). The aim of the workshop will be to have clear direction and understanding of the necessary next steps for the Preliminary Design Review (PDR) submission as well as identify any gaps, actions, next steps needed to close out the CDR phase.

2.7.2.2.3 Preliminary Design Review

Following the CDR approvals INIT will begin the planning and delivery of the system documentation necessary for the Preliminary Design Review (PDR) phase.

For the PDR submission INIT will continue to update all relevant documents and include responses to Agency comments from the MIL to ensure all areas of concern, question, or revision are included and/or addressed from CDR to the extent practicable. Additionally, updates made to the PDR documentation will be done with the intent to provide approximately 75% of the systems design.

Following INIT's submission of PDR documentation the Agencies will again have time to review each submittal and comment as appropriate. INIT and the Agencies will schedule a second workshop in support of PDR, to be held at Agency-designated facilities. During this workshop INIT will bring relevant subject matter experts (SMEs) including but not limited to INIT resources

and key personnel, INIT subcontractors, or other vendors supplying portions of the ngORCA integration.

INIT will provide the following during the PDR:

- Specifications for all proposed equipment
- Narrative descriptions of the major systems and subsystems
- System block diagrams identifying all interfaces between system components, including external systems that will not be provided by the INIT but will interface with the system
- Responsibilities and schedule for completion of detailed system interface definitions
- Software designs, including software block diagrams for key system components
- INIT's understanding of the intended operations and maintenance environment
- Master schedule to review and discuss primary milestones and risks
- Customer and operator user interface specifications, flow charts, and messages for all Contractor-supplied devices and systems, including accommodations for all boundary and error conditions
- Interface and communication specifications for all internal and external system interfaces
- Specifications for all configuration control systems
- Specifications for access control systems supporting back office operations;
- Requirements traceability matrix

Prior to the PDR, INIT will conduct site visits, station inspections, and additional requirements analysis activities as needed to further advance the system design documentation.

As with CDR updates for PDR, following the PDR workshop INIT will review the document MIL's and update the necessary materials accordingly and in preparation for FDR. Ideally, the framework and necessary steps for FDR at this stage will become clearer and requirements tied closely to the build phase planning.

2.7.2.2.4 Final Design Review

To prepare for FDR, the narrower requirements may necessitate sub groups to continue to break off so that clear outcomes and use cases can be illustrated in between the design review formal workshops. The FDR workshop will be scheduled to follow the FDR submittal, for the review and confirmation of the systems intended design.

The requirements of this review will be INITs provision of the final design updates and that all comments, questions, or clarifications from the MIL's provided by the Agencies are addressed and all action items closed out and validation that the UX/UI principles and guidelines have been adhered to.

During this final formal design workshop INIT will bring relevant subject matter experts (SMEs) including but not limited to INIT key personnel, subcontractors, or other vendors critical to the eFare integration. The FDR meetings will seek to close as many gaps as possible, clarify the last requirements necessary for the system's final design and set the framework for development, procurement, fabrication, installation, testing, training, implementation, and deployment.

Activities of the FDR will include the following:

- Schedule compliance review and discussion of variances or delays
- Assembly drawings for all INIT-supplied devices, down to the Lowest Level Replaceable Unit (LLRU)
- Electrical schematic drawings for all INIT-supplied devices
- Preliminary "as-built" drawings and prototypes for all device mounting configurations
- Final system architecture drawings
- Detailed software specifications for all back-office systems with software module descriptions in a narrative format and data flow diagrams to the lowest level of decomposition
- Detailed specifications for all application programming interfaces (APIs) supporting frontend and back office operations
- Detailed specifications for all system transaction formats
- Detailed descriptions of all message formats and data elements for device and system events and alarms
- Interface control documentation for all systems and subsystems
- Complete data dictionary and detailed database design documentation, including all tables, views, and materialized views for all database schemas in the system, in electronic format (e.g., ER Studio)
- Documentation of database programming features including, but not limited to; queries, query formats, triggers, jobs, functions, and procedures
- Requirements traceability matrix
- Installation plan

INIT has found greater success with collaborative communication during meetings and documentation revisions thereafter being submitted to the Agencies as opposed to ongoing back and forth without personal engagement. However, if after review, the material does not meet the stated requirements of FDR completion and additional comments or clarification are necessary, INIT will continue the resubmittal process until ratification is achieved.

2.7.2.3 Installation & Transition

Integrated within INIT's program management plan is the transition and change management plan. The transition section of this plan describes how the old system will be transitioned to the new system; including all operations for ORCA, the public and all external stakeholders. Included in the plan are risk mitigation procedures for the transition process, including any additional equipment and/or staffing requirements for ORCA.

2.7.2.3.1 Installation & Transition Strategy

Essential for a seamless transition for customers from the customer's legacy ORCA system to the next generation ORCA system is a rapid transition period where mixed validators (legacy and new generation) operate concurrently within the system. To achieve this, INIT plans to perform detailed prototyping of every unique vehicle make/model/type and unique platform validator type far in advance to the fleet installation to ensure that for each installation type, the new validator mounting, and cabling are considered. The outcome of the prototyping will be detailed installation plans for each installation type.

Due to the limited space available, INIT proposes reinstalling the legacy validator after prototyping is complete. During the prototyping of a vehicle type, the vehicle will be out of service. For this reason INIT plans to quickly reinstall the legacy validator. This will allow INIT to preorder all parts and cables needed for the fleet installation without expanding the timeframe of operating with mixed validators in the system.

2.7.2.3.1.1 Onboard Validator Coach Installations

INIT has reviewed the existing on-board validator installation locations for the legacy validators and is confident that the existing installation brackets/stanchions can be reused. This will make the installation process very easy and time efficient.

For all coach installs, INIT will mobilize 10 technicians (5 two-member teams). For coach installations where it is possible to reuse existing cabling the manpower and estimated times are:

- Validator & DDU installs: 2-member team, 2.5 hours/vehicle
- Validator only installs: As requested, KCM and CT maintenance will perform these installs

For coach installations where new cabling is required, the manpower and estimated times are:

- Validator & DDU installs: 2-member team, 4.5 hours/vehicle
    - Validator only installs: As requested, KCM and CT maintenance will perform these install

2.7.2.3.1.2 Platform Wayside Validator Installations

INIT is planning to install new masts/mounts but would reuse the existing infrastructure where possible to avoid complicated and time-consuming installation of floor anchors etc.

For wayside validator installations where the existing infrastructure can be reused, INIT will mobilize 10 technicians (10 one-member teams). Manpower estimates are below:

- Replace mounting poles utilizing existing anchoring, reuse existing cabling and install validator 1-member team, 3 hours/wayside

Wayside validator installations where the existing infrastructure cannot be reused will need to be evaluated case-by-case to determine whether a one or two-man team will be required and what additional resources will be required.

2.7.2.3.1.3 Vending Machine Installations

INIT is planning to re-use the existing infrastructure where possible to avoid complicated and time-consuming installation of floor anchors etc. INIT proposes to install the platform validators and the Vending Machines in parallel.

For Vending Machine installations, INIT will mobilize 10 technicians (5 two-member teams). Manpower estimates are below:

- Utilize existing anchoring, reuse existing cabling and install vending machine, 2-member team, 8 hours/wayside

2.7.2.3.1.4 Customer Service Terminal Installations

Installation of the customer service center may be completed within one weekend to avoid having different systems running concurrently.

2.7.2.3.1.5 Driver Display Unit Installations

ngORCA DDU installations will be included in the on-coach installations for: Everett Transit, Kitsap Transit & Pierce transit and will be performed by the SI.

Community Transit and King County Metro will both have Single Sign-on, integrating their existing CAD/AVL and ngORCA functions into their INIT-provided MDT.

- Community Transit will complete their fleet upgrade to the INIT MDT by June 2019, in time for the ngORCA integration.
- King County Metro will incorporate their INIT MDT upgrade with the validator. Installations will be performed by KCM maintenance.

Since both Community Transit and King County Metro use similar INIT on-board equipment and MDTs, INIT can provide both agencies Single Sign-on leveraging existing installed equipment. In both cases, a separate DDU to control eFare will not be required.

Site surveys and installation plans per vehicle type will be provided by INIT.

2.7.2.3.2 Phased Back-Office Parallel Transition

2.7.2.3.3 General Installation and Transition Needs

2.7.2.3.4 Installation & Transition Plan

2.7.2.3.5 Site Surveys

The ngORCA agency provides data on the correct operation of all power and signal cables, switches and routers, etc. they are providing. During the site inspection, plans for ingress and egress of the installations are determined.

Initial vehicle, station, terminal, and wayside platform surveys will be completed as a part of the design review process. As part of FDR, INIT will submit the installation details and specifications for all equipment installations for agency review and approval.

Pre-inspection activities include testing existing systems, to which INIT must interface, as well as recording damage or other existing conditions prior to equipment installation. During pre-inspection, INIT identifies any modifications or additional provisions needed for installation of the System equipment and related system components but will work as much as possible within the limits of intended location.

INIT performs detailed site surveys and inspection for, all vehicle types, back office install locations, wayside install locations, and Customer Service Terminal locations, to document the procedures of each installation type required.

Using the information provided in the RFP Appendix #1, we determined the different vehicle types that each agency has. From this we can estimate the following number of vehicle site surveys that would be required:

	King	Pierce	Kitsap	Everett	Comm	Sound

	Couny Metro	Transit	Transit	Transit	unity Transit	Transit
Vehicle Types	10	7	6	4	8	13

The vehicle information in the proposal appendix is intended as an initial estimate of the number of site surveys that would need to be performed, the actual number of prototypes needed will be determined during the site surveys. Our experience tells us that roughly half of the surveyed vehicles would need to be prototyped. This would lead to a total of 24 prototype vehicles for all agencies.

Wayside surveys will indicate variability in installations across agencies. To assist, agencies will be asked to provide:

- Schematics from each agency on communication, power and networking details
- Location names and addresses
- Different types of Mast or mounting configurations per location
- Determine level of waste/recycling for each decommissioned wayside
- Determine level of concrete work

Vending machine surveys will indicate variability in installations across agencies. To assist, agencies will be asked to provide:

- Schematics from each agency on communication, power and networking details
- Location names and addresses
- Existing Vending Machine make, model & specifications
- Decommissioning instructions for Existing Vending Machines
- Clearing out cash
- Special decommissioning procedures
- Floating time for all transactions to settle
- Mounting schematics
- Disposal

Agency CST location surveys will indicate variability in installations across agencies. To assist, agencies will be asked to provide:

- Schematics from each agency on communication, power and networking details
- Location names and addresses

- Different types of mounting configurations per location
- Determine level of waste/recycling for each decommissioned customer service terminal

2.7.2.3.6 Prototype Installations

Per the installation plan, INIT performs a prototype installation of the field devices in each of the different field environments in which the equipment will be installed, including a prototype installation of all bus equipment for each vehicle type. At this point, INIT has assumed three different station types requiring prototype installations. The prototype installations remain in service for at least one (1) week to ensure the integrity of the installation design.

2.7.2.3.7 Onsite Work Requirements

All INIT employees and subcontractors, working within operating rail stations, platforms, and rights-of-way, will comply with applicable rail safety and operations rules and regulations. All personnel engaged in Installation activities will have attended ngORCA's safety training and will be dressed appropriately. INIT will deliver and execute the safety access plan for all onsite work. Safe access will be afforded to construction equipment, vehicles, and personnel in accordance with ngORCA policies and OSHA regulations. All access plans will be submitted to the Agency for review and approval. INIT is responsible for compliance with all Regulatory requirements applicable to the design, construction, Installation, and testing, including the application and granting of all applicable permits. Additionally, INIT shall comply to the individual training requirements of each site location as shown in Table 2-4.

2.7.2.3.8 Installation Procedures

INIT will submit installation procedures unique to each agency for all hardware and software to be installed, in accordance with the approved installation plan, agency rules, and guidelines.

These procedures will include an installation procedures manual for each agency. The procedures will detail how any modifications made to agency-owned facilities and equipment as a part of equipment installations will be sealed and corrected in order to preserve the integrity of the infrastructure.

2.7.2.3.9 Shop As-built Drawings

INIT will submit shop drawings used in its manufacturing and assembly facilities to fabricate, assemble, and/or install components of the system. This is true for items manufactured from raw materials, items purchased as raw materials, or items purchased in ready-to-use condition. Shop drawings and their projected delivery dates are noted on the master program schedule.

Part of the work necessary to define the drawings will include site visits and surveys; INIT will coordinate and work with the Agencies, at each of their designated locations or facilities to ensure we understand the scope of the work involved. During this time INIT will make inquiries regarding the Agency's processes and gather available existing information to understand the specific nuances of each element of the installation efforts. Additionally, during this time INIT may also share information pertaining to the methods or efforts engaged, how information will be conveyed in the drawings and other similar informational materials or instructions.

No work indicated by any shop drawings will be commenced until drawings have been marked as "Approved" or "Approved as Noted." INIT will document each device installation in the form of an as-built drawing. The as-built documentation will identify equipment location information, wiring connections, and all additional information needed to maintain the newly installed infrastructure. All drawings will contain dimensions, physical details, connections, and other information pertinent to system diagnostics, maintenance and troubleshooting. Where applicable, the substance and detail contained in the drawing as well as how to review and manage the index will be provided as part of the system maintenance training.

For each set of as-built drawings, the Program needs the SI to submit prior to final acceptance:

- One (1) copy on electronic media, in a format approved by the Agencies
- One (1) reproducible CAD-generated hardcopy

A master index of drawings is submitted to ngORCA agency, clearly indicating the organization of the shop and as-built drawings, listed by drawing number. The master drawing index also provides cross-references to related drawings, and the hierarchy of all drawings and drawing layers.

2.7.2.4 Testing

INIT employs a rigorous test regimen to ensure that all assets delivered to the ngORCA agencies are fully functional upon initial delivery. This establishes the foundation for reliable system performance and high availability. We use that experience to deliver a test plan to the ngORCA agencies to fully demonstrate compliance with the requirements. INIT plans, performs, and documents all tests to proof the design of all components and subsystems, and the integrated system as a whole.

Once a piece of software is ready it will go through a series of test steps. At the time of the system integration phases, following the scripted tests each release thereafter will include a two-part test approach, functional tests and regression tests. The functional test will validate the quality of the proposed change while the regression tests will ensure the continuity of system performance is unchanged. Once INIT has performed these tests and can validate the quality of

the release, the testing is then available for the Agencies. Each system component will have a subset of regression tests and accompanied by an assortment of system-wide regression tests. Taking this approach ensures the integrity of the affected component and also overall system health. Additionally, if during the scripted tests occurring as part of the test phases noted below a failure occurs, the retest once the corrective action has been implanted will include both a functional test as well as component level regression tests. In some cases, later in the project, when a fix is introduced, depending on the nature of the fix, further integration-based regressions tests may be required to ensure no breaking changes have been introduced.

The project testing will occur in three (3) distinct test phases, functional, integration, and acceptance testing. During the functional test, INIT or the relevant vendor, will demonstrate that each system component is able to meet the requirements as stated in the scope of work, as independent elements – this includes the relevant environmental and compliance test of physical equipment. During this first phase there will be several independent test cycles occurring for the different parts of the system and at different times. Additionally, during this test phase usability testing to validate the user-centered design approach undertaken with the UI/UX efforts will also occur. Following each system components completion of the functional test there will be important information and low-level detail gathered and brought forward in preparation for the integration testing.

As noted, the functional testing will occur at varying intervals based on the readiness of the components. Once through the functional test and readying for the integration tests, there will be less variance though still some. However, by the time of the integrated field test, the majority of these components must be available and integrated in order to appropriately perform the test. The websites and mobile apps will continue usability testing iterations up through the final implementation. Additionally, during this test phase the system will undergo load testing, stress testing, and/or failover testing for the different elements of the system. The integration test will ultimately indicate the successful functionality and performance capability of the system.

Once the Pilot Test has been completed successfully, the system will move into the acceptance test phase. During this time the system is live and in peak usage; in this state the system is intended to demonstrate its capability in meeting the stated performance requirements over a fixed duration. Upon achievement and completion of any open points remaining, the project will be complete and ready to move to operations and maintenance.

2.7.2.4.1 General Requirements

INIT will not begin any portion of system testing until all prerequisites have been successfully completed and approved in writing by the ngORCA agencies. While all testing phases will be completed in their entirety for each phase of deployment, the packages or content included in

certain test phases will be broken out into smaller subsets. This breakout allows INIT to more aptly progress various pieces of the system by allowing them to progress at different paces based on their relative maturity and the effort needed. Taking this approach INIT can stave off unnecessary delays or down-time that would come as the result of waiting for all system components to be ready at the same time. Further, certain system components will be more complex or require varying levels of integration with multiple systems and as a result require more layers of a certain test phase. Progressing both the development and test phases in an agile and iterative fashion will help to mitigate schedule risk as well. However, no single test phase will be considered complete until all system components have entered and successfully passed that phase.

INIT will provide all labor and materials required for system testing, including fare media, payment cards, support services, and facilities required to stage, inspect and test all hardware and software being supplied. As part of the overall testing regime:

- INIT tests and verifies that they can successfully utilize the agency-provided communications networks for deployment of the system as designed.
- During all conducted tests, any and all hardware or software not passing inspection or test will be replaced, or otherwise corrected by INIT and retested.
- Prior to the start of any formal testing, INIT will conduct “dry-run” testing to identify and resolve any issues that arise before formal testing commences.
- Successful completion of each phase of testing will be subject to agency approval based on approved test criteria.

INIT will ensure that the Test Plan covers all inspections and tests to be performed, including those performed under the Quality Assurance plan. No tests will be performed until all the required prerequisites have been met. Test results will be submitted for review after completion. In the event corrective action or remediation is required prior to acceptance, INIT will coordinate and plan said activities in cooperation with the Agencies including schedule for installing fix in test, the required testing (component or integration-based regression tests), and the confirmation that the test has passed.

2.7.2.4.2 Test Documentation

In order to ensure continuity and consistency from design to test, INIT will develop the test documentation from the system design documents approved as part of the FDR. Using the design documents, INIT will detail each individual requirement and use case needed for test. Further test iterations will continue to build off the associated test plan so that there is

traceability of each test and outcome. Additionally, INIT will also utilize the Requirements Traceability Matrix and track the progress of the test cycles there.

As noted, INIT will prepare and submit to the ngORCA agencies detailed test procedures of each test. The procedures will be provided several weeks in advance of the test to allow for Agency review and comment or feedback to be received and incorporated prior to the test. These procedures will include the following:

- Information provided in the test plan (repeated)
- Mapping or references to the design documents and functional requirements related to the test
- Test methodology, including input and expected output
- Equipment and instrumentation to be used for testing
- Detailed breakdown of all hardware and software components under test
- Detailed test scripts
- On-line and off-line diagnostics
- Any related documentation (drawings, prints, supplier specifications, and recommendations)
- Forms for recording data, including fields for date, time, location, and name and signature of persons conducting or witnessing the test
- All other information required to monitor and manage the inspection and testing
- Name and signature of the person who prepared the test procedure

Additionally, the INIT team will submit the Test Plan which will identify the inspection and testing to be performed at for each test. We will ensure that information provided for each inspection and test includes the following requirements:

- Test title
- Reference to contract requirements section requiring the test
- Organization performing and responsible for the test
- Inspection/test location
- Test objectives
- Test pass/fail criteria
- Test schedule

- Test procedure submittal
- Test start date
- Test duration
- Test report/certification submittal

During the design review INIT will provide test samples used on previous projects to demonstrate the methods and process for documentation.

2.7.2.4.2.1 Inspection & Test Plan

INIT will submit a draft Inspection and Test Plan for the ngORCA agencies review and approval during the design reviews. The Inspection and Test Plan will provide the schedule, methodology, strategy, and planning in detail for each of the associated test phases as well as ancillary testing intended to be undertaken during the project delivery. The Inspection and Test Plan will detail the documentation, test procedures, scripts, and reports required for each phase (Factory, Integration, and Acceptance Testing).

The Inspection and Test Plan creation and management will be overseen by the Lead Engineer from INIT; however, the individual test scripts and procedures will be the responsibility of the individual developers and/or vendor SMEs. As with all documents, the test procedures and documentation provided by the developers or vendors will go through a peer review and evaluation prior to issuance to the Agencies. See below for a high-level matrix for how the plans are created and reviewed:

Test Topic	Author	Peer Review	Final Review
INIT Back Office Software Applications	INIT SME	Engineering Team Lead	Lead Engineer; Lead SW Engineer
INIT Back Office IT Architecture	INIT SME	INIT IT Director	Lead Engineer
INIT Failover and Load Testing	INIT SME	INIT IT Director	Lead Engineer; Lead SW Engineer
Customer Mobile App	Vendor SME	UI/UX Vendor; INIT Business Analyst	Lead Engineer; Lead SW Engineer
Customer Website	Vendor SME	UI/UX Vendor; INIT Business Analyst	Lead Engineer; Lead SW Engineer
Agency Fare Inspection and Validation Apps	Vendor SME	UI/UX Vendor; INIT Business Analyst	Lead Engineer; Lead SW Engineer

Prior to each individual test cycle (occurring within a test phase as detailed below), INIT will submit a test procedure providing a detailed outline indicating the sequence of each test, module being tested, where and when each test will take place, and the number of INIT-provided staff covering each test, including any vendors:

Test Phase 1: Factory Testing

1. First Article Configuration Inspection (FACI)
2. Factory Acceptance Test (FAT)
3. Production Acceptance Test (PAT)

Test Phase 2: Integration Testing

4. Functional Unit Testing (FUT)
5. System Integration Test (SIT)
6. Field Integration Test (FIT)
7. Pilot Test(s)

Test Phase 3: System Acceptance Testing

8. System Acceptance Test (SAT)
9. Final System Acceptance (FSA)

The Inspection and Test Plan will include the number and range of tests that will need to occur as well as the criteria for acceptance of each phase of testing. All performance measurement procedures and acceptance criteria, including the number and type of failures allowed in each phase of testing, will be in accordance with the requirements of the technical scope of work and subject to the ngORCA agencies review and approval.

The Inspection and Test Plan, in addition to the tests occurring in the above stated test phases will also include scope for volume or stress testing, for applicable devices, that simulates peak ridership and transaction volumes as required based on the projected ridership numbers provided by the Agencies during design review. The Inspection and Test Plan will also include detailed test scripts for each test case to be performed. Test scripts include test case setup instructions and preconditions, step-by-step instructions for performing the test, and expected results for each step. Embedded within the detailed inspection and test procedures are references to the design documents and functional requirements related to the test.

2.7.2.4.2.2 Integrated Delivery Testing

During the project implementation and project operations phase INIT will perform comprehensive testing for all software and services delivered.

The following represent a sample test approach. Detailed test procedures will be submitted for each delivery.

- For API deliveries
  - Before delivery, API calls are tested with java based scripting with customizable parameters to enhance the quality of testing
  - A use case based testing approach is used as a part of these scripts to simulate daily use cases. Here is an example:

- For device software deliveries
  - Scripted software testing is done to simulate use case based testing for the device software. Here is an example:

After the software is delivered to the test system, comprehensive testing is done in the test system to test possible use cases. Checklists are used to document the successful test result. This will include, but will not be limited to validator software, CRM, Ticket Vending Machine software, websites, and mobile apps, inspection apps to cover typical use cases of the respective devices, software applications and customer facing apps/website.

Once the software is approved and delivered to the production/live system, a similar set of tests are conducted in the production/live system in order to conclude the testing phase of the delivery.

2.7.2.4.2.3 Inspection & Test Procedures

As detailed in the Inspection and Test Plan, INIT will submit an Inspection and Test Procedure for each test in the stated test phases, subject to review and approval by the Agencies. Creation of each test procedure will be drafted by the responsible subject matter expert (SME) utilizing the most recent system design document approved by the Agencies.

Prior to each test, INIT will need to prepare the required test facility to ensure the appropriate equipment, database, configuration, and media are present and ready for test execution. To provide the Agencies with a clear understanding and outline of what is required, INIT will submit a software installation plan and test setup diagram for those tests not occurring at the Agencies local test facility and, a software installation plan and system configuration diagram for the agency test facility. These documents will be submitted as part of the procedures for the specific test phase or test itself as applicable.

Each test procedure submitted to the Agencies will include detail on the following:

- Test scripts for each test case to be performed as part of the test
- Setup instructions and preconditions
- Module reference (e.g. CRM, CST, Web Portal)
- System Design Document reference
- System Design Document section reference for the specific test case
- Responsible person for test execution
- Date of test execution
- Step-by-step instructions for performing the test
- Expected results for each test step
- Agency personnel present to witness the test

During the test, each test script will be classified as having either passed or failed; however, in some instances the test may be deferred by the Agency. Deferring a test is uncommon but may be required if for example the Agencies have requested additional time for final design requirements to be made (e.g. automated email because marketing has not yet finalized the copy for the email's content) but going forward with the test is critical to schedule adherence and, the test does not adversely impact or cause risk the progression to the next test phases.

In the event a test has failed, INIT will be required to initiate corrective action and/or remediation prior to requesting a retest. The scale and method of re-testing will be at the discretion of the Agencies once the corrective action has been implemented. For example, INIT may request to retest the single failure for a specific Agency designee or the Agency may request that the functional test of the failed item be undertaken along with a small sampling of additional tests to ensure breaking changes have not been introduced.

In addition to INIT's scripted tests, the Agencies may develop additional testing or test scenarios on an ad hoc basis during all phases of testing and have access to the test facilities, as available.

2.7.2.4.2.4 Inspection and Test Reports

To validate successful completion, INIT will submit a test report at the conclusion of each inspection and test performed. For continuity in the different test cycles, the test report will be derived from the test procedure. The primary changes to the test procedure will include the following data gathered and documented during the test:

- Test result (pass, fail, or defer)
- Agency designee witnessing and validating test performance
- Comments or actions (e.g. requests made during the test which modified or added to the predefined procedure)
- Changes required to the test setup
- Specific test data not previously included (e.g. card numbers, login credentials, etc.)

If any additional comments or other data are generated but not inherently specific to a test case, as part of this report INIT will also provide, copies of all data generated during the test. All transaction data generated during testing is submitted as part of the report, in Excel format to allow for simple storage and analysis by the ngORCA agencies.

An Inspection and Test Report may be updated after a retest to include the exception of the initial test, detailing explanatory information, failure descriptions, corrective action implemented, as well as a provision of all transaction data generated, detailed failure descriptions and resolution, modifications or repairs pertaining to the components or systems being tested, and any re-test results.

Inspection and Test Reports are delivered at the conclusion of each test within the associated test phase(s) for ngORCA agencies for review and approval. No test or phase of testing will be considered complete until the associated reports have been approved by the ngORCA agencies.

2.1.1.1.1.1 Test Waivers

INIT understands test waivers could be requested for components or subsystems that are substantially similar to previously tested components or subsystems, if agreed to by the Agencies. As INIT has some system components, similar to those intended for ngORCA, currently in operation as well as those that have most recently passed a series of factory tests for other projects, review and consideration of waiver options should be undertaken as this could more positively impact schedule constraints. To ensure timely review, INIT proposes that an initial review or discussion occur during the Conceptual Design Review phase. Actions or considerations of next steps can be further review or considered thereafter.

Irrespective of examples provided or broader conversations undertaken with the Agencies, it is clear specific testing requirements for each system component will be considered individually. Waivers issued, if any, will be done so on an individual test and component basis only. The Agencies reserve their right to not grant an additional waiver for any of the other tests or test phases pertaining to the component granted a waiver for a previous test.

For example, in the event that INIT was to be granted a waiver for environmental testing of the Validator, which occurs during FACI, INIT may not assume that the Agencies have granted a waiver of the Validator for the entirety of the FACI test. As such certain cycle or performance tests may be required if they were made part of FACI Inspection and Test Plan. Further, should the Validator be granted a waiver for the entirety of FACI, INIT may not assume that the Validator need to undergo FAT or PAT testing.

While applicable to the Factory Test phase, waivers are not appropriate for and as such will not be granted for integration or acceptance phase testing. The ngORCA design and implementation will be a unique system, as such, integration testing of each and every component in multi-staged environments is essential. Further, the performance metrics required of this unique and specific system cannot reasonably be replicated.

2.7.2.4.3 Agency Test Facility

INIT will provide the Agency Test Facility with no assumption that the facility will be located in any Agency facility. The test facility is included in the scope of this proposal. INIT will provide this facility built to specification as defined in the design phase of this project.

In order to appropriately test the functions, configuration, and integration of the ngORCA system, a local, accessible test facility for both Agency and INIT personnel is required. The provision of this test facility could be undertaken in a couple of different ways; however, INIT understands that the location and provision is our responsibility. Further, it is understood that the test facility will need to be available for agency access during normal business hours and, upon special request to the extent practicable, after hours, on weekends, or during holidays.

One location option would be something similar to what the Agencies have experienced with the current legacy system; hosted inside the offices of the vendor. While an independent location could potentially be identified, INIT believes this option to be cost-prohibitive and logistically challenging. The second option of test facility location could within an Agency office (e.g. Sound Transit) or building. As there are various considerations that can be made for either option, INIT has provided a few points and both pros and cons to each below.

INIT Office

If hosted in INIT's office in Seattle, INIT would first need to source a new office location as the current building is insufficient in size, there are no freight elevators, and there are likely some power accessibility limitations. However, if this is the preferred approach INIT would upon notification of contract award, need to undertake the necessary steps to identify new location options. The new office would aspire to be centrally located and be sufficient in size, power, accessibility, access to a freight elevator, secure requirements for access, and include the capacity for storage.

Positive aspects in taking this approach include the following:

- Agency agnostic
- Centrally located for the Region
- Limit risk to Agencies in the event the test facility is accessed by unauthorized personnel, an item of equipment or personal belongings are the subject of theft, or other similar risk

Some of the negative aspects could include:

- Access limited based on requiring an INIT representative be present; either an INIT staff person would need to be in the office at the date and time specified or the Lead Engineer or similar Project Team staff accompany the Agency; additionally, the building allows free access between the hours of 8AM to 5PM only
- Location remote to INIT Lead Engineer (as they are present in the offices of ST); if issues arise in the test facility, they will need to travel etc. in order to inspect the issue or support the resource in their test
- Location unknown and may require some travel for all Agencies; costs for parking or commutes also unknown

Agency Office

In order to consider there to be an option to host at an Agency facility, first and foremost there simply has to be the interest and then as important, logistically there must be the space available or to become available in the timeline it is required. And that use is in accordance with the long-term needs of ngORCA. That said, similar to the above, there are always pros and cons to consider; provided below is a summary of a few points.

Some positive considerations for hosting at an Agency location are:

- If at either Sound Transit or King County Metro, the location is central for the Region
- Access is agnostic of or not inherently limited by INIT (office) or INIT's attendance
- If at Sound Transit, the location is immediately accessible to the entire Project Team (ngORCA and INIT)
- If at Sound Transit, INIT's Lead Engineer is more readily available to support during a test
- If at Sound Transit, INIT's Lead Engineer can more easily demonstrate or train Agency staff should the need(s) arise
- Stringency of security is at the discretion and control of the Agencies
- Wireless network setup and access may be easier or more convenient

Some negative points that could arise if hosted at an Agency facility to consider are:

- As noted before, if a location is simply not available or not available for the duration of the need
- The location available may have power or space limitations; may not have a freight elevator
- Not Agency agnostic
- If not at Sound Transit of King County Metro, the location could be more remote than that which is desired or preferred
- An Agency may have access limitations for security reasons not otherwise present with INIT or at INIT offices
- In the event of theft, a security breach, or power outage, the hosting Agency may absorb more risk than palatable or even allowed from a policy perspective

Location specific considerations aside per the RFP, INIT will identify and provide a secure facility in Seattle at a location approved by the Agencies. As stated, the purpose of this facility is so that both the Agencies and INIT can test current system hardware, software, and perform integration and regression tests as needed or desired.

The test facility will be connected to the INIT back-office as described in Tab 1 "Technical Proposal of INIT's Account Based Open Architect System" of this proposal. Also, any media or test setup necessary to facilitate testing, including required labor or personnel, will be provided by INIT.

The test facility back-office will include hardware identical to the production system (but will not require redundancy), be equipped with the account-based transaction processor, and have the ability to connect directly to the merchant acquirer (or other processing entity) to fully test credit and debit transactions without processing transactions such that they will be reported by the processor.

The ngORCA equipment installed the test facility will include separate hardware and software replicating the Agency-specific system configuration, including any existing equipment (*e.g.*, CAD/AVL system, MAR, mobile device) that is integrated with the new System. It is noted however, that Washington State Ferries will maintain their own Wave2Go test facility separate from this system and as such is not required as part of the ngORCA test facility.

Based on the current understanding of the Agency-specific configuration, the test facility should include the equipment and software as noted below. However, it is important to denote that some equipment will need to be supplied by the Agency as it is not in scope to INIT:

Community Transit

- Onboard Validator
- Driver Display Unit
- Bus-in-the-Box
- Platform Validator
- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Everett Transit

- Onboard Validator
- Driver Display Unit

- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

King County Metro

- Onboard Validator
- Driver Display Unit
- Bus-in-the-Box
- Platform Validator
- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Kitsap Transit

- Onboard Validator
- Driver Display Unit
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Pierce Transit

- Onboard Validator
- Driver Display Unit
- Platform Validator

- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Sound Transit

- Onboard Validator
- Driver Display Unit
- Bus-in-the-Box
- Platform Validator
- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Washington State Ferries

- Validator or validation set up if required
- Driver Display Unit
- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

In addition to the above noted configurations and setup, INIT believes that Agency staff, INIT Project Team, and ngORCA personnel should also have reasonable access to a functional work space (table, chair, power, etc.) for recording test results or other ngORCA documentation, bathroom facilities, and also consideration of space for meal consumption or access to water for hydration. Additionally, and to be determined in the design review, some consideration of

additional equipment to facilitate witnessed tests should also be considered. For example, access to white boards or an easel with large note paper, telecommunications access or speaker system for remote participation, and a projector or similar Audio/Visual equipment or display screen.

During the project delivery test phases, following the Factory Test phase all testing thereafter will be performed locally on site. Specific to any lab tests, the expectation is that those tests be held in the Agency test facility. However, depending on the size of the audience witnessing the test, other temporary considerations could also be considered if necessary.

To facilitate some of the testing INIT would also like to suggest the Agencies consider the provision and configuration of legacy ORCA equipment as part of the Agency test facility. While some considerations or variation might need to be made with respect to management or maintenance, having both legacy and ngORCA equipment will help INIT to better perform or demonstrate the integration test phases prior to INIT becoming the system of record. This also in turn mitigates some of the unknown risk(s) of operating or transitioning of two separate systems. INIT understands that there are many factors to consider with such an approach. Should there be questions or further clarification needed, INIT will make the appropriate resources available for any further technical or logistical discussion.

With regard to test facility maintenance, INIT will be responsible for and provide all maintenance support for the equipment, systems, and interfaces through Final System Acceptance, and maintain the test facility software configuration throughout the terms of the warranty and software maintenance agreement for all devices and modules down to the Lowest Level Replaceable Unit (LLRU). INIT anticipates that most of these activities will be undertaken by the local Lead Engineer with support from the remote INIT IT and database support team.

2.7.2.4.4 Factory Testing

The Factory Testing test phase includes the following:

- First Article Configuration Inspection
- Factory Acceptance Test
- Production Acceptance Test

Each test associated with the Factory Testing phase will not be performed on site at either the Agencies facilities or the Agency test facility due to the nature of the tests themselves. The location detail and other relevant information pertaining to these tests will be identified in the Inspection and Test Plan.

To continue to drive the overall ngORCA program schedule, INIT does not anticipate that the Factory Testing occurs collectively for all system components. As such, we will not recommend the test cycle occur within a specified, single time frame. Rather, testing schedules and plans will be drafted in a manner which allows those components that are ready for test, occur without delay. However, the test itself will not be considered 'complete' until all tests and reports have been approved within the specified phase. For example, if the Validator has successfully passed the three test phases noted previously but the Driver Display Unit has yet to complete the FAT, INIT may not submit for approval neither the FAT or PAT and collectively, the Factory Test phase.

As there are multiple factors which will impact the pace with which each system component is tested, we are not able at this time to indicate timelines or specific dependencies. However, we will provide estimates and assumptions as part of the project schedule and plan to have more detailed discussions as part of the design review phase.

2.7.2.4.4.1 First Article Configuration Inspection

The First Article Configuration Inspection (FACI) testing is the first of three (3) tests in the Factory Test phase. Ultimately, the FACI intends to validate that the system hardware meets the specified configuration and quality requirements in accordance with the scope of work. To initiate the FACI, a provision of the first unit of equipment must be available of the first production units of system equipment. For ngORCA, this equipment includes the onboard validator and associated mounting hardware, wayside validators and associated mounting hardware, driver display units and mounting hardware, vending machines, customer service terminals, and back-office equipment and sub-systems. After the first article equipment has been produced, INIT uses the manufacturing drawings to check that all parts and the top assembly are produced per the manufacturing drawings.

Since the FACI test for each item of equipment must occur at the location of assembly, the FACI test schedule may include different test timelines. As part of the FACI, INIT will also provide the Agencies with the quality inspections performed and the results associated, whether performed by INIT or vendor.

FACI Test Prerequisites:

- INIT has delivered the FACI Test Procedures and they have been approved by the Agencies
- One production unit or prototype of each device type has been produced and is available at the test site
- A complete set of approved drawings of each device type is ready for the inspection

- Where applicable, a Bill of Material (BoM) will be provided
- Where applicable, a Buy America certificate will be provided

The FACI will be performed on a mechanical prototype or the first production item for each type of system equipment. The FACI will establish the baseline for hardware design and the quality of workmanship that shall be maintained throughout production. The test will verify that the devices comply with the approved drawings and design. In addition, INIT will perform manual quality tests to verify the results of the prototype production. The tests will cover for example the inspection of the voltages on the mainboard or the verification of the brightness sensors.

The equipment being inspected must meet 100% of the requirements of the manufacturing drawings and the FACI approved by the Agencies before the start of Production and Factory Acceptance Testing begins.

2.7.2.4.4.2 Factory Acceptance Test

Following INIT's successful completion of FACI, the test procedures for the Factory Acceptance Test (FAT) must be provided. As INIT has successfully performed FAT on every system delivered, we are confident in our ability to meet the ngORCA agencies requirements for the test. The components to be tested in FAT are from the first run of production units and are not modified prior to the test. In the event the design of the unit is changed, a retest to validate the equipment continue to meet the stated requirements will be required. FAT is conducted at either INIT's facility or a subcontractor's facility selected by INIT. The test setup, configuration, labor or other materials such as test equipment or fare media required for test execution will be provided by INIT.

The FAT is intended to verify that the system equipment to be produced meets the specified human factors, environmental and maintainability requirements defined in the technical specification. INIT performs these environmental tests to demonstrate compliance with the ngORCA agencies operating environment requirements. Maintainability testing demonstrates compliance with the ngORCA agencies maintainability requirements.

FAT Test Prerequisites:

- FACI successfully completed and accepted by the Agencies
- INIT has delivered a FAT test plan which has been approved by the Agencies
- All Test Waiver Requests delivered by INIT have been approved by the Agencies
- One production unit or prototype of each device type is available for testing

Human Factors Testing is designed to verify that the equipment to be produced for ngORCA meets the specified ergonomic requirements, ease of use, and ADA compliance. Test cases will include steps to test sight, hearing and touch elements of the equipment. To complete the Environmental Tests, INIT will provide documentation to confirm that the onboard validators, driver displays, vending machines, and relevant terminals or back-office equipment comply with the requirements of the SOW. For Maintainability Testing, INIT will confirm that devices and device components can be exchanged within the specified time-period. These tests will also cover ease of access, tools (special tools as needed) required and if applicable labeling and safety instructions of each device.

INIT is responsible to maintain reports of all tests conducted throughout FAT. The reports are submitted to the Agencies at conclusion of the FAT for review and approval. Results not meeting specified requirements are fully documented and explained, and a corrective action plan is submitted. In the event of test failure, once remediation has taken place and a re-test available, INIT will plan and coordinate with the Agencies.

Successful completion of FAT is a prerequisite for the manufacturing of production system components. INIT updates Production Acceptance Test (PAT) procedures based upon experience gained from previous testing and/or system component operation. Test procedures are expanded to focus on areas that prove to be, or have historically been, troublesome.

2.7.2.4.4.3 Production Acceptance Test

PAT represents the third and final stage of the Factory Test phase. INIT and its subcontractors perform Production Acceptance Test (PAT) on each system component as an integral part of the QA program prior to each shipment. Ultimately, the test(s) will verify that the metrics established during FACI and FAT are met for each produced unit and that INIT and its subcontractor certify each unit is produced to at least the same quality level as the unit presented for the FACI and FAT.

PAT Test Prerequisites

- FAT and FACI completed and accepted by the Agencies
- INIT has delivered a PAT test plan which has been approved by the Agencies

Successful completion of each PAT will verify that each system component contains the correct materials, are assembled properly, and function in accordance with the requirements of the SOW, prior to delivery to the Agency. At a minimum, the following functions are tested:

- General device operation and performance in all modes
- Data generation and transfer

- Alarms generation and transmittal
- User interface control and display

The ngORCA agencies may choose to observe, participate in, conduct, or repeat testing on any item to confirm the validity of INIT's test results. the ngORCA agencies may also perform, at their discretion, ad-hoc tests to ensure the quality of the system components. INIT will provide appropriate access to support ad-hoc testing, if required. Successful completion of a PAT is a prerequisite for installation of that equipment at the ngORCA agencies facilities.

2.7.2.4.5 Integration Testing

The Integration Testing test phase includes the following:

- Functional Unit Testing (FUT)
- System Integration Testing (SIT)
- Field Integration Test (FIT)
- Pilot Test(s)

The integration test phase is where the independent timelines and progression of system components need to start to come into alignment. Like a zipper, each test phase represents a further tightening of the system's schedule and completion; to the point where the FIT cannot complete until full alignment. Of additional note, during the integration testing all tests are to be performed either in the Agency test facility or within Agencies premises. Generally speaking, the FUT and SIT will consist primarily of lab-based tests and as such occur in the Agency test facility while the FIT test occurs as it sounds, in the field.

During the integration tests INIT will also undergo the required redundancy validation, system load and performance, and usability tests.

The vision with this test phase is to confirm the system components are able to operate and function in an integrated manner in accordance with the system requirements, the system can be validated as scalable and obsolescence resistant, and, in the end, is ready for live operation capable of providing end-users with a secure, reliable, and technology-thoughtful in design.

2.7.2.4.5.1 Functional Unit Testing

Where the Factory Test phase focused on the system hardware, the Integration Test phase looks more at the performance of the software meant to operate on the unit and then how the complete picture performs. During the Functional Unit Testing (FUT), INIT will first demonstrate the performance, function, and operation of the developed software. As this is the first stage of

the integration testing, this test is performed in a controlled laboratory environment where no changes or design scope are introduced. However, in the event of a design change or test failure, component-level regression testing will be performed after the formal test cycle.

Prior to test execution, INIT will provide for Agency approval the FUT test procedures. The test procedures will include step-by-step instructions of every test, including entry and exist criteria, and test location or specific configuration details in accordance with the stated requirements of the SOW and approved Inspection and Test Plan. Due to the volume of testing to occur, INIT anticipates testing to occur in groups, FUT-1, FUT-2, FUT-3 based on readiness and appropriateness for the test (e.g. Validator Hardware and Software must be ready in order to be in a test group; they should not be divided between FUT-1 and either FUT-2 or FUT-3). Based on our experience on other projects, we anticipate this testing to take approximately 3-4 weeks in total though divided over blocks of specified time for the test set up and configuration of the facility, the test execution, and then any follow up or ad hoc tests.

FUT Test Prerequisites

- Successful completion of Factory Testing
- Completed component-level software development
- Test bench including all system components delivered and installed in agency test facility
- FUT Test Procedures have been submitted and approved by the Agencies

FUT performance will occur on the first production equipment that has successfully passed Factory Acceptance Tests. Additionally, all software versions are those that have passed any required QA processes and is ready for revenue service. Interfaces between systems may be simulated if said interface(s) or back-office configuration is not ready for testing, for the purposes of the lab environment and the general nature of a lab-based test and phase of the project.

Testing of equipment functionality is intended to utilize the full range of fare media and fare structure prepared by the Agencies and approved as part of Final Design Review (FDR). This fare structure may include the fares for each Agency, plus inter-agency and regional fares and stored-value. Since all fare media to be used is provided by INIT. INIT will document and inventory the, its type and usage during testing. Where applicable this test data will be included in the test procedure and report.

Following the conclusion of FUT, including any sub-group FUT testing, INIT will draft and submit for Agency review and approval a detailed Test Report. Using the test procedure as the framework, INIT will indicate, among other things, the outcome of the test, remediation or corrective action needed to complete a test, date and token of personnel executing the test,

notes or comments regarding the test performance or script, and the next action, if any, required. Coupled with the Test Report will be any other relevant data, comments, discussions or decisions, relevant to the test occurrence.

The ngORCA agencies, at their discretion, may assign staff or representatives to witness and/or audit FUT testing their names and associated Agency or ngORCA project affiliation will be included as part of the test report data

The functionality of the test is meant to include equipment capabilities under normal operating conditions as well as equipment response to induced failures and other abnormal conditions. Each type of equipment shall undergo an independent test with results reported separately. To perform the test, sample data will be used representing the full spectrum of events and alarms.

Upon completion of the required transaction testing, INIT will undergo another set of cycle tests to demonstrate the equipment continues to be capable of operating under the environmental conditions specified in the technical specification. These environmental tests will be performed on the Onboard Validator, Driver Display Unit, Wayside Validator, and the Vending Machine. INIT suggests performing two sets of environmental cycle tests. The equipment temperature tests and the sunlight test. All other environmental tests cannot be performed in combination with the cycle test as the test setup will either compromise the environmental condition or will not follow safety requirements for the test personnel.

The temperature test will be performed by putting the equipment into the temperature chamber and bringing it to the temperature required in the technical specification. Once the temperature is reached, the equipment will be taken out of the chamber and then the tests will be performed. During testing, the CPU temperature will be watched and if the device temperature drops under 5°C of the original temperature, the device will be put back into the temperature chamber.

The sunlight test will be performed with a sunlight simulator. INIT will not use a third-party laboratory to perform the environmental cycle tests. The performed tests will be documented by video and photo.

INIT will provide the detailed Test Report to the Agencies for review and approval. The Test Report must certify that there were no failures or variables introduced during the test and that the performance is in accordance with the requirement in the SOW and FDR.

2.7.2.4.5.1.1 FUT Devices

The devices required as part of the scope of the FUT testing are as follows: onboard validators, driver display units, wayside validators, vending machines, and customer service terminals. As part of INIT's draft and submission of the FUT test procedures, each component and associated

test script will have pre-defined criteria or expected result in order to successfully pass. The specified structure and criteria will be reviewed and mutually agreed prior to test execution.

As part of the FUT, INIT will perform cycle tests on each item of equipment. As noted, the full scope will be as agreed with the Agencies. For reference, INIT has included samples of criteria for our project in Honolulu:

Validator & Driver Display:

- 8,000 transactions
- Validator will have a wired connection to background system
- Only Closed Loop cards will be used for testing
- Pass Back time will be disabled for the test
- Log File analysis of the Validator and Driver Display will prove the successful tap

To execute 8,000 transactions on an onboard validator, INIT will use a spinning wheel which simulates the tap of a customer. The fare media will be mounted to the wheel. While spinning, the cards will periodically enter the communication field of the reader and therefore creating a tap. INIT suggests the following configuration for the fare media and transit accounts linked to them:

- (2) Fare Media loaded with Stored Value
- (2) Fare Media loaded with a pass product

Every transaction will be shown simultaneously on the driver display. The PROXmobil3 uses an Ethernet port to communicate with the driver display. To analyze the successful taps, the recorded transactions will be written to several files on the device. INIT suggest splitting the 8,000 transactions in online and offline transaction to ensure both ways of validation.

Beside the audit register counts of the device, the test setting provides an external counter to track the expected number of card taps.

Vending Machines:

The cycle test for the TVMs will cover 8,000 transactions. INIT will perform manual tests which will cover:

Test Case	Number of Transactions	Description

Test Case	Number of Transactions	Description
Top Ups	2000	Spinning wheel to perform top up transactions. The payment for those transaction will be simulated.
Pass Loads	2000	Spinning wheel to perform load transactions. The payment for those transaction will be simulated.
Fare Media Sales	300	Scripted test that automatically issues a card from the dispenser.
View Account Status	700	Spinning wheel to perform an account lookup.
View Transaction History	1000	Spinning wheel to perform a lookup of the transaction history.
Text to Speech	70	Perform 10 TVM menu transactions per language.
Audio Jack	230	The TVM must automatically enable audio instructions when headphones are plugged into the audio jack.
Audio Button	200	Enable audio instructions when pushing the audio button.
Coin Acceptance	300	Test coin acceptor on a per accepted coin type basis.
Bill Acceptance	400	Test bill acceptor on a per accepted bill type basis.
Maintenance Tests	800	Exchange coin vault, exchange bill vault, exchange card dispenser magazine, load receipt paper.
Total	**8000**	

Customer Service Terminal:

INIT does not see a way of automating the Customer Service Terminal; therefore, unless we are able to identify a new solution, we suggest performing the tests manually.

2.7.2.4.5.1.2 FUT Back Office & Website

FUT testing for the back-office applications, mobile apps and website covers functionality of each component individually. INIT may use test data and may stimulate interfaces to other software component for FUT testing; each test must demonstrate 100% accuracy in performance of both data exchange(s) and display. The criteria to consider a test as 'pass', must not result in any failure or discrepancy to the agreed functionality as approved in the FDR or otherwise stated in the SOW.

2.7.2.4.5.2 System Integration Test

Once all system components have undergone and successfully completed the FUT, INIT can initiate the System Integration Test (SIT). This test will be performed in the lab, in a controlled non-production environment.

In order to adequately perform the SIT, all devices and system components must be available as defined in the SOW for launch; this includes the installation and configuration of the back office applications, web portal, retail network, agency-specific interfaces, onboard system integrations including CAD/AVL, Washington State Ferries field equipment, DARe, and also the availability of the updated Legacy ORCA back-office and incumbent vendor supplied updated software for validation integration. Further, the system will be provided with test data simulating the Agencies' databases for purposes of this test.

As part of the Inspection and Test Procedures, INIT will include the required test configuration(s), detailed test steps, entry and exit criteria, fare media required, and system integration components. Additionally, during this test phase INIT will being to coordinate with the Agencies on a regression test procedure for future integration test validation. Ultimately, a successful SIT will demonstrate the installed, integrated system is capable of performance and operation under test conditions.

In order to simulate this kind of performance, the test must include continuous testing across a pre-determined period of time (e.g. where the validator is online and performing validation test for three (3) days without disruption) whereby a prescribed quantity and type of transactions occur, across each device or unit type without failure.

Simulated transactions must occur on the onboard validators and driver displays, wayside validators, vending machines, mobile fare inspection app, mobile fare validation app, and customer service terminal. Each device must experience test validation using each specified fare media type and exercise the fare structure as provided and agreed by the Agencies during FDR.

It is important to note that while the testing nomenclature focuses a great deal on successful test execution, such successes will also be confirmed in the context of system failures, alarms, or

parameter violations. During these tests INIT will confirm the boundary conditions and parameters are met during the test that the appropriate alarms, warnings, alerts, etc. perform in accordance with the agreed design.

SIT Test Prerequisites

- Successful completion of FUT
- Back office system completely integrated into the Agencies network
- One complete test bench with at least one of each component type installed in the test lab

SIT will cover data transmission tests, system monitoring exercises, verification of accounting processes, payment transactions and database performance. Any software modifications will need to be approved by the Agency after the completion of SIT.

Load Testing

To simulate the proposed ngORCA system's peak volume plus the required 200% of peak volume as agreed during design review, the test data will be generated by automated scripts, executed by INIT. The type of data, number of accounts and associated transactions can be discussed and agreed as part of the Inspection and Test Plan during design review as well. To facilitate the discussion, INIT proposes the following for a load testing approach:

- The simulation will produce a steady load of usage and sales transactions
- The test goal is to verify that this load will not exceed any system component or lead to reduced response times for any participating sales channel
- The load is created by a scripted process that will call the online validation service and sales API functions
- The transactions will be exported to the accounting system according to the defined rules

Based on the determined, agreed active, frequently used cards in the system, the simulation will first fill the database over a course of time (e.g. 7 days) with accounts loaded with cash value, day passes and annual passes in a ratio in alignment of the figures relevant to the perceived load.

After the first predefined step noted, the simulation will keep creating cash and pass loads and new accounts over a period of time, however with reduced numbers. In addition to that the simulation will perform fare validations over an evenly distributed time over the course of a day for a defined period.

Disaster Recovery and Redundancy

During the FIT, INIT will draft and submit the plan for performing and demonstrating the Disaster Recovery Plan, including accuracy testing (required for INIT becoming the system of record) and accuracy testing between the AUT and relational database for the specified application and data storage location, as defined during design review as well as any individual system component failover / recovery redundancy measures. As part of the plan, the redundancy or recovery parameters will be predefined and agreed. This test will be a performance and implementation of that plan the specified parameters. Further, the testing will also demonstrate atomicity, consistency, isolation, and durability of the database.

Due to the time critical nature of the project, if during SIT any changes are made to the software, whether to address design change needs in Change Orders or as a result of remediation or corrective action undertaken by INIT or affiliated vendor, the system change will need to be reviewed, demonstrated, tested, and approved. In this stage, INIT recommends the introduction of a Change Control Board (CCB). While at the discretion of the Agencies, this practice lends a layer of oversight, ensuring risk is limited as project launch planning and occurrence is approaching.

During integration testing, each software change will first be delivered to the Agency test facility and be tested prior to deployment. As part of that initial planned delivery, INIT will discussed in advance with the Agencies and when the package is ready, INIT will provide a detailed software delivery paper and installation instructions. The delivery paper will include the tracking ID of the change, the nature of the change, personnel making the request, as well as any device specific information such as version, dates, file sizes, etc.

Successful completion of SIT is one of the critical path items in the overall program schedule; as such, once SIT is complete the ability to maintain system stability and predictability is essential. Procedurally, this means INIT or any vendor may not under any circumstances introduce a change, no matter its size, without prior written approval of the Agencies. Further, changes should be prioritized by level of need and urgency. Where possible, changes should be tabled for post-launch implementation.

2.7.2.4.5.3 Field Integration Test

In the absence of a detailed technical design discussion about the Field Integration Test (FIT), Pilot Test, and Transition Plan (parallel back-office approach), describing or defining them as independent elements poses several challenges and may lead to some confusion.

As stated in the SOW, to perform the FIT, the back-office needs to be up and operational, and all configuration and integration of the system components (all devices, back office applications,

website, retail network, interfaces, integrations including CAD/AVL, Washington State Ferries field equipment, DARe, the Legacy back office and all other aspects of the System) is complete and functional in what will become the production system.

To initiate the FIT, the necessary successive test steps (Pilot Test, INIT as system of record) need to also be clear and fully defined. During the FIT, INIT will demonstrate a production-like setting but can only test with simulated tests without otherwise impacting Agency accounting and reconciliation efforts because there is already a live production system. There may be some discussion with the Agencies around a fixed set of tests, using specified media, where somehow, we simulate production and process live/real transactions in advance of the formal Pilot Test, but cannot be detailed at this stage. As we cannot scrub the database, the lost revenue from the test is less of an issue but the Agencies ability to reconcile and deal with the output from an accounting perspective is unknown at this point and will likely place demand on those resources.

In the SOW, it is noted that the back-office system must be, "fully deployed and operational before the first validator can be operational in the field". However, once the back-office is operational, where or how any equipment can be deployed and connected in the field is unclear during the FIT test. The FIT test environment restricts how many devices can be installed because the INIT supplied equipment cannot yet accept production transactions without layers of complexity. Further, the tests must be controlled and constrained to predefined procedures and outcomes and as such cannot be widely accessed by the public without risk to muddying data integrity or test performance.

That said, INIT understands as well that there are new stations and services that will be built and 'ready for revenue service' prior to the successful completion of these test phases. To accommodate what might be needed there, INIT-supplied Vending Machines and validators, as well as what is defined as part of this test phase, there may be some equipment that is live and available to support this test. Albeit in a modified or restrictive fashion.

To perform FIT, there a subset of 'test' equipment that is installed in production but is restricted in access, must be available. To validate the integration, agreement on how the data is transmitted and processed, and agreed criteria for test completion or pass criteria must be defined in the test plan. Unlike the tests in the controlled lab environment, this test is more restrictive and yet of vital importance as we want to validate those same integration tests work as intended in a production state and where possible out of Agency facilities and locations.

Regardless of the constraints and the absence of specificity to offer for this test at the moment, we are confident that our discussions at a technical and project prioritization level with the Agencies can iron out how best to plan and execute the test. Ultimately, there are two key

drivers that need to be realized in this test; one, INIT's ability to perform a full system integration test in a production / production-like environment and two, INITs ability to successfully plan and test the Transition Plan and parallel back-office, in a brownfield environment prior to execution of the transition itself without otherwise negatively impacting the Agencies ability to collect and reconcile transactions or customers' ability to access and manage their ORCA experience.

One key point to note, should the Agencies preferred transition approach (parallel back-office) change during design review or other discussions, then what we propose will need to be adjusted or modified accordingly.

The above factors aside, INIT understands the general requirements of this test and will work with the Agencies during design review to define the plan and approach for successful execution. As part of that, in preparation of this test INIT will work with the Agencies to define the test procedures and scripts, test set-up and environment including exact locations or configurations, and the necessary entry / exit criteria which will be submitted prior to the test for Agency review and approval. We will estimate the test durations as well during design review; however, the exact proposed and agreed test procedure may be further defined as the specific nature of the test becomes more clear and imminent.

The test procedures will provide for the following categorical inclusions:

- Validation of the back-office configuration and operational readiness
- Installation checklists for equipment intended as part of the test
- Confirmation of data provisioning capable of simulating full operational load of the central system
- Schedule for continuous integration testing with systems online 24-hours per day
- Pre-determined, minimum quantity of transactions per system component (onboard validators, driver display units, wayside validators, vending machines, customer service terminals, fare inspection mobile app, fare validation mobile app)
- Pre-determined minimum quantity of transaction type and fare media type per system component
- Method for testing a pre-determined minimum quantity of transaction through the different user interface elements (CRM application, web portal, customer mobile app, and agency mobile apps)
- Method for testing all available functions of each different user interface element as stated in the previous bullet
- Validation that system alerts or other boundary conditions as defined are adhered to

- System redundancy and recovery validation
- Disaster Recovery Plan simulated demonstration
- Database accuracy validation; demonstrate accuracy between the AUT and relational database
- Atomicity, consistency, isolation, and durability of the database

Additionally, the test data, minimum data volume and transactions to demonstrate full operations load, and data transfer methods will be stated in the provided test procedure as well as the pass / fail criteria for each test.

Following successful completion of this test phase, it is INITs understanding that the next stages are the final validation steps available to ensure the planned transition from the legacy system to INIT as the system of record, and subsequently the soft launch of ngORCA, goes as planned. As such, the outcome of this test and the capability of determining the successful completion will largely be based on a combination of stringent factors. Subsequently, INIT recommends, following the completion and approval of the test, that the parties engage in a transition meeting and evaluate the test results and forthcoming tests to determine any risk mitigation or other strategies that may need to be deployed or administered. These are purely preventative or cautious considerations and not otherwise required.

2.7.2.4.5.4 Pilot Test(s)

Performance of the Pilot Test as defined poses a series of logistical challenges due to the brownfield nature of this project in general. The Pilot Test, which occurs following approved completion of the FIT test noted above and is the last test in the Integration Testing phase, requires the back-office system is up and running while the field equipment is required to be only partially installed or specifically limited to test-only access. The key distinction for the Pilot is that it needs to occur or validate in some respects, production or production-like environment while not interfering with legacy ORCA performance, transaction processing, or accounting and data reconciliation.

To achieve the Pilot Test to the extent possible INIT proposes a series of controlled, low-impact tests of the following system components, performed quite similar to that which would occur as part of the FIT. Test validation and connection to the back-office as well as data processing will need to be more clearly defined so that it can progress, in a limited fashion, beyond the controlled scripted test. To support the discussion in how to design this plan, INIT proposes for consideration the following test setup(s):

- Web Portal, specific test group with preset scripted test functions to perform for a final 'usability validation' test
- Fare Inspection and Validation Mobile Apps, loaded on a minimum defined number but at least one (1) per Agency that performs the function
- Customer Mobile App, loaded on a minimum defined number of devices and execute performance of a 'usability validation test'
- Customer Service Terminal, temporary set up at each Agency facility, outside of normal office hours
- Vehicle prototype, on either out of service or new buses not yet commissioned
- Vending Machine prototype, on a select station outside of high impact commute hours
- Wayside Validator prototype, on a lower impact platform and outside of high impact commute hours

INIT will work collaboratively with the Agencies to develop a Pilot Test Plan that accomplishes the needs of system testing in an installed basis within the chosen transition approach. Ultimately, the timing and agreed approach for the Transition Plan will govern how specifically the Pilot Test can occur and at what pace full system installation will need to undertake.

It is noted that following completion of the SIT and prior to the completion of the Pilot Test the system will enter a settling in period. During this time, INIT can proceed with the fleetwide system installation and the Agencies can perform their own ad hoc tests. However, in this same time frame, to achieve the transition plan (using the back-office parallel approach) as currently understood, INIT must become the system of record prior to the full fleet installation.

If INIT is not the system of record and system-wide installations are required, the INIT supplied equipment would not be able to 'speak' to the legacy back-office. As such, installations would be required in a side-by-side state and decommissioning of legacy equipment could not occur until the start of the SAT. Further, in this scenario the INIT installation would not be able to repurpose the existing installation materials driving up both cost and schedule as well as a potential unforeseen impact to ORCA riders.

Second to that, if the Agencies are performing ad hoc tests, the scope and data for the tests needs to be carefully coordinated and planned. While not intending to limit the Agencies test capability, if the system is not 'live' for ngORCA, similar to the previous integration phase, the same production-based constraints apply and need to be considered in the planning of such tests due to the reconciliation or settling action required.

While it may be that INIT's understanding of the test and Transition Plan are not in full alignment with the Agencies, it is important that in the absence of additional clarification, that INIT make clear the constraints we are seeing currently based on what we envision the system transition to look like for Agency consideration.

That understood, based on INIT's understanding of the Agencies preferred transition approach and the way in which the data should be handled we propose that the following occur:

- Pilot Test is approved
- During the Pilot INIT provides validation that it can reconcile the ngORCA back-office in preparation for the transition with that of the legacy ORCA system
- INIT becomes the system of record and all processing is now managed and handled by the INIT provided system (ngORCA is realized)
- System Settling In starts
- INIT and the Agencies begin the system-wide installation efforts
- The Agencies perform ad-hoc testing as desired

Upon completion of the above tasks starting with Pilot Test approval, once 80% or so of the system equipment has been installed and the system has been able to validate performance against the metrics provided for acceptance testing, the Integration Testing phase should be concluded and approved.

Notably, the percentage of installation completion should likely include full installation of all Customer Service Terminals and Vending Machines; however, since King Country Metro and Community Transit are performing their own installations, INIT cannot control the schedules of completion for both their onboard and wayside validation equipment. Conversely, both Agencies could complete their installation work in advance of INIT and as such, 100% of equipment is factored.

Currently, the possible variances are not possible to be determined at this point but if there are challenges to system-wide installations that INIT cannot control or impact, consideration to start the acceptance test should be reasonably undertaken.

2.7.2.4.6 System Acceptance Testing

The System Acceptance Testing test phase includes the following:

- System Acceptance Test
- Final System Acceptance

Once the Pilot Test has been approved and INIT becomes the system record, the acceptance testing can begin. INIT understand that in general, the SAT will be performed in the production environment with all components, subsystems, and third-party networks completely functional, operational, online, and in service; fundamentally the ngORCA system must be live.

As with each test phase, INIT will provide the requisite procedures and also test reports. In this case, the report will validate the test criteria and that it was met and the test passed based on the stated preconditions or metrics.

2.7.2.4.6.1 System Acceptance Test

The System Acceptance Test (SAT) is intended to validate the performance of the fully installed system as required for project completion. While intended to be complete as part of the final integration test phases, any existing functionality requiring deployment must be in place and the requisite tests approved, prior to the actual start of the SAT since the SAT serves to verify that the System and all provided equipment meet the performance requirements for project completion. INIT will be responsible for supporting all elements of SAT and as part of that will meet regularly with the Agencies to discuss progress, outcomes, and status of the test(s).

INIT's submission of the SAT Inspection and Test Plan will detail the system components, tests and data collection, and metrics intended to be validated as part of performance criteria. During the SAT, and as validated by the supplied test reports, the metrics must be adhered to; meeting or exceeding not less than the stated minimal performance standards. In the event INIT's performance of the SAT is sub-standard, as with the previous test phases, remedial action will take place and provided as part of the in-scope requirements to the project.

In the event INIT is unable to meet a performance metric during SAT, it is understood that the SAT duration may be extended until all performance requirements are met. The performance requirements and test durations will be those mutually agreed-upon with the Agencies and made part of the Inspection and Test Plan.

The INIT Proposed Project Schedule details a 60-day duration for the SAT test; however, an additional 60 days of slack have also been allocated in the event a stated metric has not passed in accordance with the agreed requirements. That said, should further failure events arise that extend the duration of the test component that slack duration may extend further as time is needed for the metric to be achieved.

2.7.2.4.6.2 Final System Acceptance

Achievement of Final System Acceptance (FSA) tends to comprise a combination of factors including initiation of the start of warranty if not done so already. Specific to the test phase, FSA

cannot be achieved without signed written agreement the SAT has been carried out successfully and approved by the Agencies.

While the SAT is often the primary driver of FSA due to the rigorous nature and system-wide validation that is undertaken as part of the test, there are often varying other factors that exist such as: sign off that all system equipment in scope to INIT has been installed, tested, and operational, equipment or spares and fare media have been delivered in accordance to the agreements set forth, training has been validated as delivered and approved, demonstration of the Disaster Recovery Plan has in fact been performed, validated, and approved, as well as any other system component delivery has been made in full.

INIT's creation and use of a Requirements Traceability Matrix (RTM), mapping the requirements through the design, build, and test phases, has been a useful tool in helping to organize and sign-off system acceptance.

In addition to the system validation points noted above, there are additional FSA-based activities that need to be undertaken to ensure full compliance with the overall project deliverables. Activities include but may not be limited to INIT's compliance against all contractual requirements (technical or otherwise), the required deposits to escrow have been made, and resolution or agreement to resolve for any open or outstanding issues to be made part of a software release have been agreed. It is important, with respect to the final point regarding software deliveries, that FSA completion not be unduly withheld for issues that are low priority or not otherwise made part of the SOW.

Following INIT's provision of validation that the above stated items have been met, INIT shall then submit for Agency approval a formal request for project completion or FSA. Upon completion, the Agencies will provide the associated certificate of completion.

2.7.2.5 Training

As an experienced integrator of Electronic Fare Collection and Computer Aided Dispatch systems for the transit industry, INIT understands the importance of training to the overall success of the project. Proper training allows ORCA staff and other stakeholders to fully understand the features of the new system, it's current benefits and how, as the agencies offer to the riding public increased operational efficiencies, the system will continue to provide increased rider convenience and satisfaction.

2.7.2.5.1 General Requirements

INIT will provide a comprehensive training plan and subsequent program that meets the training needs of the agencies. The training plan will emphasize modern, modular training delivered

across multiple environments. Our plan will define each course including: instructor credentials, course methodology and approach, class content, training aides, and evaluation criteria for the attendees.

The training program is designed with consideration of multiple and distinct target audiences, learning methods, and presentation techniques. Working with the ORCA team and key stakeholders from each member Agency, INIT will facilitate a series of specialized stakeholder interviews and coordination meetings to discuss critical business processes related to planning, operations and maintenance of tariff / fare collection activities. The business processes that emerge will be folded into the training materials to reflect end-to-end procedures that span multiple organizational units, member agencies, software/information system, operations and maintenance groups. We have found, in developing training for payment systems, that a business process may apply to more than one software application, and that a software application may be used by different organizational units within a single organization. Our training method is business process oriented to target role-based training.

Our approach ensures that the transitions between organizations and applications are accounted for including manual and hand-off requirements. Incorporating the end-to-end business processes in the training provides a clear and coherent view of each training participant's role within the ORCA program.

Figure 2-8: Modern, Modular Training delivered across Multiple Environments

The diagram above is intended to represent INIT's capabilities to provide quality training using multiple delivery methods including classroom instruction, written training manuals, Web based e-learning and Webinars. The selected method of instruction depends on the audience, logistics, customers preferences and other customer driven requirements.

INIT's approach to creating a comprehensive training program includes a combination of app-specific content (e.g. Validator Operations), functional role (Customer Service), and on-the-job or similar small demo or walk-throughs. At the start, we will approach the content and functional role training first; from there, we customize the method of delivery according to need. Taking this approach, we can ensure trainees have a solid understanding of the technology, equipment, and functions they will interface with or need to undertake as part of their job or role within the ngORCA system and its operation or service.

While each Agency is unique, as well as their roles and responsibilities, for the purposes of understanding INITs methodology for training, we have outlined a summary level of roles of a system similar to what ngORCA will entail. Taking this approach allows us to guide the understanding of the audience a little further, especially when reviewing the courses in the section below:

- **Vehicle Operator** – persons that will operate on-board equipment such as the validator and DDU; they will need knowledge of these specific components and may find benefit from seeing and learning about the Web Portal and Mobile App
- **Equipment Maintenance** – persons that will be responsible for the repair, maintenance, installation, decommissioning, monitoring activities of equipment; they will need knowledge of these processes and may find benefit in early participation in design discussions and also in learning about the vehicle operator targeted learning
- **Customer Service / Mail Center / Call Center** – groups of staff that provide direct customer service engagement whether in person or through push/pull actions (e.g. fulfillment at the Mail Center or phone support via the Call Center); they will need specific knowledge of the different applications (CRM, CST, Web Portal, Mobile Apps) but could also benefit from an understanding of the equipment functions
- **Finance** – persons responsible for the accounting and processing of system revenue, apportionment, settlement, and the various rules and integrations associated; key account-based functionality is critical, but an understanding of other applications may be beneficial as well (e.g. Web Portal)
- **Institutional Administrator** – persons that manage the large business, school, and/or social services accounts that provide transit benefits or other ridership opportunities for their constituents; integral knowledge of the CRM and the Institutional portion of the Web Portal are key while a common understanding similar to that of a customer service resource would also be valuable
- **System Administrator, Operations** – back office technical staff responsible for the overall system health and performance and will possess and integral knowledge of the

overall system architecture and configuration parameters; commonly engaged in the software deployments and testing a core knowledge of the specific system components is important to supplement their knowledge of the system

- **System Administrator, IT / Network / Database** – back office technical staff responsible for the overall system architecture, network infrastructure and connections, and database administration and health including uptime and disaster recovery; a detailed knowledge of the app installation and configuration is central to their role while a complimentary understanding of the application function is also very helpful
- **Integration Support / API Administrator** – during the project phase INIT will govern this role more dominantly; however, because an account-based system relies heavily on integration, a resource with in-depth knowledge of the APIs and integrations will prove valuable, especially in the event of future integration endeavors or opportunities
- **Fare Inspection** – persons responsible for validating fares region-wide will need a detailed understanding of the Fare Inspection App and the individual Agency policies that result in action thereafter; a supplementary understanding of fare payment methods and the means by which value and products can be acquired will also be helpful
- **Promotion and Marketing** – persons that will be responsible for the brand, awareness campaigns, and/or other advertising opportunities; while a common understanding of the customer interface points is important, a detailed knowledge is not inherently required. However, if persons in this group will be responsible for managing Web Portal content via the in-app CMS (Umbraco), a detailed understanding of the site and the CMS software is important. Similarly, they should have a detailed understanding of the Mobile App to ensure the common UI/UX interface efforts undertaken in design are maintained through operations

INIT suggests that the delivery of training starts with the classroom sessions for the most part. For those that may have difficulty attending, these sessions can be interactive online via a web-conferencing set up. For the external hardware, such as the wayside or onboard equipment, it will likely be proposed in two portions where the operator training is in a classroom while the maintenance and repair on-site. In taking this approach, we can optimize the content and delivery in a some-what controlled environment.

As trainees and teams have a more comprehensive understanding of the ngORCA system and Agency trainers attending the train-the-trainer courses have had the opportunity to deliver their Agency-specific courses, we will then take the next steps of soliciting and collating feedback. Through this approach we aim to identify the 'what was missed' items or gap analysis. In some cases, it may mean only that a refresher of the material is needed. As we gather this feedback INIT will then work with the Agencies on defining the next iteration of training which may entail

supplemental app-specific training, expansion of a use-case to include some additional information that may have been missed, or a hands-on walk through. While the need to more clearly identify the method, generally speaking these supplemental elements will be supported by an onsite system engineer from INIT or via e-learning as part of a web-conference.

When the transition and cutover to the live ngORCA system is nearer and the training need more sporadic, it is important to note that the INIT staff of engineers are on-site and available for questions, clarifications, or on-the-job training as well. These efforts may be less formal; however, INIT will continue to be a presence to ensure successful implementation of the system and knowledge transfer for successful Agency operation.

The design and development of the training program will be comprised of several INIT team members although the Training Plan itself will be led by [redacted] (an INIT subcontractor brought on specifically for ngORCA as a Business Analyst) [redacted] (INIT Technical Trainer and documentation specialist) specifically.

Utilizing her extensive background in facilitating meetings and analyzing business process needs [redacted] will head the requirements gathering, needs analysis discussions, and interviews with the Agencies. [redacted] brings an added layer of organizational and technical expertise having provided business analysis that is incorporated in planning, manuals or training materials for account-based payment systems (including financial systems, cash collection, operations / maintenance for bus, light and commuter rail, multiagency roles and responsibility, and cross organizational operations / maintenance).

With more than 20 years of combined experience in technical training and writing as well as an intricate knowledge and understanding of INIT systems, software and hardware, [redacted] will compliment [redacted] findings and apply the appropriate INIT-specific knowledge, source materials, lessons-learned, and be able to navigate the INIT environments and processes.

Combined both [redacted] identify with the INIT Project Team the appropriate resources necessary for course delivery. Instructors may include but are not limited to both [redacted] Additionally, it may be determined for INIT to source additional technical expertise to support some of the in-depth and extensive back office systems and administration courses.

2.7.2.5.2 Training Plan

The training program is initiated by INIT as part of the first design review following notice to proceed. This first draft of the Training Plan will outline INIT's suggested approach and methodology specific to ngORCA. Based on our experiences and in consideration of the specific technology and systems that will comprise ngORCA, we will propose the courses, materials, equipment and so forth as well as timing for when courses could occur. Our approach overall is to provide a training program that is solution specific and meets the needs of the Agencies.

As soon as we are able or as part of the first design Review (whichever comes first) INIT will begin to coordinate a series of meetings with Agency training SMEs or designees to discuss further the specific and unique needs of ngORCA. These discussions will occur collectively to ensure the needs of the region are clear as well as individually to cross-validate the unique or specific needs of the associated Agencies individually. From these discussions INIT will refine the Training Plan in an iterative manner until a robust, comprehensive program has been established with clear and concise deliverables.

As we initiate these first steps, INIT will look to address the broader ngORCA (regional) needs which we anticipate to generally speak to the collective group and core system elements. Once we have these requirements clearly outlined and established we will then take further steps to engage with each Agency individually and perform a gap analysis. In so doing we aim to ensure we have a foundational understanding of each Agency's unique needs so that we can validate with them the courses that have been established that will meet their needs and better tailor our delivery of the material so as to fill any gaps and/or ensure heightened concerns are fully addressed. In some instances, it may be more fluid to adapt a regional training course to include some additional detail to address the needs of an Agency whereas other instances may require other alternatives (e.g. on-the-job training after core training has been delivered for a more hands-on experience).

In these early stages INIT will suggest a rough timeline for when we believe the training should occur; however, we will not specifically detail the individual courses until they have been defined and agreed with the Agencies. We take this high-level approach at the start to both reduce confusion as well as ensure the Agencies are clear that we will find a time and date format that meets their specific business need(s). Once this information is available and agreed, the schedule as well as the plan will be updated. Generally speaking, we find that the Training Plan is best served as an evolving or living document.

INIT's training plan will incorporate an approach to distribute training to the Agencies directly from our experienced staff and from our major subcontractors. The training plan will meet the following core objectives:

- Training shall include course development, instructors, and all handouts, materials and classroom aids required to conduct the training
- Practical training on equipment shall occupy a significant portion of all training classes
- The training presentations and material shall be in English
- Instruction shall cover equipment familiarization and systems operation. The minimum training is that which is necessary to bring those employees designated to the level of proficiency required for performing their respective duties including:
    - Familiarization with the general system design concepts and features
    - Hands-on training using the actual system or simulators
    - The ability to recognize any transit specific alerts designed into the system
    - Thorough and clear demonstration of the use and operation of the on-board equipment
- Train-the-trainer Instruction shall prepare agency trainers for delivery of classroom and hands-on training, as required, using the relevant hardware and software
- Deliver instruction on the setup, operation, and configuration of the training equipment as required
- Ensure through testing or demonstration, that agency trainers and trainees have ability to perform each task associated with all system functionality. This is to be an objective for each task learned within each class

The INIT Training System provides trainers and trainees with all instructional material and equipment necessary to conduct training within their organization.

2.7.2.5.3 Training Materials and Equipment

To appropriately facilitate and complement the training course being delivered, INIT will supply the Agencies with a series of course materials as well as the requisite equipment and software to facilitate a hands-on experience during the training course. Both the material and equipment will be designed or provided with the appropriate level of Agency customization.

For example, to support the courses listed in the section below, INIT would draft and create the following operational manuals:

- Customer Account Management Mobile App Operations Manual
- ORCA Web Portal Operations Manual
- Customer Relationship Management (CRM) Operation Manual

- CRM Salesforce Integration Manual
- Point of Sale (POS) Operation Manual
- Customer Service Workstation (CSW) Operations Manual
- Finance - Sage Accounting Interface Manual
- Finance - INIT Accounting System Integration Manual
- Finance - Revenue Management Operation Manual
- Finance - VASA/Reports Operation Manual
- Fare Inspection Operation Manual
- Validator Operations Manual
- Driver Display (DDU) Operations Manual
- Ticket Vending Machine (TVM) Operations Manual
- Vehicle Equipment Maintenance and Repair Manual
- Wayside Equipment Maintenance Manual - Validator
- Wayside Equipment Maintenance Manual - TVM
- Tariff Management Operation Manual
- Master Data Management (MDM) Operation Manual
- Admin Tool Operation Manual
- Device Data Manager (DDM) Operation Manual
- Parameter Management Operation Manual
- Online Crypto Manager (OCM) Operation Manual
- Form Designer Operation Manual
- Asset Manager Operation Manual
- Card Inventory Operation Manual
- SAIT - Back Office Architecture Manual
- SAIT - Network Architecture Manual
- SAIT - Database Design and Operation Manual
- SAIT - CRM App Manual
- SAIT - Customer Mobile App Manual

- SAIT - Web Portal Manual
- SAIT - Fare Inspection App Manual
- SAIT - Back Office Apps Manual

In addition to the manuals noted above, each classroom course will typically include a PowerPoint presentation as the means to navigate the material being addressed. The slides below are examples from a typical presentation during a classroom style training course (entire course not shown):

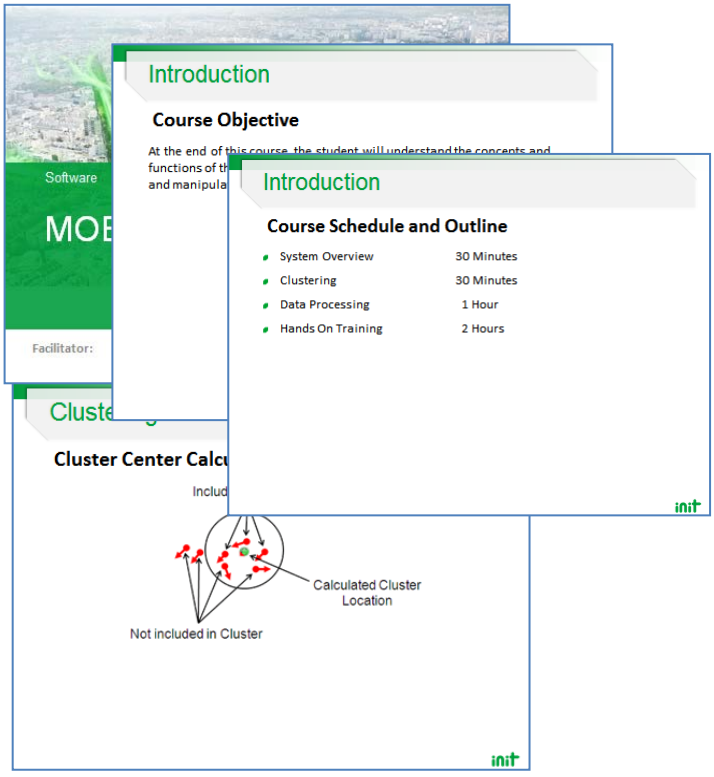


Figure 2-9: Sample User Training Materials

To further facilitate a classroom session, INIT will also provide guides for both the instructors and trainees. In some instances, quick reference guides will be provided as well but depends on the topic of the course and the usefulness a quick reference guide would provide.

Training equipment can either be utilized from other sources and returned or purchased solely for the needs of the training program. To deliver the courses as outlined below, the training in the classrooms will need to be equipped with computers capable of being loaded with the applicable software and peripherals, mobile devices such as tablets and smartphones, applicable fare inspection device or a smartphone capable of operating the fare inspection app, and also the various ngORCA system equipment such as smartcards, the validator, DDU, and vending

machine. Additionally, each onboard set up will need to be configured with a Bus-in-a-Box (BiB) to support Agency integrations between the validator and the DDU. However, due to the size and general footprint of the vending machine, the training itself can vary in its methods (e.g. onsite at a vending machine in the field or in the regional test facility).

To provide a brief outline and description of the various materials, including documentation and equipment, please note the table below.

Table 2-3: Instructional Materials Included

Training Materials	Description
Instructor Guides	The Instructor guide leads an instructor though a training class providing recommended verbiage and when to show each PowerPoint slide.
Power Point Presentations	The power point document is the primary presentation material for instruction. This document is matched directly to the Instructor guides.
Trainee Guides	The trainee guides leads the trainee or student (core user) through the training class. This guide shall be used as a compliment to hands-on and classroom training provided by instructor.
Hands On Training	Where applicable, INIT shall provide hands-on training on actual equipment or through the use of training equipment to simulate the actual behavior of the equipment for day-to-day operations.
Instructor Evaluation Sheet	INIT shall provide trainer evaluation comment sheet to assess the training course and preparedness of training instructor.
Operation Manuals	INIT shall provide copies of all user and training manuals as they pertain to the specific training class. One complete manual set per student shall be provided per course.
Quick Reference Guides	Where applicable, INIT shall provide quick reference guides for each training course. INIT intends to provide guides for specific areas of instruction related to specific user operations. INIT shall provide the quick reference

Training Materials	Description
	guides for the following groups of users: • Operators • Ticket Inspectors • Customer Service to include the Customer Mobile app, Vehicle Maintenance, VM Maintenance, and others based on the defined needs of the Agencies. Notably, some courses may not need a Quick Reference Guide due to the detailed nature of the topic (e.g. Finance and Accounting) and need for in depth and precise information or content to guide the user to the appropriate needs of their role.

2.7.2.5.4 Training Courses

As described above, INIT will undertake a multi-step process with the Agencies to design and draft the Training Plan; with flexibility to define the materials and equipment needed, identify the training staff, locations(s), courses, and schedule. In some cases, customized levels of Agency-specific needs can be accommodated; these efforts are done as needed to ensure the adequate and appropriate training of Agency staff. In effort to provide the Agencies with additional insight and to illustrate one example as to how INIT initiates and plans training, below is an outline of how we might approach 'Customer Service'.

Step One: **First draft of Training Plan**

The first draft of the training plan will detail our two-prong approach: first, suggest app-specific training for all Customer Service staff and second, suggest a manager-level of train-the-trainer functions course.

App-Specific Customer Service Courses

The app-specific courses will give trainees the hands-on experience of each system touch point (hardware and software) for their role; at the moment these courses would be the CST, CRM, and then a combined course of Web Portal and Customer Mobile App. This course is not designed for use cases or 'what if' type scenarios but rather to teach trainees the specific functions and actions of the software.

These are courses geared primarily for Customer Service staff members; however, they can also be helpful to marketing or promotional staff as well as system administrators. Irrespective of audience, these courses will be a pre-requisite for the function-specific course described below.

The updates to the Training Plan for the courses as noted above would then include the following detail:

- **Audience**: Customer Service Representatives and Customer Service Managers
- **Purpose**: provide customer service staff the necessary knowledge and understanding of the software, applications, and equipment they will use or that customers will encounter
- **Method**: Train-the-Trainer
- **Setting**: Classroom
- **Equipment**: at least one computer and mobile device per 2 persons, internet connection, access to apps (pre-loaded)
- **Materials**: Operations Manual, Instructor Guide, Student Guide, and a PowerPoint Presentation
- **Size**: 10-12 participant maximums

Function-Specific Customer Service Manager Course

Once users understand the various applications associated with the customer service functions, the next step is understanding at a macro level how a CSR can perform the functions of their job holistically.

This course will be designed with the Agencies and their input specifically; while INIT will endeavor to provide a broad range of use-cases for this course it is important to note that different Agencies could have some unique treatment of specific steps based on their standard operating procedures. Because of that, and the myriad of possible use case samples, we propose this course as a train-the-trainer and/or Customer Service Manager level training. Using this course as a foundation for managers can then allow Agencies to customize further either their material or course as needed to further address the nuances of their Agency or constituency.

For example, if a patron has lost their card and come into an Agency ticketing office for support it will be important that the Customer Service Representative understand what the patron may have done or experienced on the Web Portal or Mobile App and then will need to know the necessary actions to be performed on the CST or within the CRM. At an Agency customization level, they may want to add some additional points or steps to compliment that.

The updates to the Training Plan for the courses as noted above would then include the following detail:

- **Audience**: Customer Service Managers or Trainers
- **Purpose**: provide managers with the knowledge and understanding of how the applications are used in day-to-day operation as well as the skills and information necessary for them to train and manage their staff
- **Prerequisites**: CRM, CST, Websites, Mobile
- **Optional**: equipment specific courses (e.g. Validator Operations), System Overview
- **Method**: Train-the-Trainer
- **Setting**: Classroom
- **Equipment**: at least one computer and mobile device per 2 persons, internet connection, access to apps (pre-loaded)
- **Materials**: Process Guide, Instructor Guide, and a PowerPoint Presentation
- **Size**: 5-8 participant maximums

Step Two: **Requirements / Needs Analysis and Information Gathering**

Once the first draft of the Training Plan has been reviewed and evaluated by the Agencies, INIT would then look to engage in a series of meetings with the training-specific SMEs. During these discussions we would want to review the Agency feedback and discuss in an open forum, identify misses and revisions needed, common points of interest or concern, and so on. During these discussions INIT would hope to obtain the document-specific feedback and also understand more information such as:

- How many Agencies need this training / have a Customer Service office and/or staff
- How many Customer Service offices there are, locations
- How many Agency staff per office and in total
- Describe the role of the CSR in the context of your Agency
- Describe the role of the CRS in the context of ORCA for your Agency

Step Three: **Materials and Equipment Provisioning**

To facilitate the efforts associated with the preparation and delivery of these courses, we would propose the following equipment and materials be utilized:

- Operations Manual (app-specific) to describe the functions of the application
- Presentation for trainees to follow along with the course content
- Instructor Guide to provide the trainer with a flow of the course as well as key points to address or discuss
- Trainee Guide to provide the trainee with a flow of the course content and space for notes or questions
- Process Guide to describe functional examples and use cases or 'how to' scenarios for actions that require the use of more than one application and where applicable clear understanding of where the INIT-provided system ends and other Agency interfaces or procedures begin
- CST environment, mobile devices such as a tablet or smartphone, computer with the CRM software (if different from the CST environment)

In light of the above process and with our current understanding of the ngORCA system, below is a table of courses we believe are best suited to meet the needs of the Agencies. In this table we have organized it by target audience, provided the anticipated durations, identified a secondary audience, proposed quantity to be delivered, and what methods they should be delivered in.

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Table 2-4: Training Courses

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Table Legend / Definitions Key:

- ID = Course Indicator; INIT is suggesting a total of 18 unique course topics
- Course Description = General description of the course, under the following functional areas:
  - Customer Service
  - Finance
  - Fare Inspection
  - Equipment Operation
  - Equipment Maintenance
  - System Administration, Operations
  - System Administration, IT
- Dur = Duration of the class
- Prim Audience = INIT's recommendation of who the Primary Audience is; abbreviations as follows:
  - CS = Customer Service
  - IN = Institutional Programs
  - F = Finance
  - VO = Vehicle Operator
  - FI = Fare Inspector
  - EM = Equipment Maintenance
  - SAIT = System Administrator, IT
  - SAIN = System Administrator, Integration
  - SAO = System Administrator, Operations
- Sec Audience = INIT's recommendation of who the Secondary Audience is; these are often on a need to know but that the knowledge may be obtained in an alternate manner. Abbreviations are as noted above for the Prim Aud
- Number of classes = INIT's recommendation for the number of classes per course area. In areas where only one class is suggested, it is INIT's understanding that the Agency personnel for that course act as the central administrator of that function and as such a targeted / minimal (less than 10) audience. For courses where multiple sessions are

proposed the understanding is that INIT would deliver one applicable per Agency as would be the case for a course such as Vehicle Operations or a small subset for targeted audiences as might be the case for Customer Service. However, that total numbers can be increased or decreased based on the need or preference of the Agency.

- Method = the way in which INIT suggests the class take place
    - Direct = INIT will instruct the Agency personnel performing the function
    - TTT = Train-the-Trainer where INIT will instruct Agency trainers or other personnel who will in turn instruct additional Agency team(s)

2.7.2.5.5 Training Course Materials

2.7.2.5.6 Remote, Video and E-learning

In addition to meeting your core objectives as described above, INIT also offers remote, video based (online) and E-learning training services as shown in Figure x.x above. For trainees not able to attend classes personally, they can participate remotely via WebEx.

INIT also has experience developing video based and e-learning curriculum. Typically, we contract these services out to local companies (often DBE's) specializing in developing training programs.

Video Based Training typically involves capturing the instructor's video screen and two video photographers, one fixed and the other roaming. Next the video and audio will be post processed, incorporating screenshots and slides to create dynamic and engaging videos. Edited footage of video recordings will remove all non-relevant material, and include title captions, section separators, and cover and wrap-up animations. Graphic and text support to be provided in the videos will be shared with the ORCA agencies for approval prior to the start of the final post-production process. All footage will become the property of the ORCA agencies.

Interactive E-learning training can be developed using tools such as Articulate Storyline. Articulate Storyline is designed to deliver an ideal learner experience. The player hides sidebar menus and the browser while delivering mobile-friendly playback controls optimized for every screen size and orientation. Supported are touch screen interfaces so learners can swipe, drag, and pinch-to-zoom on tablets and mobile devices. The ORCA agencies will participate as Storyboards and voice-over scripts are developed.

Again, video based and E-learning curriculums are not a requirement of the RFP; however, INIT is happy to discuss providing these services.

2.7.2.6 Manuals

INIT will provide instruction manuals that describe and illustrate in detail how to manage, operate, and maintain the next gen ORCA System delivered under the contract. The manuals will include detailed documentation for all equipment, systems and software and will be submitted in hard copy and electronic formats as defined during design review. Sample manuals can be found on each USB flash drive that are submitted with each proposal copy and originals.

Most documentation will be provided in Microsoft Word while supplementary materials will also use such formats as Microsoft Excel, Visio, PowerPoint, and Adobe Acrobat. If sensitive information is included, INIT will indicate as such; however, no data or information will be encrypted. The file format will depend somewhat on the type of document; below is a general breakdown with a macro-view:

- Manuals and illustrated parts catalog(s) (PDF and Microsoft Word)
- Electrical Computer-Aided Design (CAD) (PDF)
- Schematic drawing(s) (PDF)

Some documentation may include Visio diagrams as imbedded images. The native files will be provided to the Agencies as either an exhibit or separate file.

2.7.2.6.1 Manual Content & Format

INIT understands the importance of well written precise documentation written in terms that are meaningful to users. Care will be taken to provide easily understood explanations and step-by-step instructions with cross-references to all drawings, diagrams and photographs.

The schedule and submission of the manuals as described below will be in accordance with the delivery requirements defined in the contract. Revision control of each manual will be recorded on a control list in the front of each document. The list will be updated with each revision and will show the date of each revision and the page reference. INIT will maintain all updates or revisions in the document control lists for each document. Prior to release to the Agencies, INIT will ensure each document has been peer reviewed by an appropriate technical level resource or professional technical writer to ensure the accuracy, completeness, and thoroughness of the content is obtained and relevant for Agency review and consideration.

Each manual provided will include a combination of tools to best communicate and where needed educate, the reader in all matters related to the material such that the Agencies will be able to operate, maintain, troubleshoot, diagnose, and perform repair of the system and its components elements. Such tools may include but are not limited to:

- Narrative text and descriptions
- Step-by-step procedures
- Illustrations, drawings, diagrams, images, or schematics
- Parts lists
- Troubleshooting guides
- Repair and replacement procedures

In many cases a document will use a combination of the above to provide the best possible explanation or instruction for the reader. Where this occurs, care will be taken to ensure cross-references are provided. For additional information related to the content specific to a functional area of the system, please refer to the Required Manuals section below.

While training courses will use the operator and maintenance manuals as a key source of education, supplemental materials specific for training such as instructor guides, student workbooks, presentations, or quick reference guides will be separate. Where applicable or in support of the readers understanding, references and cross-references will be provided.

The manuals will be concise and complete as possible ensuring that information gathered during installation and acceptance testing, and throughout the warranty and Software Maintenance Agreement (SMA) terms, will be incorporated into the manuals to be submitted to the Agencies.

As the different phases of the project continue, it is likely that revisions and other adjustment may be required of the documentation to reflect changes in or clarification of the actual implementation. In consideration of such circumstances, the information gathered from system installation activities, System Acceptance Testing, and the Warranty Period will be incorporated as needed to ensure appropriate reflection of the system.

2.7.2.6.2 Required Manuals

The system manuals that INIT will provide will be organized initially into high level categories in effort to guide its intention and/or user or audience. Those categories are: Functional Operation and User, Repair and Maintenance, Parts and Component Catalog(s), Special Tools, and Original Equipment Manufacturer (OEM).

Device and Software Manuals

Operating Instruction manuals are written with the intent to provide the reader clear and concise information on the form, function, and purpose of the given system component. The general outcome of each manual will be such that the reader has a core understanding of the

subject and is able to use it for the general purposes of their role. Collectively, the manuals INIT provides will ensure a complete understanding of:

- System equipment and associated peripherals
- Location, function, and operations of all controls and indicators
- Setup instructions, login, and shutdown procedures
- Troubleshooting, diagnostics, and isolation for the identification and repair of faults
- List of user messages, errors and descriptions

Operations manuals required for the ngORCA system include the equipment, systems, and integrations provided below.

Equipment:

- Onboard Validator
- Onboard Driver Display Unit
- Wayside Validator
- Vending Machine
- Customer Service Terminal and associated peripherals

Equipment Software / Applications:

- Validator Operations
- Driver Display Unit Operations
- Vending Machine Operations
- Fare Inspection and Validation App Operations

Preventative Maintenance manuals are provided in instances where proactive care and management of an item of equipment can help improve its performance and/or overall useful life. While not inherent to each item of equipment associated with ngORCA, INIT will identify items where preventative or periodic maintenance guidance are warranted.

Corrective / Field Maintenance manuals will be specific to the item(s) of equipment installed or in operation at an Agency location. Such items of equipment will include the onboard and wayside validators and driver displays, vending machines, customer service terminals.

To ensure the Agencies are equipped with the necessary knowledge and reference material, each manual will include:

- Troubleshooting guide providing errors and screens for common failures
- Common fault descriptions and best practices
- Unit swap instructions

Where necessary the Corrective / Field Maintenance manuals will expand detail on some functions and features of the equipment described in the Operations Manuals. The point and purpose is such that the user is able to become increasingly familiar with the micro detail necessary to perform the functions in their role. Such detail may include block diagrams or a list of error codes typical to a sub-component or assembly.

Each manual will provide sufficient detail to ensure appropriate and accurate diagnosis down to the lowest level replaceable unit (LLRU). The LLRU is known by the Contract as a complete assembly provided by INIT or an OEM supplier for spare parts.

Corrective / Field Maintenance manuals required for ngORCA include the following system equipment and components:

- Onboard Validator Corrective / Field Maintenance
- Wayside Validator Corrective / Field Maintenance
- Onboard Driver Display Unit Corrective / Field Maintenance
- Vending Machine Corrective / Field Maintenance
- Customer Service Terminal Corrective / Field Maintenance

As a component of field service and maintenance functions, the Agencies may encounter locations or vehicles in which equipment must be decommissioned (e.g. bus being retired, Customer Service office closure, etc.) or newly installed (e.g. new service, location, etc.). For new installations, a Site Survey will be performed and then an Installation Procedure provided. Decommissioning instructions will be provided as part of general field maintenance activities.

Shop Repair and Overhaul manuals will address the processes and steps in which equipment is unable to be returned to service in the field and must be either repaired in the workshop or replaced if repair is not possible. For these manuals INIT will provide the information related to the workshop repairs performed and the procedure for which they occur. For items that are COTS provided (e.g. CST perifpheral) and repair not possible, instructions or other information will be provided to support the replacement.

Parts manuals will be provided to outline the component parts and pieces of each unit of equipment, item numbers, manufacturer, and other similar information. The Parts manuals will

detail the unit of equipment and/or installation materials applied to, any Agency-specific information, location detail, etc.

Software and Programming manuals will be drafted to support a technician in performing the appropriate series of functions to return a unit of equipment to service or install a new one. This information includes all software and programming information required per unit of equipment. For example, onboard equipment would need to include information about the cable and e-prom as well as the validator in order to fully commission the validator or in the case of the CST, this may include software to be loaded, run commands, and testing of peripherals. Each manual will provide the needed catalog of instruction along with step by step guide for performing a stated task.

Software Source Code manuals will be provided in support of any non-proprietary related information. Additionally, the manuals will detail the items intended for Escrow as part of the source-code deposit required at Full System Acceptance.

API manuals will provide the suppliers that need to integrate with the the system using the APIs with the requisite information of the API specification, calls, data formats, system and security requirements. The API manuals will be written to support the following established APIs:

- Fare Payment
- Fare Inspection
- Central Payment Processing
- Transit Account Management
- System Management
- Fare Distribution
- Customer Account Management
- Onboard Integration

User and Field Maintenance Quick Reference Guides will be written to support the ability to perform a task or function central to a resource's job, role, or shift. Quick Reference Guides are not inherently limited in scope to any specific functional area nor specifically required for all functional areas. For example, a field technician may need a Quick Reference Guide for equipment swaps for each equipment type. Similarly, Quick Reference Guides may be required for each equipment type and unique to each Agency as their processes or procedures internally may require steps another Agency does not. Alternatively, there may be in depth functions associated with a System Administrator or Finance person where a Quick Reference Guide may be deemed insufficient as to be valuable.

OEM manuals we will be provided for items of equipment sourced from an alternate third party. For example, the card printer for the CST will be procured from a standard COTs provider and as such the user and maintenance information would be sourced from the manufacturer.

Back Office Manuals

The detailed operating instructions and procedures on the ngORCA System will be provided to the Agencies' System Administrators and IT personnel. These groups will be responsible for the operation and maintenance of the back office and its applications and system components.

All documentation provided will include functional and technical information relevant to the target audience ensuring the material is meaningful to the user. Each application program and its use will be explained along with step by step procedures detailing the configuration and parameter differences and the associated impact, if any, when they are changed or modified.

Administrator's Manual will be provided for the System Administrator or team(s) as applicable to the needs of the Region to inform on the system components, interfaces, suppliers, integrations, and other detail central to the system's overall design and implementation.

User's Manual will be provided to enable administrators and their teams to perform the various functions and configurations related to the central system. The following manuals will be provided for the back-office systems and configuration:

- Tariff Management
- Master Data Management
- Admin Tool
- Device Data Manager
- Parameter Management
- Online Crypto Manager
- Revenue Management
- Form Designer
- Asset Manager
- Card Inventory Management
- VASA Report Access and Management

Customer Relationship Management Application Operations Manual will be provided to enable the user to understand the form, function, and operation of the CRM. Detailed information on

user flows, data fields, functions, and operations will be provided as well as any information related to it's integration and support.

Asset Incident Management Application Operations Manual will detail the way in which assets are inventoried, monitored, and managed within the system. This includes all serialized assets such as a unit of equipment or piece of fare media. The manual will detail the way in which assets are defined, set up, and configured for monitoring and/or maintenance purposes including system alerts, alarms, errors, and so forth will be described along with the necessary troubleshooting and/or repair steps for recovery and reinstitution to typical operation. Furthermore, in the event a system restart or failure is required, the manuals will also provide sufficient information on the restart, reconfiguration, or other power-up tasks required. Additionally, the user will be instructed on the purposes and means for exporting data and log files, 'diagnostic data dumps', from the system. The documents to support maintenance of the back office are as follows:

- Software Maintenance
- Asset Management
- Incident Occurrence Notices
- Back Office Equipment and Systems Preventative Maintenance

System Manager Operations Manual is intended to detail the back-office infrastructure and network requirements of the system, including Agency-specific and central-system requirements. The System Manager Operations Manual will include information related to the architecture and application integrations of the system:

- Network Architecture
- Database Design and Architecture
- Disaster Recovery and Redundancy
- Failover and Data Load
- Customer Relationship Management Application
- Fare Inspection, Mobile Application
- Fare Validation, Mobile Application
- Customer Management, Mobile Application
- Web Portal Application

As more fully detailed system backup and redundancy and disaster recovery design, the process for backing up and cutting over to the Disaster Recovery System will require support and knowledge from all parties. The System Manager Operations Manual will however, provide the detailed procedures and step by step instructions for such occurrences. The cutover may take different forms depending on the root cause or scale of the occurrence.

Financial Management Application Operations Manual will detail the financial and accounting functions, processes and configuration. The manual will detail the Sage accounting interface integration, reporting, and daily, weekly, and/or monthly functions required to support the processing and settling of funds.

Field Media Management Application Operations Manual provides the way in which physical media is inventoried, moved between inventory locations, reconciled, ordered and other similar functions. Additionally, the manual will detail the different ways in which system equipment and interfaces will and can interact with all forms of media whether card present or not or physical media or not.

Software Source Code manuals will be provided in support of any non-proprietary related information. Additionally, the manuals will detail the items intended for Escrow as part of the source-code deposit required at Full System Acceptance.

OEM manuals are provided in support of the installed equipment, hardware, wiring, and applicable sub-assemblies, INIT will supply the Agencies with a parts and component catalog as well as a special tools catalog or list. Depending on the materials and sub or part document may be provided in compliment to the primary operations manual or cross-referenced (whichever is preferred by the Agencies).

In addition to the manuals noted above, INIT will also provide all available / complimentary documents which are in support of any OEM system component software, hardware, or integration. The format and structure will be determined as information or detail is available.

Support System Manuals

Once the system has been designed and implemented, support needs will be required at differing intervals based on the current state of the project. During the project implementation INIT will be responsible for carrying out and monitoring the management and maintenance of the system. Once the system is handed over to ROOT for the delivery of those management and maintenance functions, the Region will rely upon the knowledge gained from training and on-the-job support and the provision of documentation from INIT.

Operations and Maintenance Manual will detail the roles and responsibilities and related procedures between INIT and the Agencies in a manner so that it is clear the scope of the work

that is required of INIT and to which point there is hand-over or coordination with the Region. INIT will detail the INIT specific processes that are needed to be followed and to the extent practical denote any related Agency processes that may apply. The document will include the steps as needed for the duration of the maintenance period and be updated in the event of changes to the system or supporting infrastructure.

OEM Manuals will be used as supplied in the previous manual iterations in support of system equipment and components as described. Where applicable, OEM manuals will be replaced in the event of newly supported information or version changes.

Website Manuals

The website design is such that it is intended to serve multiple auidences in the Region including both end users, institutions, and Agency administrators. The complexity and detailed functional need requires a user manual be provided to cover each area.

Customer Website Design and Administration Manual will be provided to enable a detailed understanding of the form, function, and uses of the Customer Website. Information will be provided to ensure clarify of experience and feature capabilities based on the user; whether an end user as a single cardholder or Institution, Institutional administrator, Agency Institutional Program Administrator, ngORCA System Administrator, or Marketing and PR personnel.

Agency Mobile App Manuals

There will be two mobile Apps developed for ngORCA which provide two core support functions: Fare Inspection and Fare Validation.

Mobile Fare Inspection Application Design and Administration Manual will detail the design and function of the Inspection App. Detailed instructions on features and user stories will guide users through the purpose and intention of the app for inspection of media. App accessibility and device compatibility details will also be included.

Mobile Fare Validation Application Design and Administration Manual will provide the information and detail of the Validation (fare payment) App so that users understand the distinct purpose and different of user flows and needs between the Agency apps. App accessibility and device compatibility details will also be included.

Customer Mobile App Manual

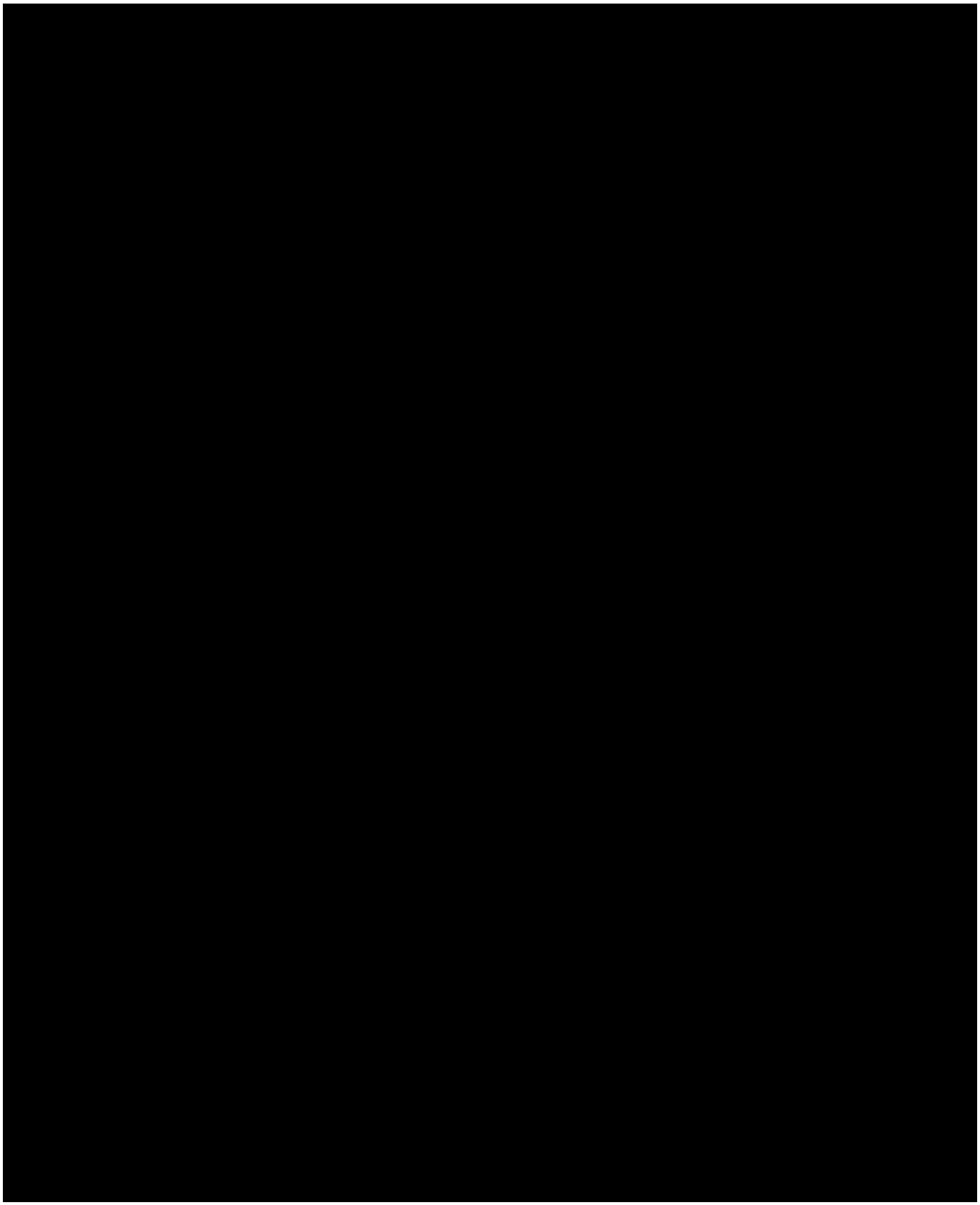
The customer app will be similar in design to that of the customer website and as such serves a broad and unique audience while also enabling additional user features such as fare payment via NFC.

Customer Mobile Application Design and Administration Manual will provide the user with a detailed understanding of the form, function, and uses of the app as well as any inherent limitations or system requirements.

2.7.2.7 Software Escrow Deposit

INIT will deposit INIT Software with a source code agent. During the one-year period there is no charge for SoundTransit. Deposit of 3rd party software such as Microsoft, Sage, SalesForce etc. is not included. Charges for an annual deposit after warranty are included in the operational costs. Our preferred source code agent is capable of doing Level 2 deposits if needed. Included in our pricing is Level 1 deposit which INIT has done for other projects. Level 2 deposit would require an upcharge. Please refer to the commented section D "Source Code Escrow" of the RFP document "Exhibit A Proposed Agreement" for additional details.

2.8 INIT's Proven Transition Methodology and Approach



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2.8.1 Minimal Customer Service and Project Impact Transition

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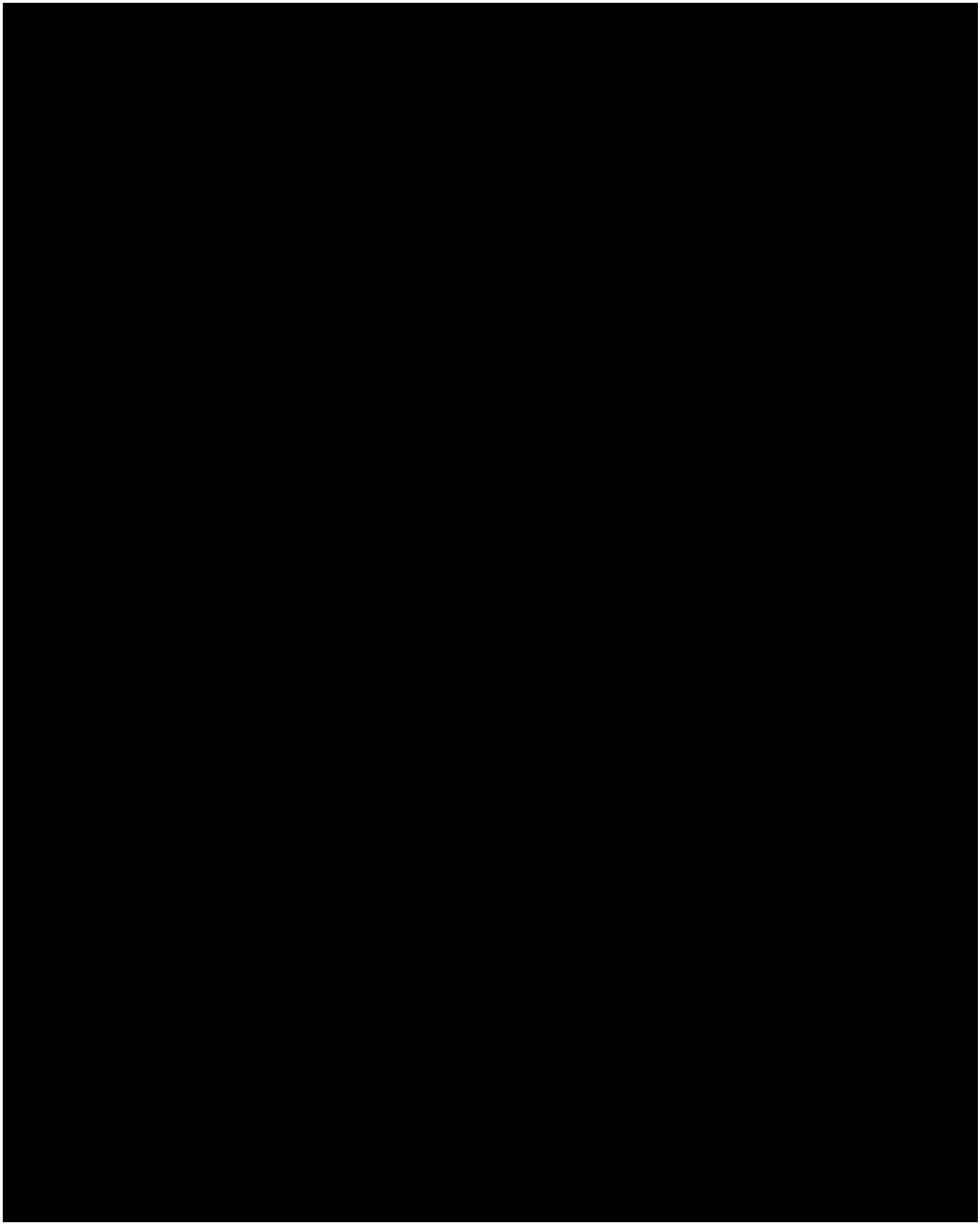
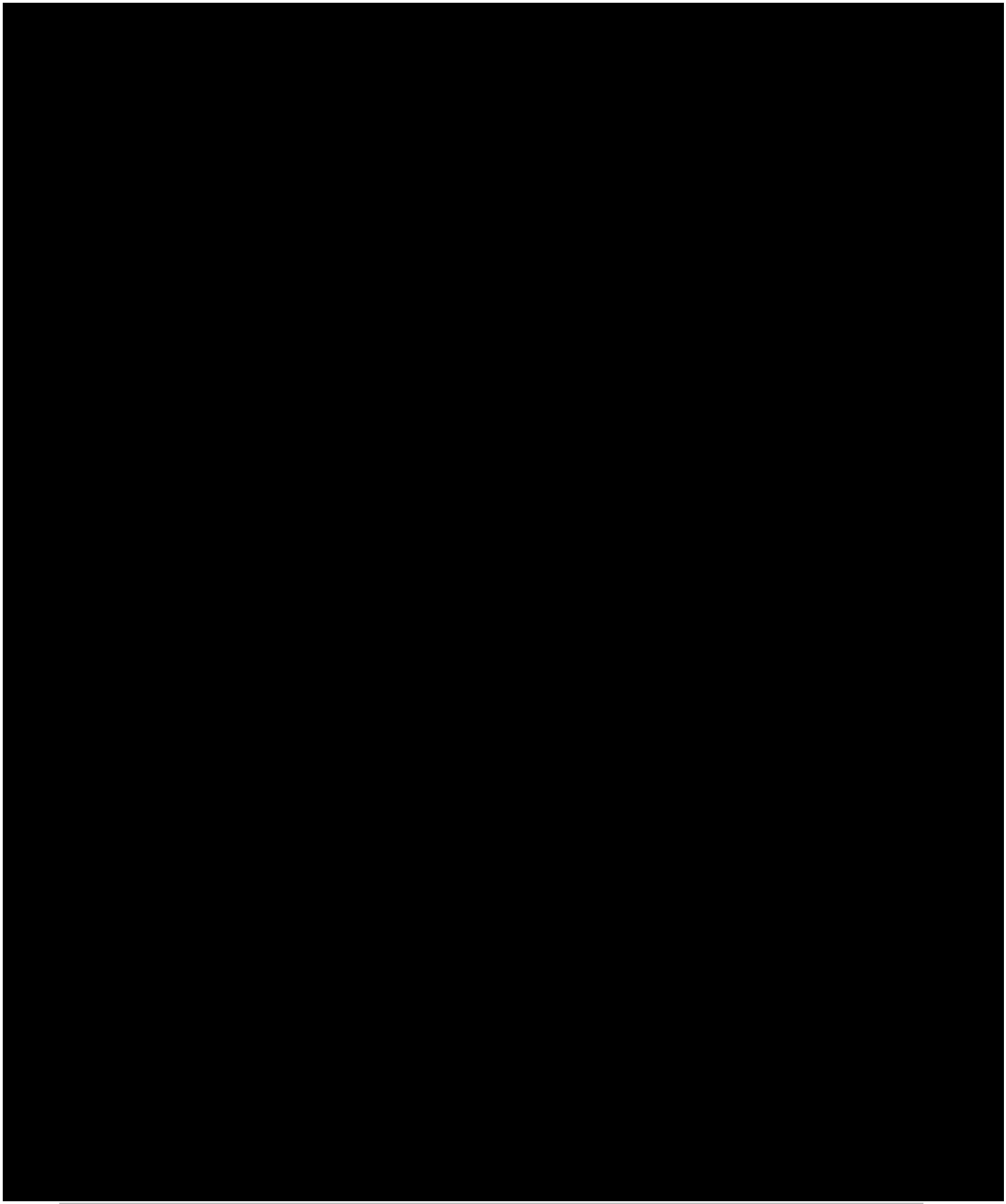
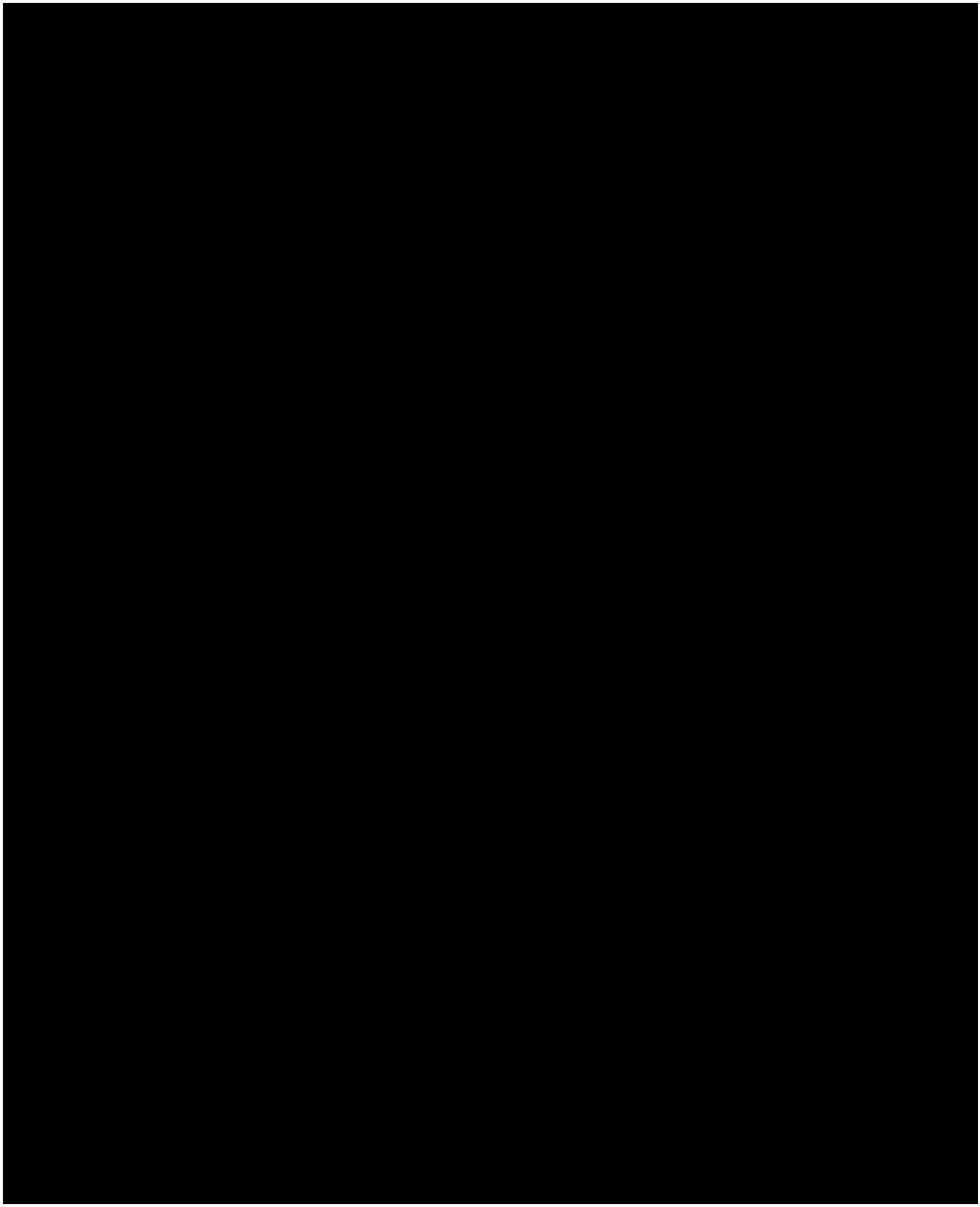
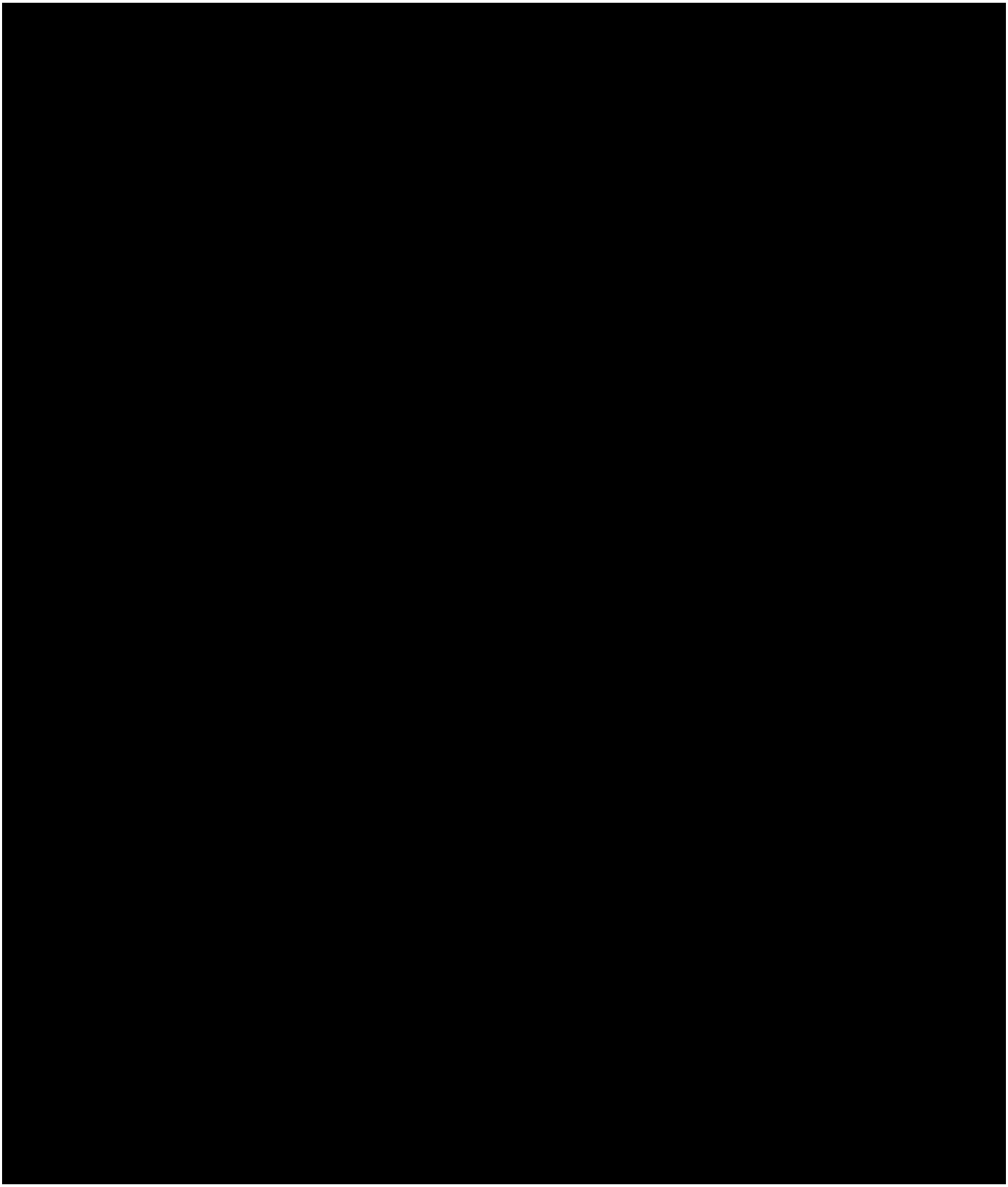
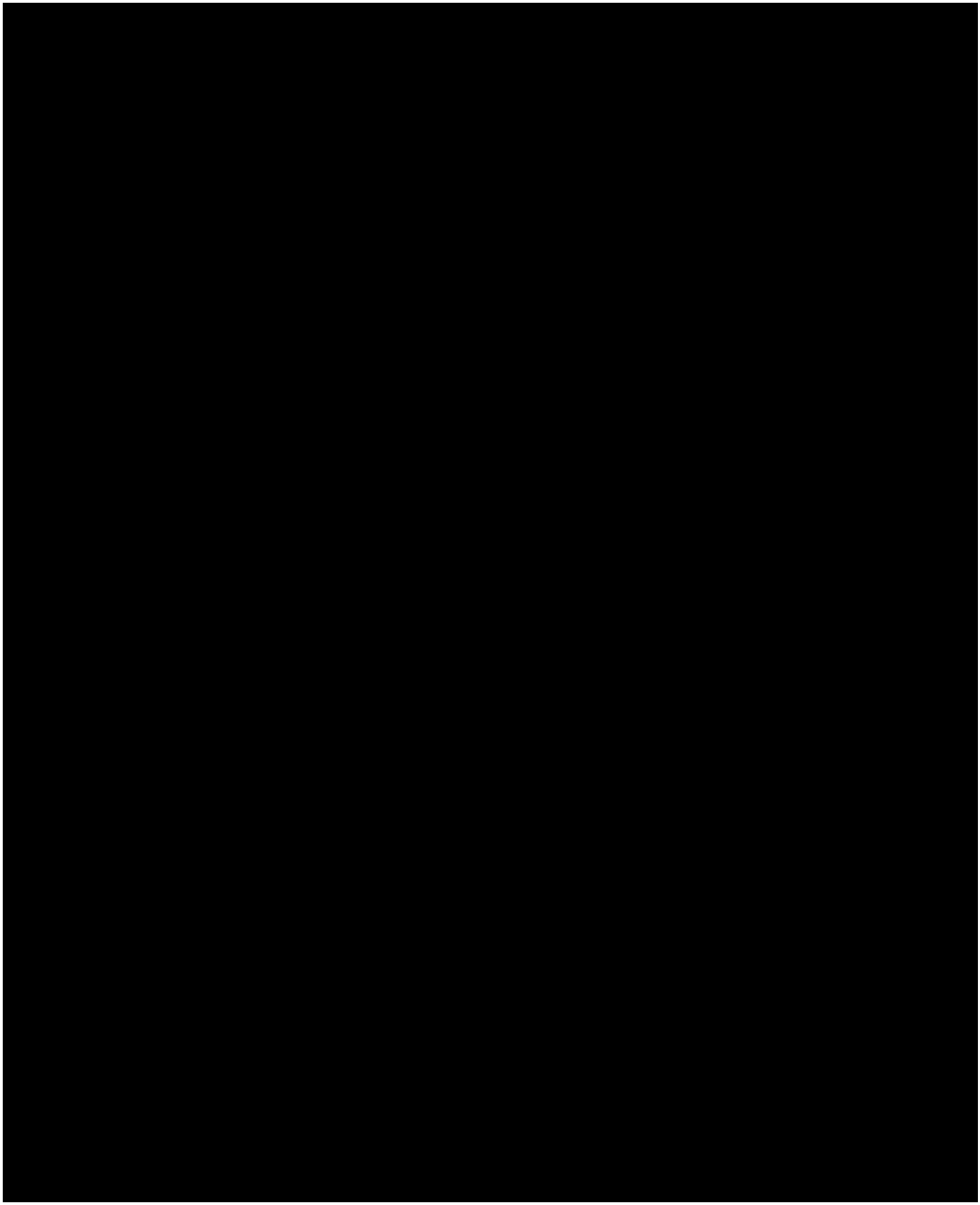
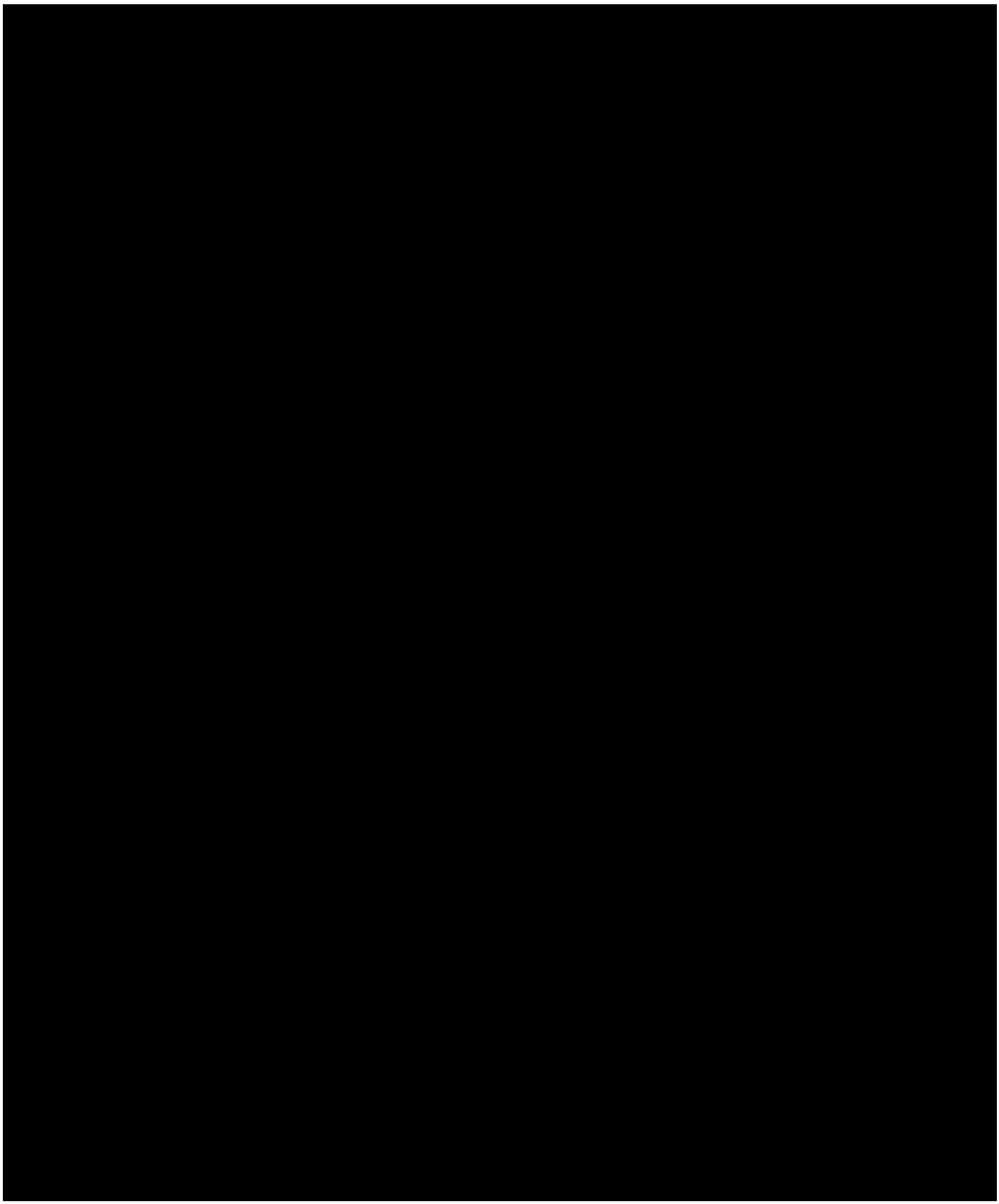


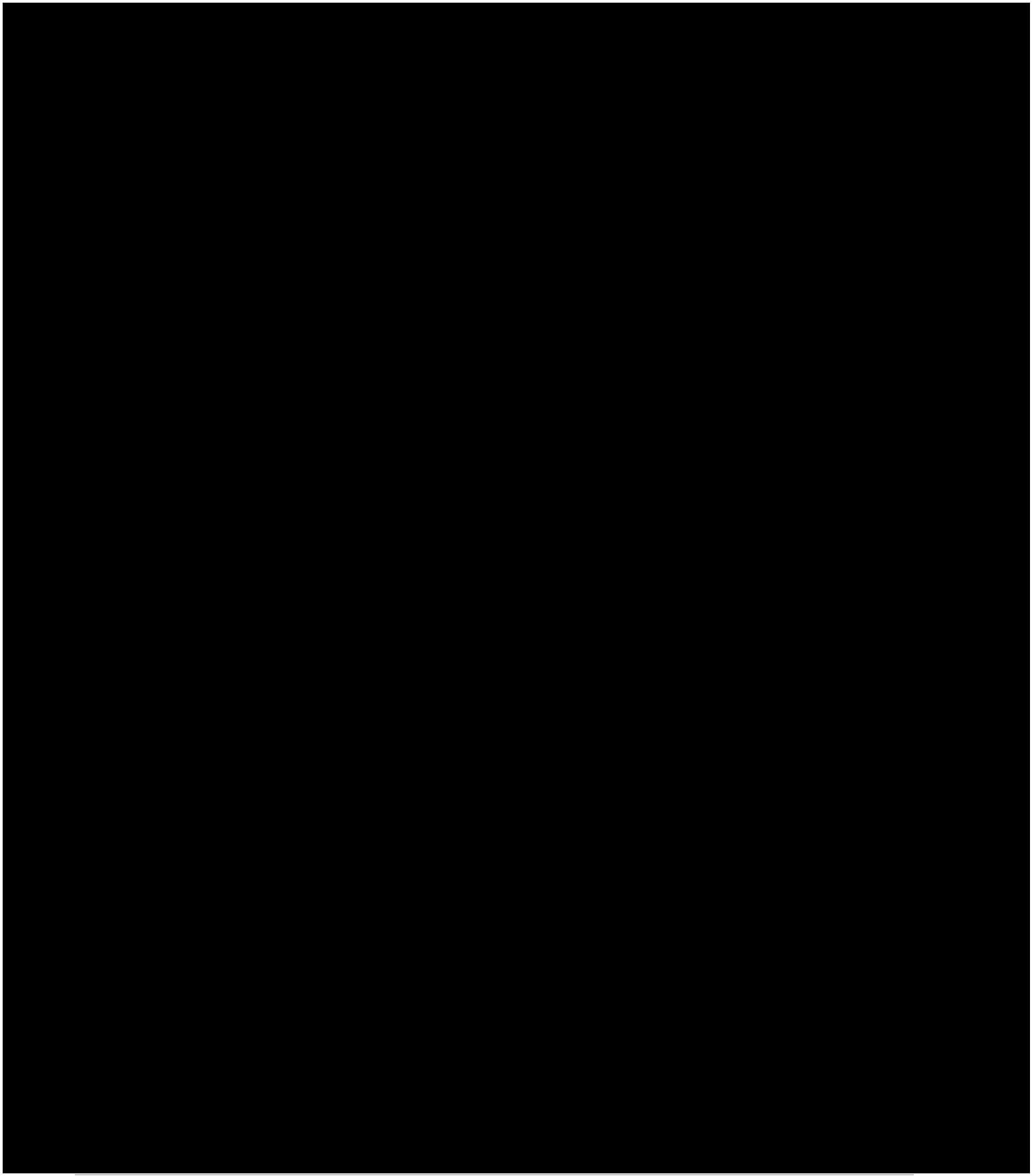


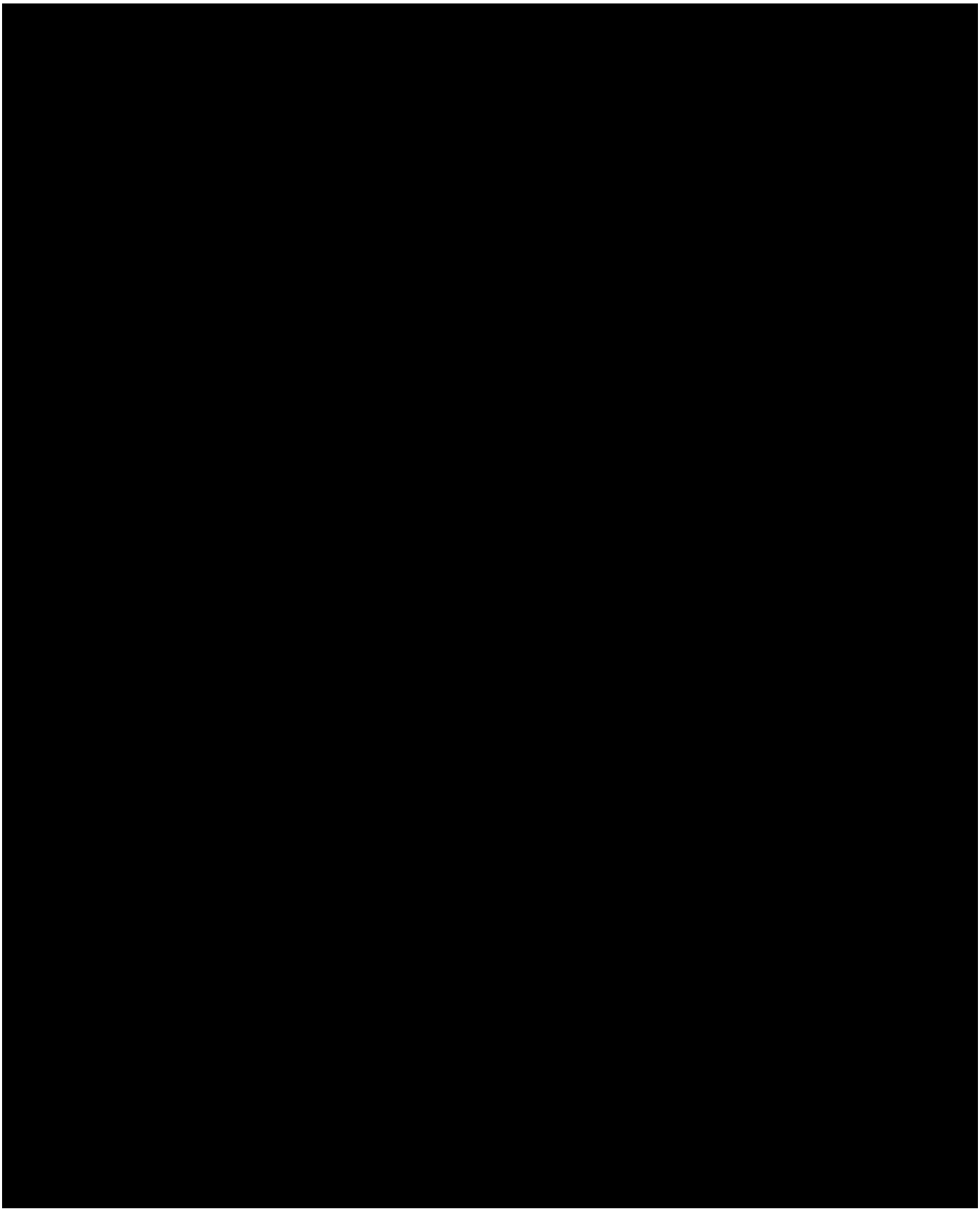


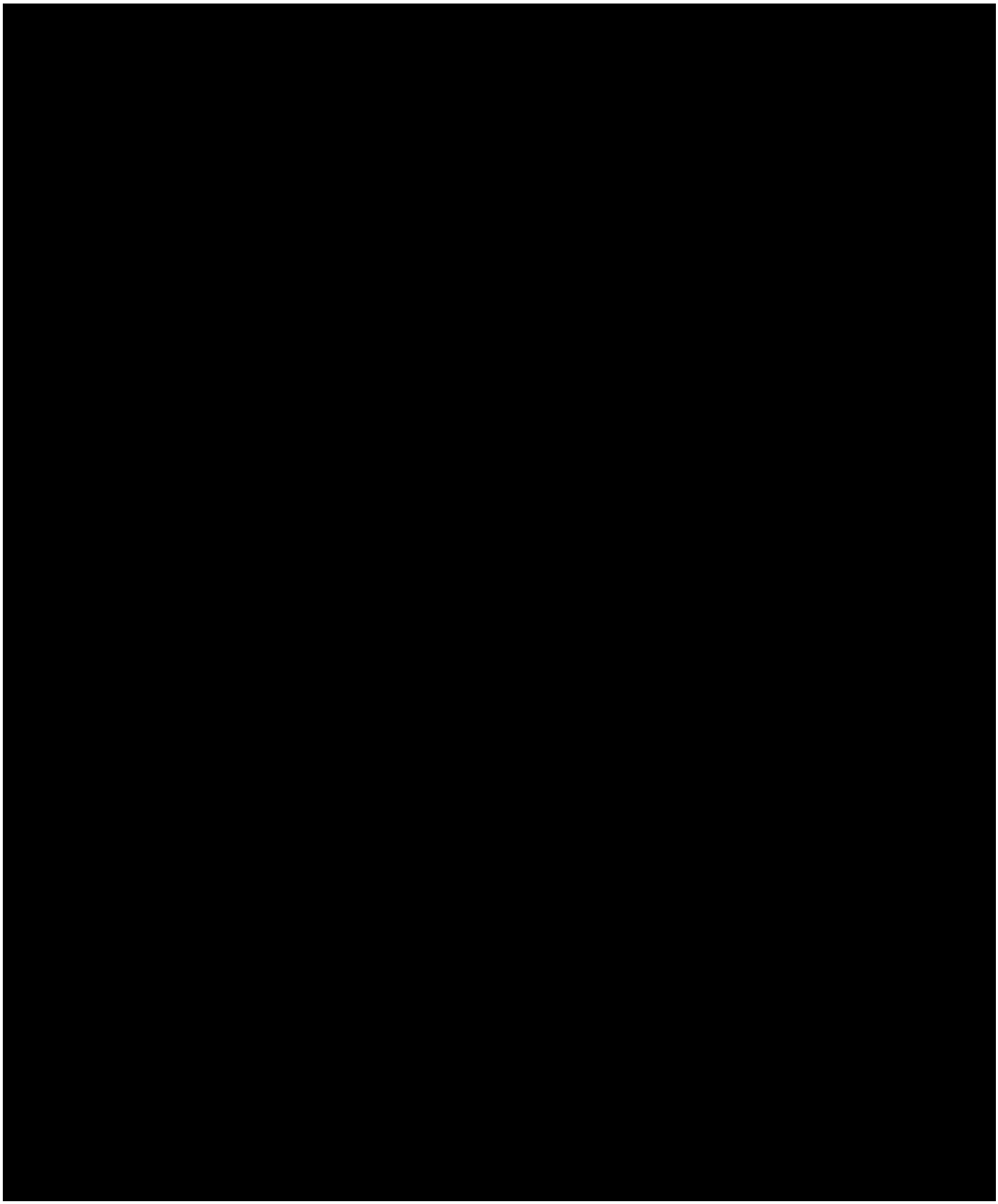


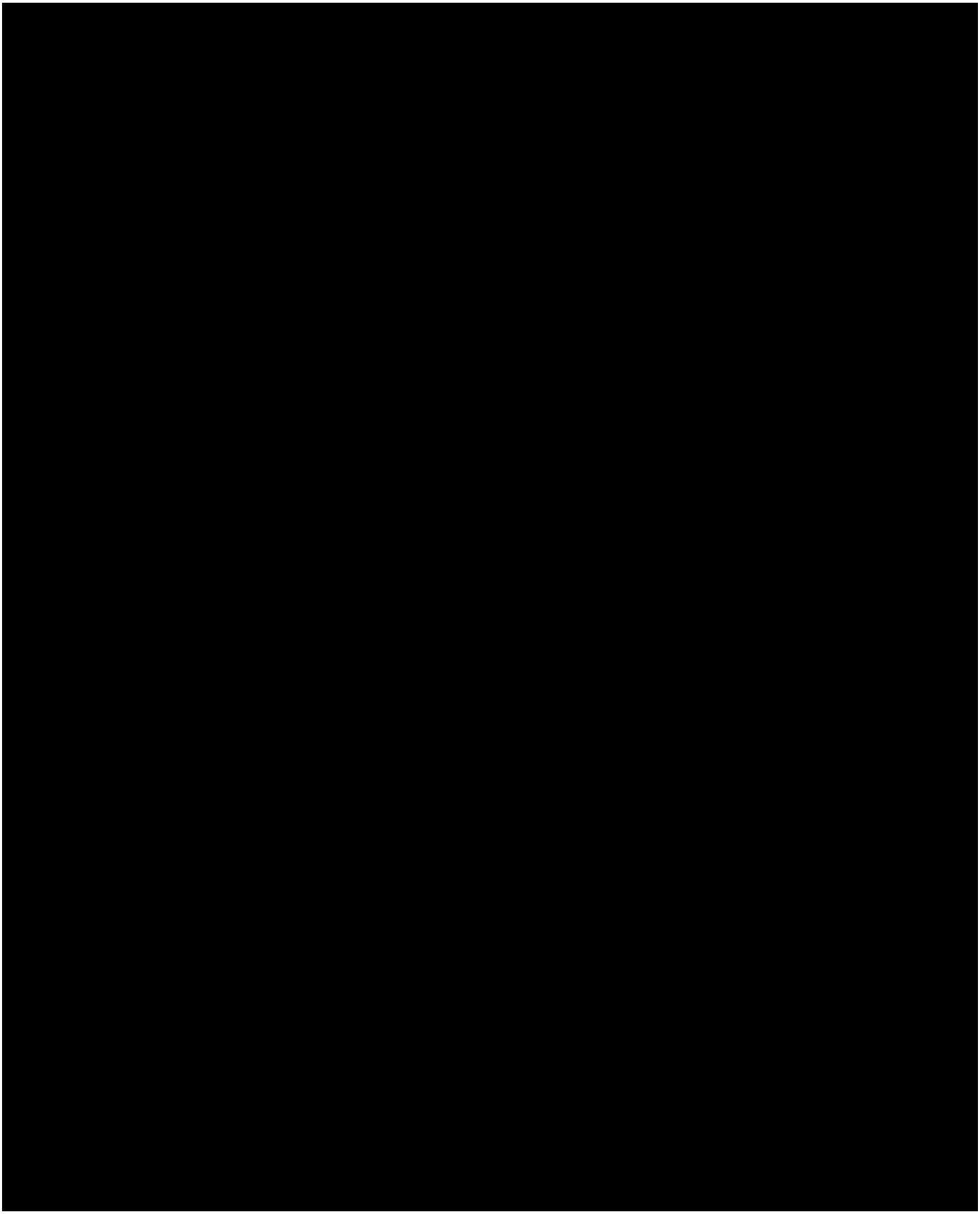


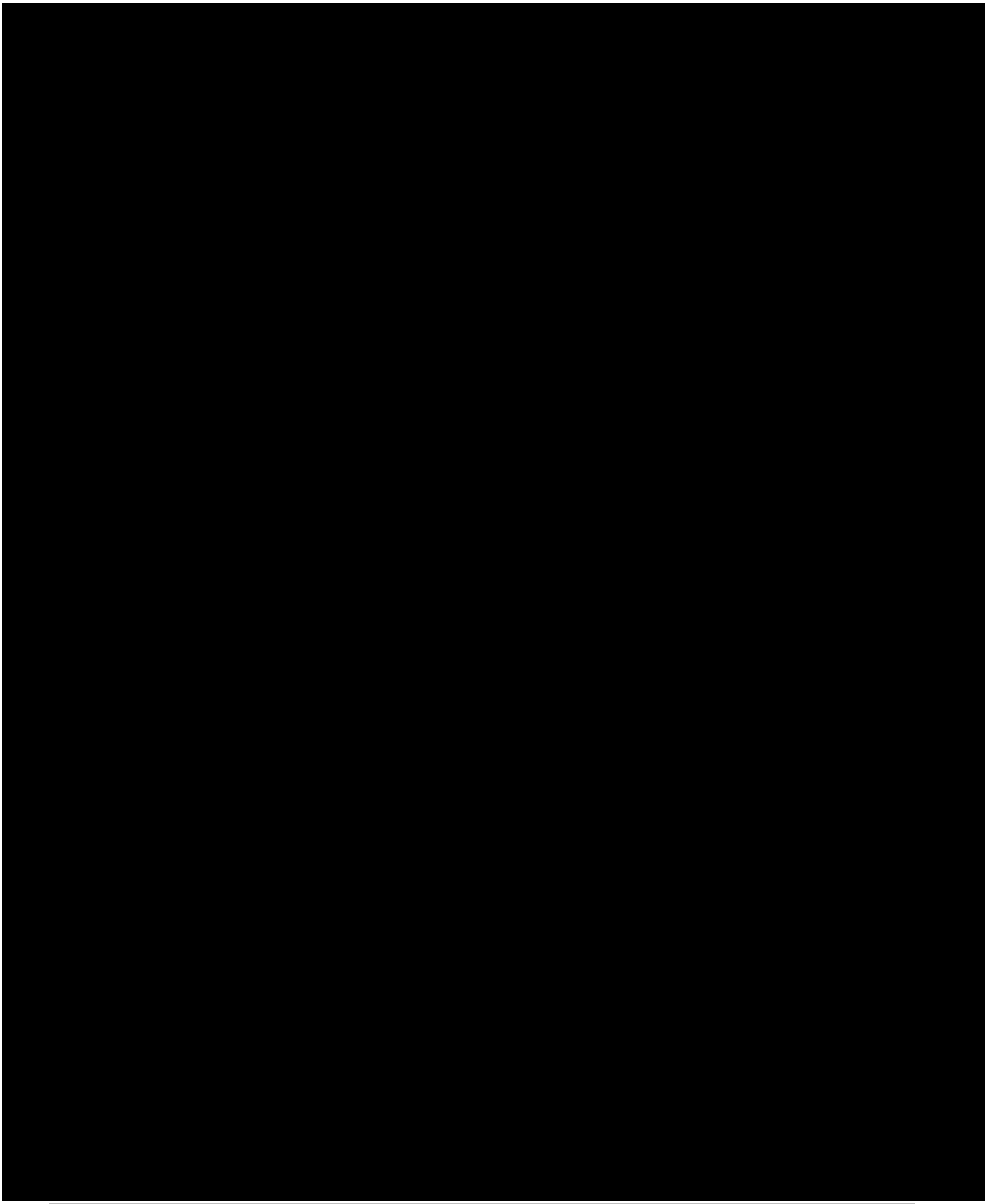


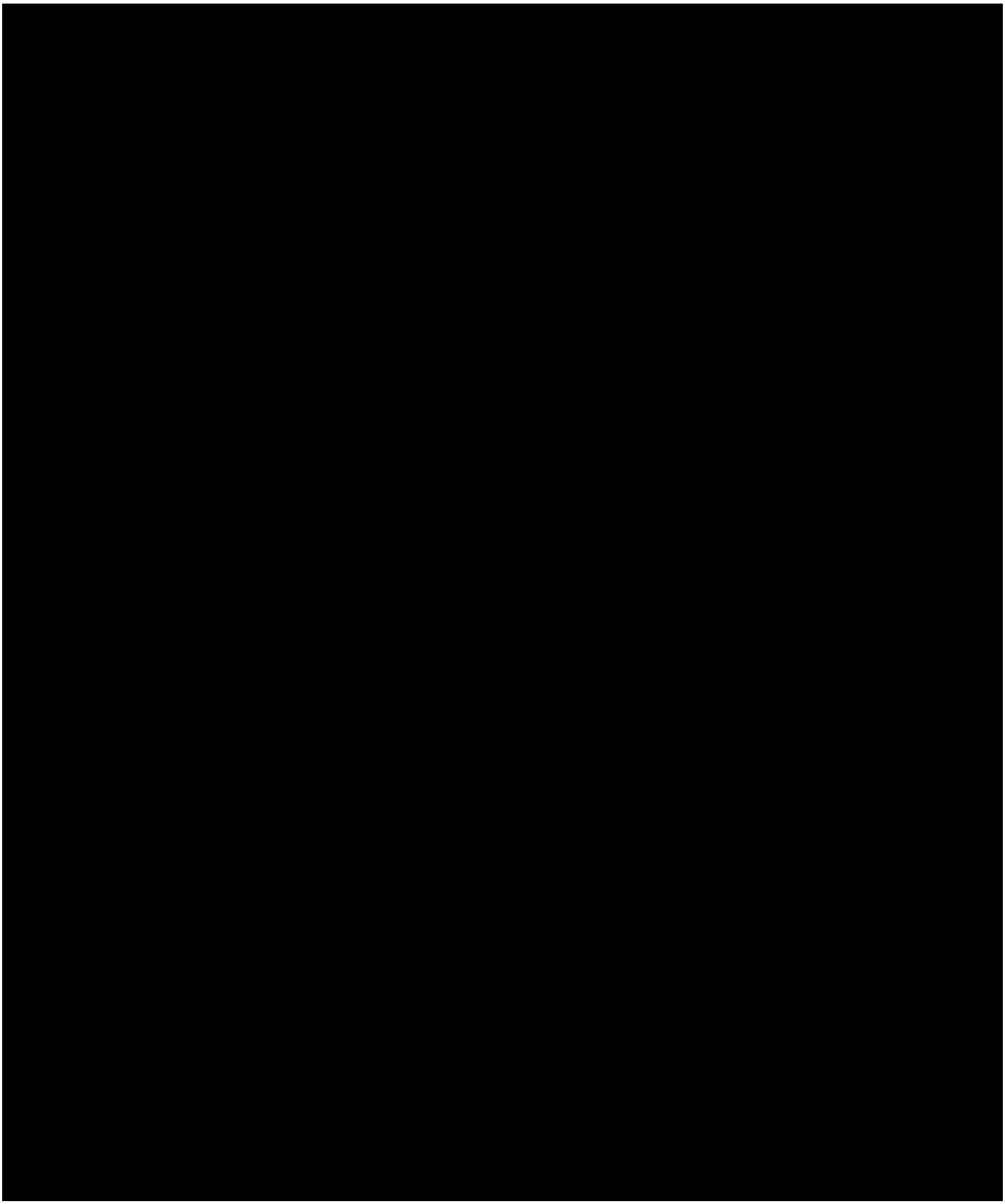


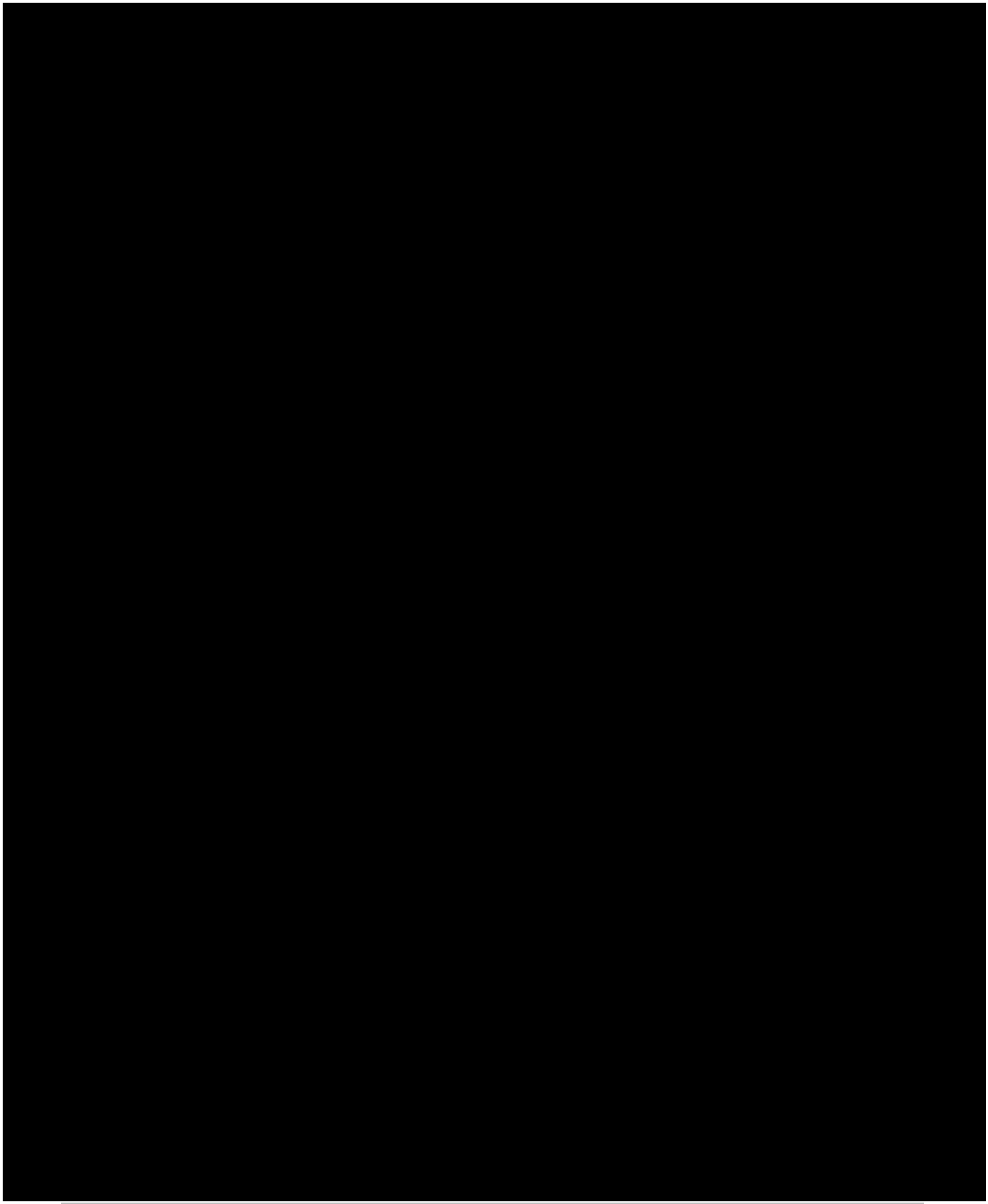


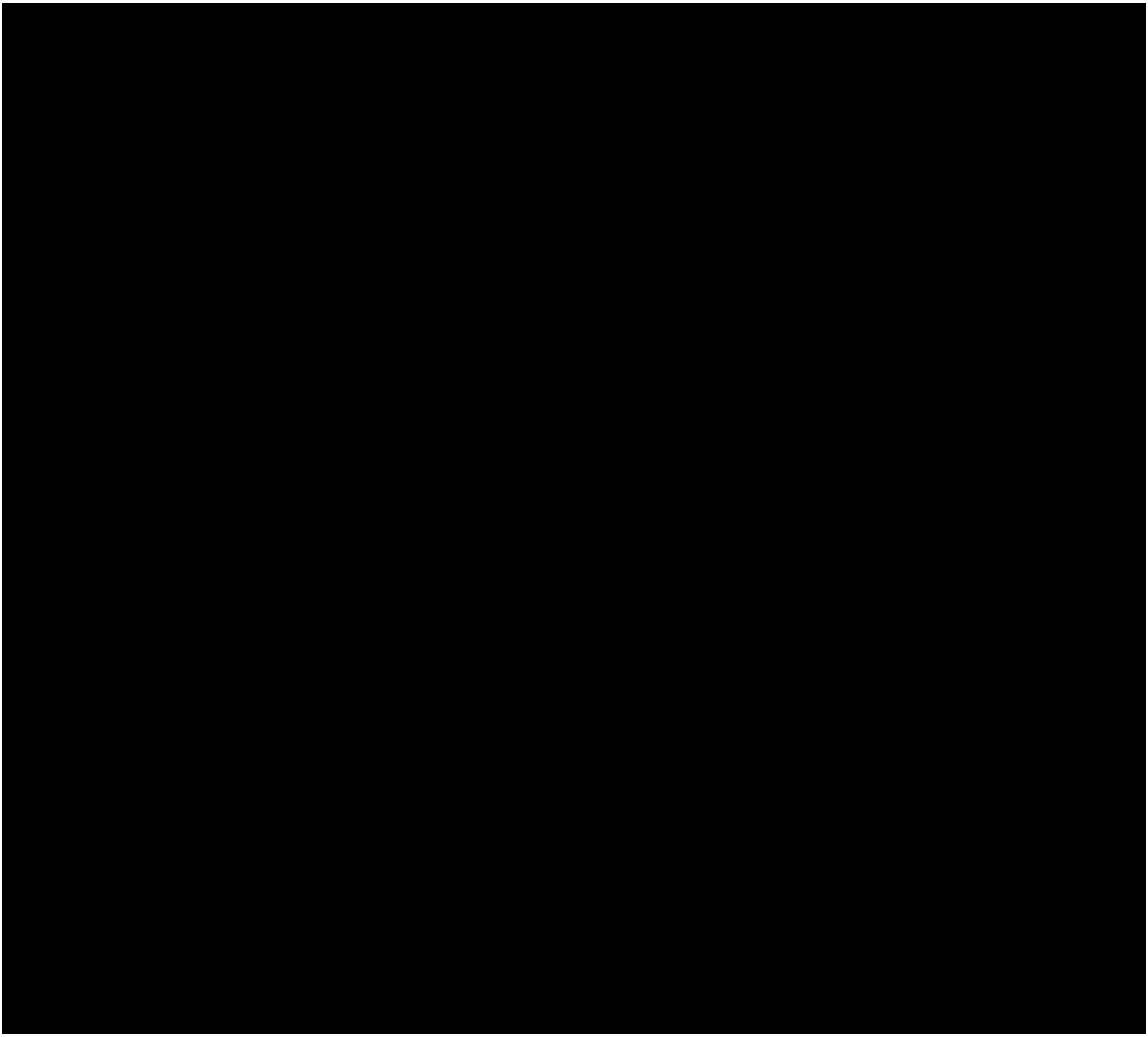


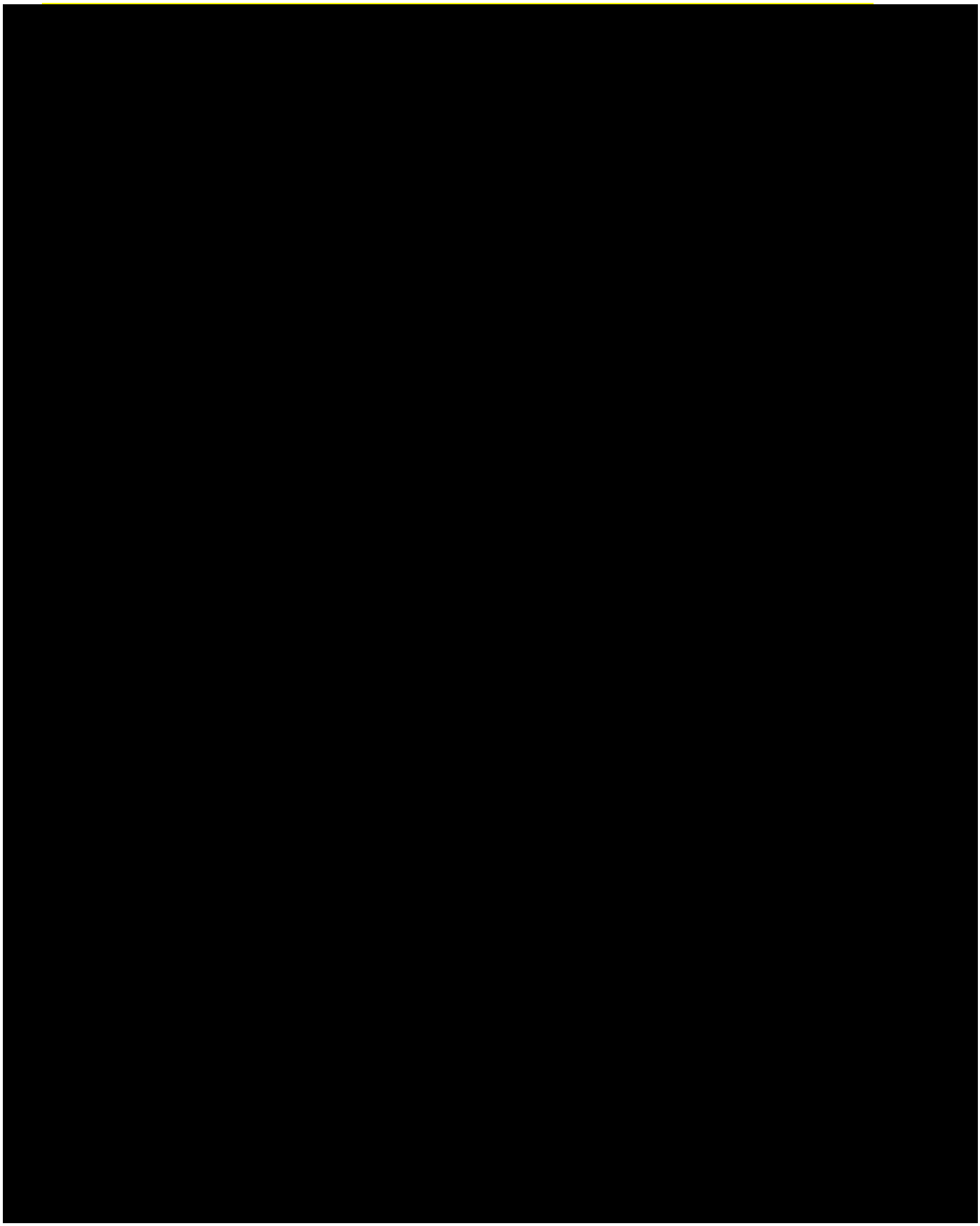


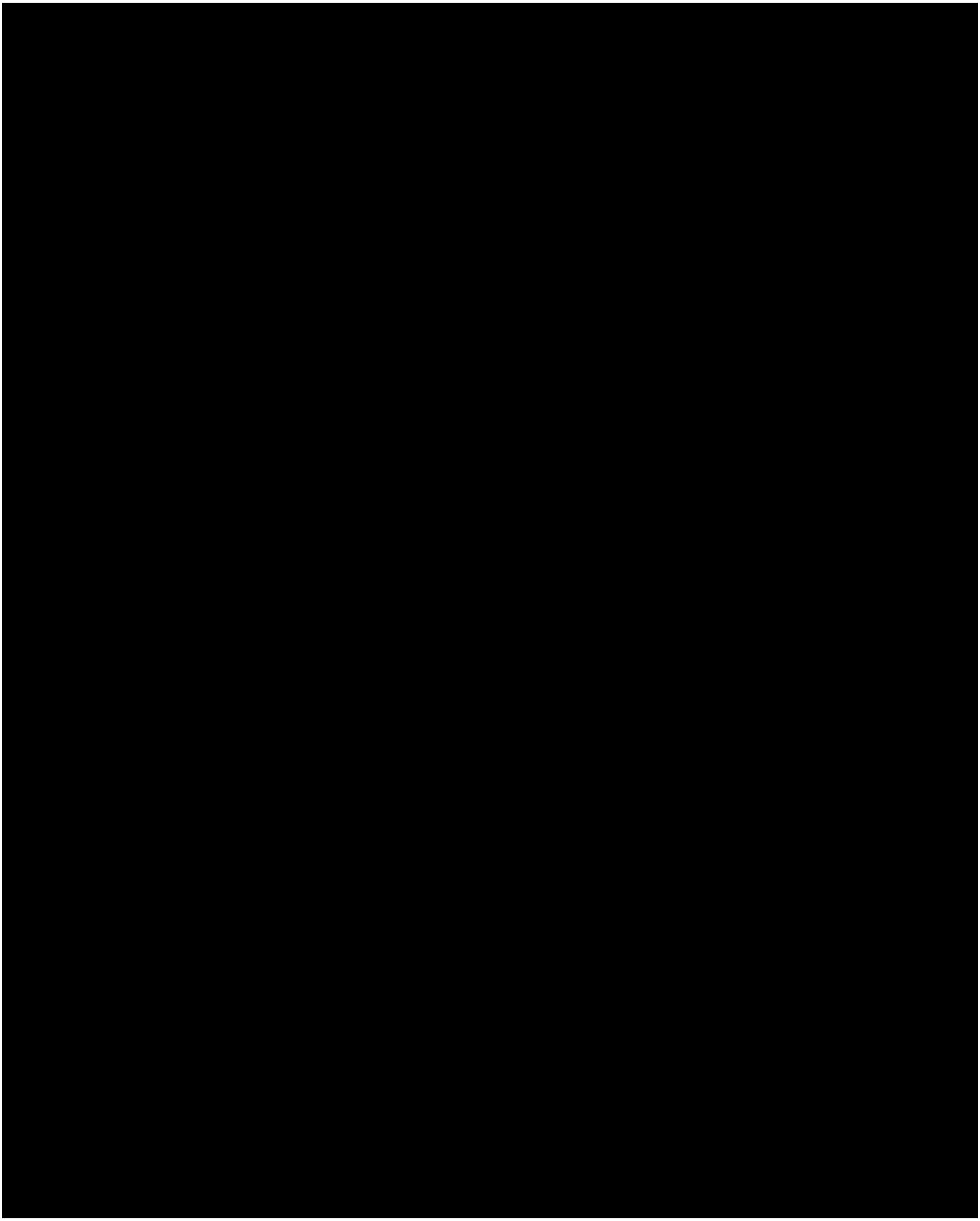




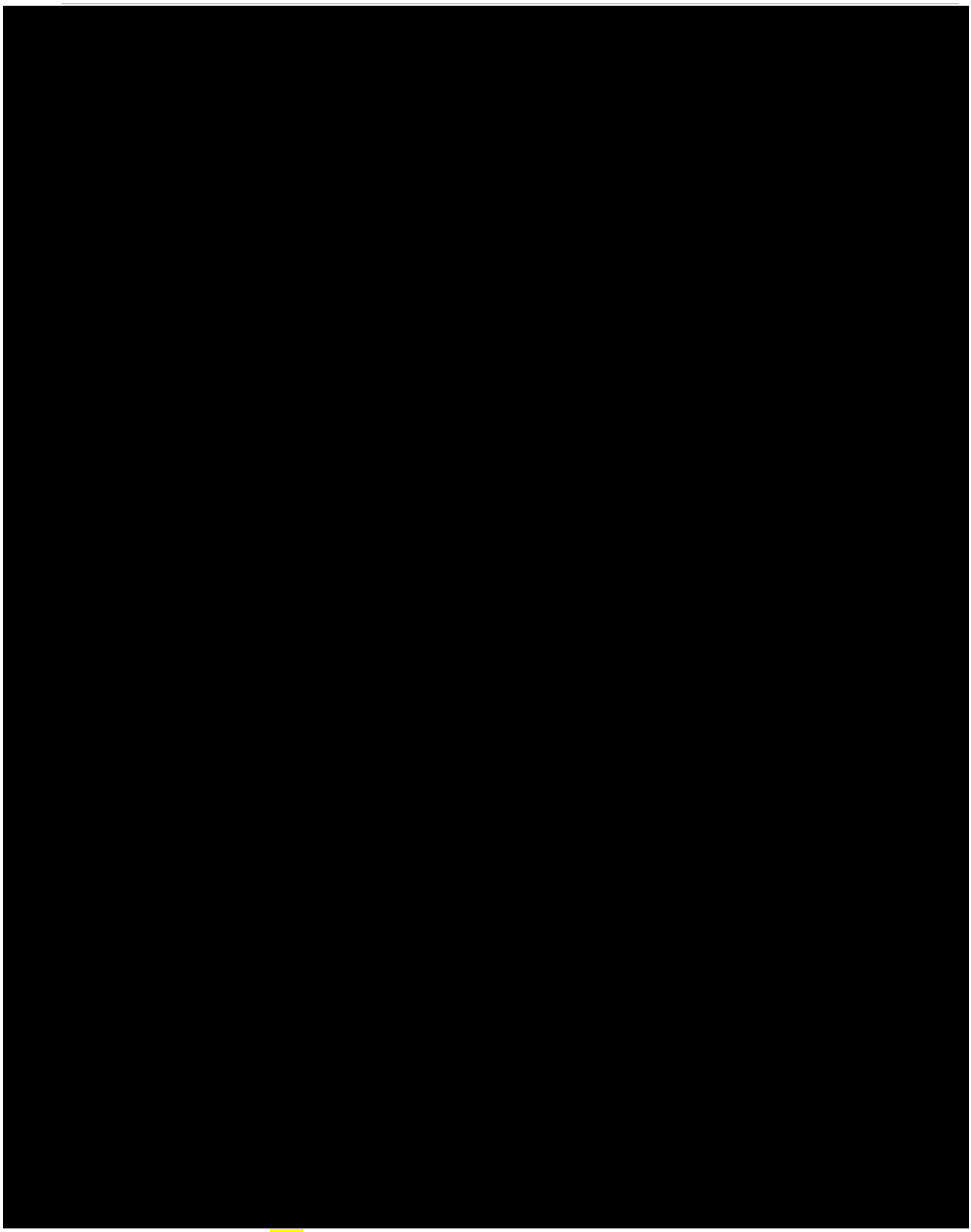


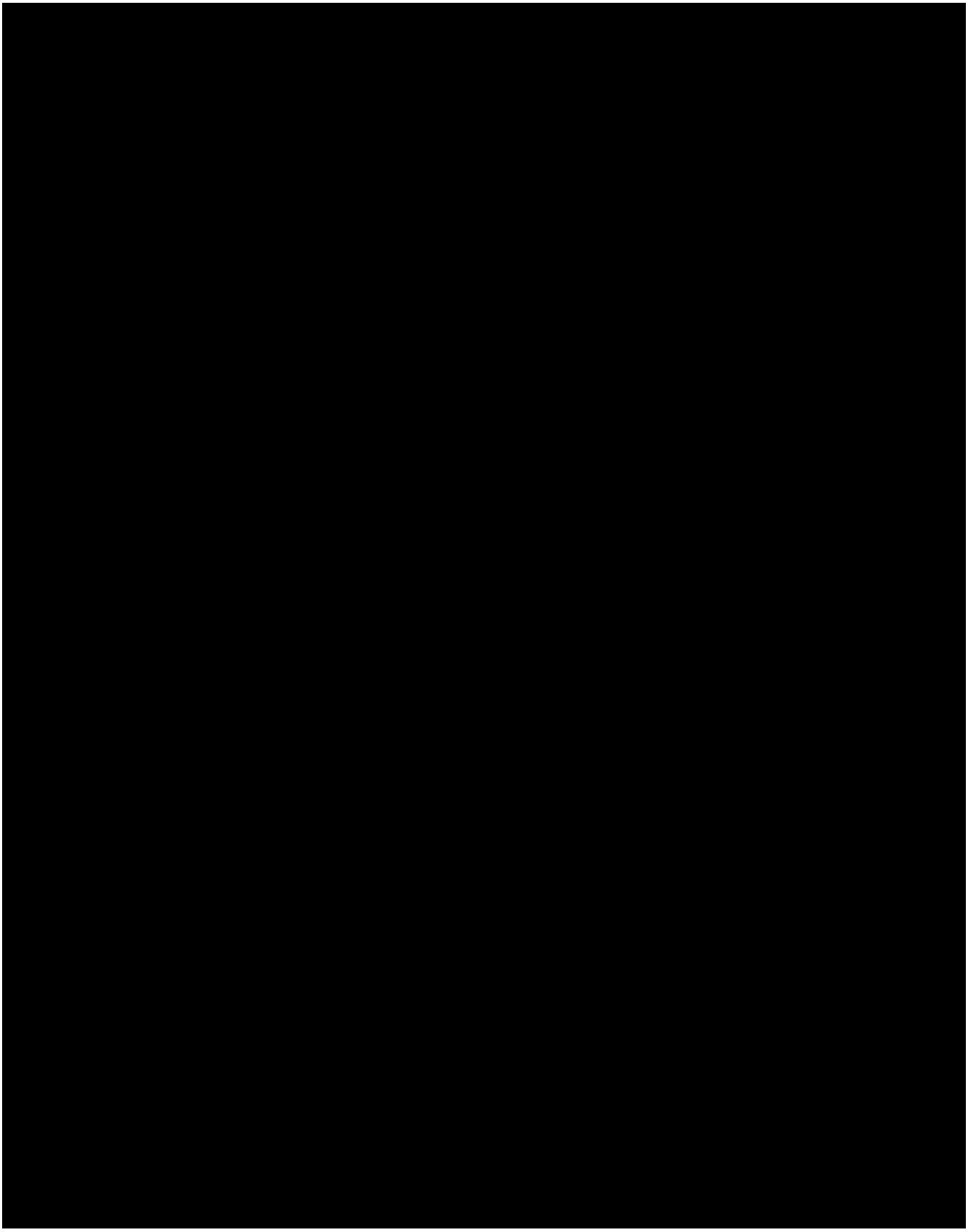


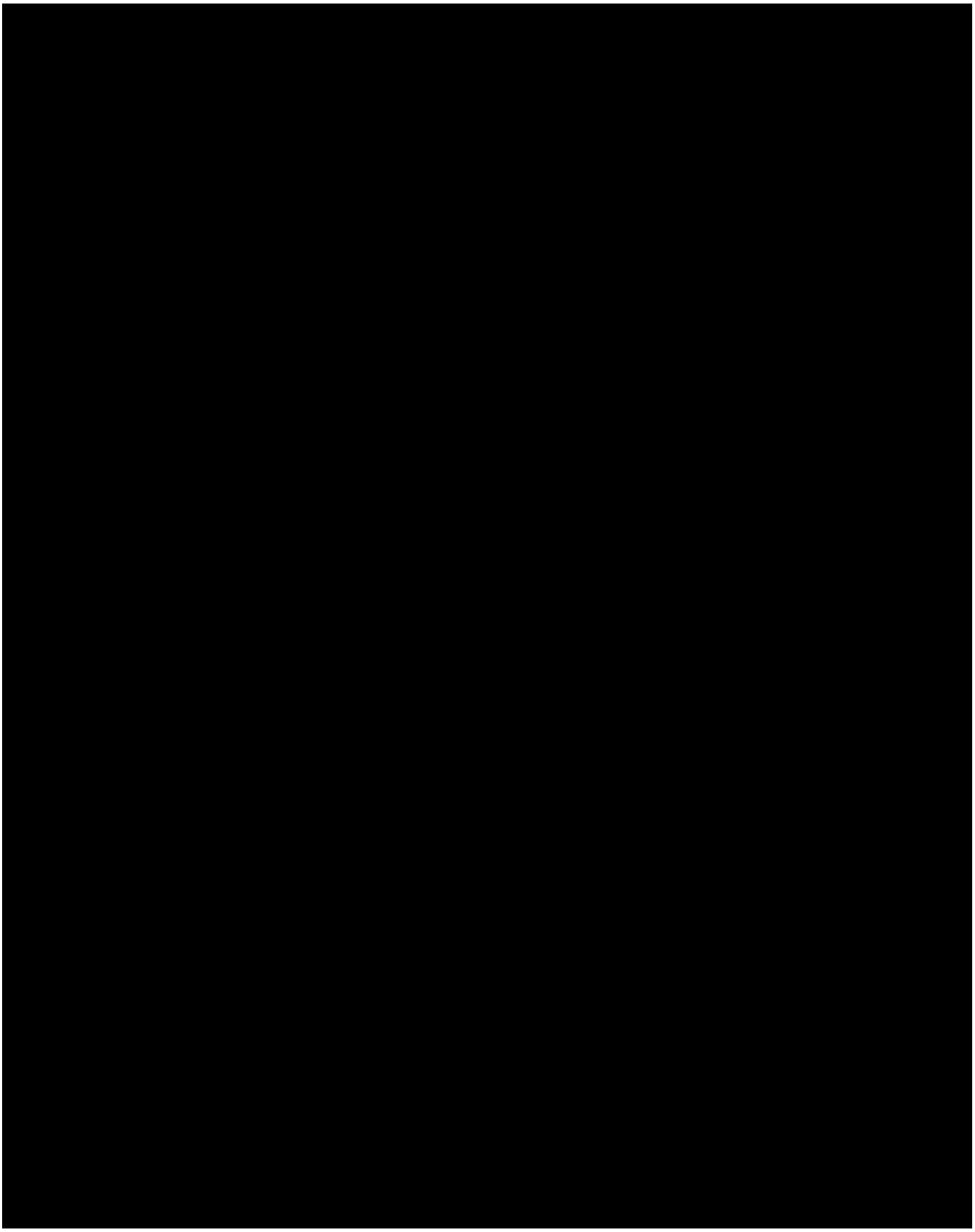


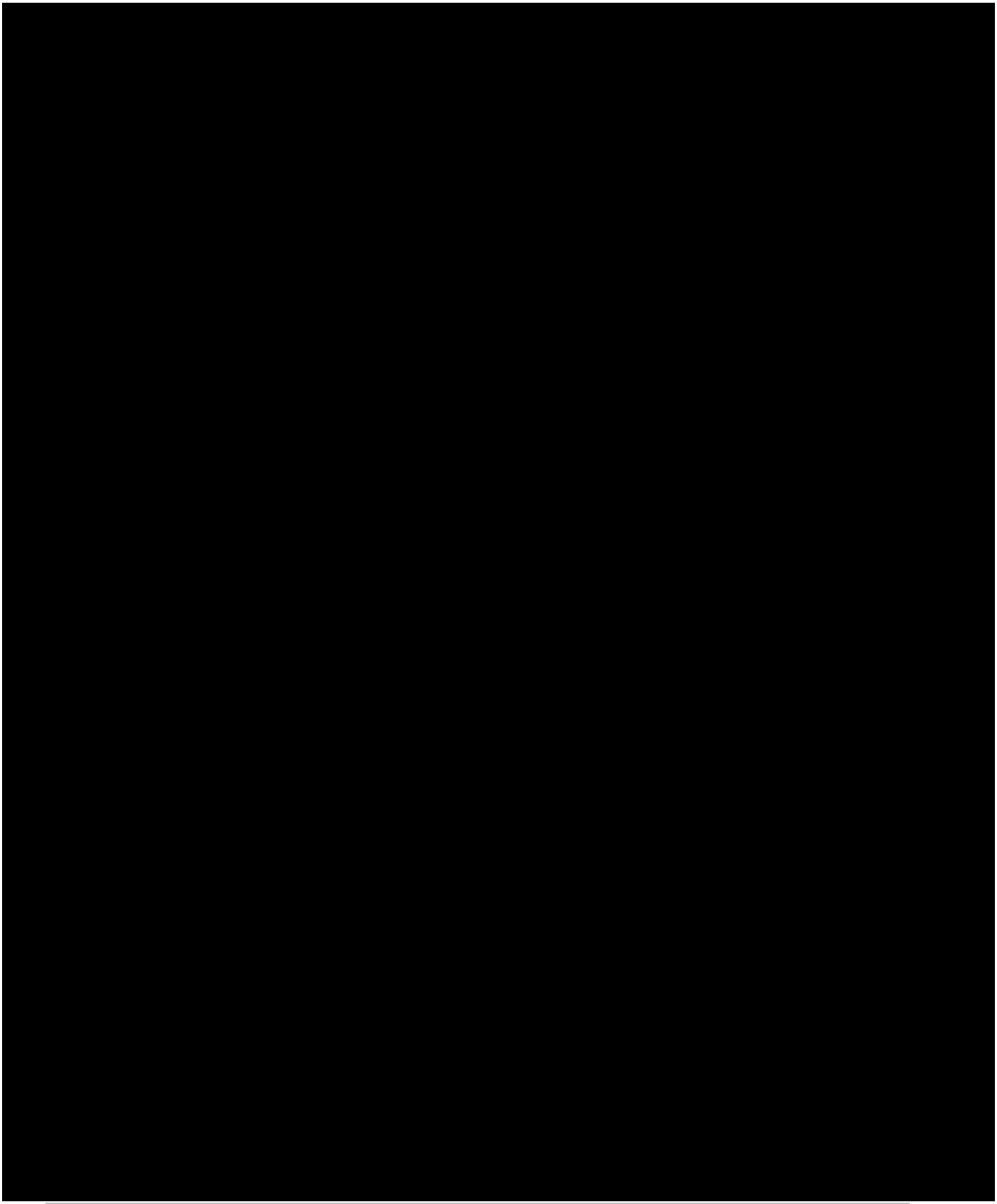


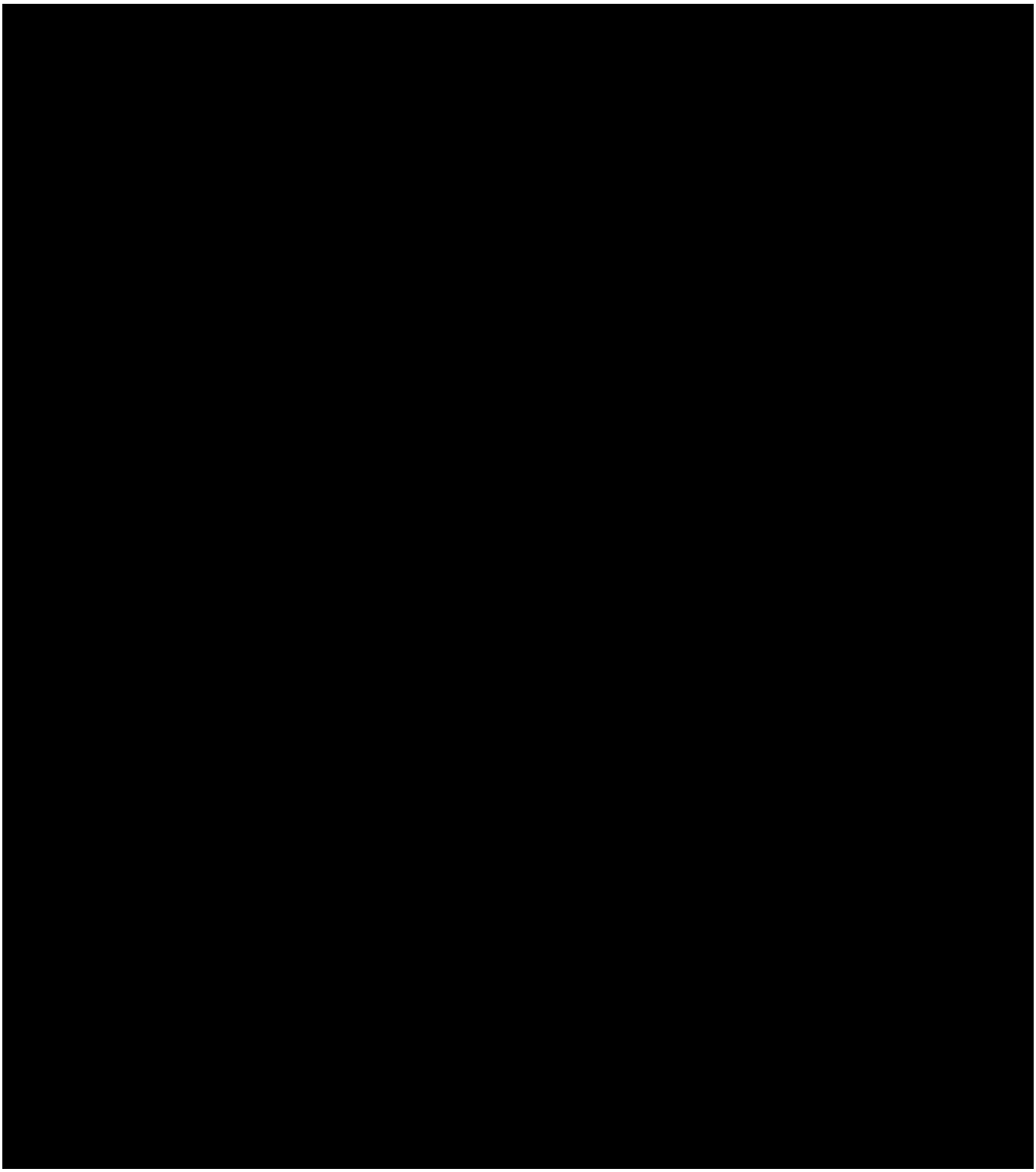
[2] Delayed or "Lack of" cooperation from the incumbent vendor remains a significant risk to the overall project due to the hard dependency on the timely and successful deployment of the DARe platform. Transferring this risk to the DARe vendor only lowers the likelihood of the risk materializing but does not reduce the significant impact should it occur.

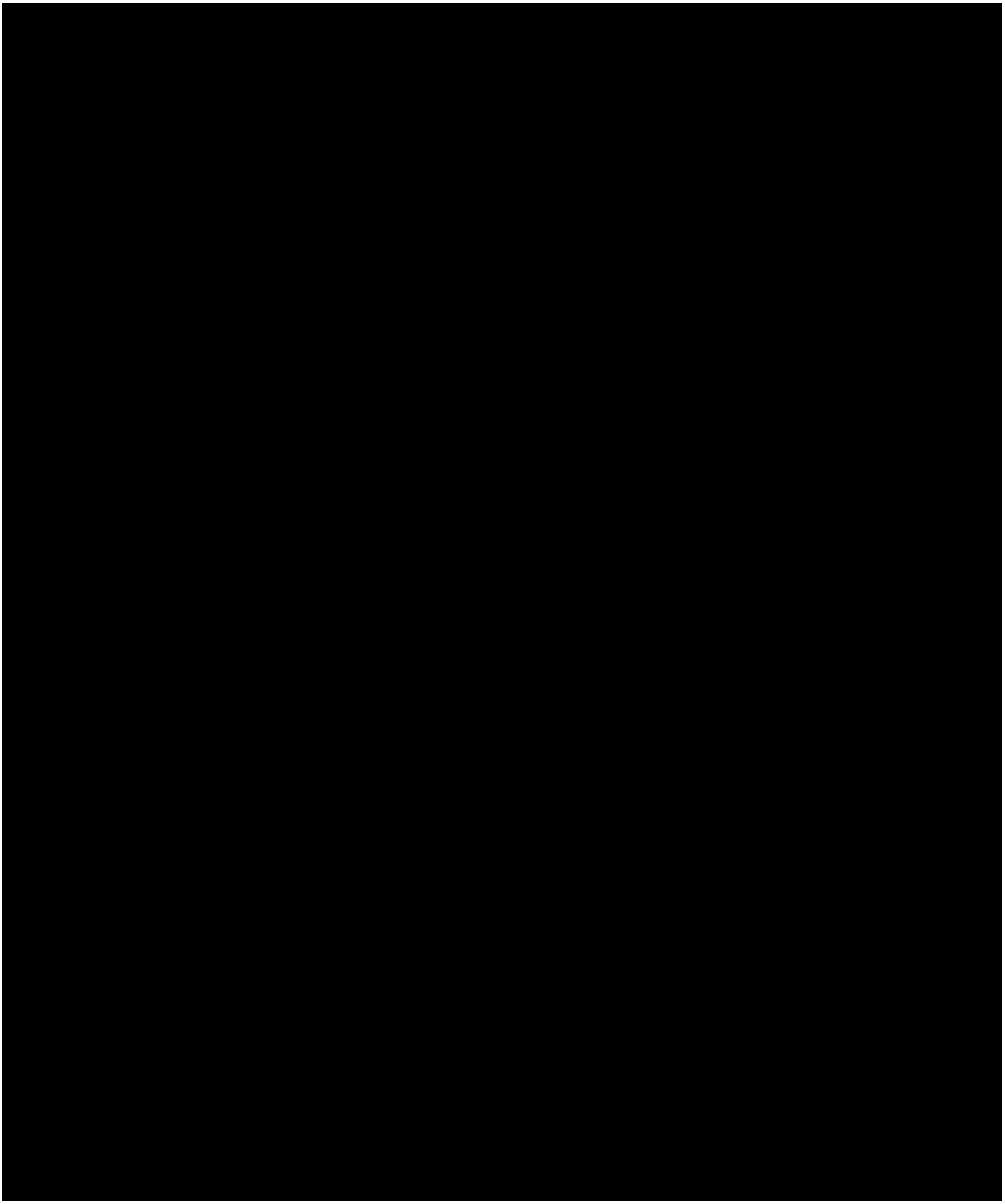


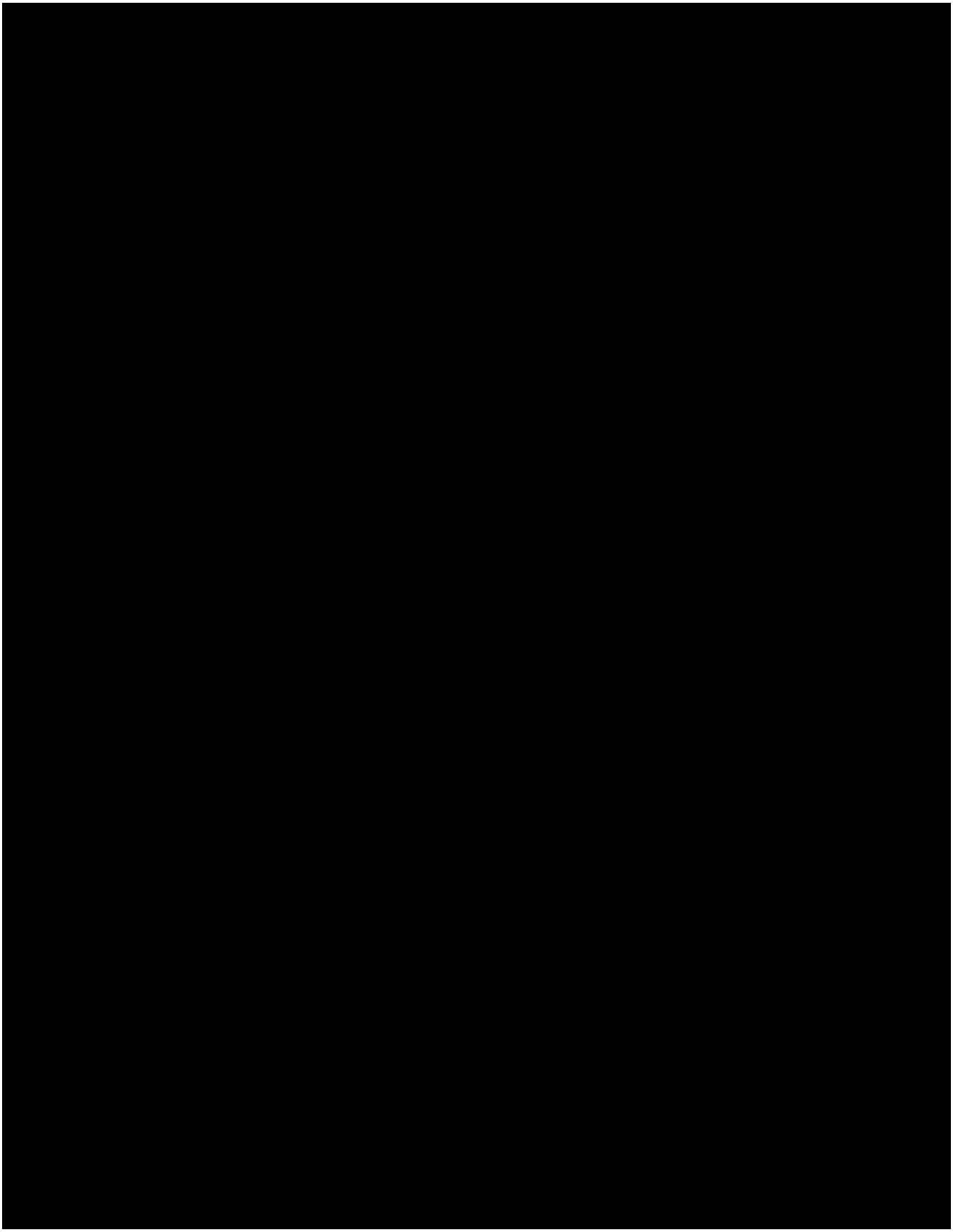


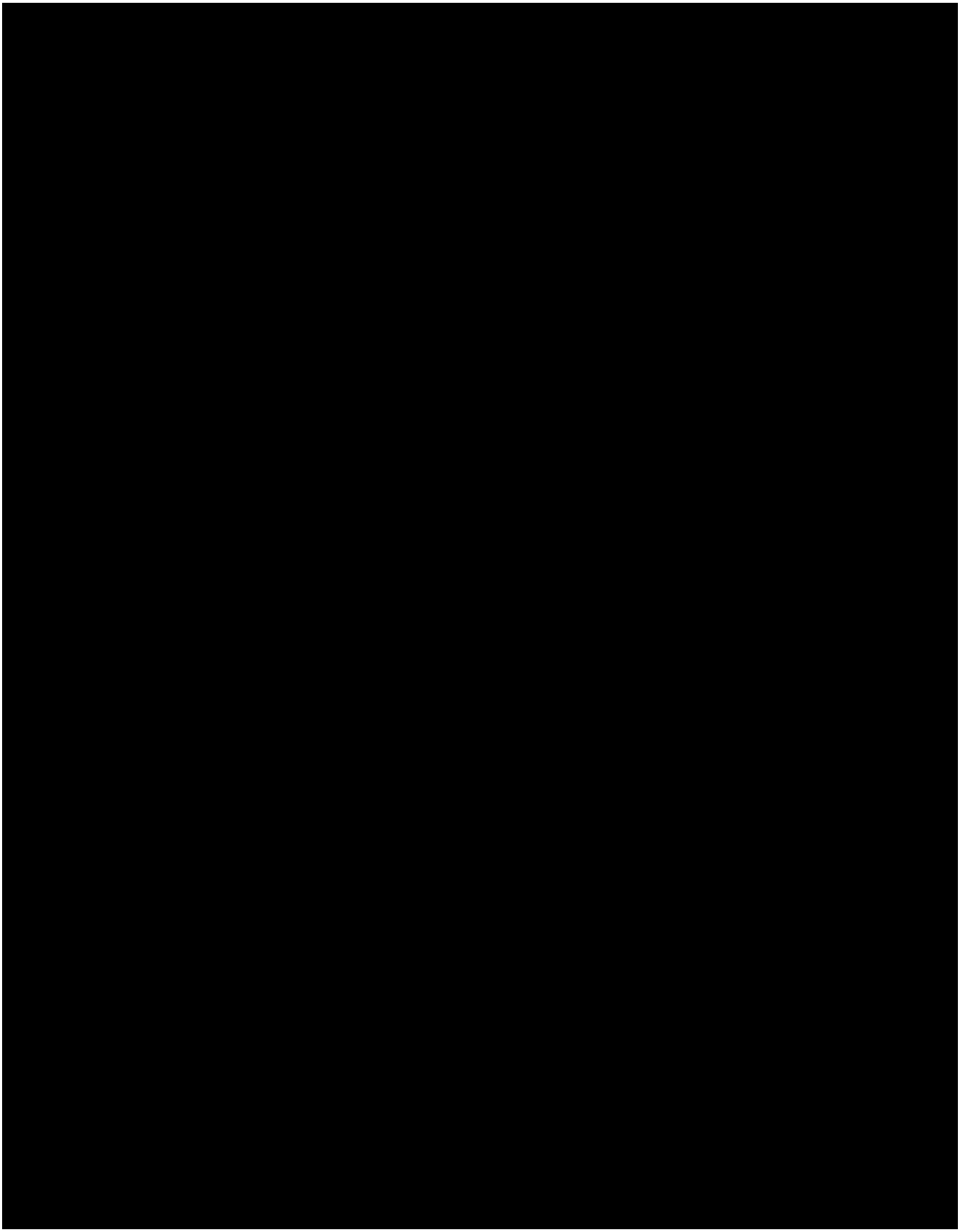


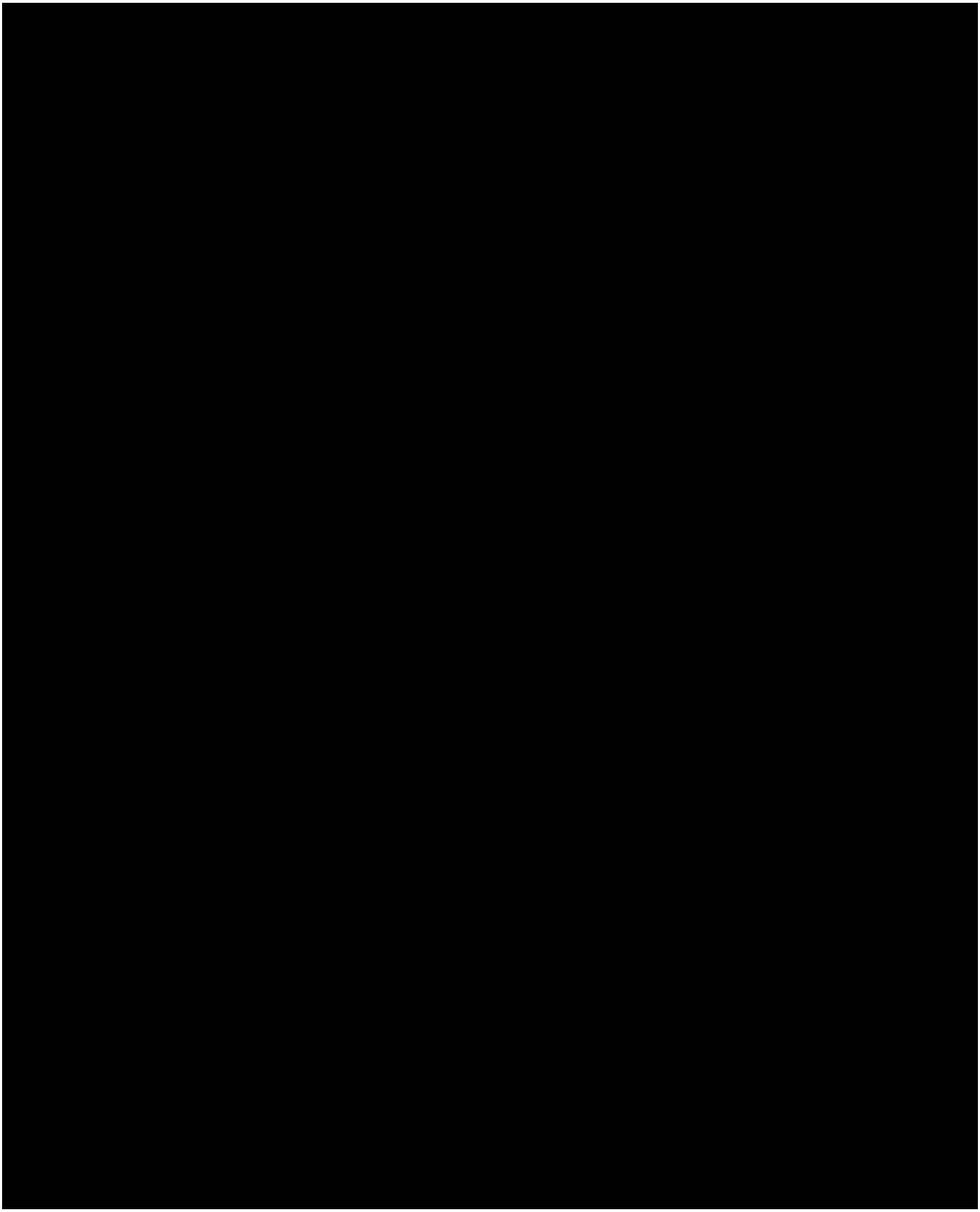


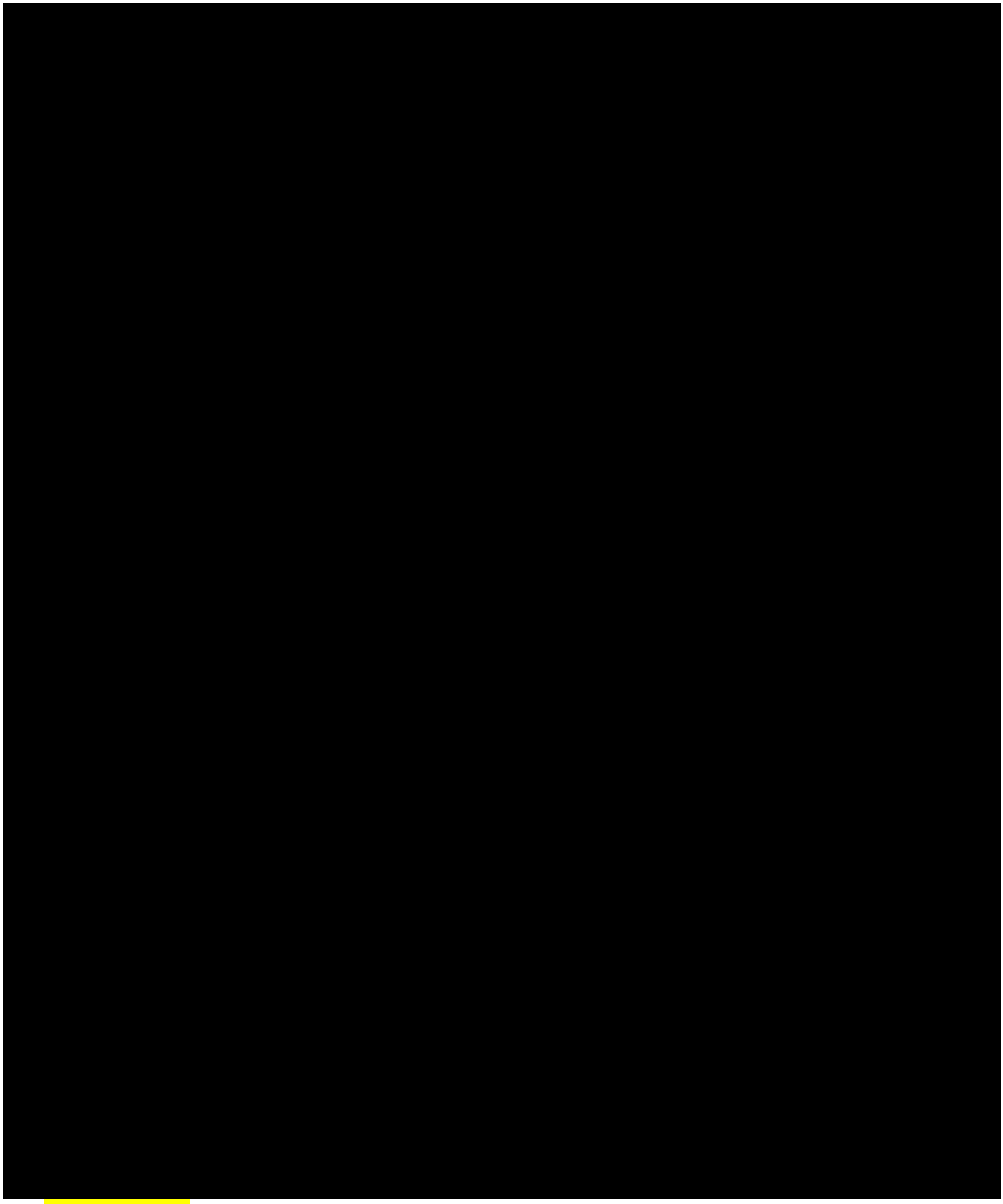


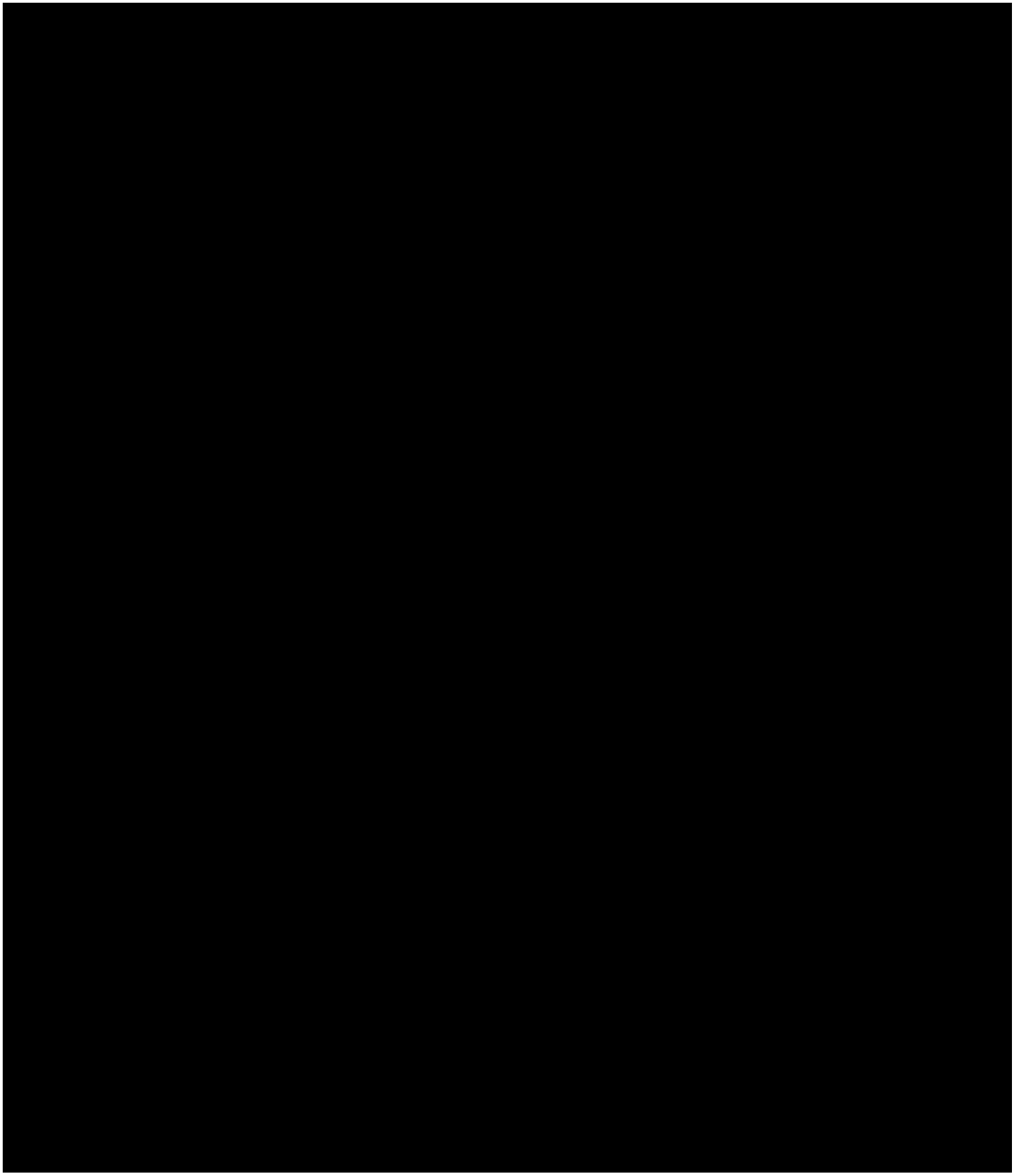


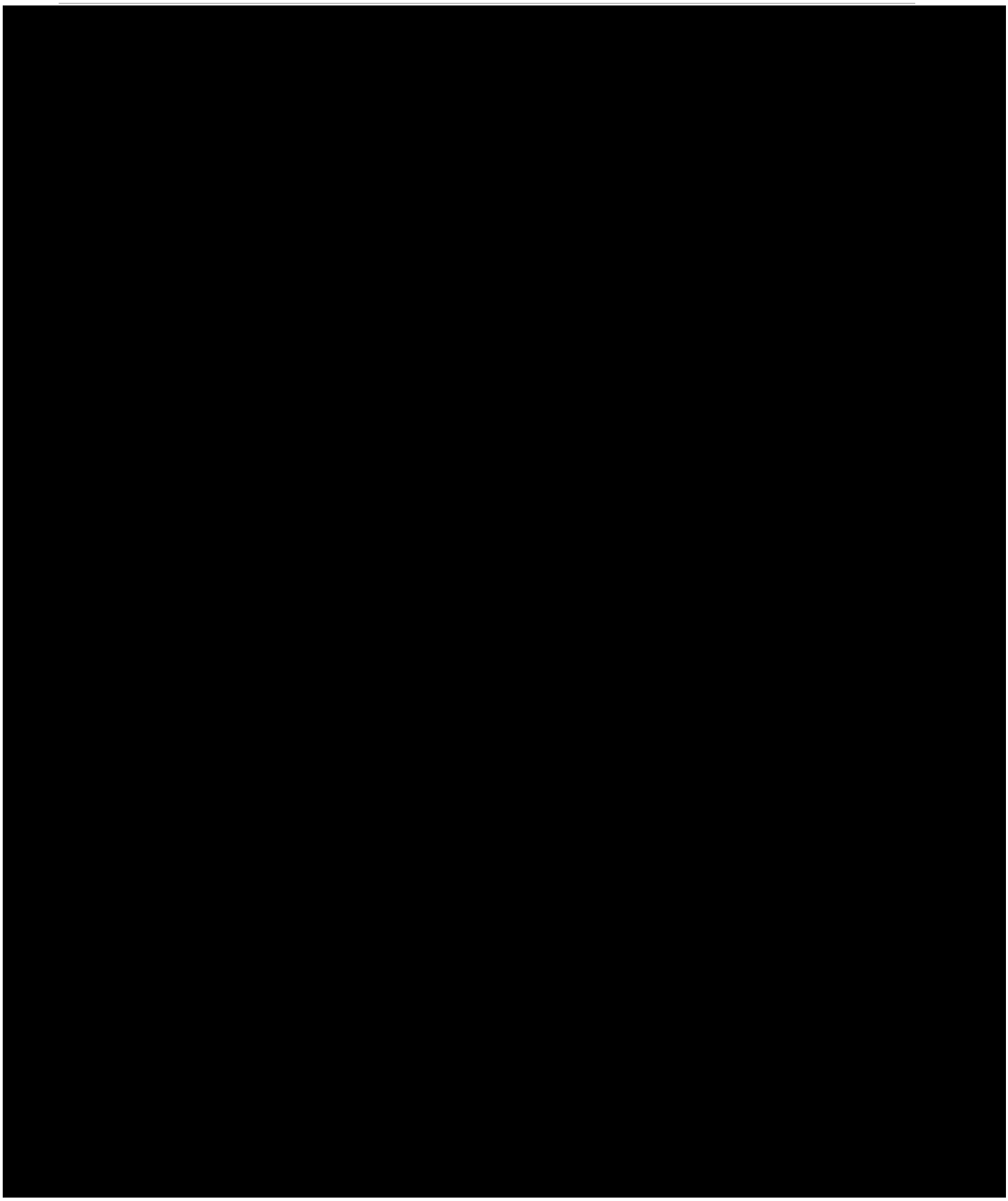


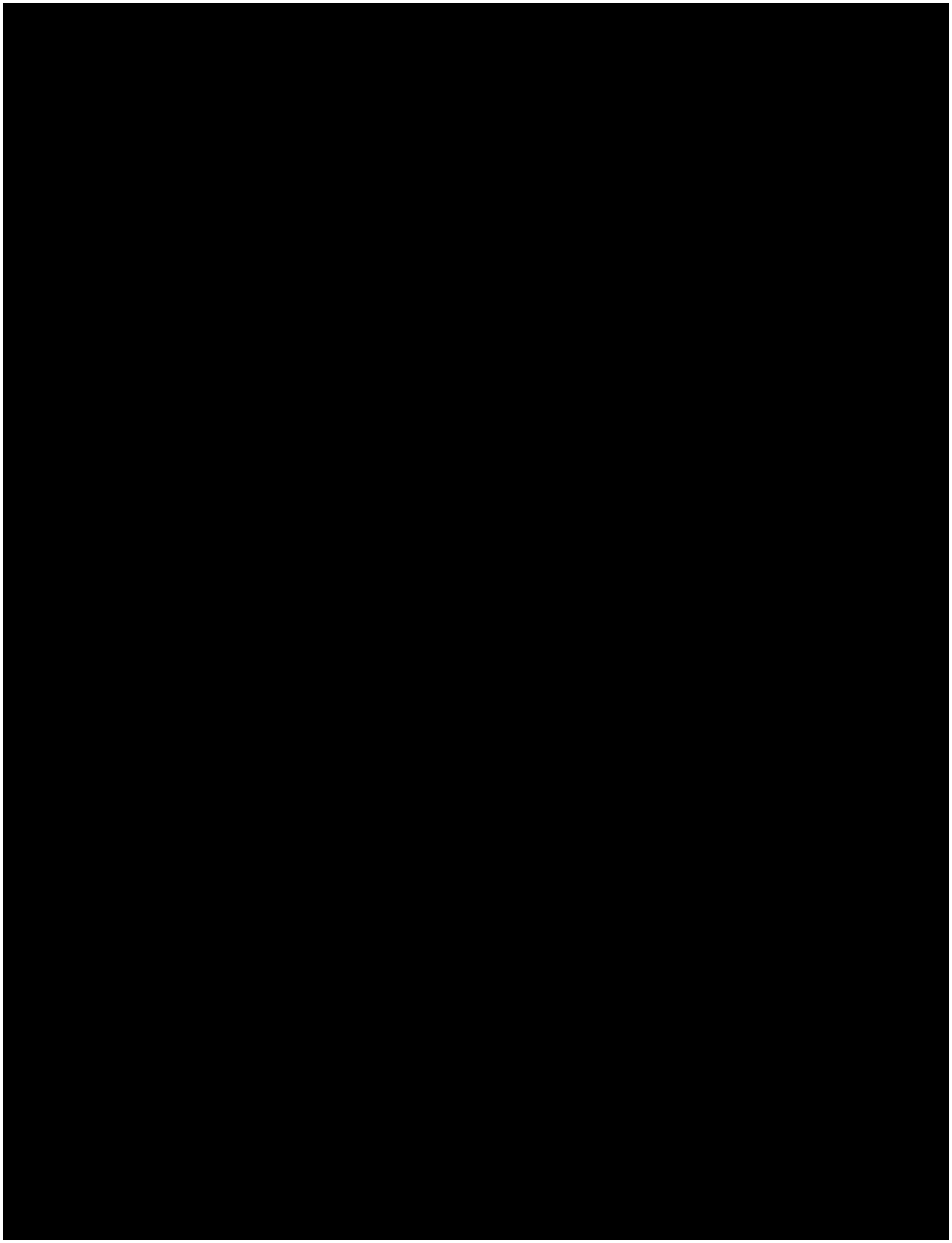












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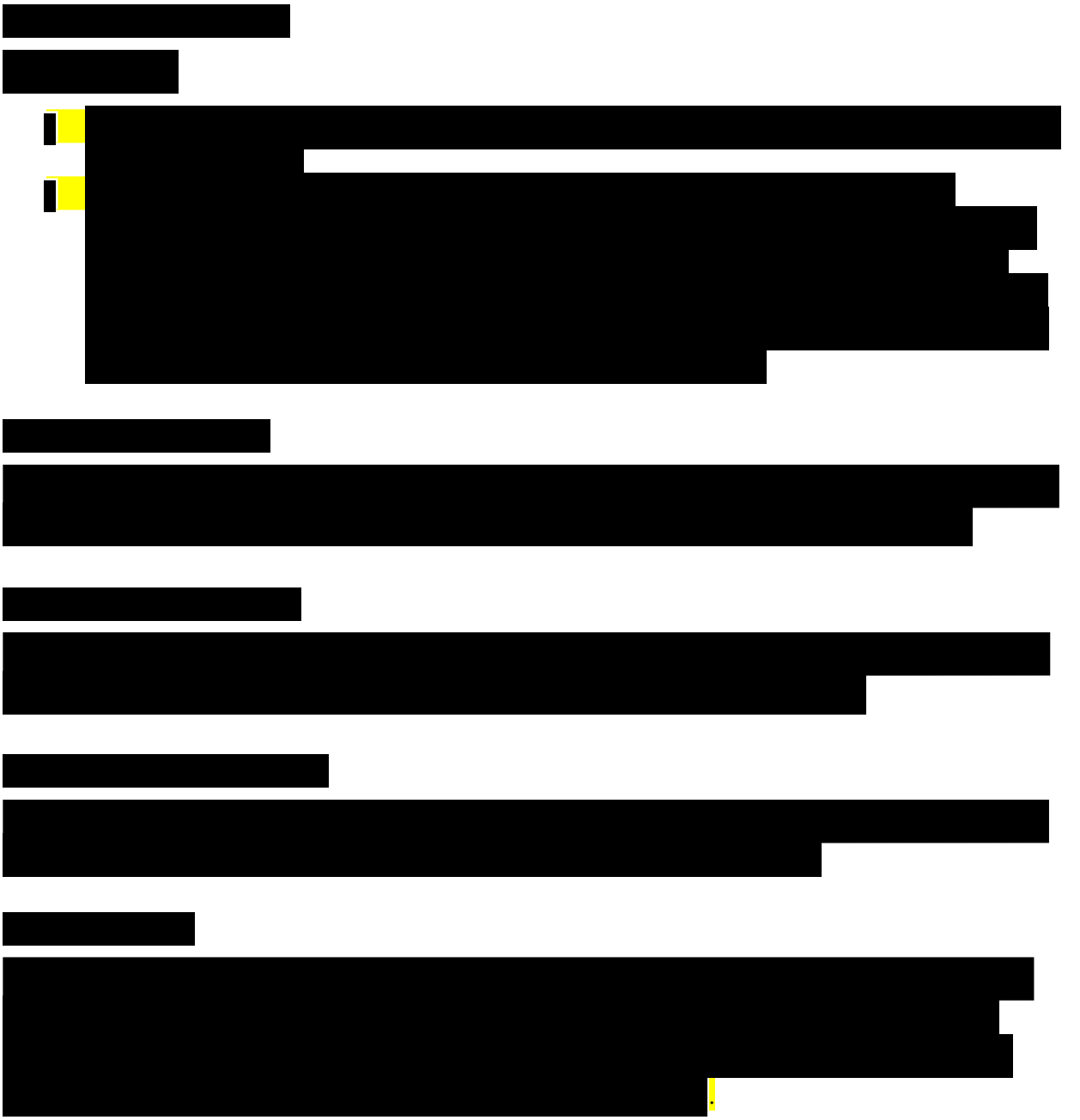

2.9 Operational Knowledge Transfer and Excellence Through Effective O&M Manuals

Attached to each proposal please find a USB flash drive containing the following manuals written for a similar project INIT performed on for Metro-Link in Portland, Or.

- eFare_MaintenanceManual_v1_2
- Manual_MOBILEvario_CSW_1.0
- Manual_MOBILEvario_Parameter_Management_1.0
- Manual_MOBILEvario_Tariff_Management_1.0
- Sample_FAT_TestPlan_PROXmobil3_v1
- INIT's ngORCA Preliminary Project Schedule

The manuals are examples of the quality of manuals INIT will deliver to the ORCA agencies if awarded the project were not meant to reflect the final content of the ngORCA specific manuals that will be provided under the scope of this project.

2.10 INIT's Experienced and Proven Risk Management Approach

Crucial is the successful handling of project risk. The risks involved here consist of completing the scope of services within each project on-schedule, within budget, and in full compliance with applicable requirements. In addition to the Risk Management Plan described above in section 2.7.2.1.3.5 above, INIT has incorporated various risk mitigation strategies to the contract provisions, including payment terms. Milestones payments are performance-based, i.e. made on the basis of project deliverables. Additionally, there is a milestone payment retainage to be used as a trust fund for the payment of any claims owed at the end of the contract. Additional risk mitigation and protecting for both parties is included in contract with clauses for such things as Indemnification/hold harmless, Limitation of liability, Liquidated Damages as well as Performance Incentives.

Each Project Manager oversees the Risk Management Plan for their project. The responsibilities for risk management are held within the Project Management Team, which is composed of personnel from both the ngORCA Transit Agencies and INIT (specifically the INIT Project Manager and Lead Engineer as well as the Team Leads listed in the first line under them in the org chart provided in section ***Error! Reference source not found. Error! Reference source not found.*** above).

The primary risk management resources and their risk focus areas, from the INIT team are as follows:

[redacted]

Key personnel from the Agencies include its Project Manager as well as Subject Matter Experts (SMEs) from Operations, IT, Accounting, Finance, Procurement, and other departments as needed. Key personnel from INIT are the Project Manager, System Engineer(s), Functional Managers, and any Technical Lead(s). Each member of the INIT team's responsibility for risk management is clearly assigned and explicitly incorporated in their respective job descriptions. For example, if there is risk pertaining to procurement or installation, then the INIT Supply Chain and Installation Lead would notify the Project Manager and the collective Project Management Team; however, an Agency personnel member working on the installation may also identify a risk and notify the ngORCA Program Manager. From the point the in which the risk has been identified and a Project Manager notified, the risk is then added to the matrix as defined in the Risk Management Plan description above.

Apart from unforeseeable technical and customer-specific difficulties, the punctual completion of projects depends on the availability of sufficiently qualified personnel. External suppliers and subcontractors in the process create both risks and opportunities with regard to staffing, schedule, price, and quality. The INIT Project Management Team is directed to escalate any crucial issue(s) to the project's Joint Management Committee in a timely manner. This ensures that INIT management is involved and can initiate corrective measures for risk minimization.

2.10.1 Special Note on Performance

The performance bond covers all capital cost as described in the price sheet (everything except item 5) for the project.

2.10.2 Letter of Credit Clarification

as

2.10.3 Milestone Based Payment Schedule

This is included as a table in Tab 5.

2.11 Special Considerations or Challenges

[redacted]

2.12 An Achievable Project Schedule

The Master Schedule we have proposed as the System Integrator has taken the ngORCA program in its entirety into consideration. As such, we have represented the key tasks provided as part of the ORCA project timeline and imbedded our schedule so that it is integrated as a component of that; giving the ORCA agencies the purview of the overall project detail.

Taking this approach, we believe we clearly articulate the timelines needed to deliver INIT's portion of the overall program while also creating space to include the dependent factors and activities inter-related with the other major aspects of the system (e.g. DARe, Retail, etc.). This demonstrates INIT understands the key points in the schedule which contribute as a major driver to key program milestones.

In addition to this approach, INIT has also taken into consideration the Agencies point that this is a schedule-driven project due to the imminent nature of the current legacy system going end of life. With that, we have evaluated our overall delivery scope and note that there are certain aspects more mature (with respect to their final design) than others. However, there is a critical point where these systems and components must be integrated. We believe our schedule ensures just that.

As a note when reviewing the detail of the schedule, contained within are several lines items for 'slack' or 'slack for improvement'. These line items reflect additional time that may need to be taken to complete the given topic area should things not go 'exactly' to plan. For example, we anticipate certain test phases to be scripted and take the specified amount of time; however, previous experiences have demonstrated that additional time may be needed for corrective action or accommodation or other 'unknowns'. To account for that, we have included these 'slack' lines items.

To aid in the Agencies review of both the schedule as well as the critical path associated with the work of the System Integrator, INIT has included a column titled 'Critical'. If the column is marked with a 'Yes' then the activity is deemed to be on the critical path and the Gantt chart will reflect a red progress bar.

Also of note, as part of INIT's schedule submission, in addition to the System Integrator Master Schedule we are including two (2) other reports with the aim to facilitate both a comprehensive and quick reference review. They are the Critical Path and High-Level Project Timeline.

Lastly, please note that we understand as part of Section 2.1.3.1 Master Schedule, the schedule is intended to be cost-loaded based on the guidelines of 2.1.3.3 Cost Management. At this early

stage we wanted to look at the schedule and INIT's pricing model in parallel with an eye towards integration once each are near their final state.

2.12.1 Milestones

The primary milestones of the ngORCA program are comprised of six (6) core stages:

1) Procurement Phase
2) Design
3) Development
4) Testing
5) Deployment
6) Operations and Maintenance

Within items 2, 3, 4, and 5 are a set of key milestones; they are at the top of each section and denoted by green colored font. Where possible we have included the dependent relationships between the other ngORCA vendors and the stages of the program; however, because the specific detail in stages 4, 5, and 6 are not known, creating durations to try and map to the stated Start and Finish dates from Section 1.6 of the RFP would be manufactured and as a result be quite long. In so doing, this would inadvertently displace the System Integrator critical path which we understand is a vital part of Agency review.

In effort to highlight the parallel procurement and integrations efforts of WSF and KCM, some additional line items in the schedule have been added to address points where it would be ideal that certain elements of those tasks would align with the overall SI-schedule. The full extent of these dependencies remains in part, unknown. As such the items created or meant as a high level with the understanding that many steps to reach them are required.

For reference to these sections please note the following specific lines applicable in the Project Schedule:

- **WSF Integration**
    - **Line 66**, WSF EFS2 Integration Procurement Complete. To fully incorporate WSF's pending changes we believe finalizing the procurement by CDR completion is critical so that we can include these discussions during PDR. If that is not possible, during the design discussions we need to discuss with WSF their timeline and dependent factors and then revise the schedule accordingly.
    - **Line 109**, WSF EFS2 Design Complete. The intention here is to call out our aim that the WSF integration design is complete within the same timeframe as the whole of the ngORCA SI design efforts. Provided this timeline is possible, INIT's

assumption is that the WSF integration follow the same test cycle as the existing SI integration work.

- **Line 177,** WSF EFS2 Integration Preparation. This line was included in the previous iteration of the schedule; however, due to revisions to the schedule made and line items added, we have called out this last point where WSF has been itemized separately from the rest of the SI-driven work. At this point our understanding is that WSF's integration would ideally be available as part of this test (FUT) and as such, future iterations calling out WSF separately are not currently required as we'd want the SIT test to include all integrations and system components collectively. However, future detailed iterations of the schedule may require something different; when the unknowns are clear.

- **KCM MDT Integration**
  - **Line 110**, KCM MDT Integration Design Complete. It is INIT's understanding that KCM's MDT procurement is separate from ngORCA from the equipment perspective; however, the MDT design and integration needs should occur within the ngORCA SI timeline. As such we have started the KCM MDT Integration at this stage as our aim would be the design is complete at the same time as the rest of the ngORCA efforts. We anticipate new and more detailed information would become available and as such would be incorporated into the schedule as needed to ensure dependencies and timelines are clear for the ngORCA program.
  - **Line 120**, KCM MDT / DDU Integration Development. We have created this line item separate from the remaining SI-integration development due the nature of the MDT integration which is separate but known from ngORCA. Within this line item we have assumed that the work must be complete in line with the same timeline as we anticipate FUT start to occur. That said, this may not occur or be possible based on variances unknown currently but wanted to create a placeholder for an ideal scenario given the successor dependencies.
  - **Line 164**, KCM MDT Equipment Functional Testing Passed. Since this equipment is procured outside of the ngORCA SI-procurement, this line is meant to ensure KCM MDT equipment tests pass within the same or similar timeframe as those of the ngORCA procurement.
  - **Line 168**, Confirm Order Timelines for New CT and KCM MDT (INIT Provided). This line was in the previous iteration of the schedule; however, considering the recent additions to the project schedule we wanted to call out the line change. The intent of this item is to ensure the dependencies and timelines of separate procurements are known and that information built into the project schedule.

Beyond this line our expectation currently would be that the ideal scenario is that the remainder of the KCM MDT integration effort follow the rest of the SI schedule collectively. Should this not occur or new information become available, we will update the schedule and outline the dependencies as needed or discussed.

In light of the new points addressed above, the key factor we would like to outline is that these tasks are meant as points of intersection in the schedule so as to call out the work at a high level to extent possible now. It is clear more detail and additional items are needed to fully outline the integration and dependent project factors. However, currently these are unknown and as such these high-level items are meant as placeholder or points in which we believe a certain element of the work should be ready or near complete. Ultimately, our goal will be that the SIT test is inclusive of all integration elements for WSF, KCM, and CT so that we can demonstrate full system functionality and integration.

2.12.2 Procurement Phase

The Procurement phase has been added at the start so as to provide a clear understanding of when Notice to Proceed will be issued for the start of the System Integrator work and also, to denote the other vendors that will also be integrated as part of the overall ngORCA program.

2.12.3 Design

During the design phase many major decisions will be made as well as a multitude of small to medium ones; those decisions are critical but can also be difficult to do when other constraints exist. We understand that time is a valuable asset to Agency stakeholders; with that in mind, as well as to maintain as much efficiency as possible, in the schedule we have proposed our industry-leading approach to system design. While not explicitly noted in the schedule, another major aspect of our design review will be the early engagement of our UX/UI partner as their involvement will be filtered across many elements of the overall system design.

We have taken into consideration the schedule-driven aspects of the program, the necessity of clear and thorough documentation, as well as the maturity of each system component. With that, as well as the existing service-proven implementation of significant portions of the INIT design and subsystems, we believe we can provide the most schedule and design advantage in the industry and successfully parse the design into at minimum two (2) separate ‘packages’. In so doing we can work towards approval on specific documents and move those through the design review at a greater pace.

When reviewing the different design review stages, you will notice a staggered approach. We plan to attempt approval of package 1 sooner than package 2 at each interval. However, each

design review stage in its entirety will not be formally 'approved' until all documents in both package 1 and package 2 have been formally approved. INIT's Project Team will create and manage a document control and tracking sheet that will keep the Agencies apprised to the various states and stages of each document.

In pursuing an agile approach at INIT we have found we can find more time to allocate to system areas which require further discussions, clarification, stakeholder buy-in, and so forth without impact to the overall design review and schedule as a result. In fact, we have found that we can actually gain some schedule advantage and increase the pace of the overall delivery. Additionally, as part of this approach we will begin to outline during CDR, where dependent decisions need to be made, where points of the design intersect, and where relevant, critical-path impact points.

Also of note is that each design review stages have a series of workshops to occur on site at the Agencies designated location(s) in the Puget Sound region. At each design review stage these workshops will vary in their approach. During CDR we will likely only have one primary week and will be attended by the core INIT Project Team and also key subject matter experts (SMEs) from both our US and German teams. We bring our SMEs to the discussion during these workshops as we have found this approach to on one hand, create efficiency in communication and collaboration and secondly, to begin to build the relationships necessary to extend the workshop interaction into effective discussions when they must be remote due to location differences.

Moving into PDR and FDR these workshops may be staggered between onsite and remote meetings, or a combination of both. Further, the occurrence of these workshops or other SME meetings will be greater as the fine tuning of the design becomes critical for the build stage.

2.12.4 Development

INIT takes an approach to system design that allows for the greatest flexibility for the longest duration. In order to maintain the schedule, at certain points decisions have to be final; however, we do not believe you have to compromise the integrity of the business needs in order to do that. With INIT you will experience thoughtful and creative technological and business solutions while also engaging in a collaborative process.

During the PDR stage INIT will begin some of its development in order to better fine tune and understand the decisions that will need to be made during the following stages. Also, as the System Integrator the INIT API's are major factors in the overall ngORCA program implementation. Fortunately, INIT has built many of the API's required for ngORCA's needs and are currently in live operation in other projects. In light of these factors INIT will build upon their

maturity in the early development stages so they are available as early as possible for other partners to build against. Along similar lines the back office is also a major part of the ORCA transition. As with the APIs, there are key dependencies that will have impact on the overall schedule necessitating conversations and plans be made earlier in the process. Fine tuning will continue to occur, but those major decisions will need to be outlined early on so that the path forward is clear.

As part of the build stage INIT will work on the testing and procurement of the system equipment. Equipment will go through the requisite pre-testing (environmental, shock, vibration, etc.) prior to their manufacture, have procurement, assembly and test stages at varying pace, as well as their own installation schedules. For the moment, this level of detail is not yet added to the schedule in significant detail but will be added as the final deliverables and schedules are established with line items per Agency, per item of equipment and so forth.

Additionally, the training program content will also become clearer as the development of system components are further along. With that, INIT will begin creation of the system manuals that form the basis of the training documentation. During this stage INIT will begin to submit and review with the Agencies these materials. Later iteration of the schedule will summarize the document packages associated with each training course and the courses themselves as well as their quantity will be built into the schedule, by Agency where appropriate.

2.12.5 Testing

There are several different stages that comprise the test phase of the program. Generally speaking, INIT will undertake functional testing first and as part of that execute on the various test stages that articulate the different needs of the system which can occur in varying timelines based on what factors are present. Following that, the system will undergo the integrated testing. Here INIT has added additional slack time specifically because this is often one of the most complicated elements of the schedule as it is the point where all elements need to come into alignment. INIT will elaborate the detail of the schedule (rolling-wave planning) as preparation for this phase comes into light and the detailed break-out of each test stage are clear.

Of critical importance is the balance between integrated lab testing and making the decision to move to a production state of this integrated test (field test). In so doing key decisions have to be made, the financial management application and reconciliation in place, and so forth as this testing becomes part of the production system.

2.12.6 Deployment

The deployment phase is comprised of multiple key factors. It is ensuring all the requisite equipment has been installed, tested, and functions according to the requirements of each stated test plan. During the more advanced tests in the Integration Testing phase (e.g. FIT or Pilot Test), the deployment will validate the system design and development have occurred and are working in an integrated and stable manner with equipment in production connecting in a simulated back-office production environment.

To support the integration and transition, INIT has noted the perceived benefits of including the legacy ORCA equipment as part of the Agencies ngORCA test facility implementation. Should this be possible, INIT proposes a small dry-run test in the lab prior to moving the full scope of the Pilot Test to the production environment. During the Pilot Test, the deployment is still within the confines of the limited roll-out and remains as such until the completion of the test and the system has reached the point in which INIT will become the system of record.

Once the system has gone through a dry-run test, if applicable, and successfully concluded the Pilot Test, and any residual issues or functions have been deployed, we then move to the public launch – the scope of which can be mutually defined – and initiate the point in which INIT becomes the system of record. This is an exciting point in the schedule but also a critical point as the system-wide installation is initiated without restriction and any future changes must be factored with both risk and impact due to the quantity of users engaged in the system. During this stage INIT will work with the ORCA agencies on deployment strategies and management to ensure the best possible outcomes.

The next key test phase is the system acceptance test; during this time INIT will report on the system health as determined by the performance metrics (KPI's) of the contract. During this stage the system is live and must adhere to these metrics and fall within the framework of the contract's requirements. At the moment the detail here is to simply note the acceptance test period as well as slack for any rework; however, in future iterations of this schedule each KPI will be added as well as its associated test documents.

Outside of the above acceptance testing, there may be a punch list of items necessary in order to achieve final system acceptance in its entirety. As those activities are known they will be added so that the path for the project completion is transparent for all stakeholders.

2.12.7 Operations and Maintenance

While there are many steps necessary to be in place in order to stand-up and transition the project to operations, these details will be further articulated as part of the system documentation and later discussions. For the purposes of the schedule, Operations and Maintenance are noted to start upon achievement of Final System Acceptance.

2.12.8 Summary

In closing, we believe the ORCA agencies will find INIT's proposed schedule to be competent in meeting the needs of the ngORCA program timeline while also balancing the required time and dependencies for successful delivery of the required deliverables and outcomes within each specified stage.

With the experience of having delivered account-based fare collection projects with stages similar to what ngORCA needs, we are relying upon real experience, lessons learned, and the success of witnessing first-hand what results out of implementing best practice approaches to these complex systems.

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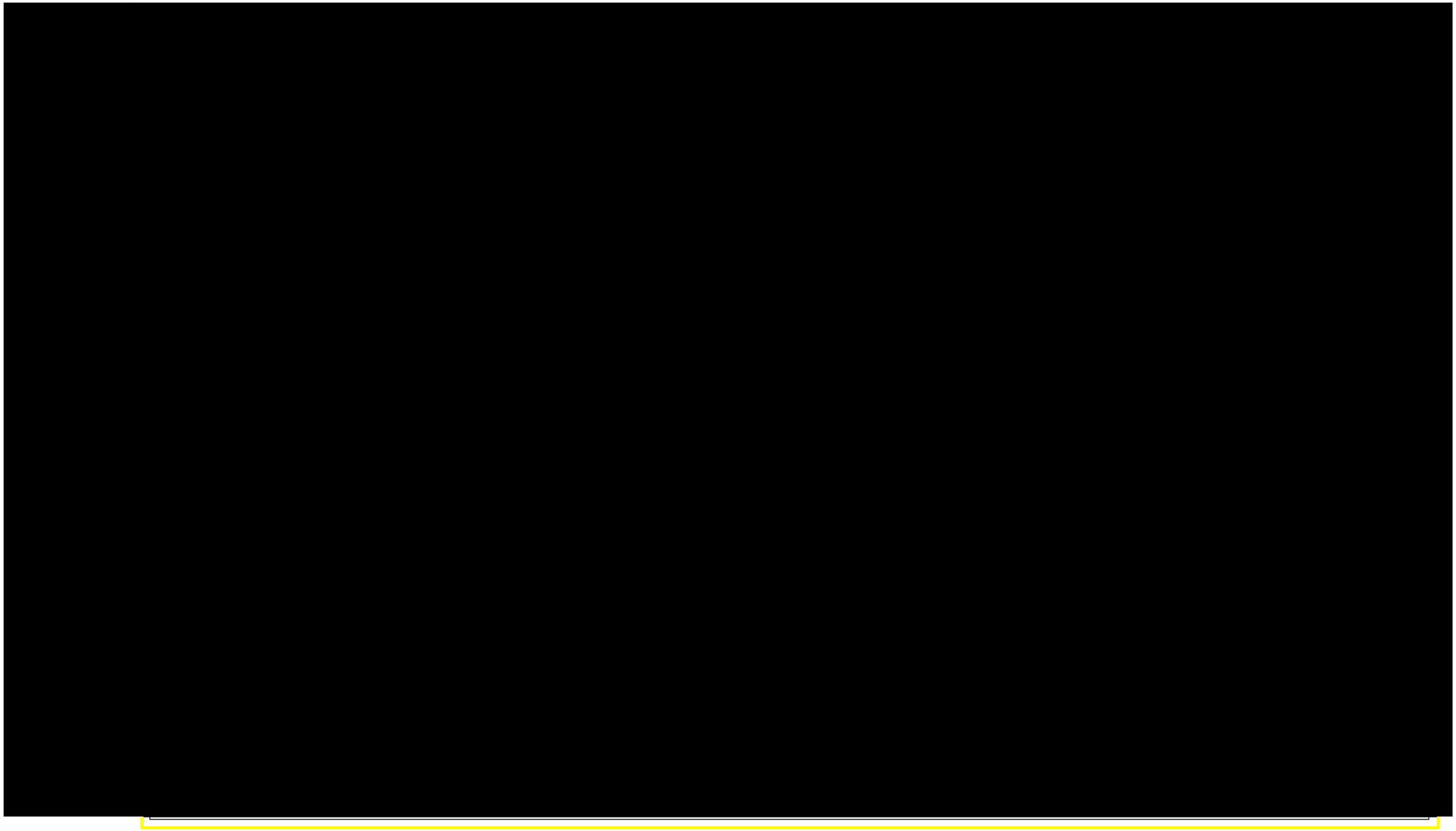
2.12.9 High Level Timeline



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2.12.10 Critical Path Timeline

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2.12.11 Detailed Timeline

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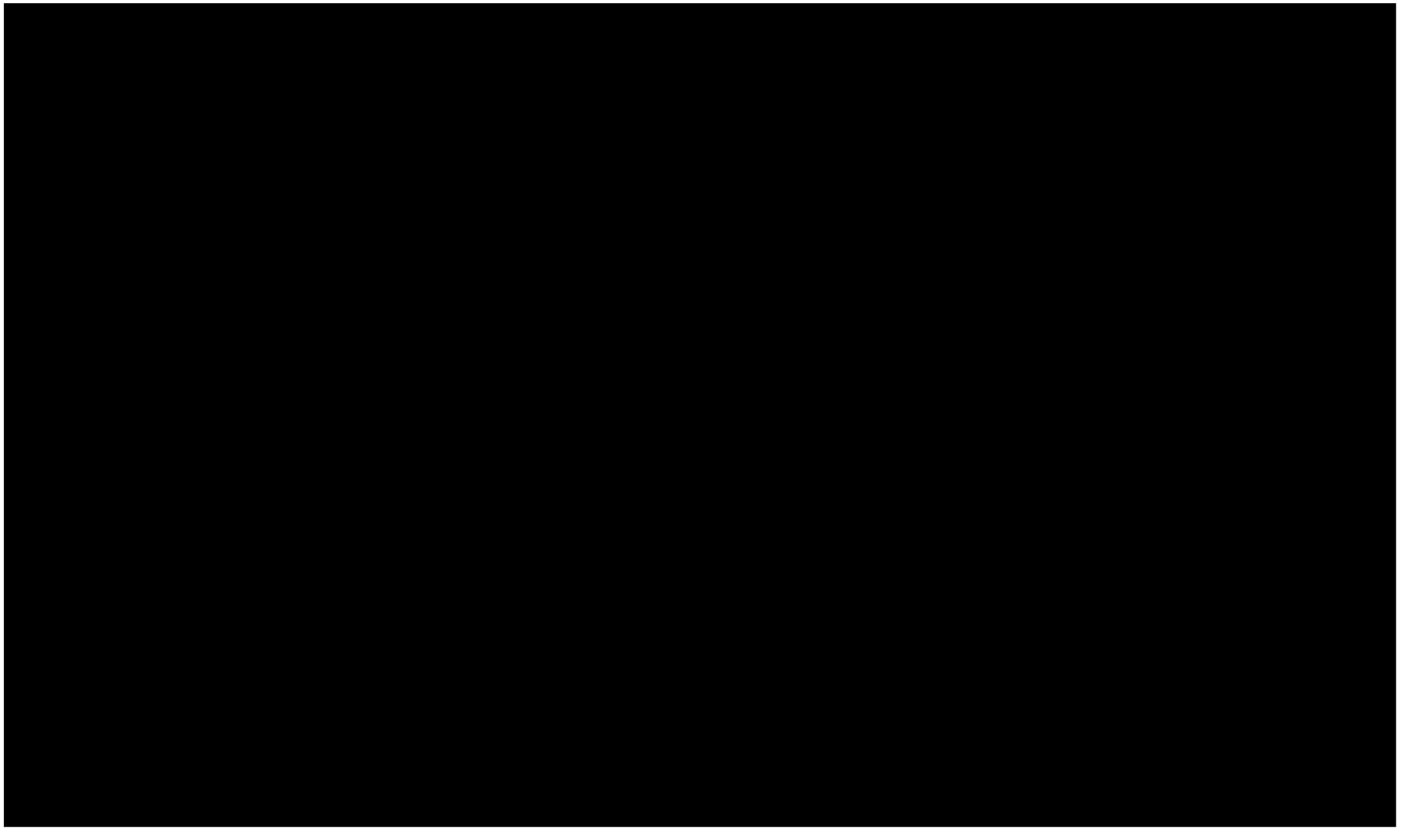

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2.13 INIT's Performance Guaranty

INIT proposes the following solution to performance risk security:

- For the period from Notice to Proceed until Final System Acceptance INIT will provide a Performance Bond equal to 100% of the contract value. This will provide Sound Transit the financial security of a third-party surety supporting the completion of the project. The costs for the performance bond are priced as a separate line item in the pricing sheet.
- Once the system is in Maintenance and Operations phase INIT would propose service level agreements that would give credits to Sound Transit for any missed performance levels. These credits would be a financial penalty to INIT, hence the incentive to deliver services at agreed upon levels.

INIT is open to discuss any alternatives to this approach.

2.14 INIT's Partnership with ROOT for Effective Operation and Maintenance

2.14.1 Staffing Plan for Responsive Operation and Maintenance

INIT will have a full-time lead engineer / support lead available for the duration of operations and maintenance period. They will be responsible for all items which INIT is responsible, including field services support, technical conversations/clarifications, ad-hoc training, support installation and testing required to support software updates, and be the interface for all systems monitoring. They will also manage the staff that remains dedicated to ngORCA operations including IT operations and data management. They will also attend routine failure review board meetings representing INIT, ensuring proper assignment and tracking of open items.

They will integrate with the larger INIT team which provides worldwide and third tier support, based in Chesapeake, Virginia, and Karlsruhe, Germany. This includes several key groups:

Seattle Resources/Groups	Chesapeake Resources/Group	Karlsruhe Resources/Group
Lead Engineer	Customer Support	Hotline Emergency Support
Sales Support	Device Repair	Development Support
DBA/IT Support	Logistics	
Project Executive Oversight	IT Support	

Seattle Resources/Groups	Chesapeake Resources/Group	Karlsruhe Resources/Group
Escalation	Monitoring and Reporting	

This allows us to leverage the other support expertise we are delivering to our fare collection systems (as example). INIT is continuing to invest in this model to allow for follow the sun support combined with localized support, increasing both response times and effectiveness of the services needed. If required, INIT will bring resources to the Puget Sound region to help with critical conversations or outages if it is determined to be most effective and efficient to support any requested changes or resolve any critical issues.

The systems engineer will work with the Regional ORCA Operations Team to ensure INIT can meet its obligation as a systems integrator throughout the operation and maintenance period and can provide Sound Transit and the agencies with collaborative support in addressing issues and evaluating changes.

We currently plan do as much equipment repair and maintenance in Seattle, Washington, at a location capable of quickly diagnosing and returning to service critical field components. In the event this facility can't support a certain repair, failed components will be sent to our Chesapeake, Virginia, manufacturing, repair and rebuild facility.

Overall, we plan on two dedicated full-time employees for the duration of the operations and maintenance period, as well as INIT program / management oversight. We are certain of that level of effort. The remaining INIT support teams (in Chesapeake and Karlsruhe) and those third-party software vendors (e.g. Salesforce, Bytemark) will be at a level that allows us to meet contract requirements through the same duration of time. Generally, these groups respond quickly when there are issues, and stand down (focused on other tasks) when the system is working nominally.

2.14.2 Services for Successful Operation and Maintenance

2.14.2.1 Operations & Maintenance Model (12 years)

One of INIT's most valued system characteristics is its reliability and ease of maintenance, monitored and managed by a team of experienced professionals in their required field(s). As is the case with the INIT hardware currently supplied to some of the ORCA Agencies, all equipment proposed for ngORCA is designed to be hot swappable. This is true of our field equipment—validators and terminals—and portions of our central IT systems such as hard drives, power supplies and redundant infrastructure items.

The ngORCA System is comprised of system equipment and applications, each to be managed and maintained in accordance with the system design and conformance requirements. The customer interface components associated with the client-side equipment will be managed by the Agencies for first line maintenance while INIT will take over any second line maintenance as well as system component repair or replacement.

In addition to the front-end applications is INIT's centralized system comprised of robust server and network infrastructures collectively referred to as the 'Back Office' (BO). Once these BO applications and infrastructure are configured and deployed, they will require ongoing support, monitoring, and periodic updates to ensure efficient system operations for the duration of the Agreement. INIT will support this environment so that the regional teams can fulfill their obligations to support ngORCA.

As part of the Operation and Maintenance (O&M) obligation INIT, as the System Integrator, will support the Agencies Regional ORCA Operating Team (ROOT) for the full duration of the 12-year O&M Agreement term, starting at conclusion of the one-year Warranty term, in the following areas:

- COTS and custom software maintenance
- Maintenance of SI-provided system components
- Regional systems local test facility hosting and maintenance
- Develop Fraud Controls
- Disaster Recovery Plan and Implementation
- Website hosting
- Back office system hosting + HW maintenance
- Maintain compliance with ISMS prescribed controls
- Operating Systems related to the above

All hardware is designed to be securely mounted but with the right keys and tools, they may be replaced in a few moments. Once replaced, they boot immediately, auto configure and are back in operation within minutes of being exchanged. In the unique case of the TVMs where Sound Transit is taking the lead (per the RFP), INIT will train the apporporiate personnel in how to open the device and replace the components within. This is a fast and relatively straightforward task, as our TVMs were built to be easily maintained with swappable components.

All servers are monitored by MOBILEguard which monitors each process providing restarts and error notifications even by email as appropriate. Beyond this we have our MOBILEsymon (system

monitor) application which supervises all reports from each MOBILEguard instance and each of the devices in the system whether fixed or mobile.

In addition, system reporting tools provide dashboard views of overall system performance and service issues. Finally, for the central system a full disaster recovery site is supplied as defined in chapter 2.14.2.5.8.

Service and maintainability is more than just hardware and software. It is about people. We feel that our track record of providing personal service-proven support on our other fare collection and CAD/AVL projects has shown our commitment to ensuring that any disruption to service is mitigated and managed as early and efficiently as possible. We look forward to detailed conversations about integrating our capabilities with that of ROOT, looking for long term support that is both effective and efficient.

2.14.2.2 Warranty (1 year)

INIT seeks to provide high-quality services to support ORCA in the operation of INIT's Intelligent Transportation System implementations. Following system acceptance, the ngORCA system will undergo a one (1) year Warranty term. During this term INIT warranties the repair and replacement of the affected SI-provided hardware, software, and labor associated.

Note that the warranty and maintenance service requirements of RFP SOW sections such as 8.2, 8.7 and 8.8 will be fulfilled. The following is supplemental information. For the avoidance of doubt, the requirements of the RFP SOW sections supersede.

The consistent maintainability of the INIT system for the Agencies assumes they are able to promptly notify INIT of failures in system components through the use of the INIT support line, Returned Material Authorization (RMA) form or the INIT on-line problem reporting system. As part of notifying INIT of a concern regarding any of the hardware or software, the Agency in-turn providing accurate information and details of system conditions surrounding the failure, as well as details of the failure and any error messages noted will greatly help support our efforts to minimize disruption to patrons and ensure no revenue impact.

Once a problem is properly logged with INIT and determined to be covered under the warranty or maintenance agreement, it is INIT's responsibility to respond to problem reports in a manner determined by the system impact and assigned problem priority.

INIT Onsite support will be provided as requested in the RFP. For issues where INIT onsite is not required agency staff will provide 1st line maintenance and INIT will provide 2nd line maintenance for hard and software issues.

INIT's Software Warranty will include the following key activities:

- Error analysis and repair of reproducible problems through a VPN data connection
- Includes version updates of existing system features, error correction, and assistance with temporary corrective actions, for reproducible errors
- INIT Support Line available 24 hours, 7 days per week

INIT's Hardware Warranty will include the following key activities:

- Includes parts repair of defective hardware supplied by INIT as part of this project
- The customer is responsible for all labor to troubleshoot and remove faulty equipment
- Replacement equipment will be obtained from the customer's on-site Spare Parts Inventory
- Defective equipment will be returned to INIT for repair. INIT will send a repaired or replacement unit to replenish the customer's Spare Parts Inventory. INIT pays for shipping both ways.

INIT seeks to provide high-quality services to support the ORCA agencies in the operations of INIT's Fare Collection System implementation.

A warranty or maintenance information package will be delivered at the start of warranty and maintenance with current support contact information including phone numbers, on-line support system information including user manual and pre-structured problem report forms.

2.14.2.2.1 Problem Reporting

The platform to report problems and Incidents is the Asset Management Application (AIM). All issues are logged and managed in the AIM. The AIM consists of the Jira application, the plugins "RIADA insight asset management" and "Discover". NgORCA/ ROOT will have real time access to the current status of every item logged.

Once a problem is properly logged with INIT, the support staff will respond in a manner determined by system impact and assigned problem priority. Issues can also be reported via the toll-free support line or by email. Following is a screenshot of a dashboard to show just an example of the powerful tools available.

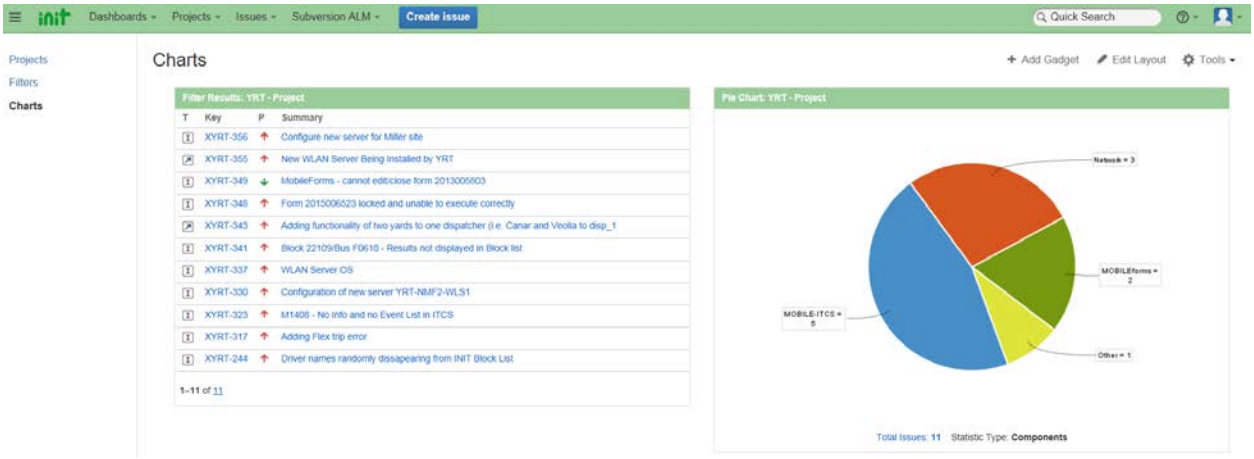


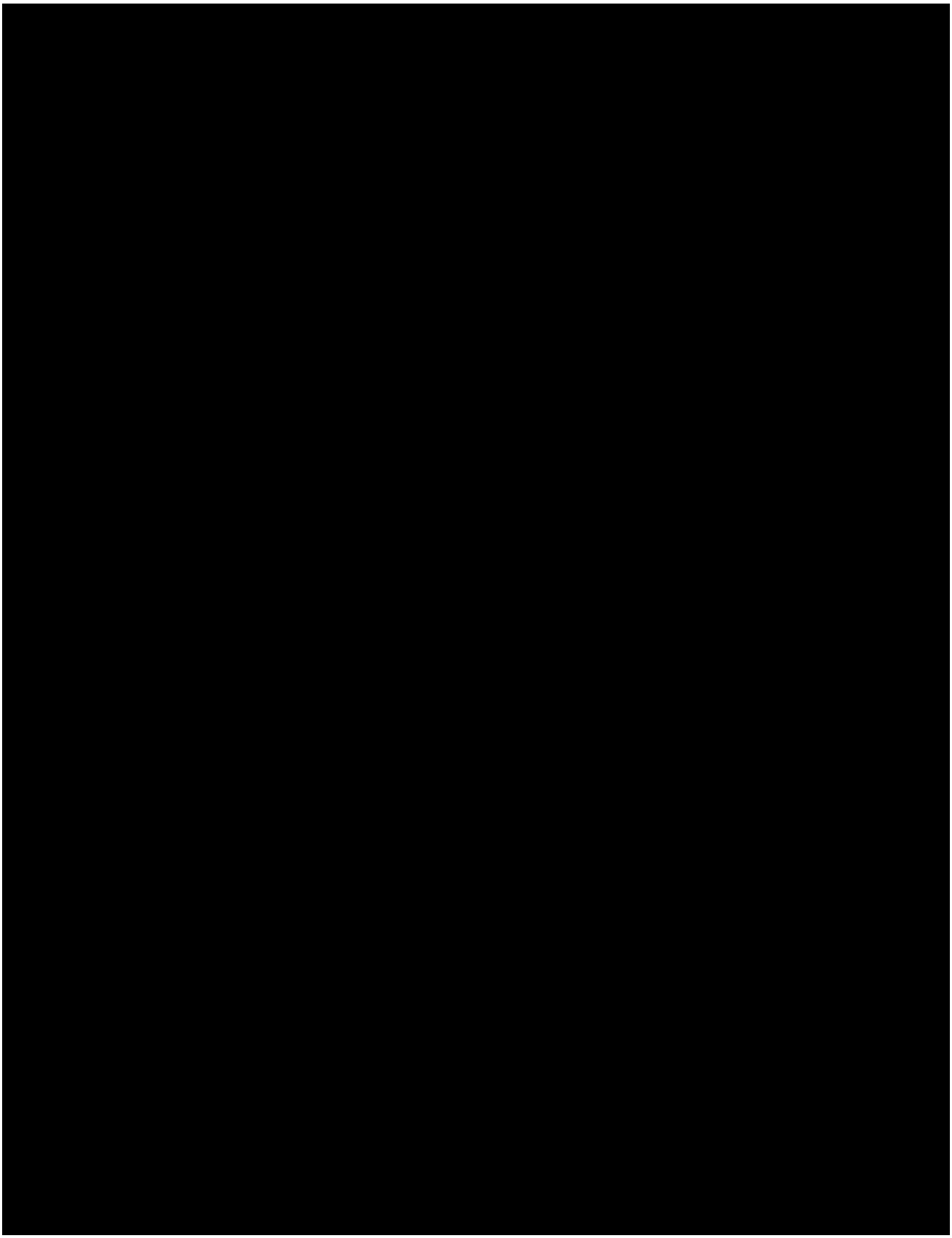
Figure 2-11: Sample Dashboard

2.14.2.2.2 Problem Classifications

Problems and errors are prioritized according to the architecture of the system and based on their system impact. The following classifications and categories are a draft.

As requested in the RFP, INIT will submit a customized software maintenance plan for ngORCA/ROOT to review and approve.

Note that the classifications do not attempt to include all possible examples of problems.



2.14.2.2.3 Problem Response and Support

INIT Onsite support will be provided as requested in the RFP. For issues where INIT onsite is not required agency staff will provide 1st line maintenance and INIT will provide 2nd line maintenance for hard and software issues.

Agency personnel will receive extensive 1st line maintenance training provided by INIT.

In addition to the support presence provided by the Lead Engineer, the Agencies / ROOT will be provided with technical support to for the general use and operation of the software via telephone throughout the warranty and maintenance terms. Telephone support will be provided by during normal business hours (PST) Monday through Friday, excluding holidays.

For purposes of reporting, INIT will provide INIT service desk access to the Agencies to make INIT aware of any software defects or malfunctions, and system outages, 24 hours a day, seven (7) days a week.

2.14.2.2.3.1 Response Times

INIT will react and respond within the timeframes defined in the RFP. As requested in the RFP, INIT will submit a customized software maintenance plan for ngORCA/ROOT to review and approve. The plan will include response times for various categories (see draft in section 2.14.2.2.2).

The workflow for the assignments of classification and priorities as well as escalation procedures will be agreed upon in the software maintenance plan.

2.14.2.2.3.2 Third Party Hardware & Software

INIT's proposal includes warranty and support services from 3rd party hardware and software manufacturers and vendors such as hosting providers. INIT serves as the primary support holder and thus any maintenance and support issues with the warranty provider are handled by INIT who will engage and include ngORCA/ROOT personnel if necessary or generally wanted by ngORCA.

2.14.2.3 System Hosting: Back Office, Regional Test Facility, and Websites (14 years)

INIT's provision of the ngORCA system back office (including ngORCA websites) requires that hosting of the production and redundant systems as well as the ORCA Regional Test Facility occur as part of the system implementation as well as through the duration of the warranty and System Hosting support phases of the contract. The Warranty term is one (1) year while the System Hosting support term is 14 years.

The back-office hosting infrastructure as defined in Section 6 of the SOW will be managed and maintained through the one (1) year Warranty term and the 14-year System Hosting Support Agreement. As part of that, the System Hosting Support processes will address the back-office operations hosting that deals with disk storage space, access and connectivity, and necessary disaster recovery / redundancy practices.

The website hosting will include those elements required in Section 5 of the SOW; specifically designed to account for scalable storage space, system access, and the appropriate connectivity for the system website's operation. While not inherently the same, INIT will manage and maintain the Websites as part of its duties related to the back-office requirements.

2.14.2.4 Systems and Operations Maintenance (12 years)

INIT will undertake the duties necessary to perform back office operations and support under the System Operations and Maintenance agreement for the specified term of 12 years. This term will begin upon conclusion of the ngORCA one-year Warranty period.

The ngORCA system is comprised of multiple back office systems and environments as well as third party and external integrations. As such, INIT will deploy its world-class System Operations team to champion the day-to-day management of the information security related functions including proactively analyzing and managing information generated from the centralized logging system, file integrity management system, ensuring backups, handling events generated by various system monitoring applications. The INIT System Operations team will also provide proactive monitoring of the overall ngORCA environmental health daily and taking required actions to ensure integrity of the expected performance metrics are adhered to.

During the terms of the agreement, INIT shall be responsible for the following activities:

- Monitoring system performance and health;
- Ensuring timely and accurate processing of transactions;
- Overseeing operation of all back-office support systems (e.g., CRM, Financial Management, etc.);
- Overseeing website operation;
- Overseeing mobile apps operations;
- Maintaining system configuration (making configuration changes upon approval);
- Testing and deployment of website and configuration changes;
- Supporting report updates and ad-hoc data requests; and
- Providing reports that confirm KPIs have been met.

Systems monitoring, management and reporting are critical to operational efficiency and application service delivery. INIT will as part of the system implementation, design and developed the MOBILEsymon dashboard and MOBILEguard service monitor applications to monitor all ngORCA system devices.

The resources assigned to carry out the work associated with the back-office operations will have experience and background as an IT professional required to function as a systems engineer overseeing and coordinating all back-office operations. The systems engineer shall oversee all aspects of service delivery and specifically address the following:

- Design and deliver support and service solutions in line with agency requirements and industry best practice;
- Ensure operational procedures and practices are well defined, documented and understood by the agencies and support personnel;
- Ensure support teams are skilled, trained and developed to enable them to deliver high quality service and support;
- Work closely with the Customer Support Services and Technical Support Services Managers to ensure support teams understand the scope of the project and support requirements and are able to meet these requirements within the expected performance criteria and KPIs;
- Be responsible for customer escalations and act as a point of escalation both in and out of hours as required;

- Directly manage local third-party IT service providers to ensure timely delivery of quality work;
- Monitor the effectiveness of the team against SLA/KPI"s, driving through change as needed to deliver continual service improvement;
- Review monthly service performance and KPI reports with agencies to ensure services are delivered within expected levels and discuss opportunities for improvement;
- Participate as a member of the failure review board (FRB) where deficiencies are reviewed; and
- Identify opportunities for efficiency, cost reduction and continuous improvement.

The accuracy of the database is maintained by INIT's MOBILEvario relational database model. This model organizes data into multiple tables where each record is identified by a unique key. Relationships between tables are established by referencing the unique keys of the two tables.

In addition to the above, INIT will carry out the following operational activities, proactively taking corrective action as needed without active reporting either by or from the Region, performed on a regular basis as follows:

Daily Operations

Weekly Operations

[redacted]

Monthly Operations

[redacted]

Quarterly Operations

[redacted]

[redacted]

2.14.2.4.1 Information Security Management System (ISMS) Compliance

The Information Security Management System (ISMS) is to be designed in such a way that the necessary governance for the applications, modules, and information that comprise the fare collection systems (Legacy ORCA and next gen ORCA), including the applicable information security controls will use ISO 27002:2013 as a baseline.

To ensure compliance, the ngORCA System solution that INIT supports (including its design, support, and operation activities) will be validated against the requirements to ensure with the applicable technical and administrative security controls, as determined by the ISMS conformance guidelines are in place.

Due to the duration of the O&M obligation and software maintenance agreement, it is likely that the security standards may be updated. As part of this agreement, INIT will ensure the requisite controls, technical revisions, and processes are updated or revised according to the procedures outlined in the Change Control Plan.

2.14.2.5 Software Maintenance (11 years)

2.14.2.5.1 General Capabilities

As part of INIT's obligations related to the back-office operations, periodic changes to the software may be required to address routine maintenance functions such as security patches and firmware updates or deployment of third-party integration updates (e.g. Sage or Salesforce). Additionally, throughout the duration of the software maintenance agreement it is anticipated that major technology changes will also occur affecting software compatibility or system security and fraud control. To address future needs or broader changes in technology, the Agencies may want to pursue system enhancements or upgrades. Change is an inevitable aspect of the system's operation but all maintenance and change activities must be managed in a clear, transparent, and structured way.

In order to address the multitude of preventative and standard maintenance needs of the software and the changes that will occur as part of that, INIT will submit a Software Maintenance Plan which will include the processes and procedures for each element. The plan will include those items noted above as well as deployment operations, risk management, production monitoring and roll-back planning. INIT will collaboratively develop the Software Maintenance Plan with ROOT – the figure below provides a sample outline.

Software Maintenance Plan [Sample Outline]

1 Introduction 5
1.1 Scope 5
1.2 References 5
2 Preventative Maintenance 6
2.1 INIT Software Updates 6
2.2 3rd Party Software Updates 6
2.3 Patches & Security Updates 6
2.4 Configuration Items 6
2.5 Environments Management 6
3 Corrective Maintenance 7
3.1 Problem Reporting & Tracking 7
3.1.1 Problem Reporting 7
3.1.2 JIRA Issues / Ticket Tracking System 7
3.1.3 Response Levels 8
3.1.4 Status Reports 8
4 Software Enhancements 9
4.1 Request for Change Process 9
4.1.1 Submission Requirements 9
4.1.2 Impact Analysis 9
4.1.3 Response Submission 9
5 Software Change Management 10
5.1 Complexity of a Proposed Change 10
5.1.1 Initial Analysis 10
5.1.2 Preliminary Analysis 10
5.1.3 Report of Findings 10
5.1.4 Approve / Reject Decision 10
5.2 Change Management Meetings 10
5.2.1 3-Month Configuration & Change Schedule 10
5.3 Release Management 10
5.3.1 Versioning 10
5.3.2 Testing 10
5.3.3 Software Delivery Form 11
5.3.4 Deployment 11
5.3.5 Change Documentation 11
5.3.6 Change Log 11
5.3.7 Technical Documentation Updates 12

Sample Software Maintenance Plan Outline

2.14.2.5.2 Communications, Response and Resolution

Software maintenance related communications, response and resolution will be addressed in the Software Maintenance Plan. INIT complies with the Agencies capabilities specified in the Scope of Work – including:

- Telephone technical support
- 24 x 7 hotline to report system failures (with response times of less than 30 minutes)
- Onsite support, if required, within 24 hours
- hours status reporting if a repair takes longer than 4 hours

2.14.2.5.3 Software Change Management

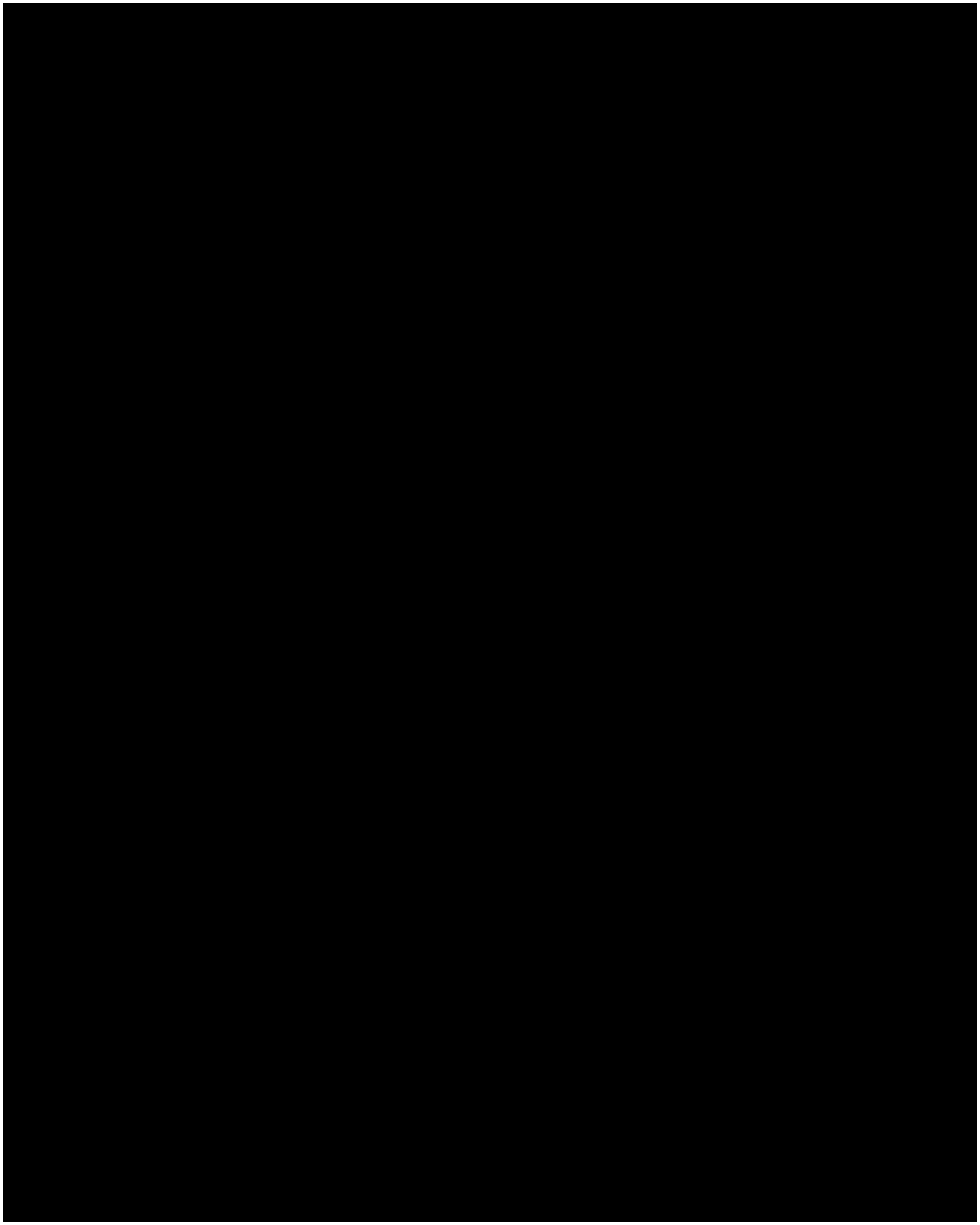
INIT will jointly develop and implement a rigorous software change management plan involving

- Analysis and reporting of the required complexity and risks of the proposed change
- Joint change management meetings
- 3-month changes look-ahead
- Comprehensive release management involving extensive testing (including regression testing) on all environments
- Maintaining effective change documentation (including Software Delivery Notes (SDNs) and a Change Log)

INIT will update any required technical documentation impacted by a change. The following samples show the proposed software change management plan outline, and INIT's Software Delivery Note (SDN), which is provided to the customer for a signed approval prior to any software change.

5 Software Change Management 10
5.1 Complexity of a Proposed Change 10
5.1.1 Initial Analysis 10
5.1.2 Preliminary Analysis 10
5.1.3 Report of Findings 10
5.1.4 Approve / Reject Decision 10
5.2 Change Management Meetings 10
5.2.1 3-Month Configuration & Change Schedule 10
5.3 Release Management 10
5.3.1 Versioning 10
5.3.2 Testing 10
5.3.3 Software Delivery Form 11
5.3.4 Deployment 11
5.3.5 Change Documentation 11
5.3.6 Change Log 11
5.3.7 Technical Documentation Updates 12

Sample software change management plan outline



Software change Software Delivery Note

2.14.2.5.4 Software Enhancements

INIT will participate in a responsive manner towards software enhancements. This process will involve the submission of the desired functionality or enhancement, a technical and cost impact analysis by INIT, and a response submittal outlining the scope and costs by INIT. If ROOT decides to proceed with the enhancement, then the Software Change Management process would be followed.

2.14.2.5.5 Field Equipment Maintenance

Once the system has been accepted by the Agencies, first line maintenance will be performed by the Agencies whereas second line maintenance repair will be undertaken by either INIT or the relevant OEM. INIT will manage and maintain spares and stock inventory to facilitate the first line maintenance efforts of each Agency.

To facilitate the purchase of new or additional equipment and spares, INIT will provide a spares price and consumables list for Agency reference and ordering as well as comment on any special tools or items needed to facilitate the repair efforts.

As serviceability and maintainability are essential to a successful handover of operational functions, INIT will ensure the Agencies receive the appropriate training and information necessary. Additionally, INIT staff and engineers will be available as needed to support first line maintenance efforts should further issues arise which limit the Agencies ability to perform the required functions or steps.

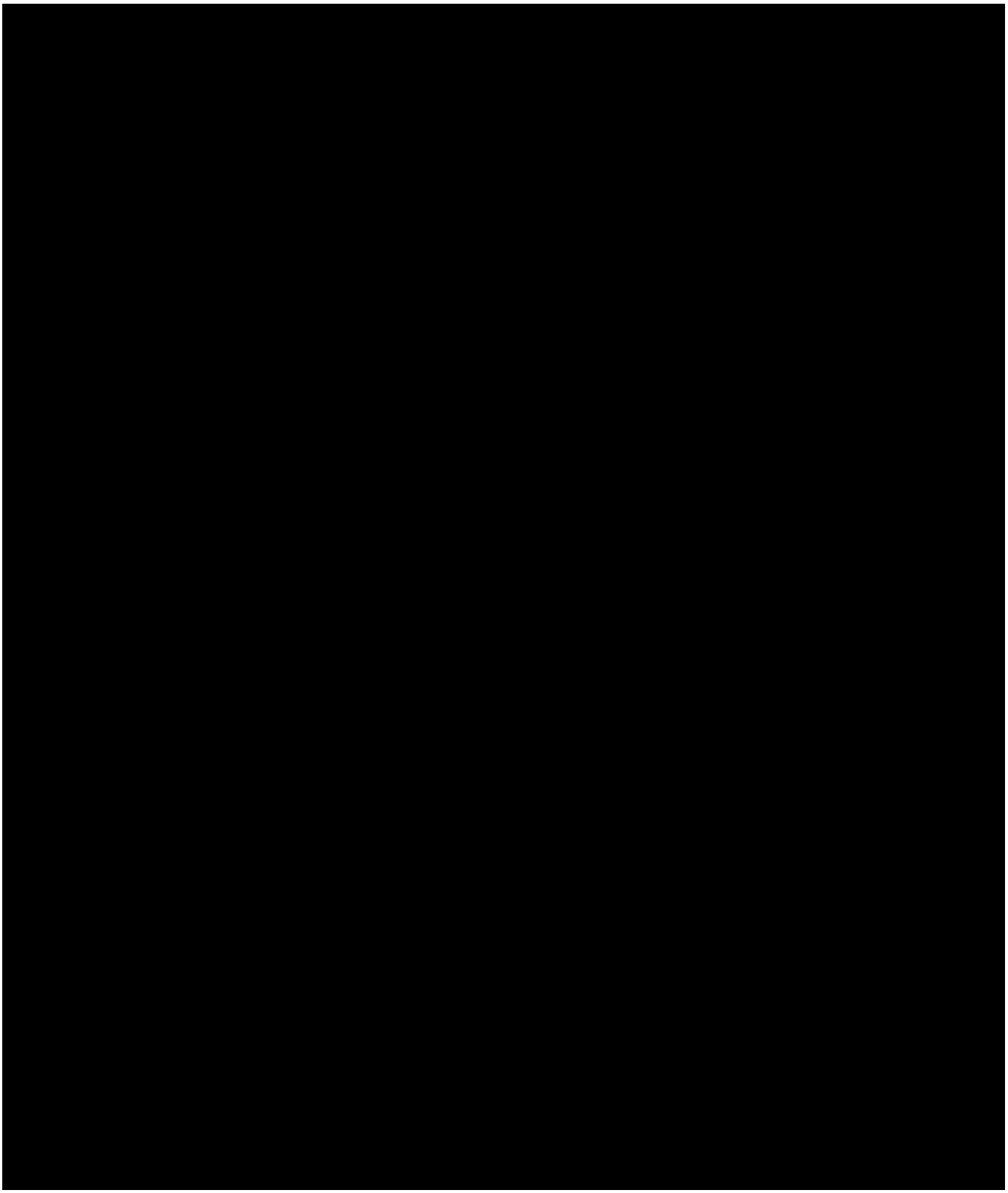
To clarify the RFP's section 8.12.2.5 titled Incident Response Times, INIT expects that vending machine first level maintenance will be handled Sound Transit as described in section 8.1. INIT will train Sound Transit and provide spares of internal components which are designed to be field serviceable, including swapping at the installed locations. Second line maintenance will be provided by INIT

2.14.2.5.6 Agency Test Facility

As part of the obligations associated with test of the ngORCA system during the project delivery, INIT will stand up a regional test environment for access by Agency and INIT staff. The detail of this solution is more fully covered in Section 2.7.2.4.3 above.

INIT will continue to host and maintain this test facility for the duration of the agreed terms and in accordance with the contract's requirements. The purpose of the test facility is an integral part of the overall test and deployment strategy and as such will be managed and maintained in a similar fashion as the production system (e.g. software patches, compatibility, etc.).

2.14.2.5.7 Fraud Controls



2.14.2.5.8 Disaster Recovery

INIT's proposed back office solution for ngORCA addresses both disaster avoidance and disaster recovery; the proposed solution favors disaster avoidance strategies to limit the impact of failure and need for disaster recovery and prepares for disaster recovery.

The primary business continuity objectives of ngORCA are covered by the multi-data center, active/active infrastructure. The active/active datacenter strategy allows for smooth failovers allowing operations to transparently move workloads between geographically separate infrastructures. Further, through the use of load balancing inbound connections, disruptions in a single datacenter have little to no impact to the continued operation of the system.

While disaster avoidance works against disaster recovery in some respects, INIT will deploy a more specific disaster recovery solution which ensures out-of-region data backup in a separate hardware environment. This third, out-of-region site does not support continual or failover operations due to distance and latency, but is intended specifically as a data-backup only solution. Business continuity, disaster avoidance, disaster recovery and backup solutions are documented in the Disaster Recovery Plan. The plan also addresses other ISO guidance regarding business continuity including risk assessments and business impact analysis.

2.14.2.5.9 Performance Measurement

2.14.2.5.10 General Capabilities

System performance is measured on multiple levels, from the network level over the different processes and services running in the back office up to the client applications and devices. The data that can be reported on and how it is being collected depends on the system and the way the performance is measured. Based on the captured data, different KPIs are calculated and reported at the end of the month to provide an overview of the systems performance in general and to ensure that the agreed level of operational performance is met.

INIT will provide a Performance Maintenance Plan which will identify the methods and approach to tracking and reporting the KPIs. Where possible the approach taken will seek to be automated whether related to the capture or reporting of the data elements.

2.14.2.5.11 Key Performance Indicators

As part of the Software Maintenance Plan INIT will include the means and measurements required to develop the requisite quantifiable measurements of performance to assess INIT's operation of the system.

The plan will outline the data source, calculations, and output for the following KPIs: Frontend Device Reliability, Frontend Device and Back Office Application Accuracy, Back Office Application Availability, Operating Performance Requirements, and Incident Response Times.

2.14.2.5.12 Failure Review Board

As far as possible, INIT will provide a list of expected exceptions and events for each device or application for classification as Chargeable or Non-Chargeable Failures. The classification will be used to determine during performance reporting if a failure will be chargeable against one or more of the KPIs.

To determine the severity of an exception or event and to classify it as chargeable or non-chargeable failure, a Failure Review Board (FRB) will be established as specified. From INITs side the FRB members will include the System Engineer, the Project Manager (when in the project executing phase), and the Customer Support Service Manager (when in operations and maintenance). In the event an escalation is required, the INIT Project Sponsor will participate

Newly classified chargeable and non-chargeable failures will be added to the list maintained in the back-office system to be used during the next calculation of the KPIs.

2.14.2.5.13 Performance Reporting

As noted above, INIT will collate and summarize the data applicable to the KPI metrics and perform the measurement calculations on a monthly calendar cycle for the duration of the operation agreements. This will result in a detailed report of overall system performance and result in a "meets or fails" summary of each KPI. Where possible, KPIs will be measured with automated elements of the system.

To prepare for the operational elements of the system and achieve system acceptance, the KPI metrics and reports and will be exercised during the integration and acceptance testing.

Where applicable the monthly reports will provide historical data or trend analysis to provide a broader overview of overall system health at a high level.

2.14.2.5.14 Credit Assessment

As part of the operations agreement INIT will sustain the obligation to meet the requisite KPI metrics. Should there be instances where the KPI has failed then the agreed deduction to the associated payment would be reviewed and where applicable apply to the associated invoice.

2.14.2.5.15 Level of Effort to Optimize Value

We expect our Services Operations manager to be fully dedicated to the support of this system, with the support of our customer support, field tech and IT support teams. Our plan is to operate the system as efficiently and effectively as we can, bringing down the amount of support that is required – especially over time. We plan an initial team that will be available throughout this contract and are capable of providing for all required KPIs and to maintain the overall ORCA customer experience. We have found with our current fare collection systems, both in North America and worldwide, that a well-designed and well-engineered system can operate at a very high level of accuracy with a minimum level of support and maintenance. We plan to leverage and enhance this through this project with ngORCA.

2.15 INIT's Warranty

Please refer to section 2.14.2.2

2.16 INIT's Sample Disaster Recovery Plan

A sample disaster recovery plan is included as an attachment at the back of this tab in the proposal.

2.17 INIT's Commitment to the Environment

We see transit as intrinsically "green," and have aimed to make direct contributions to our community through an ongoing commitment to sustainability. INIT is a proud signatory of the APTA Sustainability Commitment and has contributed to the creation of measurable guidelines for APTA business members to achieve higher levels of sustainability. Even this proposal is printed on 30% recycled paper.

Our manufacturing facility, Superior Quality Manufacturing (SQM), recycles the lead-free solder used in making their electronic boards. Additionally, INIT's cable manufacturer, Total Quality

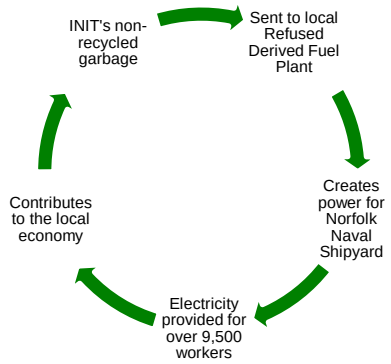
Manufacturing (TQA), recycles 100% of scrap cables through a partnership with a local cable recycler.

Simple changes in habits, like the removal or paper towels and replacement with hand dryers has made a large impact. By the first year, 593 pounds of paper towel usage was eliminated. The impact on the environment is calculated to be the equivalent of 11 trees with an estimated decrease in the company's carbon footprint of 69%.

2.18 INIT's Progressive Green Approach

INIT is a socially responsible business partner with a unique approach to fostering sustainability in our corporate and manufacturing practices.

As a zero waste to landfill company, we purchase recyclable products, reuse our shipping and manufacturing packaging, partner with an electronics recycler for repurposing manufacturing devices, and contribute all non-recyclable, non-compostable garbage to a Refuse Derived Fuel Plant (RDFP). The RDFP facility treats and burns the garbage creating electricity to power the local Norfolk Naval Shipyard, which is home to over 9,500 workers.



Extensive Experience and History of Innovation in Transit Technology

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

Resubmittal June 8, 2018

The Future of Mobility

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The sections listed below contain trade secret information that provides a business advantage to INIT over competitors. These sections are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

CONFIDENTIAL SECTIONS:

3.4 Extensive Recent Account-Based Fare Collection Projects

3.5 Customer References

3.7 INIT's Financial Performance

3.7.1 Stellar Financial History

3.7.2 A solid Financial Forecast

3.8 INIT's Recent Fare Collection Wins

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3 INIT's Extensive Experience and History of Innovation in Transit Technology

As the lead procurement agency for the Central Puget Sound Regional Fare Collection Coordination Project (ORCA), Sound Transit, is seeking an innovative Systems Integrator to collaboratively develop, build and test the best solution for the region. It is our strong belief that INIT's Electronic Fare Collection Management (MOBILE-EFM) product suite and our decades of experience as an Innovator and System Integrator in public transit will provide ORCA with the optimal technologies, processes and support services to assure the successful deployment and ongoing operations of a Next Generation Fare System for the Puget Sound region as specified in your RFP.

Having implemented more than 50 Electronic Fare Collection Systems worldwide, our system has advanced and matured based on a strong cooperation with our worldwide community of Transit Agency customers.

3.1 Multi-Agency Experience

INITs ticketing back-end system is well fitted for environments with multiple operators and Public Transit Agencies and supports multiple fare structures/policies. For example in our ticketing project in Bavaria, where the whole county rural traffic is implemented with INITs ticketing system, and its outstanding multi-client capabilities are heavily used by currently 10 clients/fare structures. At the beginning there was 4, now it is 10 and the number is increasing. The clients can be very different in size (OVF 800 vehicles, Krause 10 vehicles) and operational requirements (OVF more than 30 different fare structures and Krause with only 2 fare structures).

Another ticketing project with large number of fare structures and policies is VVO/Dresden (20 clients/fare structures), of very different sizes. Some of the clients are simultaneously independent clients for their own routes and contractors for the larger clients. This shows the outstanding scalability and flexibility of the MOBILEvario system.

Also our ticketing system with ECAN in Christchurch is a multi-client system (320 vehicles) with 7 different clients, all accepting the same Metrocard and getting assigned their individual revenue per week.

3.2 Why INIT

With INIT being a leading vendor of Electronic Fare Collection and Intelligent Transportation Systems (ITS), we are uniquely qualified to understand your needs across the full bandwidth of

your operations. See the figure below for a graphical view of INIT's 25 years of fare collection History.

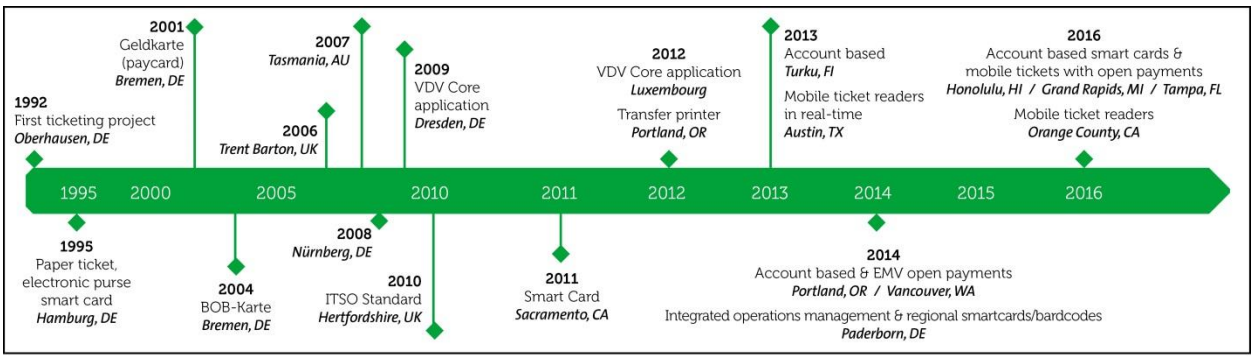

Figure 1: INIT's 25 Years of Fare Collection History

After a very thorough analysis of your RFP, we are pleased to confirm that ORCA's requirements are very similar to INIT's MOBILE-EFM Project recently implemented at TriMet in Portland, OR. Due to the similarity in scope and design of the Portland MOBILE-EFM System which features: a Multi-Agency, Account Based and Open Payments based System, Open APIs, a fully redundant back office, multiple fare product distribution channels etc., INIT can offer Sound Transit and their partner agencies a prompt and reliable implementation of the next generation ORCA (ngORCA) Regional Fare System.

The ability of INIT to deploy and grow a solid and experienced Seattle based team will be vital to the success of your project. INIT will deploy key technical and project management resources for the duration of the implementation phase of the contract to enhance the existing team already located at INIT's Seattle office. Additionally INIT is committed to provide the requisite employees and partners to fully maintain and operate the ngORCA Fare System during the operation and maintenance phases of the project.

We are excited about the prospect of working with Sound Transit and your partner agencies to collaboratively develop, build, and test the best solution for the transit agencies and their customers in the Puget Sound region. We are convinced that you will be amazed by the functionality, flexibility and reliability of our company and our best-in-class fare collection solutions and especially the outstanding team of Transit Professionals that we have assembled for this project.

3.3 INIT and Its Project Partners

3.3.1 INIT Innovations in Transportation, Inc. (INIT)

INIT was incorporated in the Commonwealth of Virginia in January of 1999 to serve the North American market, exclusively focusing on Intelligent Transportation Systems (ITS) for public transit. INIT GmbH, our sister company, was founded in 1983. Both companies are wholly owned by our parent company, INIT SE (formerly AG), which is located in Karlsruhe, Germany.

Years in Business

INIT GmbH has been in business for 34 years and INIT has been in business in North America for 18 years. The INIT SE group of companies has not changed ownership during this time, Its founders are still heavily involved in the business of providing services dedicated to public transit, giving INIT unmatched insight into the deployment of all types of ITS projects. Founder & CEO Dr. Gottfried Greschner continues to be involved and working at INIT on a daily basis. An investment in INIT's technology is an investment in our ITS future as well as yours.

Our North American Office Locations

INIT Innovations in Transportation, Inc.'s brand new consolidated North American headquarters office is in the City of Chesapeake, Virginia. We are at the midpoint of the US Atlantic Coast, 3 ½ hours south of Washington, DC, at the mouth of the Chesapeake Bay and adjoining the cities of Norfolk and Virginia Beach.

INIT operates in a multi-purpose 67,000 square foot facility which includes dedicated areas for Software Development, Customer Support, Engineering and Sales, manufacturing, and a dedicated laboratory for testing and development.

INIT Innovations in Transportation, Inc.
Phone (757) 413-9100
www.sales@initusa.com
www.initusa.com

INIT maintains Regional offices in Seattle, Toronto, New York and Tampa with personnel dedicated to providing and supporting the latest technology and a totally functionally compliant system for our clients.

INIT has formed a joint venture with the manufacturing company, Superior Quality Manufacturing (SQM) . SQM will provide through-hole and wave soldering, circuit board assembly and final assembly of several of our electronic devices including but not limited to: Proximity Readers, MDT's, Ticket Vending Machines (TVMs) and on-board computer backplanes. SQM is co-located within our Chesapeake, VA headquarters.

An additional joint venture with a major cable manufacturer, Total Quality Assembly (TQA) manufacturers the majority of INIT's cables, harnesses and mounting hardware equipment for our vehicle equipment installation needs. TQA is also co-located within our Chesapeake, VA headquarters.

Because both companies are subsidiaries, INIT is able to closely monitor quality and adjust production priorities in order to best meet the needs of our customers. Integrating both SQM and TQA into the INIT environment creates additional benefits for the

ngORCA project. Additional orders, cable replacements, etc. can be quickly implemented due to the working relationship and proximity of the teams and then delivered to ORCA. Finally, by investing in these companies, INIT continues to show the commitment to supplying American Made products.

Public transportation is an indispensable part of modern society. As one of the world's leading suppliers in the area of fleet management, passenger information and electronic fare collection systems, our primary goal is to help transit authorities make public transit services more attractive, faster and more efficient.

Customers such as TriMet, Grand Rapids, CDTA, RTD- Denver, and dozens more, benefit from the fact that INIT uses innovative mobility concepts, giving these forward-thinking transit authorities a technical advantage. This may be in the form of standard off the shelf or if needed customer specific, tailor-made solutions. As a supplier of turnkey systems, INIT develops, produces, installs and maintains integrated hardware and software solutions for all key tasks required within a transit agency.

Figure 2. INIT has over 30 customers in North America and more than 400 customers worldwide

INIT is a proven, experienced and accomplished systems integrator with over 30 transit agency customers in North America. We feel that INIT is best suited to maximize ORCA's investment with minimum risk as you implement and deploy the ngORCA system.

3.3.2 Bytemark

Founded in 2011, Bytemark is an international provider of fare collection technology employing over 90 talented individuals globally, with offices located in New York, Toronto, the UK,

Australia, and India. Bytemark's core offering is a comprehensive suite of products that digitize transit passes, tickets and fare media in a variety of innovative ways. Purchase of these fare products by transit riders is simple and instantaneous by means of web-based and smartphone-based purchasing experiences. Agencies are provided with powerful fare validation solutions, and cloud-based access to a full-suite management portal to manage and report on their operation.

Bytemark products have been implemented at over 20 transit agencies in North America including New York Waterway, Toronto Transit Commission, Capital Metro Transit (Austin, TX), and King County Metro (Seattle, WA).

3.3.5 ESP Enterprises

ESP Enterprises is the leading services company providing installation and maintenance to all Fare Collection Equipment Manufacturers and Transit Focused Electronics suppliers in North

America. ESP was formed in October of 2002. They have ongoing projects with ACS, Accenture, Avail Tech, Bytemark, Clever Devices, Conduent, Cubic Transportation Systems, Genfare, Lecip, Lilee, March Networks, Parkeon, Safety Vision, Scheidt & Bachmann, Trapeze, TSI Solutions, Vix, and Xerox and INIT.

ESP's primary goal is to supply with a labor force that's trained with skills specific to transit industry requirements and equipment. Their experience and knowledge of Mass Transit operational requirements and equipment provide foresight into the logistical and project planning requirements necessary for successful installation activities.

ESP operates under the need for scalable responses to their customers' needs and deadlines. As part of their operating philosophy we provide skilled labor and supplement as needed with local personnel who can be trained and supervised by more experienced staff. If requested by either the customer or transit authority ESP provides experienced oversight staff for a local subcontractor. This methodology allows ESP to rapidly scale their work force to meet the installation requirements of their customers and reduce related travel costs.

3.3.6 Anthro-Tech, Inc.

Anthro-Tech is a woman-owned business founded in 1997 and became a licensed Washington State Corporation in 2002. Anthro-Tech is Washington State DBE Certified. Anthro-Tech is a user-centered design consultancy focused on government agencies, nonprofits and enterprises with a social impact mission. They provide user-centered design strategy, user research, user experience design, usability testing and UX training services to organizations throughout the region and across the nation. Much of their work focuses on web sites, web & mobile applications, software systems and customer experience strategy.

Anthro-Tech proposes to provide user interface and user experience services for this contract to ensure all customer-facing interfaces are intuitive, usable, accessible and consistent across touchpoints.

Persistent has 36 offices in 12 countries. Their USA headquarters (Persistent Systems, Inc.) is located in Santa Clara, CA and their India Headquarters (Persistent Systems Limited is located in Pune, MH. We also have other locations in Mexico, France, Canada, Germany Netherlands, Japan, Malaysia, Australia and Singapore.

INIT will be using Persistent Systems, Inc. as our Salesforce Integrator as they have demonstrated that they are uniquely qualified.

3.3.8 Babinec Consulting LLC

Babinec Consulting LLC is a 100% woman-owned business and certified DBE (WA State/Federal Programs) formed in March 2017 by two sisters, Kati Babinec, PMP, and Lisa Babinec, PhD, CMP, both subject matter experts with a combined 40+ years of experience in their complimentary fields. They provide exceptional business management consulting services that enhance and advance our client's business success. They also help our clients realize their full potential and achieve mutually agreed upon desired outcomes. They dedicate ourselves to providing subject matter expertise and timely, superior end products that fulfill the client's stated goals. Babinec Consulting LLC devotes itself to offering innovative thinking, nurturing genuine partnerships, and championing the beliefs that accuracy, reliability, honesty, and trustworthiness will never be obsolete. Finally, their combined areas of expertise include the following:

- Technical Writing & Editing, Medical Writing & Editing, Copywriting, Copyediting, Substantive Editing, Line Editing, Proofreading, Instructional & Online Curriculum Design, Peer Review, Quality Assessment (Curriculum & Publishing), Grant Writing/Editing (CDC, NIH, etc.), and Educational Marketing
- Contract Risk Analysis & Management
- Contract Drafting, Review, & Negotiation
- Training: Risk Management, Trade Compliance, Contract Negotiation, Specialized Curriculum (project management fundamentals, ethics, process development, Train the Trainers, etc.)
- Strategic Planning & Procurement, Cradle-to-Grave RFX, RFX Planning, Scope Development, Implementation, Analysis, & Supplier Selection

3.4 Extensive Recent Account-Based Fare Collection Projects

INIT has a history of deploying very large multi-agency projects such as the entire State of Bavaria in Germany and others in Europe. We have now deployed three multi-agency fare collection systems in the USA HART (Tampa), the Sacramento Region (lead SACOG) (card based) and TriMetPortland OR / Vancouver WA Region (lead TriMet). Consequently we have developed a back office system (MOBILvario) that is very robust and multi-agency capable. While the

ngORCA Project will certainly present challenges INIT is confident that we are proposing both the technology as well as the engineering and project resources necessary to ensure a successful and on time project delivery.

The Account-Based fare collection projects listed below illustrate our firm's ability to perform the requirements of this contract. Each project includes a section titled "Relevance to ORCA." It should be noted that we have other relevant project experience. For example:

- Cloud Hosting at Orange County Transit Authority and Capital Metro (Austin, TX)
- Ferry Terminal Validation at New York City Ferry
- CAD/AVL integration to many vendors
    - Clever Devices in Pinellas Suncoast Transit Authority (Tampa, FL Region)
    - Conduent in Hillsborough Area Regional Transit Authority (Tampa, FL Region)
    - Avail at The Rapid (Grand Rapids, MI)
    - Trapeze at Metro Transit Authority (Nashville, TN) (contract pending)
- Fleet installations as large as 3,000 vehicles for CAD/AVL customers

3.4.1 INIT Projects

3.4.1.1 Portland and Vancouver HOP Fastpass

Tri-County Metropolitan Transportation District of Oregon, (TriMet)
4012 Southeast 17th Avenue
Portland, Oregon

[redacted]

Project Information

The HOP FastPass system is comprised of a joint-venture among three different transit agencies: TriMet, C-TRAN, and the City of Portland Streetcar. TriMet maintains the prime contract whereby INIT is the system integrator for the Portland, OR and Vancouver, WA metropolitan service area.

TriMet provides approximately 100 million trips per year. TriMet operates in the 24th largest metro area but is 11th in transit ridership. Additionally, nearly 1,200 employers in the area offer transit passes as an employee benefit. TriMet has approximately 700 buses, 97 light rail stations, 5 commuter rail stations, and 253 paratransit buses and 15 paratransit vans. The local public transportation network set up and operated by TriMet is considered one of the most innovative systems in the U.S. Portland is the third largest metropolitan region in the Pacific North West after Seattle, Washington and Vancouver, B.C.

C-TRAN ridership included approximately 5.8 million riders in 2015. C-TRAN offers regular bus service, express bus service, and limited bus service. Additionally, the C-TRAN program provides paratransit services too.

The City of Portland Streetcar is comprised of seventeen streetcars serving three unique lines in the Portland area. Weekly ridership averages around 15,000 for a total year to date of 1,674,550.

Mode Supported/ Number of Vehicles:

660 Fixed Route Buses

69 Light Rail Vehicles

268 Paratransit Vehicles

INIT's Responsibilities

INIT is the System Integrator for the TriMet HOP Fastpass program. The contract comprises of the design, build, test, and implementation of an Account-Based electronic fare (MOBILE-EFM) payment system for the Portland, OR and Vancouver, WA region serving customers of TriMet, C-TRAN and the City of Portland Streetcar. The Portland system is named "HOP FastPass." The system went into service in July 2017, two and a half years after contract award.

The HOP system supports both closed-loop and open-loop payment methods and mobile ticketing. The MOBILE-EFM system design is comprised of INIT's comprehensive Central Processing module, more than 1,100 on-board and platform contactless payment validators and approximately 100 retail POS units. INIT has also provided an Interactive Voice Response (IVR) system, Customer Relationship Management (CRM) tool, Maintenance and Management Inventory tool, as well as a Customer Web portal and Institutional Web portal for large business or institutional accounts and an initial 1,300,000 contactless smart cards.

Project Services

INIT provides a state-of-the-art electronic fare collection solution for TriMet. The contract includes the provision and the implementation of an account based solution, including:

- MOBILEvario backoffice with account processing, payment gateway, data warehouse, ledger, revenue clearing/settling, reporting, statistics, etc.
- Approximately 1,100 validators, on board buses/light rail and on platforms
- Retail Sales Terminals
- Open Architecture with various APIs to internal/external systems
- Closed Loop Payment, including integration with retail network provider
- Open Payment
- Fare Aggregation, Fare Capping
- IVR system integration from Enghouse
- Integration with Mobile Ticketing
- Web portal design and development (subcontracted to The Brigade)

The e-Fare solution will greatly enhance the already progressive bus, light rail, and commuter rail network in Portland. TriMet's ridership will benefit from more convenience and pricing

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equity and the ability to utilize contactless bank cards and mobile phones.

Total Cost of Contract: $[redacted]

Start Date: December 2014

End Date: Currently in Revenue Service as of July 2017

Project Staff

[redacted]

Account-Based with Open APIs

The MOBILE-EFM system is account-based and will support both closed-loop and open-loop payment methods as the future mobile ticketing. The system includes back-office clearing, revenue processing system and real-time fare processing. The MOBILE-EFM system's design is comprised of INIT's comprehensive Central Processing module, more than 1,100 onboard and platform contactless payment validators combined. INIT will also provide an Interactive Voice Response (IVR) system, Customer Relationship Management (CRM) tool, Maintenance and Management Inventory tool, as well as a Customer Web portal and Institutional Web portal for large business or institutional accounts and an initial 1,300,000 contactless smart cards.

As part of INIT's System Integrator role, the TriMet e-Fare project includes the integration with several third party systems. Following INIT's Open Architecture approach, open Application Programming Interfaces (API) will be available to external partners such as fare payment and inspection, mobile ticketing, device management and CAD/AVL information.

Relevance to ORCA

Riders of HOP will find installed on each bus, along each rail platform and C-TRAN BRT platform, as well as throughout the Portland Streetcars, the INIT validator or PROXmobil3. The PROXmobil3 is capable of accepting multiple forms of fare media included closed loop cards branded for HOP specifically, a personal credit card, mobile tickets, and also mobile payments (such as Samsung pay or Apple Pay).

First time riders can acquire a new HOP FastPass at the hundreds of ticket vending machines located throughout the city, at the transit ticket offices, and also at hundreds of retailers where they can purchase the hangar card like any other 'gift' cards available for sale. Riders can register their card, adding personalized information but also obtain balance protection so that if the card is ever lost or stolen, they can simply request to block the card and obtain a new one.

While INIT is quite proud of our success with the HOP FastPass project, and see many parallels to the ngORCA project, we certainly recognize the additional requirements of a true multi-agency region, including a much more complicated fare structure across numerous organizations.

3.4.1.2 Turku, Finland Account-Based System

City of Turku

Project Information

Turku is a city on the southwest coast of Finland at the mouth of the Aura River, in the region of Finland Proper. The city has a population of more than 180,000 inhibitants and is the 3rd largest urban area in Finland.

The City of Turku Public Transport manages and supervises the bus network which is mainly operated by private companies.

Mode Supported/ Number of Vehicles: 260 fixed-route buses

INIT's Responsibilities

INIT validators called PROXmobil2 are installed to every bus in the Turku region as well as integrated driver device EVENDpc that provides possibilities to sell and validate tickets, top-up accounts, print receipts, provide passenger information and many other functionalities.

Passengers can validate their traditional travel cards or QR codes from their mobile phones with INIT's validators. In the future roadmap there are also possibilities to pay the travel by contactless EMV card and/or NFC capable mobile phone.

The agency also co-operates with many event organizers in the Turku region to provide combo-tickets which include access to the event itself as well as usage of public transportation by using the QR code printed into the ticket.

For account management and more information about their current balance, passengers can log in to JLT's website. Furthermore, the system allows possibility to large institutions for bulk distribution such as schools, universities, social services programs, or major corporate entities. The Institutional website provided by the 3rd party integrated to our MOBILEvario back-office system allows the administrator to easily upload or download needed information in bulk. The system is prepared to utilize zones, selection of new fares and tariffs if and when ever the customer wants to utilize those.

When the final system acceptance is reached, INIT will begin a comprehensive 7 years warranty and maintenance contract.

Project Services

INIT is providing state-of-the-art integrated fleet management system including an electronic ticketing and fare collection solution for the region. The contract includes the provision and the implementation of: PROXmobil 2 Smart Media Processors and GPS enabled On-Board Computers with Wi-Fi technology on approximately for 260 buses, account-based ticketing which allows all information to be stored and managed in the back office system – in real-time. The ticket medium (e.g. a smart card) itself only contains a unique identification number (ID). This solution allows for a flexible and inexpensive use of various ticket media (2D barcode, proximity card, etc.) and offers more abuse protection in case of card loss. Most critical to the operation is the INIT provided Back-Office System, MOBILEvario, which is used for tariff management, regional revenue reconciliation and clearing functions.

Total Cost of Contract: $[redacted]

Start Date: November 2013

End Date: Operation began in early 2017

Project Staff

[redacted]

Account-Based with Open APIs

Account based ticketing solution. The contract includes approximately 300 on-board computer incl. ticket printer EVENDpc and boarding control system PROXmobil2, open Sales API for 3rd parties to integrate to the system, open real-time passenger information interfaces, ticket inspection application and more. The core of the system is INIT's back-office System

MOBILEvario that provides a sophisticated yet easy to use solution for ticket processing and clearing revenues. MOBILEvario's powerful online validation server processes account transactions in real time.

The Föli system is an ID-based Ticketing system. It is highly flexible, supports various ticketing methods and sales channels, offers open interfaces (API) for the integration of 3rd party solutions and is client-based.

This and the use of comfortable passenger apps use the options new technologies, communication methods and digitalization offer to the fullest and make Turku a smart city. In addition, fare management can be handled much more efficiently.

It is the first of its kind system that went into operation and is part of the MaaS ecosystem. It set a new bar for ticketing systems in the Nordic Countries, which led to a suggested new Finland-wide approach for integrated mobility services and won the SLUSH award. The system is complemented by an integrated ITCS system that also provides RTPI.

Relevance to ORCA

INIT replaced the legacy ticketing system through a comprehensive transition strategy which allowed the existing card scheme and old fare system to remain in use while the new account-based ticketing system was implemented.

As a part of the migration process, transaction information was stored in both the legacy and INIT's new account based system. Transactions were processed in both systems while the old system was still the system of record. The revenue data calculated in MOBILEvario was reconciled against the data produced by the old system to make sure that the existing business rules were implemented correctly. As soon as a commonly agreed level in the consistency was achieved, the old system was shut down and the new account based system became the operational one.

During the vehicle installation the existing ticketing machine at the driver's place was dismounted and INIT's integrated ticketing and on-board computer device EVENDpc was installed at the drivers' place. Thanks to the migration plan presented above, the INIT system was immediately ready to operate in the vehicles without any need e.g. to change travel cards.

In addition, the INIT validator PROXmobil was installed and ready for the new ticketing system. Also thanks to the migration plan, there was no immediate urge to replace all old equipment in vehicles.

3.4.1.3 Tampa Bay Flamingo Account-Based Multi-Agency System

Tampa Regional Working Group

Project Information

The Regional Working Group (RWG) in Tampa consists of five county transport companies covering approximately 4100 sq. mile service area for the counties of Hillsborough, Pinellas, Hernando, Pasco, and Sarasota. Additional project partners include the Florida Department of Transportation (FDOT), and the Tampa Bay Area Regional Transportation Authority (TBARTA).

Mode Supported/ Number of Vehicles:

600 Buses

11 Streetcars

INIT's Responsibilities

The contract between INIT and RWG involves the deployment of an integrated fare system using account-based smart cards and mobile ticketing. INIT's passenger terminals, PROXmobil3, were installed on more than 600 buses for the validation of the new fare media.

INIT also supplied the back-end clearing and processing system MOBILEvario to facilitate the management of the RWG's individual customer accounts, setting of fare rules, revenue processing and statistical evaluation reporting MOBILEvario will benefit the RWG by allowing them to provide a seamless fare structure across eight counties while ensuring the secure administration of each agency data.

Also included in the project are interactive Voice Response (IVR) applications and new enhanced web portals to allow customers to check their balances, register their cards and load values, as well as manage mobile payment applications using their smartphones. Riders are able to use the mobile app across the Tampa Bay area by showing their purchased fare via the phone to the driver.

Project Services

The Tampa Regional Working Group (RWG) is comprised of five local transit agencies, with Hillsborough Area Regional Transit (HART) as the lead procuring agency. These agencies have chosen INIT to provide an account-based, regionally inclusive electronic fare payment system, in which customers in all applicable regions can travel within the Tampa area and use the same electronic fare payment strategy.

INIT is providing more than 600 PROXmobil3 electronic readers for Fixed Route vehicles to the RWG. Additionally, INIT will provide its MOBILEvario back end system to integrate the fare strategies of all 6 agencies. Moreover, INIT will take on the installation, mobile application, web development and IVR with accomplished and qualified subcontractors.

As part of the procurement, INIT is interfacing with several CAD/AVL providers. Each of the regional agencies has their own CAD/AVL solution, to which INIT must interface. This abundantly demonstrates INIT's integration capabilities, for which INIT's open architecture APIs and dedicated engineering teams are responsible.

INIT is also providing the initial supply of agency-issued smart cards, retail sales terminals and various fixed fare processing equipment.

Total Cost of Contract: $[redacted]

Start Date: 2nd Quarter 2016

End Date: Estimated 4th Quarter 2018

Project Staff

[redacted]

Account-Based with Open APIs

Supports contactless EMV fare cards (Open Payments), branded regional fare media (Closed Loop).

- Multi-client, regional EFM system
- Smart card & mobile ticket proximity readers
- Back-Office clearing and revenue processing system
- Open APIs for integration with third parties.

Relevance to ORCA

The Tampa Flamingo fare collection project is an account-based, multi-agency system. INIT is partnering with Bytemark and Marathon for mobile ticketing and the customer website. According to Lucien Campillo, HART's Director of Enterprise Project Management: "Our experience with INIT and their subs has been outstanding. Their design review process and test procedures have far exceeded our expectations. The personnel they assigned to the project have been top-notch. Leadership for the organization monitors the project and the correct amount of

emphasis is applied if there are any issues. The project management team has been dedicated and is very concerned about the quality of all deliverables. I cannot say enough how much we have enjoyed working with INIT's professional team"

It should be noted that the Tampa project is, in many ways, more of a parallel to ngORCA:

- True multi-agency Region
- BRT and Streetcar Modes
- Complicated fare structure
- Additional CAD/AVL integration points

3.4.2 Bytemark Projects

3.4.2.1 Electronic Ticketing and Fare Management System

Hillsborough Area Regional Transit Authority (HART)

Modes: Streetcar, Bus and Paratransit

This project consisted of the following transit agencies: Hillsborough Area Regional Transit Authority (HART), Pinellas Suncoast Transit Authority (PSTA), Sarasota County Area Transit (SCATA).
HART Ridership: 14,098,000 annual riders
PSTA Ridership: 13,074,000 annual riders
SCATA Ridership: 2,683,000 annual riders

Bytemark's Responsibilities

Bytemark was responsible for the design, development and deployment of mobile ticketing applications. Bytemark project manager Max Letaconnoux, CTO Nicholas Ihm, Platform Architect Abhishek Ravishankara, Mobile Architect Kevin Rejko, and Senior Software Engineer Iain Alexander have worked directly with INIT to manage technical integration of Bytemark's mobile ticketing application and INIT's MOBILEvario back office architecture.

Project Services

Bytemark partnered with INIT as a sub-contractor for this project with HART. Bytemark is providing a fully integrated mobile ticketing application with the INIT MOBILEvario back office system. The mobile app will be capable of topping-up both digital and physical fare media. Virtual smart card is capable of being validated onboard by barcode. Bytemark created a "fast track" app as part of this project. The fast track app was launched prior to the roll-out of the new fare collection system by Init. This provided a convenient mobile solution that HART riders could utilize while the new system was under development.

Total Cost of Contract: 5 Year $[redacted]

Start Date: Initial product launched in November 2016

End Date: In Service

Project Staff

[redacted]

Account-Based with Open APIs

Supports contactless EMV fare cards (Open Payments), branded regional fare media (Closed Loop).

- Multi-client, regional EFM system
- Smart card & mobile ticket proximity readers
- Back-Office clearing and revenue processing system
- Open APIs for integration with third parties.

Relevance to ORCA

- Integration with INIT's MOBILEvario account-based system
- Issuing virtual fare media
- Topping up physical and virtual fare media via mobile

3.4.2.2 Mobile Ticketing Application System

Interurban Transit Partnership, Grand Rapids, MI

[redacted]

Modes: Bus, BRT, Vanpool and Paratransit

Ridership: 11,446,000 annual riders

Bytemark's Responsibilities

Bytemark was responsible for the design, development and deployment of mobile ticketing applications. Bytemark project manager Max Letaconnoux, CTO Nicholas Ihm, Platform Architect Abhishek Ravishankara, Mobile Architect Kevin Rejko, and Senior Software Engineer Iain Alexander have worked directly with INIT to manage technical integration of Bytemark's mobile ticketing application and INIT's MOBILEvario back office architecture.

Project Services

Bytemark partnered with INIT as a sub-contractor for this project with The Rapid. Bytemark is providing a fully integrated mobile ticketing application with the INIT MOBILEvario back office system. The mobile app will be capable of topping-up both digital and physical fare media. Virtual smart card is capable of being validated onboard by barcode or NFC.Total Cost of Contract: 5 Year $[redacted] + Transaction Commision %

Start Date: In development

End Date: N/A

Project Staff

[redacted]

Account-Based with Open APIs

1. Supported multiple fare policies and fare products, including fare capping and complex business rules.

2. Provided agency ownership or perpetual licensing of security keys, data formats, and Application Programming Interfaces to allow integration with outside vendors including Computer Aided Dispatch and Automated Vehicle Location, mobile ticketing, retail network, bike share, parking and other third party partners.
3. Based on an open architecture system with open Application Programming Interfaces that enable integration of third party commercial-off-the-shelf (COTS) hardware/software components.
4. Capable of supporting contactless fare media.
5. Capable of supporting open payments, including contactless bank cards and mobile wallets.

Relevance to ORCA

- Integration with INIT's MOBILEvario account-based system
- Issuing virtual fare media
- Topping up physical and virtual fare media via mobile

3.4.2.3 Mobile Ticketing Application System

Rhode Island Public Transit Authority

Modes: Bus and Paratransit

Ridership: 18,866,000 annual riders

Bytemark's Responsibilities

Bytemark was responsible for the design, development and deployment of mobile ticketing applications. Bytemark project manager Max Letaconnoux, CTO Nicholas Ihm, Platform Architect Abhishek Ravishankara, Mobile Architect Kevin Rejko, and Senior Software Engineer Iain Alexander have worked directly with INIT to manage technical integration of Bytemark's mobile ticketing application and INIT's MOBILEvario back office architecture.

Project Services

Bytemark partnered with INIT as a sub-contractor for this project with RIPTA. Bytemark is providing a fully integrated mobile ticketing application with the INIT MOBILEvario back office

system. The mobile app will be capable of topping-up both digital and physical fare media. Virtual smart card is capable of being validated onboard by barcode.

Project Staff

[redacted]

Account-Based with Open APIs

The APIs will support a number of interfaces to INIT devices and to 3rd parties, such as the retail network, website and mobile app.

Relevance to ORCA

- Integration with INIT's MOBILEvario account-based system
- Issuing virtual fare media
- Topping up physical and virtual fare media via mobile

3.4.2.4 Transit Go Ticket

King County Metro, Sound Transit, Seattle Streetcar, King County Water Taxi, Seattle Center Monorail

[redacted]

LiviuPrisecaru, IT PM Systems Development and Operations, King County Metro Transit
King Street Center 201 S Jackson St., Room 333
Seattle, WA 98104-3856
Phone Number: 206-477-5958
Email Address: Liviu.Prisecaru@kingcounty.gov

Modes: Bus, BRT, Light Rail, Streetcar, Water Taxi, Vanpool and Paratransit

KCM Ridership: 125,000,000 annual riders

ST Ridership: 42,732,000 annual riders

KCW Ridership: 601,000 annual riders

Streetcar Ridership: 1,358,000 annual riders

Monorail Ridership: 2,243,000 annual riders

Bytemark's Responsibilities

Bytemark developed and deployed mobile ticketing applications, customer web portal, and back office systems. Bytemark staff managed all product and agency onboarding, payment processing and merchant account applications, and client communication. Bytemark conducted multiple training sessions with different segments of KCM and Sound Transit Staff including: Fare inspection, Customer Service, Finance, Back Office & Product Administration.

Project Services

Transit Go Ticket

Transit Go Ticket is the regional mobile ticketing platform Bytemark launched for the Puget Sound region that is led by Seattle's King County Metro (KCM) and Sound Transit. After a competitive bid process, Bytemark was awarded a contract for mobile ticketing services with KCM in February 2016 and launched the mobile ticketing solution to the public in November 2016. Mobile ticketing services can be used across Bus, Light Rail, Streetcar, and Water Taxi services. The mobile app is available on iOS and Android. In addition to mobile, Bytemark also delivered an online customer portal for account management and customer outreach. Bytemark worked with a local SCS firm for marketing and engagement, which included digital and street team-outreach.

Bytemark also provided a "Lab" component as part of our contract. We supplied the agencies with hand held hardware to test new validation methods. The lab also encompassed demonstrating new features and technologies such as advanced reporting and analytics, Bluetooth validation, and special event ticketing and offers.

Bytemark recently added Seattle Center Monorail to the mobile ticketing platform in January 2018.

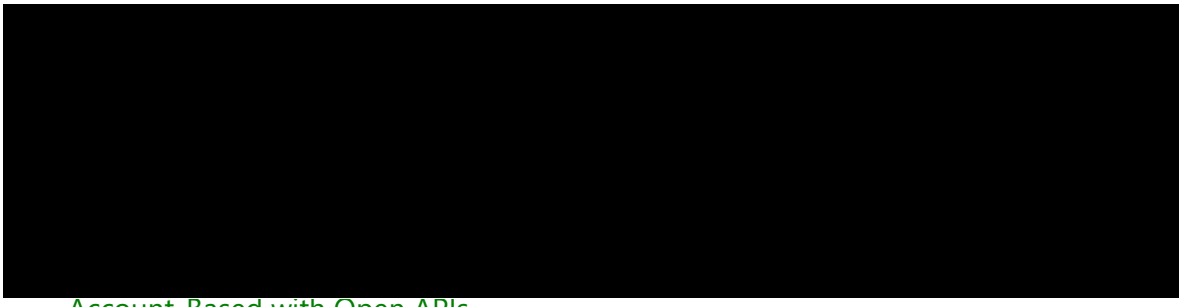
Total Cost of Contract: 5 Year $[redacted] + Transaction Commission %

Start Date: Launched in November 2016

End Date: In Service

Project Staff

[redacted]



Account-Based with Open APIs

Bytemark's back end system is a microservices infrastructure comprised of multiple web services that can be swapped out or re-routed to other services to enable an open architecture with different third-party components and back office systems.

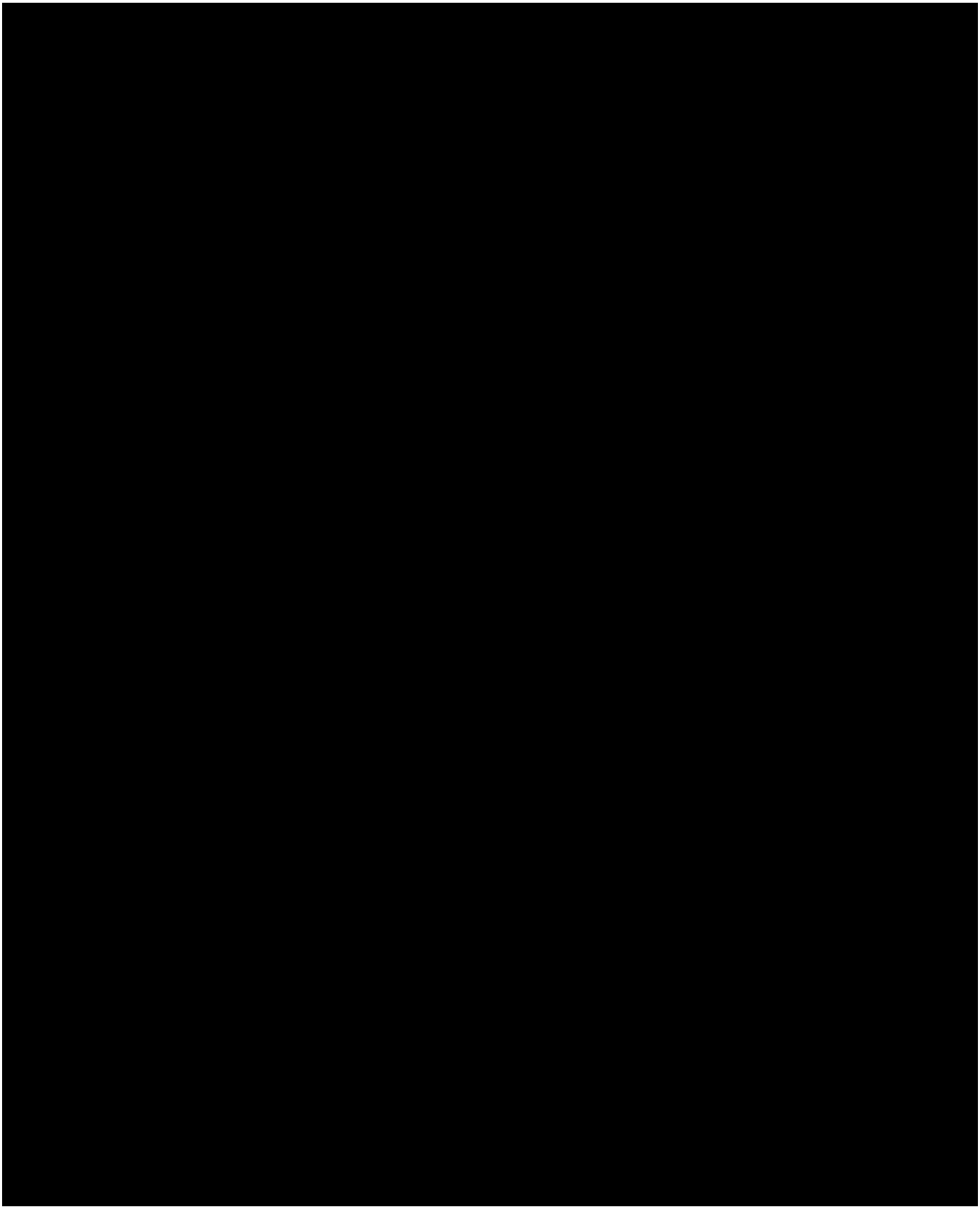
Bytemark web services implement REST-ful APIs that are documented with the OpenAPI specifications to allow for interopability with different systems, vendors, and integrators.

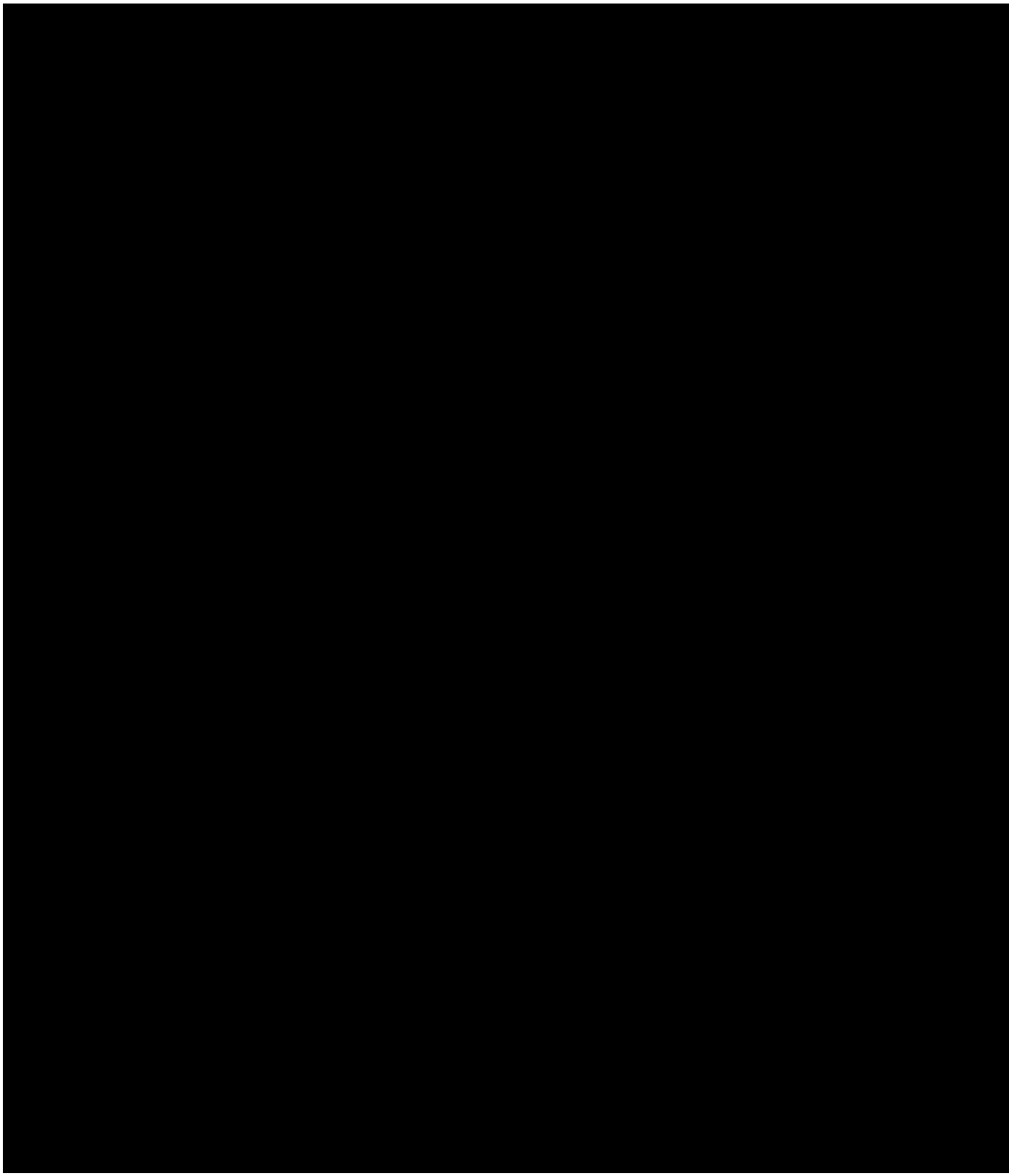
- Microservices facilitated by RESTful and open APIs
  - APIs follow RESTful standards.
  - The APIs use HTTP methods explicitly
  - The API are stateless
  - API responses are JSON formatted
- OAuth 2.0 protocols
- PCI Level 1 Certified Payment Gateway
- AWS Cloud Hosting

The Bytemark platform is a web-based account management system: Accounts reside in a cloud-based back office system. Users can register for an account through a mobile app or web portal. Users can login to their account on multiple devices and websites, and retrieve their account information and fare products from the back office system. The purchased fare products live in the user account in the cloud-based back office, and can be accessed on multiple devices. Tickets can be "locked" to a single device once they are activated to prevent activation on multiple devices. Fare products and payment information reside in the cloud-based back office, not the user mobile device, but may be cached on the device so that tickets may be used offline.

Relevance to ORCA

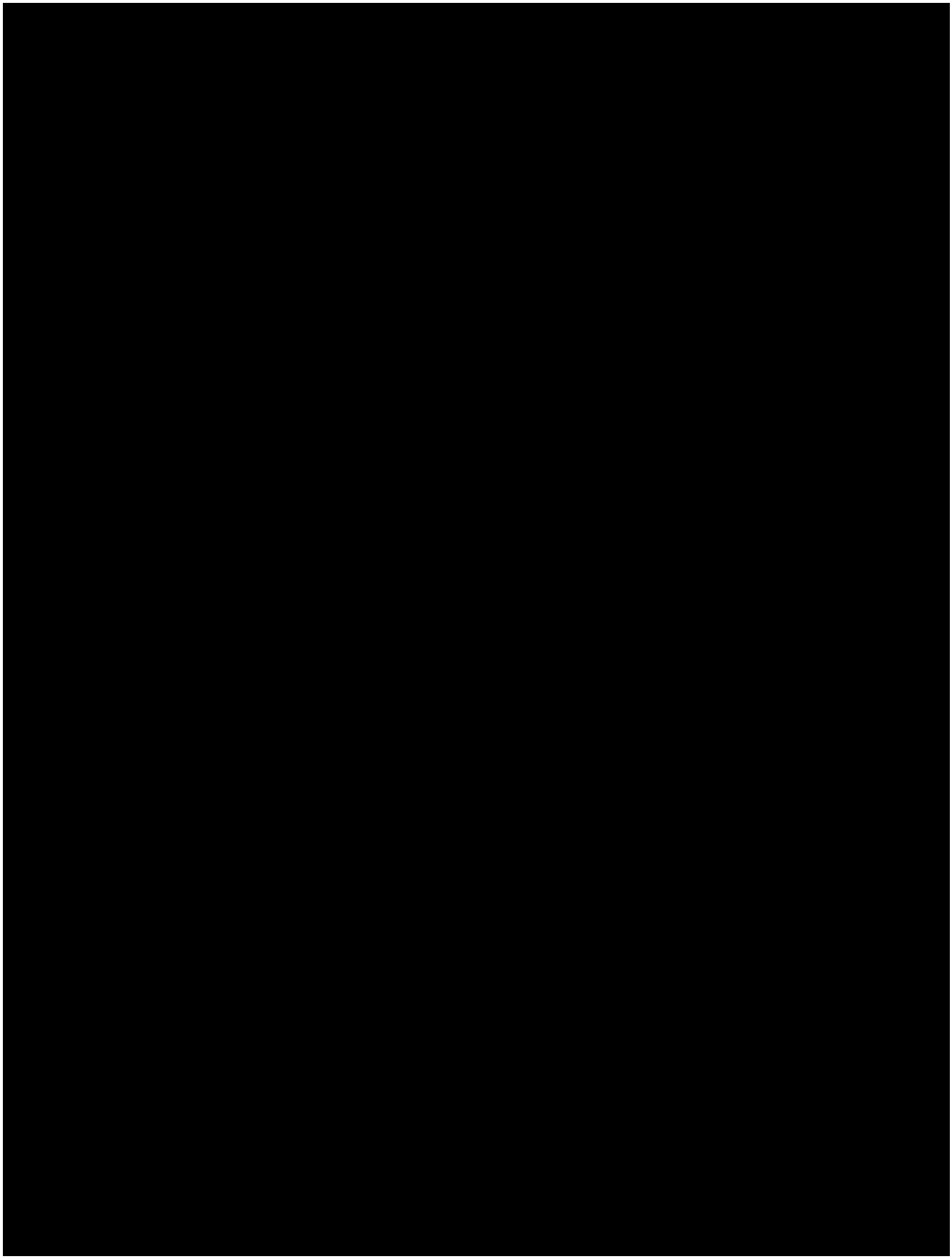
This project provided us with valuable experience working with key stakeholder agencies from the ORCA group. We have detailed knowledge of relevant fare structures and products. We integrated agency information, customer service links, and KCM's trip planner into our applications. We've trained agency staff and departments on how to manage our technology.

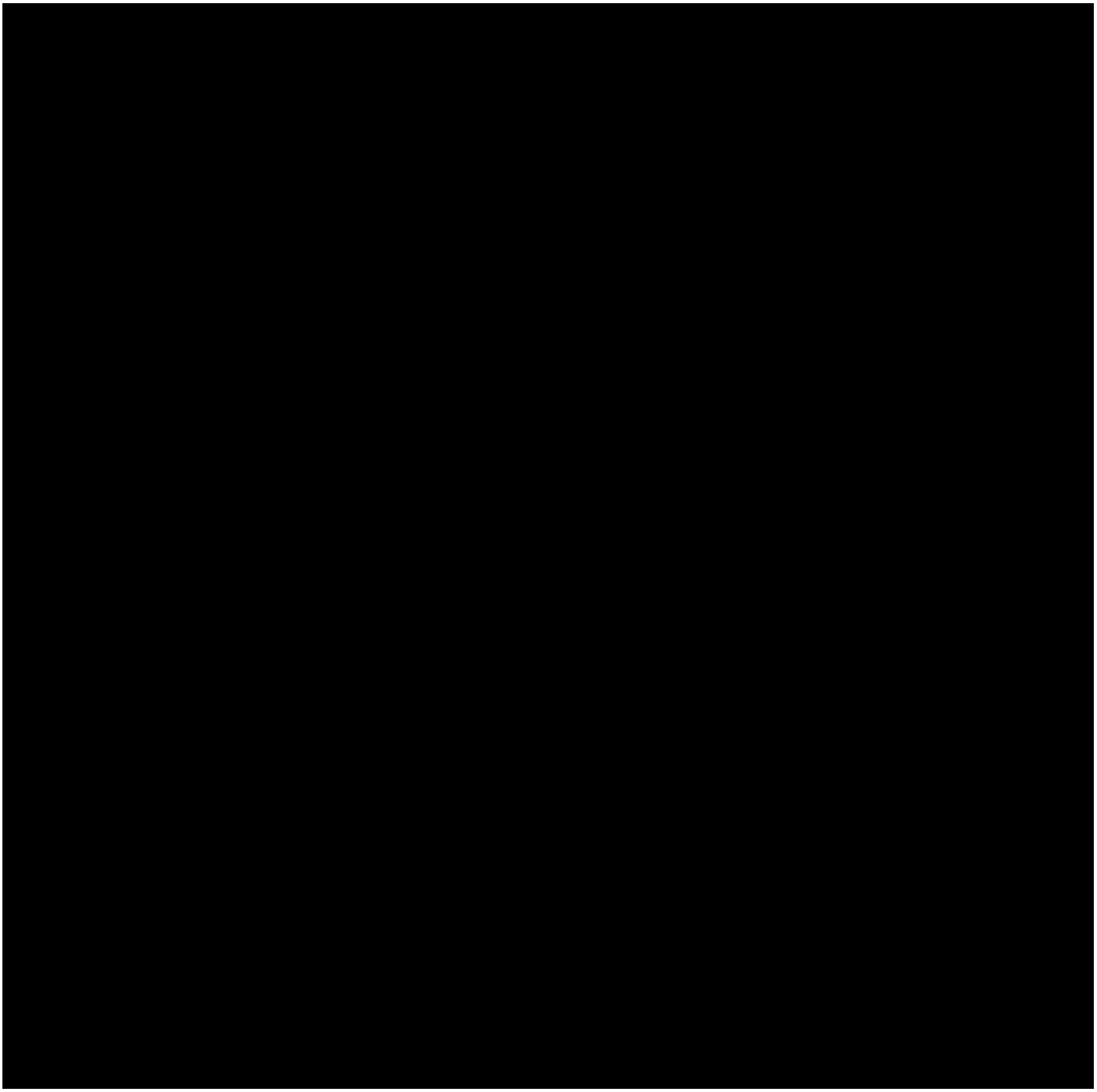




[redacted]

including blowers, trimmers, brush cutters, and construction tools.





3.4.5 ESP Enterprises Projects

3.4.5.1 Mobile Ticketing Pilot: Transit Go Ticket

Cubic

[redacted]

Cubic is a leading supplier of intelligent transportation systems for bus, rail, light rail, etc.

Installed all manufacturer equipment per Cubic's specifications.

Duration of project: 9/2012 – 2/2013 & 5/2015 – 7/2015

Project Staff

[redacted]

Relevance to ORCA

Relevant in size and scope with comparable equipment. Working with multiple agencies. Similar equipment.

3.4.5.2 Ticket Vending Machine Installations

Genfare

[redacted]

ESP installed all manufacturer's equipment as per Genfare specifications and also assisted with warranty and maintenance after installation.

Installation of ticket vending machines all associated network cabling.
Duration of project:

Project Staff

[redacted]

Relevance to ORCA

Project included ticket vending machines on the rail station.

3.4.6 Anthro-Tech, Inc. Projects

3.4.6.1 User-centered Redesign for Website, Mobile Website, Ticket Vending Machine, Regional Trip Planner, and Intranet

Sound Transit

[redacted]

Sound transit plans, builds and operates express bus, light rail and commuter train services serving the urban areas of King, Pierce and Snohomish counties in Washington State.

Anthro-Tech's Responsibilities

Supported the design, customer research and testing of customer focused products including: Sound Transit website, Sound Transit Ticket Vending Machine user interface, Sound Transit Ticket Vending Machine decals, digital signage, station wayfinding, mobile website, trip-planner, projects and plans website, Sound Transit intranet, developer portal, and digital roadmap strategy.

Project Services

- User-centered design strategy for creating rider focused technology solutions, including: the desktop and mobile websites, ticket vending machine user interface and external machine branding and decals, and digital signs displaying real-time arrivals.
- Quantitative and qualitative research including interviews, surveys, baseline and formative usability testing, card sorting, field research.
- Participatory design workshops to capture business requirements and involve stakeholders and use their ideas throughout the user experience design process.
- User experience design and development including wire framing, prototyping and visual design for the desktop and mobile applications, ticket vending machine interface, and digital signage.
- Assistance with developing an initial strategy for creating a more cohesive and consistent customer experience across all tools, along with guidance for employing tools to better deliver news on projects and community and rider impacts.

Total Cost of Contract: $2,000,000

Start Date: February 2010

End Date: March 2016

Project Staff

[redacted]

Relevance to ORCA

Designed an easy-to-use, intuitive, accessible and seamlessly integrated user experience across all customer touchpoints, tools and interfaces. Leadership in a data-driven and customer-centric design process and significant collaboration with regional transit agencies and stakeholders.

3.4.6.2 Product Usability Testing and Customer Experience Field Research

Amazon

[redacted]

Amazon is an electronic commerce and cloud computing company. It is the largest internet-based retailer in the world, the world's largest provider of cloud infrastructure services, and a producer of consumer electronics.

Anthro-Tech's Responsibilities

Performed a variety of types of research aimed at learning more about a range of Amazon customers and their behavior. Conducted research at Amazon labs as well as off-site at Anthro-Tech or meet customers where they are, in the field. As a third party, we allow Amazon to get honest feedback from populations that may be difficult for Amazon to bring on-site into their research labs.

Provided user-experience data and insights for the following products: Amazon Coins app, IMDb Android app, Amazon Local, Woot, Amazon Pantry, Amazon Gift Cards, Amazon Education, Amazon Payment products, Amazon Special Projects, and additional projects under NDA.

Project Services

Conducted the following user-centered design services for Amazon:

- Baseline usability studies
- Prototype usability testing
- Field research
- Focus groups for new product development
- Interviews to help map the customer's journey
- Remote moderated studies

- Responsive design comparative research on mobile, tablet, and desktop
- Design studios to inform design direction for the products
- Mockups and prototypes
- User interface specifications
- Ethnographic research

Total Cost of Contract: $[redacted]

Start Date: 2011

End Date: N/A Ongoing

Project Staff

[redacted]

Relevance to ORCA

Required significant expertise in user and usability research to drive innovative website and mobile app payment, e-commerce and sales conversion focused user interfaces.

3.4.6.3 User Research, Design, and Prototyping for Orcacard.com and Orcabiz.com

One Regional Card for All – Sound Transit

[redacted]

Sound Transit is a collaborative region-wide fare system consisting of seven transit agencies in the Puget Sound. Encompasses buses, trains, and ferries.

Anthro-Tech's Responsibilities

Detailed user interface specifications and design solutions to improve the usability of orcacard.com and orcabiz.com.
Focus groups and stakeholder buy-in from the partnering agencies for the ORCA2 program.
Market and customer research-driven personas detailing target audience groups, their goals, needs, pain points and opportunities for user experience improvements.

A user-tested responsive digital prototype of orcacard.com. The ORCA program will start development of the prototype and website changes in January 2017.

Project Services

- Baseline user experience testing to inform design solutions for high-value changes to the user-interface of Orcacard.com and ORCAbiz.com
- User-centered design strategy for the ORCA2 program and orca.com web site.
- Quantitative and qualitative research including market research survey, user interviews with business account holders, focus groups with all agency partners, and usability testing with customers
- User experience design and development including mobile prototyping
- Field usability testing

Total Cost of Contract: $250,000

Start Date: Project 1: 2010 – 2011
Project 2: October 2015 – March 31, 2016

End Date: March 31, 2016

Project Staff

[redacted]

Relevance to ORCA

Involved highly strategic stakeholder and market research to ensure the Next Generation ORCA strategic direction is based on customer and stakeholder feedback. Led to a set of data-driven personas, which provide a shared understanding of the needs, behaviors and goals of the top customer groups. Leveraged our deep expertise in the iterative and user-focused design process, developing UX/UI for mobile responsive ORCA website.

3.4.6.4 User-centered Redesign of DOT website, Ferries Reservation System, and the Good to Go Tolling Application

Washington State Department of Transportation

[redacted]

The Washington State Department of Transportation is the steward of multimodal transportation in WA State. This includes the state ferry system, state tolling, and a data-rich website encompassing all forms of travel in Washington state.

Anthro-Tech's Responsibilities

User-centered design and research for the Department of Transportation Web site, the Ferries Reservation System and the Good to Go Tolling application. The project is still in progress. Accomplishments to date are: baseline usability testing for wsdot.wa.gov, Good to Go Tolling Application and WA State Ferries Reservation system, design solutions for quick win improvements for Reservation System and Good to Go Tolling application, user-centered design strategy and roadmap for redesigning, and stakeholder buy-in for improving the customer experience.

Project Services

User-centered design and research for the Department of Transportation Web site, the Ferries Reservation System and the Good to Go Tolling application.

Work includes:

- Customer strategy and roadmap
- Market and customer research
- Iterative usability testing
- Design solutions
- Mockups and wireframes
- Visual design
- User-interface specifications
- Content strategy and improvement
- ADA compliance

Total Cost of Contract: $[redacted]

Start Date: Project 1: January 2016
Project 2: October 2015

End Date: Project 1: Present

Project 2: March 31, 2016

Project Staff

[redacted]

Relevance to ORCA

Work involves strong UX leadership and execution in the data-driven and user-centered design process to improve websites and web applications ensuring a seamless experience across all. Requires intensive collaboration with stakeholders from across the organization. Leverages our deep expertise in information architecture, content strategy, prototyping, user interface design and visual design.

3.4.7 Persistent Systems, Inc. Projects

Persistent Systems, Inc. has not delivered any CRM project specific to 'Fare Collection' business domain. However, they have delivered a number of other projects of similar sizes for the clients belonging to other industries including but not limited to Healthcare, Financial Services, Insurance, Telecom, Media, Life Sciences, Travel. Please see our projects listed below:

3.4.7.1 Yahoo

Yahoo

[redacted]

Global leading provider of Email, Search and Internet based Services

Key Challenges

- Client was using RightNowCX (Oracle Service Cloud) for Customer Service for past 3 years and it was not really keeping pace with industry trends

- To ensure Business Continuity by adopting a market leading platform that evolves and adapts with changing customer service processes, client undertook three-month platform evaluation and selected Salesforce as platform of choice
- To lower the cost of ownership over the longer term, client was seeking an implementation partner with Service Cloud & Salesforce platform expertise and experience

Solution

- Persistent implemented Salesforce Service Cloud with below features:
- Multi-Channel Case Creation
- Custom Productivity Parameters
- Unified Support Tool
- Service Cloud Console
- Live Agent
- Productivity Improvement Tools
- Localization
- Knowledge Management

Some of the key numbers include:

- Solution implemented for 4 regions
- Supported Languages – 13
- Application integration – 10
- Support Channels – 5

Business Benefits/Value Driven

- Enhanced User Experience: Simple and clean UI enabling agents to quickly take actions on the case
- Accelerated Implementation: 5 months of implementation resulted in seamless transition to Salesforce from legacy CRM
- Improved Visibility: Tab level visibility into Agent's actions
- Improved Performance: Significant improvement in response time over legacy CRM

Number of Internal Customer Support Users: 1300

Project Timeline: 15 months

3.4.7.2 Breville

Breville

[redacted]

Phone Number: 310-755-3065 (Please give Persistent Systems, Inc. 48 hours' notice prior to contacting their customer)
Email Address: Aaron.Wanek@brevilleusa.com

Leading global retailer of electronic kitchen appliances. Supplies a variety of products like ovens, coffee machines, bread makers and many more across geographies. Presence in 4 continents: Australia, New Zealand, United States of America, Canada, UK, Singapore, Hong Kong and many more. Client's business is through online e-tailers and own e-commerce website across these regions.

Key Challenges

- Geographically distributed in 4 continents
- Lack of centralized CRM system for global operations
- Absence of automated processes
- Lack of efficient medium for communication between client and their Customers & Partners
- No transparency in auditing of Partners
- Absence of real time inventory visibility for Sales Team
- No visibility on return merchandise
- Lack of streamline process for Work Orders & claims

Solution

Persistent, chosen as the consulting & technology delivery partner, integrated one stop solution using Salesforce for all regions to provide 360 degree customer experience. Includes key features as follows:

- Service cloud implementation for call center
- Territory Management for PII Compliance
- Partner community implementation for their retailers and service centers
- Order and work order management by call center and partners
- Integration with Multiple carrier service by leverage salesforce AppExchange.
- Integration with Braintree gateway for payments and returns.
- Leveraging cloud storage (Amazon S3) for product technical documentation and integration
- Multi-currency & multi-lingual support
- Omni channel for case routing
- Computer telephony Integration
- Integration with ERP (AX- Microsoft Dynamics) for real time inventory visibility
- Local sales and service taxes calculation based on region
- Single Sign On

Business Benefits/Value Driven

- Digital transformation for some regions from traditional pen-paper work
- Restricted access to region wise data like accounts and cases (PII compliance)
- Increased productivity of Sales and Service agents through multichannel case support
- User friendly system with less clicks and intuitive navigation to improve customer service Turn Around Time
- Accountability and transparency in partner's business transaction

Number of Internal Customer Support Users: 150+

Project Timeline: 8 to 10 months

3.4.7.3 InVentiv

InVentiv

to

Client provides HealthCare related services such as clinical, research, education, Sales

Key Challenges

- The business requirement was to automate case creation in response to incoming calls
- Automatic outbound call list generation per project based on call cycle, call outcome priorities and manually scheduled appointment was required

Solution

Key feature implementation as follows:

- Creating project, assigning a toll free number to a project, setting up different project configuration and rules based on call outcome and type of HCP, Office, Patient or a custom group
- Incoming and outgoing call management using click to dial, dial-pad based on dynamically generated call list
- Automatic search of appropriate contact (HCP, Office, Patient) based on caller phone number and the target toll free number where the call is made

Project wise call summary, call outcome reports

Business Benefits/Value Driven

- Increased productivity Service agents
- Enhanced reporting leading to better decision making for execs
- Improvised call center management helping agents serve the customer faster, resulting in customer satisfaction

Number of Internal Customer Support Users: 300+

Project Timeline: 8 months + Ongoing enhancements

3.4.8 Babinec Consulting LLC Projects

Babinec Consulting LLC has not delivered any CRM project specific to 'Fare Collection' business domain. However, we they have delivered a number of other projects of similar sizes for the clients belonging to other industries. Please see our projects listed below:

3.4.8.1 NEURORADIOLOGY (Springer Nature)

NEURORADIOLOGY (Springer Nature)

[redacted]

Project Info and [redacted]
Manage and supervise day-to-day operations of this Springer Nature medical journal. Liaise with Editor-in-Chief, Section Editors, authors, and publishing house. Oversee the electronic submission process, copyedit articles, write letters on behalf of the Journal and editors, resolve intermittent problems, and guarantee smooth running of the publication/production process.

Key Challenges of the Project and Solution:
Key challenges include precision and reliability, meeting deadlines, and liaising with multiple stakeholders to guarantee a highly credible, accurate scientific journal. Solutions includes dedicating appropriate skills to individual tasks, communicating frequently and concisely with multiple stakeholders, and managing time wisely.

3.4.8.2 U.S. Army Corps of Engineers

U.S. Army Corps of Engineers

[redacted]

Project Info and Lisa Babinec's Responsibilities:

Technical editing and copyediting of a 75 page extensive report in a very short timeframe, working with multiple authors to generate a single voice throughout an accurate, error free publication.

Key Challenges of the Project and Solution:

Key challenges include language precision, style consistency, and maintaining a complex, standardized format with a consistent tone and voice. Solutions include an immediate dedication to the project to meet the short turnaround timeframe, communicating as necessary with multiple authors, and proofreading several times to eliminate all errors/inconsistencies.

3.4.8.3 Hydro Inc.

Hydro Inc.

[redacted]

Project Info and Kati Babinec's Responsibilities:

Hands on negotiation of commercial contracts (values from $250K to $25M) and identifying potential contract risks based on detailed reviews of proposed contracts, collaborating with internal stakeholders to ascertain acceptable risk levels, drafting specific contract language to reflect acceptable risk levels, negotiating with customer (independently and with Hydro management team), advising Hydro team on potential compromises and mitigations to reduce contractual risk, and finalizing contractual agreement with customers and Hydro.

Key Challenges of the Project and Solution:

Key challenges include ascertaining undisclosed needs/requirements from customer and Hydro team and developing alternatives to contract language that meets the needs of both parties to ensure future goodwill and business for Hydro. Solutions include asking questions, asking more

questions, proposing solutions, being candid and truthful in negotiations, and facilitating partnerships between customers and Hydro.

3.5 Customer References

Customer references for the INIT team can be found below.

3.5.1 INIT Reference Information

Tri-County Metropolitan Transportation District of Oregon, (Tri-Met)

[redacted]

Honolulu Authority for Rapid Transportation (HART), Honolulu, Hawaii

[redacted]

Hillsborough Area Regional Transit Authority (HART), Tampa, Florida

[redacted]

Our experience with INIT and their subs has been outstanding. Their design review process and test procedures have far exceeded our expectations. The personnel they assigned to the project have been top-notch. Leadership for the organization monitors the project and the correct amount of emphasis is applied if there are any issues. The project management team has been dedicated and is very concerned about the quality of all deliverables. Cannot say enough how much we have enjoyed working with this professional team"

3.5.2 Bytemark Reference Information

Hillsborough Area Regional Transit Authority (HART)

[redacted]

Interurban Transit Partnership, Grand Rapids, MI

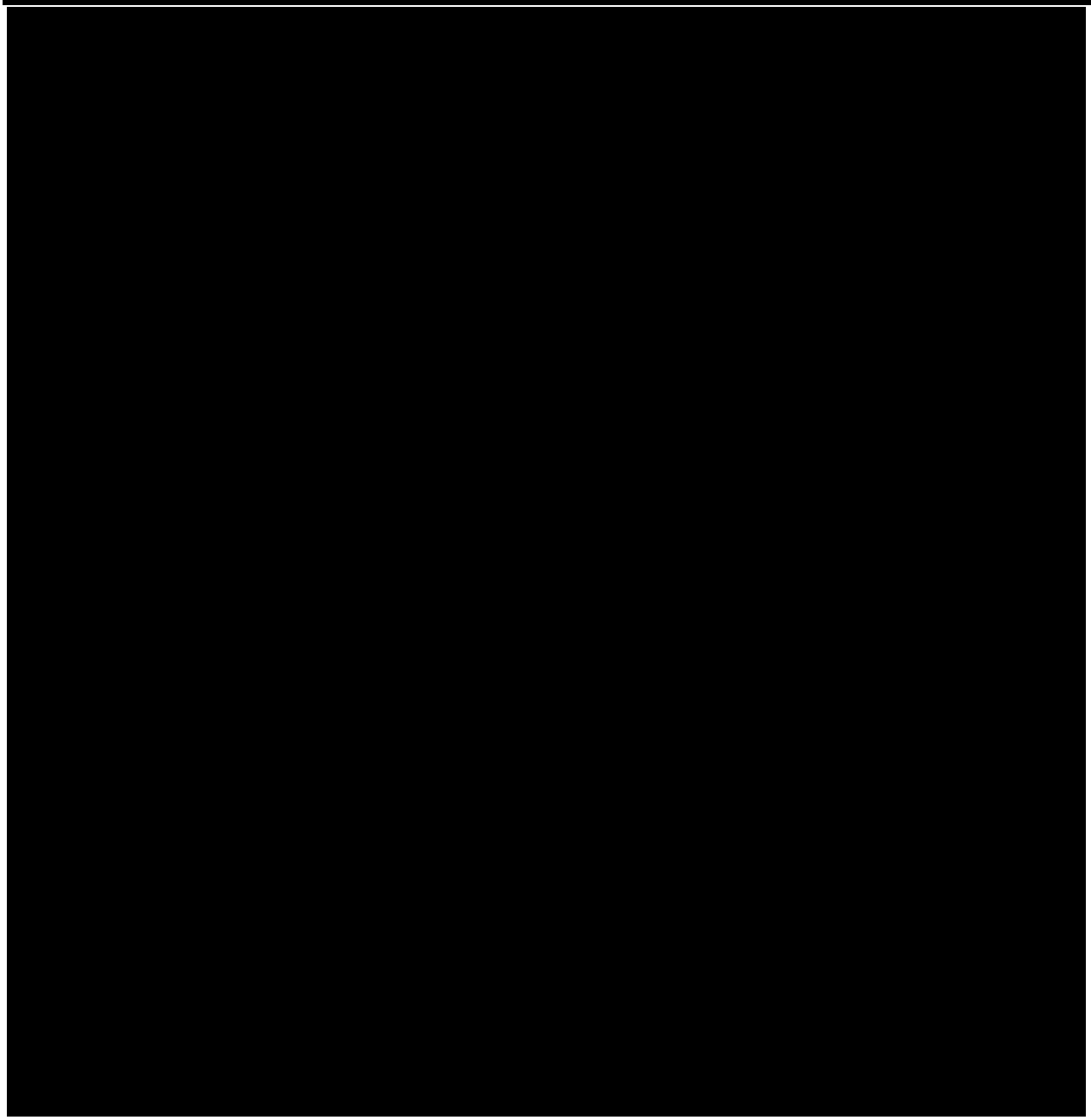
[redacted]

Rhode Island Public Transit Authority

[redacted]

King County Metro, Sound Transit, Seattle Streetcar, King County Water Taxi, Seattle Center Monorail

[redacted]



3.5.5 ESP Enterprises Reference Information

Cubic

Genfare

ACS/Genfare/Parkeon

3.5.6 Anthro-Tech, Inc. Reference Information

Sound Transit

[redacted]

One Regional Card for All (ORCA)

[redacted]

Washington State Department of Transportation

[redacted]

3.5.7 Persistent Reference Information

Persistent has not delivered any CRM project specific to 'Fare Collection' business domain. However, we have delivered number of other projects of similar sizes for the clients belonging to other industries including but not limited to Healthcare, Financial Services, Insurance, Telecom, Media, Life Sciences, Travel. Please see our references listed below:

Yahoo

[redacted]

Breville

[redacted]

Aaron Wanek, VP, Global Customer Care

[redacted]

InVentiv

[redacted]

3.5.8 Babinec Consulting LLC

NEURORADIOLOGY (Springer Nature)

[redacted]

US Army Corps of Engineers

[redacted]

Hydro Inc.

[redacted]m

3.6 INIT and Our High-Performance Partners' Organizational Structure

INIT has included our subcontractors in the organizational chart provided in Section 2 of our proposal where we show the relationship between the team leads and the subcontractors. Subcontractors are clearly marked with green banners.

3.7 INIT's Financial Performance

3.7.1 Stellar Financial History

The audited financial statements for INIT, Inc. and its subsidiaries for the last-three (3) years are attached in this section as Appendix A.

You can also view INIT SE's financial statements on our website by clicking on the following link:

https://www.initse.com/ende/investors/financial-reports/financial-reports-archive.html?#c2901

3.7.2 A Solid Financial Forecast

INIT has provided our audited financial statements which demonstrate a solid financial history. Thanks to prudent financial management over the last seventeen years, we have built a strong reserve.

As a member of the publicly traded INIT Group, we continuously prepare internal financial forecasts for our supervisory board. This planning is reviewed and approved on a regular basis. This is, however, internally proprietary information, which we are not able to release.

3.8 INIT's Recent Fare Collection Wins

INIT's current fare collection project portfolio is included below:

3.8.1 Tri-County Metropolitan Transportation District of Oregon, (Tri-Met), Electronic Fare Collection Implementation Technical Services – HOP FastPass

Project dates: December 2014 – July 2017 (in service)

Revenue over length of time:

[redacted]

Financial capacity details: This project is 100% financed by INIT internal resources.

Project details:

The HOP FastPass contract comprises the delivery of an Account-Based fare management system which supports both Closed Loop Cards and Open Payments. It includes a comprehensive Central Processing module, more than 1,100 onboard and platform validators combined; 90 mobile inspection devices, and approximately 100 retail POS units. INIT will also provide customer web portals and an initial 1,300,000 contactless smart cards.

Additionally, the project was extended to incorporate transportation services offered by the Clark Country Public Transit Benefit Area Authority (C-Tran), located in the neighboring city of Vancouver, WA and Portland Streetcar. This work also included efforts with C-Tran's new BRT line and TriMet's light rail lines, both of which had platform based validators. INIT further worked with TriMet's TVM supplier to integrate their platform based TVMs into the overall system.

INIT provides a state-of-the-art electronic fare collection solution for TriMet. The contract includes the provision and the implementation of an account based solution, including:

- MOBILEvario backoffice with account processing, payment gateway, data warehouse, ledger, revenue clearing/settling, reporting, statistics, etc.
- Approximately 1,100 validators, on board buses/light rail and on platforms
- Retail Sales Terminals
- Open Architecture with various APIs to internal/external systems
- Closed Loop Payment, including integration with retail network provider, Ready Credit Corporation
- Open Payment
- Fare Aggregation, Fare Capping
- IVR system integration from Enghouse
- Integration with Mobile Ticketing
- Web portal design and development

The HOP FastPass solution will greatly enhance the already progressive bus, light rail, and commuter rail network in Portland. Tri-Met's ridership will benefit from more convenience and

pricing equity and the ability to utilize contactless bank cards and mobile phones.

3.8.2 Honolulu Authority for Rapid Transportation (HART), Honolulu, Hawaii

Project dates: NTP April 1, 2016 completion estimated 2023

Revenue over length of time: [redacted]35

Financial capacity details: This project is 100% financed by INIT internal resources.

Project details:

550 Fixed Route (includes PROXmobil3, Mobile Display Terminal & Digi WR44R Router)
110 Ticket Vending Machines (TVMs) & 139 Faregates at 21 Rail Stations
10 Year Software Maintenance Contract
Project Phases:

- Phase 1: Implementation on TheBus (Late 2017)
- Phase 2: Interim Rail (Late 2018)
- Phase 3: The Handi-Van (2019)
- Phase 4: Full Revenue Service (2021)

3.8.3 Hillsborough Area Regional Transit (HART), Tampa, Florida

Project dates: 2nd Quarter 2016 – 4th Quarter 2018

Revenue over length of time: [redacted]

Financial capacity details: This project is 100% financed by INIT internal resources.

Project details:

The Tampa Regional Working Group (RWG) is comprised of 8 local transit agencies, with Hillsborough Area Regional Transit (HART) as the lead procuring agency. These agencies have chosen INIT to provide an account-based, regionally inclusive electronic fare payment system, in which customers in all applicable regions can travel within the Tampa area and use the same electronic fare payment strategy.

INIT is providing more than 600 PROXmobil3 electronic readers for Fixed Route vehicles to the RWG. Additionally, INIT will provide its MOBILEvario back end system to integrate the fare strategies of all 6 agencies. Moreover, INIT will take on the installation, mobile application, web development and IVR with accomplished and qualified subcontractors.

As part of the procurement, INIT is interfacing with several CAD/AVL providers. Each of the regional agencies has their own CAD/AVL solution, to which INIT must interface. This abundantly demonstrates INIT's integration capabilities, for which INIT's open architecture APIs and dedicated engineering teams are responsible.

INIT is also providing the initial supply of agency-issued smart cards, retail sales terminals and various fixed fare processing equipment.

3.8.4 The Rapid, Grand Rapids, MI

Project dates: February 2016 – Completion Date Expected April 2018

Revenue over length of time: [redacted] / 24 months

Financial capacity details: This project is 100% financed by INIT internal resources.

Project details:
INIT is providing ITP with an interoperable, account-based, automated fare collection system that will process smart cards and mobile tickets onboard The Rapid's fleet of 150 fixed-route buses. The same system will serve ITP's Silver Line BRT via 34 platform-mounted validators in addition to equipping ITP personnel with a mobile inspection App and validation device.

This account-based system allows for secure storage of ITP customer information in INIT's backend system, MOBILEvario, which riders of The Rapid can access via website, mobile application, or in person at ITP service centers. MOBILEvario is INIT's central revenue management system which will allow ITP to track sales and revenue by media type, manage POS transactions, issue and monitor usage of fare media, and manage the relationship with Vantiv, a 3rd party payment gateway. Additionally, INIT is incorporating two hugely important educational and medical institutions into the system in the form of Grand Valley State University and Spectrum Health, two of the largest employers in Grand Rapids.

INIT is providing EMV compliant PROXmobil3 validators on 150 buses with real-time validation and integration to the existing (Genfare/SPX cash) farebox and (Avail Technologies) CAD/AVL system. Digi WR44 cellular routers are being integrated and installed by INIT as part of the vehicle configuration as well. In addition to the core project scope, INIT has replaced Scheidt & Bachmann as the supplier of BRT platform validators and POS terminals.

3.8.5 Rhode Island Public Transit Authority (RIPTA), Providence, RI

Project dates: Kicked off January 2018 with 18 – 24 month project, depending on options

Revenue over length of time: [redacted]

Financial capacity details: This project is 100% financed by INIT internal resources.

Project details:

RIPTA is a quasi-public, state-wide independent authority, serving 36 of the 39 communities within Rhode Island. With a central hub in the Rhode Island Capitol city of Providence, RIPTA has a current fleet of over 230 fixed-route buses envisioned to be over 240 based by 2019. This project consists of an INIT Account-Based eFare Collection system with fully integrated Mobile Ticketing by Bytemark, an experienced INIT Partner and sister company.

Thirteen to twenty-six bus and INIT VENDstation BRT Platform Ticket Vending Machines (TVMs) are included as options for an envisioned future phase of this Fare Collection project, as a primary mechanism for the anticipated transition to non-cash payment for >90% of fare transactions. Instead, riders will pay via Mobile, Retail, Web, and RIPTA-internal eFare smartcards, using electronic payment options and an extensive retail network to pay fares.

The INIT system will interface with existing Conduent OrbCAD AVL system (formerly known as Xerox and/or ACS). It will communicate with the back end via an existing on-board 3G/4G/LTE cellular modem, plus the RIPTA WLAN.

The INIT MOBILEvario Central Data System back-end will validate fares via an On-line Validation Server designed for the highly anticipated future acceptance of contactless EMV media, and to support Card Present transactions.

RIPTA will have INIT PROXmobil3 fare validators on board all vehicles, communicating via cellular wireless routers and is also considering platform-mounted Validators.

The project encompasses INIT engaging and supporting RIPTA's government, healthcare, educational, corporate, and other business partners' fare needs for their groups of both in-state and neighboring regional transit systems.

3.9 INIT's Experience in State-of-the-Art Automated Fare Collection Services, Features and Functionality

INIT's account-based MOBILE-EFM system is designed with Open Payments included in the base system. With Open Payments, customer can use their contactless credit cards or mobile wallets like Apple Pay, Android Pay and Samsung Pay to purchase their ticket right at the validator. No need to get a card, download an App or search for change. This lowers the entry barrier to use public transit tremendously and makes it especially easy for non-frequent riders like tourists.

They can simply use a preferred payment medium that they already possess, and they don't have to worry about potentially unused credit balances. The benefit to the ORCA agencies are savings of the administration costs of media inventory and the complex accounting management of remaining credit balances.

The AFC system proposed for the ngORCA project will include Open Payments functionality and we are proposing Open Payments be implemented in Phase One of the project.

INIT has successfully deployed Open Payment at TriMet in Portland with deployment scheduled for Birmingham, England soon.

INIT's Knowledgeable and Experienced Team

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

Resubmittal June 8, 2018

The Future of Mobility

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Price

Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

The Future of Mobility

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All sections of this document contain trade secret information that provides a business advantage to INIT over competitors. These sections are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

5 INIT's High-Value, Cost-Effective Solution

5.1 Price Forms

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Next Generation ORCA System Integrator RFP
Proposal Pricing Form

Pricing Summary

Item No.	Description	Total Price
1	Implementation Services	[redacted]
2	System Software and Design	
3	Equipment and Spares	
4	Fare Media	
5	Operations and Maintenance Support Services	
6	Software Licenses	
7	Value-added Features and Capabilities	
	GRAND TOTAL	**$ 92,398,641.37**

Signed:

6/8/2018

Date

Roland Staib, President & CEO

Name & Title

Next Generation ORCA System Integrator RFP
Pricing Form

Item No.	SOW Ref.*	Description	Unit	Est. Quantity	Unit Price	Amount
1. IMPLEMENTATION SERVICES						
	Program and Contract Management					
1.01	2	Program & Contract Management (NTP to System Acceptance)	LS	1		
		UI/UX Strategy, Consulting and Stakeholder Engagement	LS	1		
		Ticket Vending Machine Interface	LS	1		
		Customer Website Interface (Passengers)	LS	1		
		Customer Website Interface (Institutions)	LS	1		
		Customer Mobile App Interface	LS	1		
		Other Interfaces	LS	1		
		Tools, Participant Recruitment and Project Management	LS	1		
		Subtotal - Program and Con				
	Installation and Transition Services					
1.02	2	Transition Strategy and Planning	LS	1		
1.03	2	Back-Office Installation and Configuration, Including Documentation	LS	1		
1.04	2	Field Device Site Surveys and Prototyping	LS	1		
1.05a	2	Onboard Equipment (validator and DDU) Installation (Excluding KCM)	EA	650		
1.05b	2	Onboard Equipment (validator and DDU) Commissioning (Excluding KCM)	EA	650		
1.05c	2	Onboard Equipment Documentation (Excluding KCM)	LS	1		
1.06	2	Onboard Validator Equipment Installation, Commissioning, and Documentation (KCM Only)	EA	0		
1.07a	2	Wayside Validator Installation	EA	1095		
1.07b	2	Wayside Validator Commissioning	EA	1095		
1.07c	2	Wayside Validator Documentation	LS	1		
1.08a	2	VM Installation	EA	291		
1.08b	2	VM Commissioning	EA	291		
1.08c	2	VM Documentation	LS	1		
1.09a	2	CST Installation	EA	41		
1.09b	2	CST Commissioning	EA	41		
1.09c	2	CST Documentation	LS	1		
		Subtotal - Installation and T				
	Testing					
1.10	2	Agency Test Facility Implementation, Housing, and Documentation	LS	1		
1.11	2	Factory Testing and Documentation	LS	1		
1.12	2	Integration Testing and Documentation	LS	1		
1.13	2	Pilot Testing and Documentation	LS	1		
1.14	2	System Acceptance Testing and Documentation	LS	1		
	Training					
1.15	2	Training Course Development and Materials	LS	1		
1.16	2	Training Course Delivery	EA	1		

	Manuals				
1.17	2	System Manuals	LS	1	[redacted]
				TOTAL PRICE - 1. IMPLEME	

Item No.	SOW Ref.*	Description	Unit	Est. Quantity
2. SYSTEM SOFTWARE DESIGN				
	Back Office Applications			
2.01	6	Account-based Transaction Processor	LS	1
2.02	6	Customer Relationship Management	LS	1
2.03	6	Asset Incident Management	LS	1
2.04	6	System Manager	LS	1
2.05	6	Fare Media Management	LS	1
2.06	6	Financial Management	LS	1
2.07	6	Central Payment	LS	1
2.08	6	Configuration and Change Management	LS	1
2.09	6	Tariff Management	LS	1
2.10	6	API Management	LS	1
				Subtotal - Back O
	Externally Sourced Applications			
2.11	5	Customer Mobile App	LS	1
2.12	5	Agency Mobile Apps (Fare Inspection & Fare Payment)	LS	1
2.13	5	Customer Website	LS	1
				Subtotal - Externally Sou
	Field Device and Equipment Software			
2.14	4	Onboard and Wayside Validator Software	LS	1
2.15	4	Driver Display Unit Software	LS	1
2.16	4	Customer Service Terminal Software	LS	1
2.17	4	Full Feature Vending Machine Software	LS	1
				Subtotal - Field Device and Eq
	API Development			
2.18	3	Application Programming Interface (API) Development	LS	1
				Subtotal -
	System Integration Services			
2.19	3	Onboard Integration (PT, CT, KT, ET)	LS	3
2.20	3	Onboard Integration (KCM)	LS	1
2.21	3	Washington State Ferries Integration	LS	1
2.22	3	Data Access and Reporting Platform (DARe) Integration	LS	1
2.23	3	Retail Network Integration	LS	1
2.24	3	Integration with Legacy ORCA Back Office	LS	1
2.25	3	ADA Paratransit Integration	LS	1
2.26	6	Integration of Agency Provided CRM Application ($0 if SI-provided CRM application is proposed)	LS	1
2.27	6	Integration of Agency Provided Financial Application ($0 if SI-provided financial application is proposed)	LS	1
		Vanpool Integration	LS	1
				Subtotal - System Int
	Transit Payment Application			
2.28	7	Transit Payment Application	LS	1
				Subtotal - Transit Pay
				TOTAL PRICE - 2. SYSTEM SOF

[redacted]

Item No.	SOW Ref.*	Description	Unit	Est. Quantity
3. EQUIPMENT AND SPARES				
	Producion Equipment and Spares			
3.01	4	Back Office Hardware - Four Environments ($0.00 if cloud is proposed)	LS	1
3.02	4	Onboard Validator (including spares)	EA	2,926
3.03	4	Onboard Validator Mounting System and Installation Kit (including spares)	EA	2,926
3.04	4	Driver Display Unit (including spares)	EA	1,086
3.05	4	Driver Display Unit Mounting System and Installation Kit (including spares)	EA	1,086
3.06	4	Wayside Validator (including spares)	EA	1,160
3.07	4	Wayside Validator Mounting System and Installation Kit (including spares)	EA	1,160
3.08	4	Customer Service Terminal (including spares)	EA	41
3.09	4	CST Portable Printer	EA	12
3.10	4	CST Mail Center Printer	EA	2
3.11	4	Full Feature Vending Machine (including spares)	EA	146
3.11a	4	Credit for omission of bill and coin acceptance	EA	
3.11b	4	Credit for omission of coin acceptance	EA	
3.11c	4	Credit for omission of change issuance	EA	
3.11d	4	Credit for omission of media issuance	EA	
		Light Vending Machine	EA	146
				Subtotal - Production Equipm
	Test Equipment			
3.12	2	Agency Test Facility Hardware - Seven Agencies	LS	1
				Subtotal -
	Training Equipment			
3.13	2	On-board Training Unit (BIB) - including validator, DDU and other SI equipment)	EA	12
3.14	2	Wayside Training Unit - including wayside validator	EA	3
3.15	2	CST Training Unit	EA	7
				Subtotal - Trai
				TOTAL PRICE - 3. EQUIPMENT
Item No.	**SOW Ref.***	**Description**	**Unit**	**Est. Quantity**
4. FARE MEDIA				
	Fare Media			
4.01	7	Contactless Extended-use Smart Cards (including training and test cards)	EA	1,000,000
				TOTAL PRICE -

Item No.	SOW Ref.*	Description	Unit	Est. Quantity	Unit Price	Amount
5. OPERATIONS AND MAINTENANCE SUPPORT SERVICES						
	Software Maintenance Agreement					
5.01	**8**	**Year 1 – Software Maintenance Agreement**	**MO**	**12**		
		INIT Software Escrow Agreement	LS	1		
		INIT Central Software Maintenance	LS	1		
		INIT Vehicle Software Maintenance	LS	1		
		INIT Central Software Upgrade	LS	1		
		INIT Vehicle Software Upgrade	LS	1		
		Salesforce (100 Users, Per User/Per Month)	MO	12		
		Sage 300c (100 Users, Annual Renewal)	LS	1		
		JIRA Service Desk	LS	1		
		JIRA Software	LS	1		
		Confluence	LS	1		
		BitBucket - Source Code Management	LS	1		
		Faronics DeepFreeze	LS	1		
		RIADA INSIGHT CORE	LS	1		
		RIADA INSIGHT DISCOVERY	LS	1		
		Azure API Management	LS	1		
		Azure Active Directory	LS	1		
		Azure ExpressRoute	LS	1		
		Ivanti (Shavlik) Support	LS	1		
		CimTrack Support	LS	1		
		IBM Maas 360 Mobile Device Management (per device/per month)	LS	1		
		Antivirus Subscription	LS	1		
		Bomgar Annual Support	LS	1		
		New Relic APM	LS	1		
		New Relic Support (20%)	LS	1		
		Shareplex Subscription	LS	1		
		Oracle Enterprise Edition with Advanced Security Maintenance	LS	1		
5.02	8	Year 2 – Software Maintenance Agreement	MO	12		
5.03	8	Year 3 – Software Maintenance Agreement	MO	12		
5.04	8	Year 4 – Software Maintenance Agreement	MO	12		
5.05	8	Year 5 – Software Maintenance Agreement	MO	12		
5.06	8	Year 6 – Software Maintenance Agreement	MO	12		
5.07	8	Year 7 – Software Maintenance Agreement	MO	12		
5.08	8	Year 8 – Software Maintenance Agreement	MO	12		
5.09	8	Year 9 – Software Maintenance Agreement	MO	12		
5.10	8	Year 10 – Software Maintenance Agreement	MO	12		
5.11	8	Year 11 – Software Maintenance Agreement	MO	12		
				Subtotal - Software Mainten		
	System Operations and Maintenance					
5.12	8	Year 1 – System Operations & Maintenance	MO	12		
5.13	8	Year 2 – System Operations & Maintenance	MO	12		
5.14	8	Year 3 – System Operations & Maintenance	MO	12		
5.15	8	Year 4 – System Operations & Maintenance	MO	12		
5.16	8	Year 5 – System Operations & Maintenance	MO	12		
5.17	8	Year 6 – System Operations & Maintenance	MO	12		
5.18	8	Year 7 – System Operations & Maintenance	MO	12		
5.19	8	Year 8 – System Operations & Maintenance	MO	12		
5.20	8	Year 9 – System Operations & Maintenance	MO	12		
5.21	8	Year 10 – System Operations & Maintenance	MO	12		

5.22	8	Year 11 – System Operations & Maintenance	MO	12
5.23	8	Year 12 – System Operations & Maintenance	MO	12
				Subtotal - System Operations
	System Hosting			
5.24	**3 & 8**	Year 1 - Back Office, Test Facility, and Website Hosting	MO	12
		Mobile Payment System Hosting	MO	12
		INIT Back Office, Test Facility and Website Hosting	MO	12
5.25	**3 & 8**	Year 2 - Back Office, Test Facility, and Website Hosting	MO	12
5.26	**3 & 8**	Year 3 - Back Office, Test Facility, and Website Hosting	MO	12
5.27	**3 & 8**	Year 4 - Back Office, Test Facility, and Website Hosting	MO	12
5.28	**3 & 8**	Year 5 - Back Office, Test Facility, and Website Hosting	MO	12
5.29	**3 & 8**	Year 6 - Back Office, Test Facility, and Website Hosting	MO	12
5.30	**3 & 8**	Year 7 - Back Office, Test Facility, and Website Hosting	MO	12
5.31	**3 & 8**	Year 8 - Back Office, Test Facility, and Website Hosting	MO	12
5.32	**3 & 8**	Year 9 - Back Office, Test Facility, and Website Hosting	MO	12
5.33	**3 & 8**	Year 10 - Back Office, Test Facility, and Website Hosting	MO	12
5.34	**3 & 8**	Year 11 - Back Office, Test Facility, and Website Hosting	MO	12
5.35	**3 & 8**	Year 12 - Back Office, Test Facility, and Website Hosting	MO	12
5.36	**3 & 8**	Year 13 - Back Office, Test Facility, and Website Hosting	MO	12
5.37	**3 & 8**	Year 14 - Back Office, Test Facility, and Website Hosting	MO	12
				Subtotal
	Warranty			
5.38	8	System Warranty (12 months beginning at Beneficial Use)	LS	1
				S
				TOTAL PRICE - 5. OPERATIONS AND MAINTENANCE SUPP

Item No.	SOW Ref.*	Description	Unit	Est. Quantity
6. SOFTWARE LICENSES				
6.01	3	Software Licenses - All Environments	LS	1
				TOTAL PRICE - 6. SOFTWA

Item No.	SOW Ref.*	Description	Unit	Est. Quantity
7. Value-added Features and Capabilities				
		Open Payments		
		Open APIs		
		Fare Capping/Loyalty Programs		
				TOTAL PRICE - 7. Value-added Features a

*Refers to sections in the RFP SOW where capabilities associated with the pricing item are listed. Cap
be included in other sections of the SOW not listed on the pricing

[redacted]

System Integrator -- As-Needed Services

Item No.	Description	Unit	[redacted]
AS-NEEDED SUPPORT SERVICES			
AS.01	Senior Project Manager	HR	
AS.01	Project Manager	HR	
AS.02	Systems Engineer (Sr)	HR	
AS.03	Systems Engineer (Mid)	HR	
AS.04	Systems Engineer (Jr)	HR	
AS.05	Software Engineer (Sr)	HR	
AS.06	Software Engineer (Mid)	HR	
AS.07	Software Engineer (Jr)	HR	
AS.08	Technician	HR	

* Agreed upon rates (applicable to CY 2017) may be subject to modification on an annual
exceed a percentage equivalent to the change in the BLS Consumer price index (CPI), fro
most recent available 6 month data period. Requests for rate adjustments must be subm
Manager 45 days prior to the beginning of a new calendar year.

Signed:

6/8/2018

Date

Roland Staib, President & CEO

Name and Title

System Integrator - Tiered Equipment Pricing

Item No.	Description	
TIERED EQUIPMENT PRICING		Unit
	On Board Validators, 1-10 quantity	EA
	On Board Validators, 11-20 quantity	EA
	On Board Validators, 21-50 quantity	EA
	On Board Validators, 51-100 quantity	EA
	On Board Validators, 100+ quantity	EA
	Driver Display Unit, 1-10 quantity	EA
	Driver Display Unit, 11-20 quantity	EA
	Driver Display Unit, 21-50 quantity	EA
	Driver Display Unit, 51-100 quantity	EA
	Driver Display Unit, 100+ quantity	EA
	Wayside Validators, 1-10 quantity	EA
	Wayside Validators, 11-20 quantity	EA
	Wayside Validators, 21-50 quantity	EA
	Wayside Validators, 51-100 quantity	EA
	Wayside Validators, 100+ quantity	EA
	Customer Service Terminal, 1-10 quantity	EA
	Customer Service Terminal, 11-20 quantity	EA
	Customer Service Terminal, 21-50 quantity	EA
	Full Featured Vending Machines, 1-2 quantity	EA
	Full Featured Vending Machines, 3-10 quantity	EA
	Full Featured Vending Machines, 11-20 quantity	EA
	Full Featured Vending Machines, 21-50 quantity	EA
	Full Featured Vending Machines, 51-100 quantity	EA
	Full Featured Vending Machines, 100+ quantity	EA
	Light Vending Devices, 1-2 quantity	EA
	Light Vending Devices, 3-10 quantity	EA
	Light Vending Devices, 11-20 quantity	EA
	Light Vending Devices, 21-50 quantity	EA
	Light Vending Devices, 51-100 quantity	EA
	Light Vending Devices, 100+ quantity	EA
	Training BIB - On Board Validator, 1-10 quantity	EA
	Training BIB - On Board Validator, 11-20 quantity	EA
	Training BIB - On Board Validator, 21-50 quantity	EA
	Training BIB - Wayside Validator, 1-10 quantity	EA
	Training BIB - Wayside Validator, 11-20 quantity	EA
	Training BIB - Wayside Validator, 21-50 quantity	EA
	Training BIB - CST Unit, 1-10 quantity	EA
	Training BIB - CST Unit, 11-20 quantity	EA
	Training BIB - CST Unit, 21-50 quantity	EA

[redacted]

5.2 Pricing Notes

The price changes highlighted above have been incorporated based on the feedback received in the Request for Revised Proposal (2018-02-16). They reflect changes in INIT's proposed technical solution and delivery of the system. While not every line item has been changed, all prices have been reevaluated based on our understanding of the Agencies needs and concerns and with INIT's overall commitment to the Next Generation ORCA project in mind.

INIT has removed the proposed management discount which will give both parties an opportunity to enter the negotiated procurement with the full breadth of costs on the table.

Below are notes that correspond to the numbers in the Pricing Form above.

1.01 Program and Contract Management

A detailed price breakdown of the separate components that make up the 3rd Party UI/UX Consultant, requested in Section 3.1.6 of the RFP, has been added. We have only added 10% to their price for risk, financing and handling.

The line for the Performance Bond has been removed and the cost has been distributed across the capital costs of the project.

1.05-1.09 Installations

These sections have been broken down to show equipment installation, commissioning and documentation. Commissioning was previously included in Section 1.01 Program Management, and Documentation for these items was included in Sections 1.12 and 1.13. Those line items show a decrease to account for the move.

Any civil works necessary to install vending machines such as control cabinets, etc. are not included unless otherwise stated in the proposal.

The price for Wayside Validator installations includes load, unload and commute time between sites.

1.10-1.14 Testing

INIT has reduced each line in this section through scope refinement and further cost analysis. In addition, labor efforts for System Engineering have been redistributed to Sections 2.19-2.27 System Integration Services.

Section 2: System Software Design

This section includes design, development and the one-time licenses for INIT's proprietary software including MOBILEvario (Account-based Transaction Processor) and MOBILEsymon (System Manager).

No discount is offered for agencies who currently use INIT's MOBILEsymon or MOBILEguard.

100 hours of report development is included in Line 2.01 Account Based Transaction Processor.

2.02 Customer Relationship Management

INIT's CRM solution assumes the price for 100 Salesforce licenses per month. This is an ongoing license fee assessed in Section 5: Software Maintenance Agreement.

2.05 Alternative Fare Media Management

The alternative fare media management solution described in Tab 1, Section 1.8.6 of the INIT proposal is priced below. This is a sample to show the cost of this alternative and is not the base solution nor is it included in the base contract of this proposal.

Item No.	SOW Ref.*	Description	Unit	Est. Qty
2.05	6	Alternative Fare Media Management Productive Solutions	LS	1
	System Operations and Maintenance			
5.12	8	Year 1 – System Operations & Maintenance	MO	12
5.13	8	Year 2 – System Operations & Maintenance	MO	12
5.14	8	Year 3 – System Operations & Maintenance	MO	12
5.15	8	Year 4 – System Operations & Maintenance	MO	12
5.16	8	Year 5 – System Operations & Maintenance	MO	12
5.17	8	Year 6 – System Operations & Maintenance	MO	12
5.18	8	Year 7 – System Operations & Maintenance	MO	12
5.19	8	Year 8 – System Operations & Maintenance	MO	12
5.2	8	Year 9 – System Operations & Maintenance	MO	12
5.21	8	Year 10 – System Operations & Maintenance	MO	12
5.22	8	Year 11 – System Operations & Maintenance	MO	12
5.23	8	Year 12 – System Operations & Maintenance	MO	12
		Subtotal - System Operations and Maintenance		
TOTAL PRICE – ALTERNATIVE FARE MEDIA MANAGEMENT WITH P SOLUTIONS				

[redacted]

2.06 Financial Management

INIT's Financial Management solution assumes 100 licenses for Sage per month. This is an ongoing license fee assessed in Section 5: Software Maintenance Agreement.

2.06 Alternative Financial Management

The alternative financial management solution described in Tab 1 Section 1.8.7 of the INIT proposal is priced below. This is a sample to show the cost of this alternative and is not the base solution nor is it included in the base contract of this proposal.

Item No.	SOW Ref.*	Description	Unit	Est. Qty
2.06	6	Alternative Financial Management Mythics - Oracle eBusiness	LS	1
	Software Maintenance Agreement			
5.01	8	Year 1 – Software Maintenance Agreement	MO	12
5.02	8	Year 2 – Software Maintenance Agreement	MO	12
5.03	8	Year 3 – Software Maintenance Agreement	MO	12
5.04	8	Year 4 – Software Maintenance Agreement	MO	12
5.05	8	Year 5 – Software Maintenance Agreement	MO	12
5.06	8	Year 6 – Software Maintenance Agreement	MO	12
5.07	8	Year 7 – Software Maintenance Agreement	MO	12
5.08	8	Year 8 – Software Maintenance Agreement	MO	12
5.09	8	Year 9 – Software Maintenance Agreement	MO	12
5.10	8	Year 10 – Software Maintenance Agreement	MO	12
5.11	8	Year 11 – Software Maintenance Agreement	MO	12
		Subtotal - Software Maintenance Agreement		
TOTAL PRICE – ALTERNATIVE FINANCIAL MANAGEMENT WITH ORACL				

2.07 Central Payment

As required in the RFP Section Two Scope of Work section 3.2.4.9, this price includes our Central Payment Processing API and does not include costs for the payment processor or payment gateway.

2.11 Customer Mobile App

The Customer Mobile App includes development and testing of the app based on results of the UI/UX specifications and the technical specifications of the RFP. There is no migration from the existing Bytemark system to the Next Generation ORCA system.

There are no transaction fees associated with the App, ongoing software maintenance is included in Sections 5.12-5.23.

2.12 Agency Mobile Apps (Fare Inspection and Fare Payment)

The Agency Mobile Apps includes development and testing of the apps based on results of the UI/UX specifications and the technical specifications of the RFP. In addition, NFC validation for Android is included.

2.13 Customer Website

The Customer Website includes Marathon's development and testing of the website based on results of the UI/UX specifications and the technical specifications of the RFP. Integration of the website and CRM tool is included in Section 2.02 Customer Relationship Management.

2.19-2.27 System Integration Services

The price of each line item in this section has been increased to include the redistribution of System Engineering efforts which were previously concentrated entirely in Sections 1.10-1.14 Testing.

If INIT is not appointed as the main contractor or system supplier, INIT can only accept technical responsibility for the creation and proper functioning of the components supplied by INIT for the interfaces to the third-party systems. Technical responsibility comprises the technical specifications and the test on the interfaces on the basis of the information and facilities made available. It does not include responsibility for third-party systems' interfaces functioning on schedule and perfectly.

Additional Agencies

INIT's robust system is capable of supporting the addition of the required five (5) additional agencies (Req. 3.3.11-4) however the costs for this are not included and could be determined in the future through a project change order.

Onboard Integrations

Onboard Integrations (Total Qty. 3) for Pierce Transit, Kitsap Transit and Everett Transit are priced in this section. As the CAD/AVL Supplier for Community Transit and King County Metro, our proposal includes the integration of these 2 systems with no additional costs to the ORCA program. The quantity of integrations listed on the price sheet have been modified to reflect this.

Integration with Legacy ORCA Back Office

This includes the integration development as described in the technical specifications of the RFP. This line does not include Vending Machine integration to the Vix legacy back-office.

Vanpool Integration Phase 1

Our proposal includes the price to integrate with the Vanpool system as required in RFP section 3.3.10. The full vanpool integration for Phase 2 is not included.

Washington State Ferries Integration

This includes the integration development as described in the technical specifications of the RFP. Other items such as testing and documentation specific to the WSF Integration are included in those line items.

3.02 - 3.03 Onboard Validator & Mounting System

The onboard validator proposed includes WiFi capability (Requirement 4.2.2.4-3) which accounts for it's $48.00 price difference from the Wayside Validator.

The optional Horizontal Mounting which is described in Section 1.6.1.1.3 Installation & Mounting is offered for an additional $47.00 USD per unit. A minimum quantity of 100 is required for this upgrade.

3.11 Full Feature Vending Machine

For tiered pricing per unit please see Section 5.1 Price Forms, Tiered Equipment Pricing.

3.11a – 3.11d FFVM Credits

The per unit credits offered for the omission of these functionalities apply to the FFVM only.

Light Vending Machine

This proposed small-scale machine does not offer change but will accept coins and bills and will issue one type of fare media.

For tiered pricing per unit please see Section 5.1 Price Forms, Tiered Equipment Pricing.

3.13 – 3.15 Training Equipment

The Training Equipment included a significant overestimation of costs and configuration efforts and have been revised accordingly.

Onboard Training Units include Qty 12 PROXmobil3, TOUCHit3, associated cables and housing, and configuration.

Wayside Validator Training Units include Qty 3 PROXmobil3, associated cables and housing, and configuration.

CST Training Units include Qty 7 CST hardware.

For tiered pricing per unit please see Section 5.1 Price Forms, Tiered Equipment Pricing.

Section 5: Operations and Maintenance Support Services

The chart below describes INIT's assumptions for the number of years associated with each project phase.

	2018 Year 0	2019 Year 1	2020 Year 2	2021 Year 3	2022 Year 4	2023 Year 5	2024 Year 6	2025 Year 7	2026 Year 8	2027 Year 9	2028 Year 10	2029 Year 11	2030 Year 12	2031 Year 13	2032 Year 14	2033 Year 15
Project Awarded	x															
Project Design		x														
Implemen-tation			x	x												
System Warranty					x											
Hosting			x	x	x	x	x	x	x	x	x	x	x	x	x	x
Software Maintenance						x	x	x	x	x	x	x	x	x	x	x
System Operations & Maintenance					x	x	x	x	x	x	x	x	x	x	x	x

Software Maintenance Agreement

An error in our calculation for this section had inconsistent and incorrect assumptions for annual escalation. The revised price reflects this correction. Maintenance for INIT software assumes a 2% annual escalation. Software included in this section consists of the Backoffice applications (Pricing Form Sections 2.01-2.10) and the Backoffice Environments (Pricing Form Section 6).

The full itemized list of software can be found in the Price Form Line 5.01. This list carries over the course of Years 2-11 with an escalation of 2%.

System Operations & Maintenance

The Operations and Maintenance section included an overestimation of scope requirements and efforts which have been revised accordingly. The ongoing costs included in this section are assumed to be:

- Agency Test Facility
- Hardware Maintenance and 24x7 System Support
- External Application Maintenance (Customer and Agency Apps, Websites)
- Support Staff (System Engineer, Network and Database Engineers, Program Management)

External Application Maintenance (Customer App) has been increased per month for Years 1-10 as described in section 2.11 Customer Mobile App.

System Warranty

The system warranty period will last for 12 months and begins upon Beneficial Use of the system. Beneficial use requires INIT is the system of record and 90% of the installations under INIT responsibility have occurred. At the end of this 12-month period, software maintenance begins.

System Hosting

Hosting Fees include the proposed System Backoffice applications and the mobile apps. The production and test system as well as disaster recovery location are all priced here. The datacenter proposed in Section 1.4.2.6 System Hosting (WOWRACK) will be responsible for the hardware and utilities. They will maintain the hardware and refresh every 3 years.

Section 6: Software Licenses (All Environments)

This section includes all licenses for the Backoffice environments and COTS IT software. This does not include the initial licenses for INIT's proprietary software. (Pricing Form Sections 2.01-2.10)

Section 7: Value Add Features and Capabilities

INIT is including Value-added Features such as Open Payments, Open APIs and Fare Capping in the base price of our proposal. For a detailed description of our potential value-added capabilities, please refer to Tab 6.

6 Proposed Payment Milestone Schedule

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Next Generation ORCA System Integrator RFP

Proposed Payment Milestone Schedule

Item No.	SOW Ref.*	Description	Project Phases															
			Design				Deployment					Transition	Testing			Final Testing and Closeout		Total
1. IMPLEMENTATION SERVICES			PMP	CDR	PDR	FDR	PAT	1st 25%	2nd 25%	3rd 25%	Final	ngORCA SoR	SILT	SIFT	Pilot	SAT	FSA	Total
	Program and Contract Management		Sep-18	Oct-18	May-19	Aug-19	Jan-20				Dec-21	Jul-21	Oct-20	Aug-21	Aug-21	Aug-22	Sep-22	Total
1.01	2	Program & Contract Management (NTP to System Acceptance)	**5.0%**	**5.0%**	**10.0%**	**10.0%**	**10.0%**					**10.0%**	**10.0%**	**10.0%**	**5.0%**	**15.0%**	**10.0%**	100.0%
		UI/UX Strategy, Consulting and Stakeholder Engagement	**25.0%**	**25.0%**	**25.0%**	**25.0%**												100.0%
		Ticket Vending Machine Interface	25.0%	25.0%	25.0%	25.0%												100.0%
		Customer Website Interface	25.0%	25.0%	25.0%	25.0%												100.0%
		Customer Website Interface	25.0%	25.0%	25.0%	25.0%												100.0%
		Customer Mobile App Interface	25.0%	25.0%	25.0%	25.0%												100.0%
		Other Interfaces	25.0%	25.0%	25.0%	25.0%												100.0%
		Tools, Participant Recruitment and Project Management	25.0%	25.0%	25.0%	25.0%												100.0%
	Installation and Transition Services																	
1.02	2	Transition Strategy and Planning		**10.0%**	**40.0%**	**50.0%**												100.0%
1.03	2	Back-Office Installation and Configuration, Including Documentation		**5.0%**	**10.0%**	**10.0%**							75.0%					100.0%
1.04	2	Field Device Site Surveys and Prototyping		5.0%	10.0%	10.0%	35.0%	10.0%	10.0%	10.0%	10.0%							100.0%
1.05a	2	Onboard Equipment (validator and DDU) Installation (Excluding KCM)		5.0%	10.0%	10.0%	35.0%	10.0%	10.0%	10.0%	10.0%							100.0%
1.05b	2	Onboard Equipment (validator and DDU) Commissioning (Excluding KCM)		5.0%	10.0%	10.0%	35.0%	10.0%	10.0%	10.0%	10.0%							100.0%
1.05c	2	Onboard Equipment Documentation (Excluding KCM)		5.0%	10.0%	10.0%							75.0%					100.0%
1.06	2	Onboard Validator Equipment Installation, Commissioning, and Documentation (KCM Only)		5.0%	10.0%	10.0%												
1.07a	2	Wayside Validator Installation		5.0%	10.0%	10.0%	35.0%	10.0%	10.0%	10.0%	10.0%							100.0%
1.07b	2	Wayside Validator Commissioning		5.0%	10.0%	10.0%	35.0%	10.0%	10.0%	10.0%	10.0%							100.0%
1.07c	2	Wayside Validator Documentation		5.0%	10.0%	10.0%							75.0%					100.0%
1.08a	2	VM Installation		5.0%	10.0%	10.0%	35.0%	10.0%	10.0%	10.0%	10.0%							100.0%
1.08b	2	VM Commissioning		5.0%	10.0%	10.0%	35.0%	10.0%	10.0%	10.0%	10.0%							100.0%
1.08c	2	VM Documentation		5.0%	10.0%	10.0%							75.0%					100.0%
1.09a	2	CST Installation		5.0%	10.0%	10.0%	35.0%	10.0%	10.0%	10.0%	10.0%							100.0%
1.09b	2	CST Commissioning		5.0%	10.0%	10.0%	35.0%	10.0%	10.0%	10.0%	10.0%							100.0%
1.09c	2	CST Documentation		5.0%	10.0%	10.0%							75.0%					100.0%
	Testing																	
1.10	2	Agency Test Facility Implementation, Housing, and Documentation											100.0%					100.0%
1.11	2	Factory Testing and Documentation											100.0%					100.0%
1.12	2	Integration Testing and Documentation												100.0%				100.0%
1.13	2	Pilot Testing and Documentation													100.0%			100.0%
1.14	2	System Acceptance Testing and Documentation														100.0%		100.0%
	Training																	
1.15	2	Training Course Development and Materials											100.0%					100.0%
1.16	2	Training Course Delivery											100.0%					100.0%
	Manuals																	
1.17	2	System Manuals											100.0%					100.0%
2. SYSTEM SOFTWARE DESIGN																		
	Back Office Applications																	
2.01	6	Account-based Transaction Processor		**5.0%**	**10.0%**	**10.0%**	75.0%											100.0%
2.02	6	Customer Relationship Management		5.0%	10.0%	10.0%	75.0%											100.0%
2.03	6	Asset Incident Management		5.0%	10.0%	10.0%	75.0%											100.0%
2.04	6	System Manager		5.0%	10.0%	10.0%	75.0%											100.0%
2.05	6	Fare Media Management		5.0%	10.0%	10.0%	75.0%											100.0%
2.06	6	Financial Management		5.0%	10.0%	10.0%	75.0%											100.0%
2.07	6	Central Payment		5.0%	10.0%	10.0%	75.0%											100.0%
2.08	6	Configuration and Change Management		5.0%	10.0%	10.0%	75.0%											100.0%
2.09	6	Tariff Management		5.0%	10.0%	10.0%	75.0%											100.0%
2.10	6	API Management		5.0%	10.0%	10.0%	75.0%											100.0%

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	Externally Sourced Applications																	
2.11	5	Customer Mobile App		**5.0%**	**10.0%**	**10.0%**							37.5%	37.5%				100.0%
2.12	5	Agency Mobile Apps (Fare Inspection & Fare Payment)		5.0%	10.0%	10.0%							37.5%	37.5%				100.0%
2.13	5	Customer Website		5.0%	10.0%	10.0%							37.5%	37.5%				100.0%
	Field Device and Equipment Software																	
2.14	4	Onboard and Wayside Validator Software		**5.0%**	**10.0%**	**10.0%**							37.5%	37.5%				100.0%
2.15	4	Driver Display Unit Software		5.0%	10.0%	10.0%							37.5%	37.5%				100.0%
2.16	4	Customer Service Terminal Software		5.0%	10.0%	10.0%							37.5%	37.5%				100.0%
2.17	4	Full Feature Vending Machine Software		5.0%	10.0%	10.0%							37.5%	37.5%	0.0%	0.0%	0.0%	100.0%
	API Development																	
2.18	3	Application Programming Interface (API) Development		**5.0%**	**10.0%**	**10.0%**							37.5%	37.5%				100.0%
	System Integration Services																	
2.19	3	Onboard Integration (PT, CT, KT, ET)		**5.0%**	**10.0%**	**10.0%**							37.5%	37.5%				100.0%
2.20	3	Onboard Integration (KCM)																
2.21	3	Washington State Ferries Integration		5.0%	10.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	37.5%	37.5%				100.0%
2.22	3	Data Access and Reporting Platform (DARe) Integration		5.0%	10.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	37.5%	37.5%				100.0%
2.23	3	Retail Network Integration		5.0%	10.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	37.5%	37.5%				100.0%
2.24	3	Integration with Legacy ORCA Back Office		5.0%	10.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	37.5%	37.5%				100.0%
2.25	3	ADA Paratransit Integration		5.0%	10.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	37.5%	37.5%				100.0%
2.26	6	Integration of Agency Provided CRM Application ($0 if SI-provided CRM application is proposed)					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
2.27	6	Integration of Agency Provided Financial Application ($0 if SI-provided financial application is proposed)					0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
		Vanpool Integration		5.0%	10.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	37.5%	37.5%				100.0%
	Transit Payment Application																	
2.28	7	Transit Payment Application											50.0%	50.0%				100.0%
3. EQUIPMENT AND SPARES																		
	Producion Equipment and Spares																	
3.01	4	Back Office Hardware - Four Environments ($0.00 if cloud is proposed)																
3.02	4	Onboard Validator (including spares)		**5.0%**	**10.0%**	**10.0%**	37.5%				37.5%							100.0%
3.03	4	Onboard Validator Mounting System and Installation Kit (including spares)		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.04	4	Driver Display Unit (including spares)		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.05	4	Driver Display Unit Mounting System and Installation Kit (including spares)		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.06	4	Wayside Validator (including spares)		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.07	4	Wayside Validator Mounting System and Installation Kit (including spares)		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.08	4	Customer Service Terminal (including spares)		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.09	4	CST Portable Printer		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.10	4	CST Mail Center Printer		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.11	4	Full Feature Vending Machine (including spares)		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.11a	4	Credit for omission of bill and coin acceptance																
3.11b	4	Credit for omission of coin acceptance																
3.11c	4	Credit for omission of change issuance																
3.11d	4	Credit for omission of media issuance																
		Light Vending Machine		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
	Test Equipment																	
3.12	2	Agency Test Facility Hardware - Seven Agencies		**5.0%**	**10.0%**	**10.0%**	37.5%				37.5%							100.0%
	Training Equipment																	
3.13	2	On-board Training Unit (BIB) - including validator, DDU and other SI equipment)		**5.0%**	**10.0%**	**10.0%**	37.5%				37.5%							100.0%
3.14	2	Wayside Training Unit - including wayside validator		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
3.15	2	CST Training Unit		5.0%	10.0%	10.0%	37.5%				37.5%							100.0%
4. FARE MEDIA																		
	Fare Media																	
4.01	7	Contactless Extended-use Smart Cards (including training and test cards)					50.0%				50.0%							100.0%
6. SOFTWARE LICENSES																		
6.01	3	Software Licenses - All Environments		5.0%	10.0%	10.0%	75.0%											100.0%

Value Added Features

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

Resubmittal March 23, 2018

The Future of Mobility

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CONFIDENTIAL SECTIONS:

6.3 Ready for the future – With a fully Open Payments ready system included in the Base System!

6.4 Unique System Features – Only Available with INIT's Automatic Fare Collection System

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6.4.b Increase Participation in Institutional Programs and Facilitate New Transit Partnerships

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6.11.7 Fare capping and other loyalty programs

6.11.8 Integration with Other Transportation Providers

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6 Value Added Features

6.1 Introduction

The next generation ORCA project team is seeking a strong and reliable partner that can deliver, fully integrate and operate a high quality regional fare collection system. INIT's product suite and our experience as a System Integrator is the perfect match providing exceptional Value Add and unique System Features.

This document should outline unique features and explicit strength of INIT's fare collection solution. We think that certain components of our system, e.g. the very strong API platform, are unique to INIT and will provide additional value to the project, even if the feature itself is in the Statement of Work.

Having implemented more than fifty Electronic Fare Collection Systems, our system has advanced and matured based on a strong cooperation with our worldwide community of Transit Agencies. With INIT being a leading vendor in Automated Fare Collection and Intelligent Transportation Systems (ITS), INIT is uniquely qualified to understand your needs.

The following sections of this document highlight unique Added Values and Benefits with INIT:

- Swift and Dependable Implementation – INIT is the Preferred Provider of Account Based AFC Systems
- Unique System Features – With INITs most advanced Fare Collection System
- Ready for the Future – Open Payments developed and included in the Base System
- Real Flexibility in Technology – INIT provides open API's to Simplify Integration
- Environmental Value – Waste Management
- Knowledge Sharing – Engaged INIT Customers
- Minimizing Costs, Risks and Delivery Time – Engineered in Germany, Made in America
- Local to Seattle – INIT knows the Puget Sound region
- Future Oriented – Constant Refresh of Ideas

6.2 Swift and Dependable Implementation – Unique Knowledge in Account Based Systems

No other AFC vendor is implementing and integrating "state of the art" Account Based Automated Fare Collection Systems at the high level and expertise that INIT is currently providing. After a very thorough analysis of your RFP, we are pleased to state that your requirements are very similar to our on-going implementations of the Automated Fare Collection projects listed below. Due to the similarity in scope and design featuring Account Based Systems, Open APIs and more, INIT will be able to provide a fast and reliable implementation of the next generation ORCA system.

All components offered are based on proven technology. Building on the Portland HOP FastPass implementation, as well as recent fare system projects, INIT can significantly reduce the risk and accelerate the implementation process.

Account Based INIT Fare Collection Systems:

- Portland OR (700 vehicles, 400 platform validators) – In revenue service
- Grand Rapids MI (150 vehicles and 35 platform validators)
- Honolulu HI (550 vehicles, 110 Ticket Vending Machines, 139 Faregates)
- Tampa FL (629 vehicles)
- Turku Finland (260 vehicles) – in revenue service
- Rhode Island Providence Transit Agency (200)

6.3 Ready for the Future – With Full Open Payments Ready System Included in the Base System!

INIT's account-based AFC system is designed with Open Payments included in the base system. With Open Payments, customers can use their contactless credit cards or mobile wallets like Apple Pay, Android Pay and Samsung Pay to purchase their ticket right at the validator. No need to get a card, download an App or search for change. This lowers the entry barrier to use public transit tremendously and makes it especially easy for non-frequent riders like tourists.

They can simply use a preferred payment medium that they already possess, and they don't have to worry about potentially unused credit balances. The benefit to the ORCA agencies are the savings of media inventory administration costs and the complex accounting management of remaining credit balances.

The AFC system proposed for the next generation ORCA project will include Open Payments functionality and could be implemented in Phase One of the project.

See chapter 6.11.4 of this document for further details.

6.4 Unique System Features – Only Available with INIT's Automatic Fare Collection System

6.4.4 EMV and Other Standards (deleted)

[redacted]

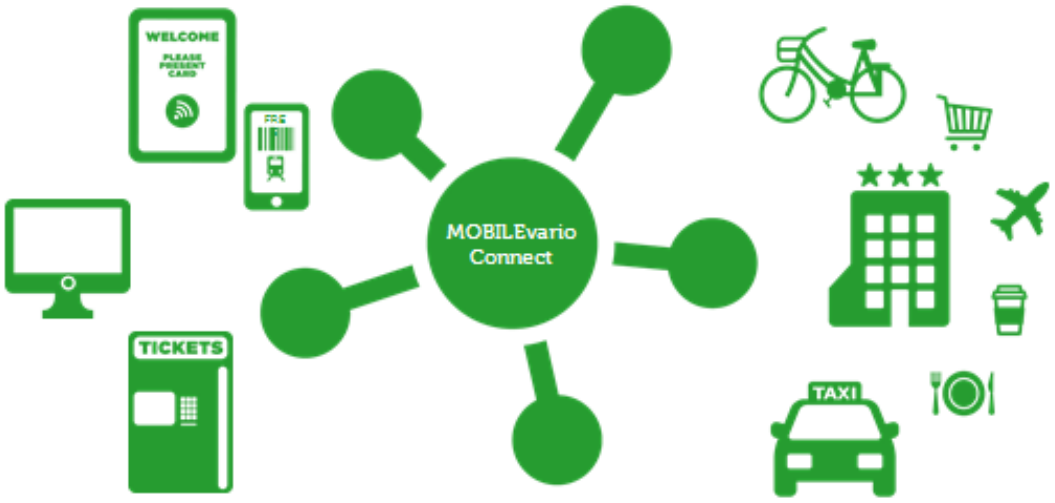
[redacted]the health status of the components is monitored centrally and actions can therefore easily be dispatched.

INIT's Proximity Reader PROXmobil3

6.5 Real Flexibility in Technology – INIT provides Open API's

The INIT AFC solution offers a seamless experience for riders and the Transit Agency. We provide an integrated end-to-end system, which is tailored to your individual requirements.

Our Open APIs (Application Programming Interfaces), used by multiple transit agency customers, give the Agency the freedom to easily grow your system and integrate new technologies or third party COTS solutions.



Integrating Multiple Parties through open API's

The open back-office system architecture combined with the flexible tariff solutions and the multi-client capability allows integration of different modes of transport into one system.

All modes of public transport as well as other transport modes such as car-sharing, bike-sharing, taxis, parking as well as road tolling can be integrated into INIT's account-based ticketing solution. This results in more convenience to customers since only one subscription is needed to use all modes of transportation. This enables users of the next generation ORCA system to use e.g. bike sharing options without any additional registration which reduces the entry barriers tremendously. Likewise other transportation services can be integrated into a multi-modal mobility account. All this is done via open Application Programming Interfaces (APIs), which enables the integration of 3rd party service providers and even hardware into the ticketing system and distribution network.

6.6 Environmental Value – Waste Management

INIT is a socially responsible business partner with a unique approach to fostering sustainability as a part of our company's corporate philosophy. We see transit as intrinsically "green," and have consequently aimed to make direct contributions to our community through an ongoing commitment to sustainability.

6.6.1 Zero Waste Initiative

What began as a simple recycling mission at INIT's corporate office located in Chesapeake, VA rapidly grew into a full-blown strategy to become a certified zero-waste-to-landfill company. Zero-waste-to-landfill means everything we use is reduced, reused, recycled or composted.

6.6.2 Partnership with TFC Recycling

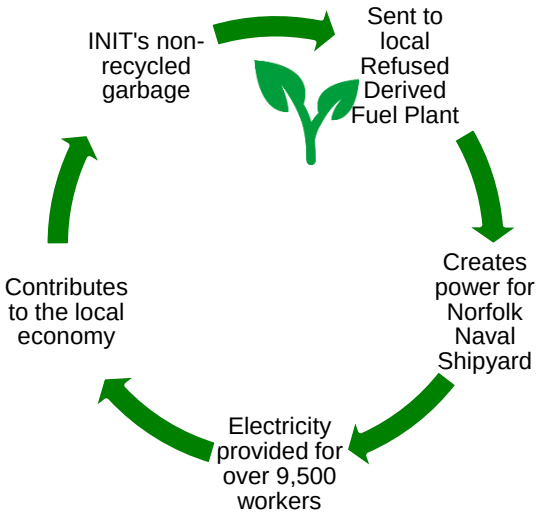
An important step for INIT was to partner with TFC Recycling, a leader in the collection, processing and marketing of recyclable materials and management of solid waste through innovative material recovery. TFC offers a single stream recycling process and provides an economically friendly solution for non-recyclable trash.

Non-recyclable, non-compostable garbage is sent to the Refuse Derived Fuel Plant, a local facility that treats and burns the waste for the creation of energy. This allows us to contribute to the local economy by providing the fuel for electricity to power the Norfolk Naval Shipyard which employs over 9,500 workers.

6.6.3 Community Impact

By the first year, 593 pounds of paper towel usage was eliminated through the use of hand dryers. The impact on the environment is calculated to be the equivalent of 11 trees with an estimated decrease in the company's carbon footprint of 69%.

The zero waste to Landfill Certification also compelled INIT to become a business member signatory on the APTA Sustainability Committee.



6.7 Knowledge Sharing with Engaged Customers

INIT hosts a User Group conference annually as well as Customer Forum and Educational-Instructional webinars and on a monthly basis, these are explained in more detail below.

6.7.1 INIT Working Group

INIT's Working Group meeting have been replace with the Interactive Webinars and Customer Forums described below.

6.7.2 INIT User Group Conference

The INIT User Group Conference is held annually; however, keep in mind that the Conference location alternates between a North American Transit Agency Host location and a European location. The User Group Conference focuses on Managers and Senior Leadership. The topics relate more to strategy and effective application rather than daily usability. If a customer has a maintenance agreement, then up to 4 attendees will have their Conference expenses covered by INIT. After the 4th attendee, all others receive a 10-20% discount on registrations. Any other expenses for additional attendees are carried by the Transit Agency, e.g. hotel, travel and any non-INIT provided meals.

6.7.3 Interactive Webinars and Customer Forums

INIT hosts Monthly "20 Minutes with INIT" webinars. This year we are focused on projects. https://www.initse.com/ende/us/news-events/knowledge-database/articles/2017/20-minutes-with-init-webinars.html. The monthly webinars cover hot industry topics followed by a question and answer period where you can discuss any operational issues you may want to discuss with INIT engineers as well as your agency peers. Check out the webinar schedule and register to

automatically receive an invite! In addition to the Webinars we also host an INIT Customer Forum – here we store webinar recordings, presentations and such. This is for customers to talk to each other. https://forum.initusa.com

6.8 Minimizing Costs, Risks and Delivery Time

INIT's equipment is German designed and engineered and manufactured at INIT's state of the art manufacturing facility in Chesapeake VA. The equipment is of the highest quality, which significantly increases its reliability and reduces the cost of ownership. The INIT solution is based on existing and proven technology already deployed at multiple Transit Agencies around the world, which reduces project risk, the cost to design, implement and deploy the solution and ultimately allows INIT to deliver the next generation ORCA project **on time and on budget.**

6.9 Local to Seattle – INIT knows the Puget Sound region

INIT's Western Regional office is located in the heart of Seattle at Pioneer Square. The office was established here more than 10 years ago and serves as the main office for all INIT personnel working on projects at Seattle area Transit Agencies and in the western USA.

6.10 Future Oriented – Constant Refresh of Ideas

INIT works with local Universities and Research facilities to develop and implement the latest leading edge innovations. New technological trends such as "Be-In-Be-Out" technologies are constantly assessed and discussed in multiple working groups and forums. In combination with a constant dialogue with our customers, trade show participations and more the INIT system is in a process of constant improvement.

6.11 ORCA Next Phase and Potential Future Projects

6.11.1 Expansion to Other Agencies

The requirement to expand a fare collection system to other agencies is a very familiar request for INIT. Many of our existing AFC customers, such as the Transit Agencies in Sacramento CA and in Munich Germany have added additional Agencies to their system post installation.

All INIT applications are built to support multi-agency environments without the limitation of a maximum number of agencies. Since the Tariff is highly configurable by the Agency, there is most likely no system change required when adding an additional agency.

The schedule drivers for integrating the agency are:

- Number of vehicles / platforms to be installed

- Integration effort with existing CAD/AVL system or Fare Box (if applicable)
- Complexity of the transfer rules connected to the agency

6.11.2 Full Vanpool Integration

For the HART AFC project in Honolulu, INIT is installing mobile validators based on cellphone technology the Agency's paratransit vehicles. These low cost validators are portable and could easily be installed within the agencies' vanpool cars. The concept would be that the vanpool user taps his or her card whenever they board and leave the vehicle. The distance travelled could be calculated based on the GPS coordinates and the account could be charged the appropriate fare automatically.

INIT is aware that a Vanpool integration would require a change in major business rules for the Vanpool system. As such, we would need detailed discussions around this topic to further explore if this would be a feasible option. As part of this discussion INIT would gather the technical requirements and discuss with our internal development teams. Using this information, coupled with the current integration of ngORCA, INIT would be able to detail the full costs and associated schedule impact. Unfortunately, without further technical clarification, low level detail is not possible at this time. That said, INIT's understanding of the current Vanpool implementation is that the system is quite extensive and utilizes methods which vary or deviate from the ORCA implementation. In light of that very high-level understanding as well as the known business rules changes required, this would be a complex change.

The RFP lists two components as part of the 'Full Vanpool Integration': the billing and reporting function and a bookkeeping mobile app.

Currently INIT does not have a full vanpool management system in its product portfolio. But this could be integrated as an additional feature of the MOBILEvario suite so that the complete management and the billing and reporting could be performed in the INIT system. In addition INIT has experience with public apps that are built in-house. So it would be possible to build a bookkeeping mobile app in-house too.

Detailed technical discussions would be required to determine scope and schedule impact for this effort.

6.11.3 Paratransit Integration with Scheduling Systems

In Portland, INIT and TriMet integrated TriMet's Paratransit scheduling system from Trapeze Pass into the HOP FastPass system. Paratransit users may register their HOP card with their Paratransit account and choose their HOP card as the standard payment method. As soon as the paratransit ride is successfully performed, the account will automatically be charged with the fare calculated by the background system. The integration was realized with the Open

Architecture APIs and therefore would not require any system changes in the INIT background system.

Schedule drivers for the integration of Paratransit are:

- There are only minimal configuration changes needed in the background system (e.g. a new sales channel 'Paratransit' needs to be added). All changes required can be performed in a matter of days
- Main driver: implementation effort on the Paratransit Scheduling software side

6.11.4 Acceptance of Open Payments

INIT offers to implement Open Payments functionality on the validators in Phase 1 of the next generation ORCA project without any additional costs or impact to the schedule. Open Payments is currently in operation within the INIT Hop Fastpass system in the Portland region.

A requirement to realize the Open Payments without additional costs or schedule impact would be to use [redacted] as a payment gateway in combination with one of the certified [redacted] processors. INIT already has all certifications to achieve this solution.

All transaction costs connected to the Open Payment transactions are not part of this proposal.

6.11.5 Limited Use Fare Media

The HOP FastPass System in Portland uses paper based limited-use fare media cards with NXP Ultralight 'C' chips for their TVMs and sale at all ticket offices. If compatible technology is used (e.g. Ultralight 'C' cards), the INIT validators and the backend system are prepared to accept limited-use fare media without any system changes.

Schedule drivers for the integration:

- No changes needed on the INIT back-office side if a compatible technology with compatible encoding is used
- TVMs would need to be equipped with a limited-use ticket dispenser

6.11.6 Acceptance of Third-Party Issued Cards

There are multiple ways to accept third-party issued cards. Two examples of third-party issued card realization can be found in the HOP FastPass project in the Portland area:

Bullet point deleted

- Portland Public School (PPS): PPS issued their own cards with their customized printed logo. The cards are pre-encoded with the HOP FastPass card application before they are delivered to PPS for distribution to students and staff

Both implementations happened without any system changes needed on the INIT backend or validator side and would be available to the next generation ORCA system without any INIT system changes.

Other concepts to accept third-party issued cards:

- Use UID as account identifier: The easiest way (but the least secure way) to accept third-party cards is using the Unique card ID as an account identifier. Further security discussions would need to happen to further explore this option
- Use existing unique identifier stored on the card: If the card schema can be exchanged, a unique identifier that is already stored on the card (e.g. student ID) could be used as the transit account identifier. In this case a key exchange with the provider of the cards would be needed to be able to authenticate the cards
- Write additional fare application on the third-party card: the closed-loop fare application that is written to the INIT proposed DESfire cards could be written to a third-party issued card as a second application. Writing the application to the card may happen when the card is issued or afterwards (e.g. using a special software / card reader in the ORCA service center). A key exchange with the issuing agency would be needed to write to the card and authenticate the card.

6.11.7 Fare capping and other loyalty programs

Fare capping is a standard feature of the INIT account based background system MOBILEvario and therefore can be included from day one.

6.11.8 Integration with Other Transportation Providers

Using INIT's Open Architecture APIs, integration with other transportation providers like bike share is possible. INIT and TriMet are currently working on the integration of bike lockers and bike share in the Portland region using the HOP card system. Bike locker integration was already successfully realized in INIT's fare collection project in Luxembourg. Since the integration complexity can vary tremendously, it is not possible to estimate any schedule drivers without further discussing the scope.

6.11.8.1 Luxembourg Bike Locker integration

For the Luxembourg project INIT realized an integration with the loal bike locker provider. Every bike locker has a validator installed. Customers that want to use the bike lockers load a special bike locker pass to their card.

Once the card is tapped on the validator and a valid product is available, the validator communicates with the electronic door lock and opens the door.

Luxembourg Bike Locker integration

6.11.8.2 Portland/Vancouver Bike Share and Bike Locker integration

For the HOP Fastpass project in the Portland area, INIT is working with TriMet and the local bike share provider to provide an integration to their bike share system (Biketown) and to the bike lockers provided by TriMet.

The bike locker integration is very similar to the Luxembourg integration project (see last chapter). The difference is that a newer validator model (PROXmobil3 instead of PROXmobil2) and that an account based instead of a card based approach will be used.

For the bike share integration with Biketown, the HOP card will be used as the identifier to unlock the bikes. Instead of tapping the Biketown card, customers will be able to register their HOP Fastpass to their Biketown account. After the registration process the HOP Fastpass can be used as the account identifier when renting a bike. Payment will still be handled in the Biketown system.

Commitment to and Compliance with Equal Employment Opportunity Law

An Innovative Systems Integrator for Next Generation ORCA

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The Future of Mobility

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CONFIDENTIAL SECTIONS:

7.1 Commitment to Diversity

7.2 Diversity Efforts and Commitment

7.2.4 Current Diversity Metrics

7.2.5 Linda Keith – Responsible for overseeing adherence to EEO laws

7.3 Init's Equal Employment Opportunity / Affirmative Action Policy

7 INIT's Workforce: A Commitment to Inclusion and Diversity

The continued excellence of INIT is largely dependent upon our ability to attract, develop, and retain highly skilled, talented, and motivated employees. An essential element in maintaining this is the recognition of the value of a diverse workforce. Characteristics such as age, culture, ethnicity, gender, race, religious preference, sexual orientation, gender expression, and the expression of unique philosophies and ideas provide the opportunity to better understand each other. This understanding will strengthen the efficiency and productivity of the workforce, whose primary objective is to provide excellent service to the Company.

7.1 Commitment to Diversity

Below please find a table detailing the diversity of our ngORCA and local teams:

INIT's Commitment to Diversity				
	Proposal Team	**Project Team**	**INIT Seattle**	**INIT USA**
Minorities	3	3	21%	27%
Women	6	5	29%	23%
Staff with Disabilities	*	*	*	*

Note: Does not include subcontractors identified in this proposal

Regarding staff with disabilities, we have not maintained comprehensive statistics on individuals with disabilities until recently and may have been undercounting those we accommodate for. As of January 1, 2018 INIT, implemented a procedure in which we will, going forward, obtain information as to prospective employees in the hiring process as well as current employees as to their disability status, minority status and veteran status. Response to such inquiry will be voluntary. However, as a firm, INIT values all individuals and provides them whatever resources and accommodations are required for them to have a productive and enjoyable career with our firm. These can be temporary for a short term requirement or long term if it's a permanent need.

7.2 Diversity Efforts and Commitment

Wherever INIT operates, we create a team that represents the current and future diversity of the area. We are proud to have our second largest North American office located in Seattle, Washington, to take advantage of the rich diversity available across the Puget Sound region. We've hired staff from many varied backgrounds, both professionally and personally to create a team that represents the overall area.

7.2.1 INIT, an Equal Opportunity Employer

On or about November 1, 2017 INIT implemented an Equal Employment Opportunity/Affirmative Action Plan for Individuals with Disabilities, Protected Veterans, Minorities and Females. All of these documents are available upon request; however, due to the confidential nature of some of the salary data contained in these documents, we ask that your EEO office reach out to Linda Keith, our Vice President and Chief Financial Officer who is responsible for overseeing Human Resources and INIT's adherence to EEO laws and policies. Ms. Keith can be reached at 757-413-9100 extension 307 or emailed at LKeith@INITusa.com.

These documents will ensure what already is an established policy within INIT, namely equal employment opportunity for all person, in all phases of INIT's operations, without regard to race, religion, color, sex, sexual orientation, gender identity, national origin, age, physical or mental disability, or status as a disabled veteran or other protected veterans.

7.2.2 How INIT meets our EEO Objectives

Effort's INIT makes to ensure that we provide equal employment opportunities are accomplished by endeavoring to meet the following goals:

- Attract and retain qualified individuals from diverse backgrounds who are committed to the continued excellence of INIT
- Encourage an environment that fosters a diverse workforce in terms of age, culture, ethnicity, gender, race, religious preference, sexual orientation, gender expression, and the expression of unique philosophies and ideas
- Provide all employees the opportunity for professional development and personal growth
- Expect that all employees will treat each other with dignity and respect
- Uphold all applicable federal, state, and local laws and regulations

INIT provides "EEO Tag Line" in all solicitations for applicants; in addition an EEO clause is implemented in our documents such as e.g. our purchase orders. With our soon to be implemented online hiring process we will notify State ESDS of hiring opportunities.

Recently, we've started a new college hire program which takes advantage of regional higher education institutions and their ability to meet our growing needs. In 2018 we expect to expand this to an internship program that targets the regions youth who want to combine their skills and their passions into learning more about a career in transit technology. We have, and will continue to apply the same commitment to a diverse workforce and an inclusive culture to these programs.

With this experience and dedication to a team which brings out the best in all of our collective backgrounds, we feel that we can both be respectful of one's background but also leverage it for project successes.

7.2.3 How INIT Creates Diverse Teams

INIT strives to bring our EEO goals into the creation of our project teams. On similar projects in size and scale to ngORCA, we do this by ensuring a team reflective of the culture and diversity mirroring that of our client. This involves hiring in the local area and bringing resources to live in the area for the duration of the project. This works to ensure that cultural boundaries can be removed, and that our teams do their best to reflect the region in which they are working.

7.2.4 Current Diversity Metrics

All of our fare collection projects (TriMet, Tampa, Grand Rapids, Honolulu), similar to this scope of work, require a mid to large size team, and in all instances we apply the same approaches.

INIT's Commitment to Diversity		
	INIT Seattle	**INIT USA**
Minorities	21%	27%
Women	29%	23%

7.2.5 Linda Keith – Responsible for overseeing adherence to EEO laws

Linda Keith, Vice President and Chief Financial Officer, is responsible for overseeing Human Resources and INIT's adherence to EEO laws and policies. In carrying out the recently implemented Affirmative Action Plan she will receive the requisite support of senior management necessary to execute the assignment and the staff and time to administer the program. The specific responsibilities include, but is not limited to, the following:

1. Continue developing policy statements and Affirmative Action Plans;
2. Assisting in the identification of problem areas;
3. Assisting management in arriving at effective solutions to problems;
4. Designing and implementing audit systems that will:
    a. measure effectiveness of INIT's programs;
    b. determine the degree to which the company placements goals and objectives have been attained;
    c. determining whether minorities and women have the opportunity to participate in all INIT-sponsored educational, training, recreational, and social activities; and
    d. ensure that INIT is in compliance with Executive Order 11246 and all regulations promulgated thereunder.
5. Serving as a liaison between INIT and enforcement agencies.
6. Serving as a liaison between INIT and minority organizations, women's organizations, and other community actions groups concerned with employment opportunities of minorities, women and other protected groups.

7. Ensuring that required compliance information is properly displayed.
8. Ensuring that all INIT facilities are desegregated.
9. Ensuring that minority, women and other protected groups of employees are afforded full opportunity to, and are encourage to, participate in all INIT-sponsored educational training, recreation, and social activities.

In addition, we would like to mention that, as an executive of the company for over 15 years, Linda has lead INIT's commitment to diversity and growing our diverse workforce for over 15 years. Linda will ensure that employment actions regarding staffing and managing the work will be carried out in a nondiscriminatory manner. As already mentioned, across our entire management team, each leader is expected to adhere not to the goals of diversity, but the culture of inclusion as well. Being an inclusive workforce makes for a richer organization serving our incredibly diverse clients across North America.

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7.3 INIT's Equal Employment Opportunity / Affirmative Action Policy

INIT's EQUAL EMPLOYMENT OPPORTUNITY/ AFFIRMATIVE ACTION POLICY:

INIT Innovations in Transportation, Inc. ("INIT") maintains a continuing policy of nondiscrimination in employment. It is our policy to provide equal opportunity in all phases of the employment process and in compliance with applicable federal, state, and local laws and regulations. This policy of nondiscrimination shall include, but not be limited to, the following employment decisions and practices: hiring; upgrading; promotions; demotions or transfers; layoffs; recalls; terminations; rates of pay or other forms of compensation; selection for training, including apprenticeship; and recruitment or recruitment advertising.

INIT will not discharge, or in any other manner discriminate against employees or applicants because they have inquired about, discussed, or disclosed their own pay or the pay of another employee or applicant. However, employees who have access to the compensation information of other employees or applicants as a part of their essential job functions cannot disclose the pay of other employees or applicants to individuals who do not otherwise have access to compensation information, unless the disclosure is (a) in response to a formal complaint or charge, (b) in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or (c) consistent with INIT's legal duty to furnish information.

Employees and applicants of INIT will not be subjected to any form of harassment, discrimination, or retaliation for exercising rights protected by, or because of their participation in, an investigation or compliance review related to Title VII of the Civil Rights Act of 1964, the Age Discrimination in Employment Act, the Americans with Disabilities Act, Executive Order 11246, Section 503 of the Rehabilitation Act of 1973, the Vietnam Era Veterans' Readjustment Assistance Act of 1974, the Veterans Employment Opportunities Act of 1998, or any other federal or state nondiscrimination law, rule, or regulation.

INIT also maintains an affirmative action program to implement our equal employment opportunity policy. If you have any questions with regard to our policy or our program please contact Katharina Brekke Powers, Associate General Counsel during normal business hours.

[redacted]

Roland Staib, CEO & President,
INIT Innovations in Transportation, Inc.

An Innovative Systems Integrator for Next Generation ORCA

An Innovative Systems Integrator for Next Generation ORCA

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CONFIDENTIAL SECTIONS:

8.1 Small Businesses and DBE's Contacted

8.1.1 [redacted], President - GO Systems and Solutions LLC, Business Analyst

8.1.2 Anthro-Tech – UI/UX Consultant

8.1.3 ESP Enterprises – Vehicle, Wayside Validators and VM Installation Services

8.1.4 West Sound Workforce – CST Installers and more

8.1.5 [redacted] Consulting – Technical Writer

8.1.6 Edco Incorporated – Machine Shop

8.3 Approach for Monitoring/Mentoring and Supporting

8.5 DBE/Small Business Participation

8 INIT's Contribution towards Progressive Business Practices

INIT has a history of working with DBE's to provide goods and services on many of our Automated Fare Collection and Computer Aided Dispatch projects. We typically search for DBE's for roles such as Assistant Project Managers, Electrical Contractors, Vehicle Installation Services and more.

For this ngORCA opportunity, we have reached out to local businesses as described below.

Firstly, we searched the http://www.omwbe.wa.gov/directory-of-certified-firms website looking for firms in the greater Seattle area that we could reach out to become part of the team. We identified three (3) firms representing Electrical Contractors, Fleet Maintenance services, Traffic signal and street lighting contractors. Detailed in Form 4 are the results of our contact with these firms.

Secondly we called contacted the SBA's Seattle District Office [redacted] for advise on contacting other DBE's in the greater Seattle area. We were lead to the Washington Procurement Technical Assistance Center.

Finally we contacted [redacted] a Government Contracting Specialist with the Washington Procurement Technical Assistance Center. Working with [redacted], we were able to post the following request to send with their next email newsletter blast.

"INIT Innovations in Transportation is looking for qualified DBE's and SBA's for a project that will commence 4th quarter 2018. This is a large opportunity in the Seattle area requiring many skills and talents. We realize that firms may not have specific experience in the areas listed below but we are willing to train, mentor and supervise firms with applicable experience. Services we have identified that may be useful include:

- Assistant Project Managers
- Server Test facility electrical build out
- Administration overhead such as receptionist and cleaning services
- Technical writers
- Oracle consulting
- Building lessee
- Technical documentation requiring CAD skills
- Software test automation (scripts with release reports)
- Network Architecture design
- Vending Machine Installation and Testing
- Installation of equipment and devices on vehicles
- Voice Talent
- Accounting services with Oracle experience

Please reply to [redacted] In your reply, please provide contact information, DBE status, website, office location, number of full –time employees, certifications, specific area of expertise from the list above along with specific experience that are applicable. Failure to provide the above information will be considered unresponsive. We look forward to receiving your information no later than October 1st, 2017."

We were contacted by 6 firms as a result of our ad. The results of our subsequent contact with these firms is detailed in Form No. 4.

In addition, we used personal contacts to look for DBE firms that could fill the requirement for a UI/UX consultant, Business Analyst and Installation Services.

A weakness cited was:

- Some of the firms contacted appear to be a stretch for qualifying for Form 4:
- 1 cleaning services (also not DBE)
- 4 CAD services (not needed)
- One "provided company information":
- One just checked website

INIT worked hard to identify potential DBE's and initially identified many efforts as can be seen in the ad we placed shown above. If a company contacted us or we reached out to a company due to our own research, they were included on Form 4. Some companies that contacted us were simply not qualified and we determined that the logistics of outsourcing CAD services was not in the best interest of a successful project.

In addition, in this resubmittal, we went back and identified that we could use the services of a contract manufacturer and a technical writer. You will see B[redacted]Consulting and Edco Incorporated added below.

It should be noted that Anthro-tech, West Sound Workforce and [redacted]Consulting are local to Seattle and Endo Incorporated is in nearby Mount Vernon.

Please see an additional Form 4 completed (5 of 5)

8.1 Small Businesses and DBE's Contracted

8.1.1 [redacted], President - GO Systems and Solutions LLC, Business Analyst

[redacted]

[redacted] has a strong background in transit projects, and will bring her knowledge and experience with Puget Sound's transit evolution [redacted]' experience consulting in the region.

[redacted] will be a major contributor leading INIT's business analysis efforts and is responsible for ensuring clear and agreed to specifications for all elements of INIT's integration efforts.

8.1.2 Anthro-Tech – UI/UX Consultant

Anthro-Tech will support this effort in by ensuring a seamless and consistent experience across all user touchpoints including: websites, mobile app, vending machines and validators. Anthro-Tech will provide a User Experience Strategist to direct and manage the user-centered design activities, integrate the research and design work and manage stakeholder and customer input throughout the design and development process.

Anthro-Tech's Design Researcher will conduct quantitative and qualitative customer research to understand customer needs and evaluate the ease of use of interfaces. They will also design and conducts market and user research surveys, focus groups, stakeholder interviews, web analytics data, usability tests, field research and other activities to develop actionable design concepts and solutions based on customer research findings.

8.1.3 ESP Enterprises – Vehicle, Wayside Validators and VM Installation Services

As the company we have selected to aid in the installation of equipment, ESP Enterprises will be an integral part of the Transition Plan. ESP Enterprises is experienced in the installation and subsequent testing of INIT equipment on-board buses and streetcars as well as wayside installation of Vending Machines, validators, signs and more. Working in several 4 man crews at times when their installation services will minimally impact operations or the riding public, ESP will perform their services during an extended stay in the region. Included in section titled "Knowledge and Recent Experience of Key Individuals" and the Appendix are the resumes on ESP Enterprises key staff members.

8.1.4 West Sound Workforce – CST Installers and more

Although, ESP Enterprises could also perform this service, we wanted to contract with a local firm for installation of the Customer Service Terminals (CST). This will provide the ORCA agencies a resource for setup and teardown of CST's for special events and other occasions. We also envision their services for possible troubleshooting and repair services.

INIT also will be relying on West Sound Workforce for an administrative assistance to assist with the additional workload at our Seattle office during the deployment of the ngORCA system and possibly beyond. We have also discussed utilizing their services for custodial maintenance.

8.1.5 [redacted] Consulting – Technical Writer

For the review and editing of our technical documentation, we have selected Babinec Consulting, a technical writing form. Babinec Consulting LLC is a 100% woman-owned business and certified DBE (WA State/Federal Programs) formed in March 2017 by two sisters, [redacted] and [redacted], both subject matter experts with a combined 40+ years of experience in their complimentary fields. We provide exceptional business management consulting services that enhance and advance our client's business success. We also help our clients realize their full potential and achieve mutually agreed upon desired outcomes. We dedicate ourselves to providing subject matter expertise and timely, superior end products that fulfill the client's stated goals. [redacted] Consulting LLC devotes itself to offering innovative thinking, nurturing genuine partnerships, and championing the beliefs that accuracy, reliability, honesty, and trustworthiness will never be obsolete. Finally, our combined areas of expertise include the following:

- Technical Writing & Editing, Medical Writing & Editing, Copywriting, Copyediting, Substantive Editing, Line Editing, Proofreading, Instructional & Online Curriculum Design, Peer Review, Quality Assessment (Curriculum & Publishing), Grant Writing/Editing (CDC, NIH, etc.), and Educational Marketing
- Contract Risk Analysis & Management
- Contract Drafting, Review, & Negotiation
- Training: Risk Management, Trade Compliance, Contract Negotiation, Specialized Curriculum (project management fundamentals, ethics, process development, Train the Trainers, etc.)
- Strategic Planning & Procurement, Cradle-to-Grave RFX, RFX Planning, Scope Development, Implementation, Analysis, & Supplier Selection

8.1.6 Edco Incorporated – Machine Shop

For our requirement to provide new mast for the PROXmobile3 validators, we have selected Edco, an experienced machine shop. EDCO, INC. is located in Mount Vernon Washington, and is Certified by American Institute of Steel Construction (AISC) for Steel Building Structures (STD Certification) and Bridge and Highway Components (CPT Certification).

EDCO, INC. has been a contract manufacturer of unique industrial equipment for customers all over the world since 1976. EDCO's work has been a diverse mix of projects for The Boeing Company, the US Navy (both direct and subcontracted), Alcoa, Team, Hexel, construction firms such as CDM Smith and Kiewit, and a wide variety of customers from all across diverse industries. EDCO is a full service contract manufacturer supporting design, engineering, project management, material procurement, welding, machining, assembly, testing, and logistics. Their

team has earned respect by providing high quality service and quick turnaround. Over 90% of their work is with repeat customers.

Since just 2010, we have completed over:

- 500 projects for The Boeing Company
- 200 projects for Alcoa
- 175 project for Electroimpact
- 115 projects for Harbor Offshore
- 75 projects direct to US Navy/SAIC

8.2 Experience and Approach to managing diverse teams

As leading providers of Intelligent Transit Systems, INIT's Project Managers [redacted] our Western Regional Director, have extensive experience working with Small Businesses on projects of similar size. As the prime contractor, INIT frequently shares resources with our subcontractors. This includes office space, transportation, test equipment, and specialty tools while always providing the bulk of materials so that we can maintain quality.

8.3 Approach for Monitoring/Mentoring and Supporting

The reviewer is correct that we did not address how we will support each Small Business we selected to participate in this effort.

The verbiage originally submitted is specific to ESP Enterprises for installation service and reflects how we typically work with our Small Business Installer.

As you can see on Form 3B and in the corporate profile of the companies we selected, these are highly qualified companies that will make significant contribution to project success. These companies are selected for the contribution they bring to the effort and require little if any monitoring and mentoring. As such, below please find how we will support these DBE's

Quality from our subcontractors is paramount.

In support of our selected installation company ESP Enterprises, INIT provides extensive training and documentation before the installation begin. During mini-fleet installs, INIT system engineers work alongside the installation crews to make sure their installation instructions are understandable and clear. In addition, we provide all materials and parts provided in a kit with barcodes clearly identifying the vehicle type or wayside installation location to reduce the error of the team installing the wrong equipment on the wrong vehicle or location. . In addition to detailed written work instructions we also provide written test procedures to check and verify the quality of their work.

[redacted], who will be helping us as a Business Analyst is an example where we have selected a highly capable individual. With Paula's extensive transit experience and the prominent role she is filling, she will support us more than we will support her. INIT's project manager will be overseeing her work and will certainly make sure she has the resources required for her to succeed at her efforts.

Project Management will be the most critical method of supporting Anthro-Tech, our Ui/UX consultant. Anthro-Tech was selected because of their expertise so the most important way we can support them is to make sure ByteMark, Marathon, Persistent and INIT developers work closely with Anthro-Tech in a timely manner.

INIT will support West Sound Workforce in much the same way we will support ESP Enterprises. We will provide written installation instructions, test procedures and kits as well as have INIT Systems Engineers work alongside them for as many installations as necessary to assure quality work.

In support of [redacted] Consulting, we will provide office space allowing them to work side by side with our Systems Engineers.

In support of Edco Incorporated, INIT's System Engineers will provide complete documentation in support of this contract manufacturing effort.

8.4 Responsibility for overseeing success

[redacted] INIT's Western Regional Director based out of our Seattle office is responsible for engaging and overseeing our small business efforts as they relate to the ngORCA project. [redacted] [redacted] our Implementation Lead will provide direct supervision for [redacted]

8.5 DBE/Small Business Participation

INIT efforts have resulted in a DBE/Small Business Participants Goal of 14.46 % calculated using the base without extended Operations and Maintenance.

Exclusivity: INIT has not established exclusivity with any of the DBE firms proposed.

Certificate Of Completion

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Subject: Sound Transit contract for signature RP 0
Source Envelope:
Document Pages: 1119
Certificate Pages: 2
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Envelope Originator:
Ashley Bowman
401 S Jackson St
Seattle, WA 98104
ashley.bowman@soundtransit.org
IP Address: 162.248.186.11

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Signer Events	Timestamp
Linda Keith lkeith@initusa.com Vice President & CFO Security Level: Email, Account Authentication (None)	Sent: 9/28/2018 4:11:52 PM Viewed: 9/28/2018 5:23:31 PM Signed: 9/28/2018 5:24:27 PM
Electronic Record and Signature Disclosure: Not Offered via DocuSign	
Roland Staib rstaib@initusa.com Pres& CEO Security Level: Email, Account Authentication (None)	Sent: 9/28/2018 4:11:53 PM Viewed: 9/28/2018 4:47:17 PM Signed: 9/28/2018 4:49:47 PM
Electronic Record and Signature Disclosure: Not Offered via DocuSign	
Amy Jo Pearsall amy.pearsall@soundtransit.org Security Level: Email, Account Authentication (None)	Sent: 9/28/2018 5:25:22 PM Viewed: 10/1/2018 7:49:06 AM Signed: 10/2/2018 9:40:36 AM
Electronic Record and Signature Disclosure: Not Offered via DocuSign	
Mike Harbour mike.harbour@soundtransit.org Security Level: Email, Account Authentication (None)	Sent: 10/2/2018 9:41:01 AM Viewed: 10/2/2018 11:46:18 AM Signed: 10/2/2018 11:48:42 AM
Electronic Record and Signature Disclosure:	

Signer Events	Signature	Timestamp
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In Person Signer Events	Signature	Timestamp

Editor Delivery Events	Status	Timestamp

Agent Delivery Events	Status	Timestamp

Intermediary Delivery Events	Status	Timestamp

Certified Delivery Events	Status	Timestamp
Eric Linxweiller elinxweiler@initusa.com Security Level: Email, Account Authentication (None)	VIEWED Using IP Address: 174.21.144.143	Sent: 9/28/2018 4:11:52 PM Viewed: 9/28/2018 4:33:11 PM

Electronic Record and Signature Disclosure:
Not Offered via DocuSign

Carbon Copy Events	Status	Timestamp

Notary Events	Signature	Timestamp

Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	10/2/2018 9:41:01 AM
Certified Delivered	Security Checked	10/2/2018 11:46:18 AM
Completed	Security Checked	10/2/2018 11:48:42 AM

Payment Events	Status	Timestamps